शिक्षा संकाय

कुमाऊँ विश्वविद्यालय

पाठ्यक्रम समिति 2024

दिनांक 23 जुलाई 2024

Faculty of Education

Kumaun University, Nainital

Board of Studies (B.O.S.)

Faculty of Education

Kumaun University, Nainital

SCHEME OF EXAMINATION AND COURSES OF STUDY

For

Four Years

Integrated Teacher Education Programme (ITEP)

(PREPARATORY STAGE)

B.Sc.-B.Ed.

B.A.- B.Ed.

B.Com.- B.Ed.

Integrated Teacher Education Programme (ITEP)
KumaunUniversity,Nainital- Pin 263001

पाठ्य समिति–शिक्षा शास्त्र

क्रमांक	नाम	पदनाम	हस्ताक्षर
01	प्रो0 अतुल जोशी संकायाध्यक्ष–शिक्षा शास्त्र कुमाऊँ विश्वविद्यालय,नैनीताल	संयोजक	23/7/2024
02	प्रो0धनंजय जोशी कुलपति दिल्ली शिक्षक विश्वविद्यालय, पी–625 एवं 745, औटरम लाइंस, नई दिल्ली	बाह्य विशेषज्ञ	
03	प्रो0 भीमा मनराल संकायाध्यक्ष–शिक्षा शास्त्र सोबन सिंह जीना विश्वविद्यालय, अल्मोड़ा	बाह्य विशेषज्ञ	23/07/2024
04	प्रो0रमा मैखुरी विभागाध्यक्ष–शिक्षा शास्त्र एच0एन0बी0 गढ़वाल केन्द्रीय विश्वविद्यालय, श्रीनगर, उत्तराखण्ड।	बाह्य विशेषज्ञ	
05	संकायाध्यक्ष विज्ञान संकाय,कला संकाय,वाणिज्य संकाय,दृष्य कला संकाय कुमाऊँ विश्वविद्यालय, नैनीताल।	विशेष आमंत्रित सदस्य	
06	विभागाध्यक्ष विभिन्न विभाग–कला एवं विज्ञान संकाय डी0एस0बी0 परिसर, नैनीातल।	विशेष आमंत्रित सदस्य	

संकाय मण्डल –शिक्षा शास्त्र

क्रमांक	नाम	पदनाम	हस्ताक्षर
01	प्रो0 अतुल जोशी संकायाध्यक्ष–शिक्षा शास्त्र कुमाऊँ विश्वविद्यालय,नैनीताल	संयोजक	
02	प्रो0 आर0एस0 पथनी, सेवानिवृत्त संकायाध्यक्ष एवं विभागाध्यक्ष शिक्षा संकाय, कुमाऊँ विश्वविद्यालय, नैनीताल।	बाह्य विशेषज्ञ	23.07.24
03	प्रो0 सीमा धवन, एच0एन0बी0 केन्द्रीय विश्वविद्यालय श्रीनगर, गढ़वाल	बाह्य विशेषज्ञ	
04	प्रो0 हनीत गॉधी, विश्वविद्यालय ऑफ दिल्ली।	बाह्य विशेषज्ञ	Joined online

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23/07/2024

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SYLLABUS EXPERT COMMITTEE

S.N.	Name	Signature
1	**Prof. Bheema Manral** Dean and Head Faculty of Education, Soban Singh Jeena, University Almora	
2	**Dr. Ganesh Datt** Assistant Professor RIE, Ajmer	
3	**Prof. M. C. Joshi** Head Department of Mathematics, D. S. B. Campus, Kumaun University Nainital	
4	**Prof. Sanjay Pant** Head Department of Physics, D. S. B. Campus, Kumaun University Nainital	
5	**Prof. Chitra Pandey** Dean and Head Department of Chemistry, D. S. B. Campus, Kumaun University Nainital	
6	**Prof. H.C.S. Bisht** Head Department of Zoology, D. S. B. Campus, Kumaun University Nainital	
7	**Prof. S. S. Bargali** Head Department of Botany, D. S. B. Campus, Kumaun University Nainital	
8	**Prof. L. M. Joshi** Head Department of English, D. S. B. Campus, Kumaun University Nainital	
9	**Prof. Nirmala Bora (Dhaila)** Head Department of Hindi, D. S. B. Campus, Kumaun University Nainital	
10	**Prof. Jyoti Joshi** Head Department of Sociology, D. S. B. Campus, Kumaun University Nainital	
11	**Prof. Sanjay Ghildiyal** Head Department of History, D. S. B. Campus, Kumaun University Nainital	
12	**Prof. Neeta Bora** Head Department of Political Science, D. S. B. Campus, Kumaun University Nainital	
13	**Prof. Rajnish Pande** Head	

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	Department of Economics, D. S. B. Campus, Kumaun University Nainital	
14	**Prof. M.S. Mawri** Dean & Head Department of visual Art (Drawing and Painting) D. S. B. Campus, Kumaun University Nainital	
15	**Dr. Santosh Kumar** Head Department of Physical Education D. S. B. Campus, Kumaun University Nainital	
16	**Prof. Atul Joshi** Dean and Head Department of Commerce **Dean of Education,**D. S. B. Campus, Kumaun University Nainital	

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SYLLABUS PREPARATION COMMITTEE

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1.	**Dr. Bhupesh Chandra Pant** Head of Department Department of Education, D. S. B. Campus, Kumaun University Nainital	
2.	**Prof. Bimal Pande** Professor Department of Physics, D. S. B. Campus, Kumaun University Nainital	
	Dr. Rajkumar Department of Physics, D. S. B. Campus, Kumaun University Nainital	
3.	**Dr. Ashok Upreti** Department of Education, D. S. B. Campus, Kumaun University Nainital	
	Dr. Hem Chandra Joshi Department of Botany, D. S. B. Campus, Kumaun University Nainital	
4.	**Mr. Laxman Singh** Department of Education, D. S. B. Campus, Kumaun University Nainital	
	Dr. Saroj Sharma Department of Education, D. S. B. Campus, Kumaun University Nainital	
5.	**Mrs. Deepika Bhatt** Department of Education, D. S. B. Campus, Kumaun University Nainital	
	Dr. Sunil Chaniyal Department of Mathematics, D. S. B. Campus, Kumaun University Nainital	
6.	**Mrs. Varsha Pant** Department of Education, D. S. B. Campus, Kumaun University Nainital	
	Dr. Girish Kharakwal Department of Chemistry, D. S. B. Campus, Kumaun University Nainital	
7.	**Dr. Deepika Goshwami** Department of Zoology, D. S. B. Campus, Kumaun University Nainital	
	Dr. Divya Pangtey Department of Zoology, D. S. B. Campus, Kumaun University Nainital	
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	Prof. Shirish Kumar Maurya Professor Department of Hindi, D. S. B. Campus, Kumaun University Nainital	

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10.	**Dr. Pushpa Adhikari** Department of Education, D. S. B. Campus, Kumaun University Nainital	
	Dr. Harish Chandra Mishra Department of Sociology, D. S. B. Campus, Kumaun University Nainital	
11.	**Mrs. Akansha Shaily** Department of Education, D. S. B. Campus, Kumaun University Nainital	
	Dr. Hardesh Kumar Department of Political Science, D. S. B. Campus, Kumaun University Nainital	
12.	**Prof. Sanjay Tamta** Professor Department of History, D. S. B. Campus, Kumaun University Nainital	
	Dr. Manoj Singh Bafila Department of History, D. S. B. Campus, Kumaun University Nainital	
13.	**Dr. Jitendra Kumar Lohani** Department of Economics, D. S. B. Campus, Kumaun University Nainital	
	Dr. Daleep Kumar Department of Economics, D. S. B. Campus, Kumaun University Nainital	
	Dr. Richa Ginwal Department of Economics, D. S. B. Campus, Kumaun University Nainital	
14.	**Dr. Jeewan Chandra Upadhyay** Department of Commerce, D. S. B. Campus, Kumaun University Nainital	
	Dr. Vinod Kumar Joshi Department of Commerce, D. S. B. Campus, Kumaun University Nainital	

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COURSE STRUCTURE AND SCHEME OF EXAMINATION

SEMESTER I

Courses	Paper Code	Course/Paper	Credits Division (L+T+P)	Total Credits	External Marks (T+P)	Internal Marks	Max. Marks	Exam Duration
SIP	SIP	Induction Programme for Two Weeks	-	-	-	-	-	-
Foundation of Education (FE)	FE-101	Evolution of Indian Education	3+1+0	4	70	30	100	3 Hrs.
Disciplinary/Interdisciplinary Courses	MTH-101	Sets, Theory of Equations and Trigonometry	3+1+0	4	70	30	100	3 Hrs.
	MTH-102	Vector Calculus and Matrices	3+1+0	4	70	30	100	3 Hrs.
	PHY-101	Mechanics	3+0+1	4	50+20=70	30	100	3 Hrs.
	PHY-102	Electricity	3+0+1	4	50+20=70	30	100	3 Hrs.
	CHE-101	Fundamentals of Chemistry-I (Inorganic & Physical Chemistry)	3+0+1	4	50+20=70	30	100	3 Hrs.
	CHE-102	Fundamentals of Chemistry-II (Organic Chemistry)	3+0+1	4	50+20=70	30	100	3 Hrs.
	BOT-101	cytology, microbes and fungi	3+0+1	4	50+20=70	30	100	3 Hrs.
	BOT-102	algae, bryophytes and pteridophytes	3+0+1	4	50+20=70	30	100	3 Hrs.
	ZOO-101	Animal Diversity I	3+0+1	4	50+20=70	30	100	3 Hrs.
	ZOO-102	Animal Diversity II	3+0+1	4	50+20=70	30	100	3 Hrs.
	ENG-101	Introduction to English Prose (Fiction)	3+1+0	4	70	30	100	3 Hrs.
	ENG-102	Introduction to English Prose (Non-Fiction)	3+1+0	4	70	30	100	3 Hrs.
	HIN-101	प्राचीन एवं मध्यकालीन काव्य भाग–1	3+1+0	4	70	30	100	3 Hrs.
	HIN-102	प्राचीन एवं मध्यकालीन काव्य भाग–2	3+1+0	4	70	30	100	3 Hrs.
	POL-101	Basic Concepts of Political Science (Part: I)	3+1+0	4	70	30	100	3 Hrs.
	POL-102	Basic Concepts of Political Science (Part: II)	3+1+0	4	70	30	100	3 Hrs.
	SOC-101	Introductory Sociology	3+1+0	4	70	30	100	3 Hrs.

	SOC-102	Man and Society	3+1+0	4	70	30	100	3 Hrs.
	HIS-101	History of India (Earliest time to 600 BC)	3+1+0	4	70	30	100	3 Hrs.
	HIS-102	History of India (600 BC to 300 AD)	3+1+0	4	70	30	100	3 Hrs.
	ECO-101	Basics of Micro-Economics - I	3+1+0	4	70	30	100	3 Hrs.
	ECO-102	Basics of Micro-Economics – II	3+1+0	4	70	30	100	3 Hrs.
	COM-101	Financial Accounting	3+1+0	4	70	30	100	3 Hrs.
	COM-102	Business Regulatory Framework	3+1+0	4	70	30	100	3 Hrs.
Ability Enhancement & Value-Added Courses	AEVA-101	Language-I	3+1	4	70	30	100	3 Hrs.
	AEVA-102	Art Education (Performing and Visual)	1+1	2	35	15	50	2 Hrs.
	AEVA-103	Understanding India (Indian Ethos and Knowledge System)	1+1	2	35	15	50	2 Hrs.
Total Credits				20	Total Marks 500			

COURSE STRUCTURE AND SCHEME OF EXAMINATION

SEMESTER II

Courses	Paper Code	Course/Paper	Credits Division (L+T+P)	Total Credits	External Marks (T+P)	Internal Marks	Max. Marks	Exam Duration
Disciplinary/Interdisciplinary Courses	MTH-201	Coordinate Geometry	3+1+0	4	70	30	100	3 Hrs
	MTH-202	Analytical Geometry	3+1+0	4	70	30	100	3 Hrs
	MTH-203	Mathematics I	3+1+0	4	70	30	100	3 Hrs
	PHY-201	Theory of Oscillation and Waves	3+0+1	4	50+20=70	30	100	3 Hrs
	PHY-202	Magnetism	3+0+1	4	50+20=70	30	100	3 Hrs
	PHY-203	Basic Physics-I	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-201	Fundamentals of Chemistry-I (Inorganic & Physical Chemistry)	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-202	Fundamentals of Chemistry-II (Organic Chemistry)	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-203	Basics Of Chemistry	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-201	Gymnosperms and Taxonomy of Angiosperms	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-202	Plant Physiology and Ecology	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-203	Plant Science	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-201	Lower Chordata	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-202	Higher Chordata	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-203	Animal Diversity	3+0+1	4	50+20=70	30	100	3 Hrs
	ENG-201	History of English Literature (From Chaucer To Restoration Period)	3+1+0	4	70	30	100	3 Hrs
	ENG-202	History of English Literature (From Augustan To Postmodern Period)	3+1+0	4	70	30	100	3 Hrs
	ENG-203	Creative Writing	3+1+0	4	70	30	100	3 Hrs
	HIN-201	हिन्दी कथा साहित्य भाग–1	3+1+0	4	70	30	100	3 Hrs

	HIN-202	हिन्दी कथा साहित्य भाग–2	3+1+0	4	70	30	100	3 Hrs
	HIN-203	कुमाऊँनी संस्कृति एवं भाषा	3+1+0	4	70	30	100	3 Hrs
	POL-201	Comparative Politics	3+1+0	4	70	30	100	3 Hrs
	POL-202	Major Constitutions of the World	3+1+0	4	70	30	100	3 Hrs
	POL-203	Awareness With Civic Rights	3+1+0	4	70	30	100	3 Hrs
	SOC-201	Indian Social System	3+1+0	4	70	30	100	3 Hrs
	SOC-202	Society in India	3+1+0	4	70	30	100	3 Hrs
	SOC-203	Industrial Sociology	3+1+0	4	70	30	100	3 Hrs
	HIS-201	History of India (300AD to 800AD)	3+1+0	4	70	30	100	3 Hrs
	HIS-202	History of India (800AD to 1200AD)	3+1+0	4	70	30	100	3 Hrs
	HIS-203	Indian Society and Culture Through the Ages	3+1+0	4	70	30	100	3 Hrs
	ECO-201	Basics of Macro-Economics	3+1+0	4	70	30	100	3 Hrs
	ECO-202	Economy of Uttarakhand	3+1+0	4	70	30	100	3 Hrs
	ECO-203	Fundamentals of Economics	3+1+0	4	70	30	100	3 Hrs
	COM-201	Business Statistics	3+1+0	4	70	30	100	3 Hrs
	COM-202	Business Environment	3+1+0	4	70	30	100	3 Hrs
	COM-203	Business Organization & Management	3+1+0	4	70	30	100	3 Hrs
Ability Enhancement & Value-Added Courses	AEVA-201	Language-II	3+1+0	4	70	30	100	3 Hrs.
	AEVA-202	Understanding India (Indian Ethos and Knowledge System)	1+1+0	2	35	15	50	2 Hrs.
	AEVA-203	Teacher and Society	1+1+0	2	35	15	50	2 Hrs.
Total Credits				20	Total Marks 500			

COURSE STRUCTURE AND SCHEME OF EXAMINATION

SEMESTER III

Courses	Paper Code	Course/Paper	Credits Division (L+T+P)	Total Credits	External Marks (T+P)	Internal Marks	Max. Marks	Exam Duration
Foundation of Education	FE-301	Child Development & Educational Psychology	3+1+0	4	70	30	100	3 Hrs.
Disciplinary/Interdisciplinary Courses	MTH-301	Differential Calculus	3+1+0	4	70	30	100	3 Hrs
	MTH-302	Integral Calculus	3+1+0	4	70	30	100	3 Hrs
	MTH-303	Mathematics II	3+1+0	4	70	30	100	3 Hrs
	PHY-301	Thermodynamics	3+0+1	4	50+20=70	30	100	3 Hrs
	PHY-302	Heat Transfer, Kinetic Theory of Gases and Statistical Physics	3+0+1	4	50+20=70	30	100	3 Hrs
	PHY-303	Basic Physics-II	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-301	Transition Elements, Coordination chemistry & Thermodynamics	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-302	Chemistry Of Halides, Alcohol, Phenol & Ether	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-303	Fundamentals of Chemistry	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-301	Plant Biochemistry And Physiology	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-302	Biotechnology & Molecular Biology	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-303	Plant Science-II	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-301	Cell Biology and Genetics	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-302	Molecular Biology & Histology	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-303	Lower Chordata	3+0+1	4	50+20=70	30	100	3 Hrs
	ENG-301	British Poetry: Elizabethan to Neo-Classical Era	3+1+0	4	70	30	100	3 Hrs
	ENG-302	British Poetry: Romantic to Modern Era	3+1+0	4	70	30	100	3 Hrs

	ENG-303	Introduction to Poetic forms in English	3+1+0	4	70	30	100	3 Hrs
	HIN-301	रीतिकालीन काव्य एवं काव्यांग विवेचन	3+1+0	4	70	30	100	3 Hrs
	HIN-302	हिन्दी भाषा–स्वरूप	3+1+0	4	70	30	100	3 Hrs
	HIN-303	लोक साहित्य	3+1+0	4	70	30	100	3 Hrs
	POL-301	Introduction to Political Theory	3+1+0	4	70	30	100	3 Hrs
	POL-302	Foundations of Western Political Thought	3+1+0	4	70	30	100	3 Hrs
	POL-303	Issues of Women's Empowerment	3+1+0	4	70	30	100	3 Hrs
	SOC-301	Social Problems and Disorganization	3+1+0	4	70	30	100	3 Hrs
	SOC-302	Social Problems in India	3+1+0	4	70	30	100	3 Hrs
	SOC-303	Applied Sociology	3+1+0	4	70	30	100	3 Hrs
	HIS-301	History Of India from 1200ad to 1526ad	3+1+0	4	70	30	100	3 Hrs
	HIS-302	World History from mid15th Century To 1648 A.D.	3+1+0	4	70	30	100	3 Hrs
	HIS-303	Research Methodology in History	3+1+0	4	70	30	100	3 Hrs
	ECO-301	Basics of Public Finance-I	3+1+0	4	70	30	100	3 Hrs
	ECO-302	Money & Banking-I	3+1+0	4	70	30	100	3 Hrs
	ECO-303	Fundamental of Economic System	3+1+0	4	70	30	100	3 Hrs
	COM-301	Cost Accounting	3+1+0	4	70	30	100	3 Hrs
	COM-302	Business Economics	3+1+0	4	70	30	100	3 Hrs
	COM-303	Auditing	3+1+0	4	70	30	100	3 Hrs
Stage Specific Content- Cum-Pedagogy Courses	SSCPC-301	General Pedagogy: Basic of Pedagogy at Preparatory Stage	3+1+0	4	70	30	100	3 Hrs.
Total Credits				20	Total Marks 500			

COURSE STRUCTURE AND SCHEME OF EXAMINATION

SEMESTER IV

Courses	Paper Code	Course/Paper	Credits Division (L+T+P)	Total Credits	External Marks (T+P)	Internal Marks	Max. Marks	Exam Duration
Foundation of Education	FE-401	Philosophical & Sociological Perspectives of Education – I	3+1+0	4	70	30	100	3 Hrs.
Disciplinary/Interdisciplinary Courses	MTH-401	Ordinary Differential Equations	3+1+0	4	70	30	100	3 Hrs
	MTH-402	Partial Differential Equations	3+1+0	4	70	30	100	3 Hrs
	MTH-403	Differential Equations	3+1+0	4	70	30	100	3 Hrs
	PHY-401	Geometrical Optics	3+0+1	4	50+20=70	30	100	3 Hrs
	PHY-402	Physical Optics	3+0+1	4	50+20=70	30	100	3 Hrs
	PHY-403	Basic Electricity and Magnetism	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-401	Acid, Base & Inner Transition Elements	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-402	Aldehyde, Ketones & Carboxylic Acids	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-403	General Chemistry-I	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-401	Genetics & Plant Breeding	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-402	Biostatistics & Environmental Biology	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-403	Plant Science- III	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-401	Animal Behaviour & Microbiology	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-402	Development Biology Of Vertebrates	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-403	Higher Chordata	3+0+1	4	50+20=70	30	100	3 Hrs
	ENG-401	Women's writing in English literature	3+1+0	4	70	30	100	3 Hrs
	ENG-402	Indian literature in translation	3+1+0	4	70	30	100	3 Hrs
	ENG-403	Professional communication in English	3+1+0	4	70	30	100	3 Hrs
	HIN-401	हिन्दी नाटक	3+1+0	4	70	30	100	3 Hrs
	HIN-402	स्मारक साहित्य	3+1+0	4	70	30	100	3 Hrs

	HIN-403	लोक साहित्य	3+1+0	4	70	30	100	3 Hrs
	POL-401	Foundations of Indian Political Thought	3+1+0	4	70	30	100	3 Hrs
	POL-402	Indian Political System	3+1+0	4	70	30	100	3 Hrs
	POL-403	Human Rights	3+1+0	4	70	30	100	3 Hrs
	SOC-401	Social Control	3+1+0	4	70	30	100	3 Hrs
	SOC-402	Means And Agencies of Social Control	3+1+0	4	70	30	100	3 Hrs
	SOC-403	Data Presentation in Social Research	3+1+0	4	70	30	100	3 Hrs
	HIS-401	History Of India 1526 Ad to 1756 AD	3+1+0	4	70	30	100	3 Hrs
	HIS-402	World History 1648 AD -1815 AD	3+1+0	4	70	30	100	3 Hrs
	HIS-403	History of Nationalism in Modern India (1857-1947AD)	3+1+0	4	70	30	100	3 Hrs
	ECO-401	Basics Of Public Finance-II	3+1+0	4	70	30	100	3 Hrs
	ECO-402	Money & Banking-II	3+1+0	4	70	30	100	3 Hrs
	ECO-403	Indian Economy & Economy of Uttarakhand	3+1+0	4	70	30	100	3 Hrs
	COM-401	Management Accounting	3+1+0	4	70	30	100	3 Hrs
	COM-402	Basic Business Finance	3+1+0	4	70	30	100	3 Hrs
	COM-403	Corporate Legal Framework	3+1+0	4	70	30	100	3 Hrs
Stage Specific Content- Cum- Pedagogy Courses	SSCPC-401	Content cum Pedagogy of L1 at Preparatory Stage – Course (I)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-402	Content cum Pedagogy of L2 at Preparatory Stage – Course (I)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-403	Content cum Pedagogy of Mathematics at Preparatory Stage – Course (I)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-404	Content cum Pedagogy of World Around Us at Preparatory Stage - Course (I)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-405	Content cum Pedagogy of Arts at Preparatory Stage - Course (I)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-406	Content cum Pedagogy of Physical Education and Yoga- Course (I)	1+1+0	2	35	15	50	2 Hrs.
Total Credits				20	Total Marks 500			

COURSE STRUCTURE AND SCHEME OF EXAMINATION

SEMESTER V

Courses	Paper Code	Course/Paper	Credits Division (L+T+P)	Total Credits	External Marks (T+P)	Internal Marks	Max. Marks	Exam Duration
Disciplinary/Interdisciplinary Courses	MTH-501	Abstract Algebra	3+1+0	4	70	30	100	3 Hrs
	MTH-502	Linear Algebra	3+1+0	4	70	30	100	3 Hrs
	MTH-503	Theory of Equations	3+1+0	4	70	30	100	3 Hrs
	PHY-501	Quantum Mechanics	3+0+1	4	50+20=70	30	100	3 Hrs
	PHY-502	Basic Electronics	3+0+1	4	50+20=70	30	100	3 Hrs
	PHY-503	Basics of Heat Transfer	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-501	Transition Metal Complexes & Organometallic Chemistry	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-502	Nitrogen Containing Compounds, Reagent & Biomolecules	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-503	General Chemistry-II	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-501	Plant Morphology & Anatomy	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-502	Plant Developmental Biology	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-503	Plant Science- IV	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-501	Elementary Entomology & Ichthyology	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-502	Elementary Biotechnology & Biological Techniques	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-503	Environmental Science & Basic Concepts of Ecology	3+0+1	4	50+20=70	30	100	3 Hrs
	ENG-501	Introduction to English Literature and Film	3+1+0	4	70	30	100	3 Hrs
	ENG-502	Partition Literature	3+1+0	4	70	30	100	3 Hrs
	ENG-503	Regional Literature with Special Reference to Literature of Uttarakhand	3+1+0	4	70	30	100	3 Hrs
	HIN-501	द्विवेदी युगीन काव्य	3+1+0	4	70	30	100	3 Hrs
	HIN-502	छायावादी काव्य	3+1+0	4	70	30	100	3 Hrs

	HIN-503	प्रयोजनमूलक हिन्दी	3+1+0	4	70	30	100	3 Hrs
	POL-501	Major Theories of International Politics	3+1+0	4	70	30	100	3 Hrs
	POL-502	Introduction To Major Political Ideologies	3+1+0	4	70	30	100	3 Hrs
	POL-503	Local Self-Government	3+1+0	4	70	30	100	3 Hrs
	SOC-501	Development Of Sociological Thought	3+1+0	4	70	30	100	3 Hrs
	SOC-502	Social Change	3+1+0	4	70	30	100	3 Hrs
	SOC-503	Social Change in India	3+1+0	4	70	30	100	3 Hrs
	HIS-501	History Of India from 1757ad to 1857ad	3+1+0	4	70	30	100	3 Hrs
	HIS-502	World History 1815-1914 Ad	3+1+0	4	70	30	100	3 Hrs
	HIS-503	History Of Journalism in India (Up to 1947)	3+1+0	4	70	30	100	3 Hrs
	ECO-501	International Economic-I	3+1+0	4	70	30	100	3 Hrs
	ECO-502	Structure And Problems of Indian Economy-I	3+1+0	4	70	30	100	3 Hrs
	ECO-503	Vital Statistics	3+1+0	4	70	30	100	3 Hrs
	COM-501	Income Tax Law and Accounts	3+1+0	4	70	30	100	3 Hrs
	COM-502	Fundamentals of Marketing	3+1+0	4	70	30	100	3 Hrs
	COM-503	Financial Institutions & Markets	3+1+0	4	70	30	100	3 Hrs
Stage Specific Content- Cum-Pedagogy Courses	SSCPC-501	Content cum Pedagogy of L1 at Preparatory Stage – Course (II)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-502	Content cum Pedagogy of L2 at Preparatory Stage – Course (II)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-503	Content cum Pedagogy of Mathematics at Preparatory Stage - Course (II)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-504	Content cum Pedagogy of World Around Us at Preparatory Stage - Course (II)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-505	Content cum Pedagogy of Arts at Preparatory Stage - Course (II)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-506	Content cum Pedagogy of Physical Education and Yoga at Preparatory Stage - Course (II)	1+1+0	2	35	15	50	2 Hrs.
Ability	AEVA-501	ICT in Education	1+1+0	2	35	15	50	2 Hrs.
School Experience	SE-501	Pre-Internship Practice (Demonstration Lessons, Peer teaching)	1+1+0	2	-	50	50	-
Total Credits				20	Total Marks 500			

COURSE STRUCTURE AND SCHEME OF EXAMINATION

SEMESTER VI

Courses	Paper Code	Course/Paper	Credits Division (L+T+P)	Total Credits	External Marks (T+P)	Internal Marks	Max. Marks	Exam Duration
Foundation of Education	FE-601	Assessment & Evaluation	1+1+0	2	35	15	50	2 Hrs.
	FE-602	Inclusive Education	1+1+0	2	35	15	50	2 Hrs.
Disciplinary/Interdisciplinary Courses	MTH-601	Real Analysis	3+1+0	4	70	30	100	3 Hrs
	MTH-602	Numerical Analysis	3+1+0	4	70	30	100	3 Hrs
	PHY-601	Modern Physics	3+0+1	4	50+20=70	30	100	3 Hrs
	PHY-602	Digital Electronics	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-601	Surface Chemistry, Photo Chemistry Solutions & Chemical Equilibrium	3+0+1	4	50+20=70	30	100	3 Hrs
	CHE-602	Biochemistry, Nano Chemistry, Green Chemistry & Spectroscopy	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-601	Economic Botany	3+0+1	4	50+20=70	30	100	3 Hrs
	BOT-602	Conservation Biology and Management of Biodiversity (Conservation And Natural Resource Management)	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-601	Endocrinology & Biochemistry	3+0+1	4	50+20=70	30	100	3 Hrs
	ZOO-602	Animal Physiology	3+0+1	4	50+20=70	30	100	3 Hrs
	ENG-601	Regional Literature with Special Reference To Literature Of Uttarakhand	3+1+0	4	70	30	100	3 Hrs
	ENG-602	Indian And New Literatures in English	3+1+0	4	70	30	100	3 Hrs
	HIN-601	छायावादोत्तर हिन्दी कविता	3+1+0	4	70	30	100	3 Hrs
	HIN-602	हिन्दी निबंध	3+1+0	4	70	30	100	3 Hrs
	POL-601	Contemporary Issues in International Politics	3+1+0	4	70	30	100	3 Hrs

	POL-602	State Politics in India with Special Reference to Uttarakhand	3+1+0	4	70	30	100	3 Hrs
	SOC-601	Indian Sociological Thought	3+1+0	4	70	30	100	3 Hrs
	SOC-602	Research Methodology in Sociology	3+1+0	4	70	30	100	3 Hrs
	HIS-601	History Of India from 1858ad to 1950ad	3+1+0	4	70	30	100	3 Hrs
	HIS-602	World History (1914-1945)	3+1+0	4	70	30	100	3 Hrs
	ECO-601	International Economic-II	3+1+0	4	70	30	100	3 Hrs
	ECO-602	Structure And Problems of Indian Economy-II	3+1+0	4	70	30	100	3 Hrs
	COM-601	Advance Accounting	3+1+0	4	70	30	100	3 Hrs
	COM-602	Money and Banking	3+1+0	4	70	30	100	3 Hrs
Stage Specific Content- Cum- Pedagogy Courses	SSCPC-601	Content cum Pedagogy of L1 at Preparatory Stage – Course (III)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-602	Content cum Pedagogy of L2 at Preparatory Stage – Course (III)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-603	Content cum Pedagogy of Mathematics at Preparatory Stage – Course (III)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-604	Content cum Pedagogy of World Around Us at Preparatory Stage - Course (III)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-605	Content cum Pedagogy of Arts at Preparatory Stage - Course (III)	1+1+0	2	35	15	50	2 Hrs.
	SSCPC-606	Content cum Pedagogy of Physical Education and Yoga- Course (III)	1+1+0	2	35	15	50	2 Hrs.
Ability	AEVA-601	Mathematical & Quantitative Reasoning	1+1+0	2	35	15	50	2 Hrs.
School Expe	SE-601	School Observation (Field Practice)	1+1+0	2	-	50	50	-
Total Credits				20	Total Marks 500			

COURSE STRUCTURE AND SCHEME OF EXAMINATION

SEMESTER VII

Courses	Paper Code	Course/Paper	Credits Division (L+T+P)	Total Credits	External Marks (T+P)	Internal Marks	Max. Marks	Exam Duration
Foundation of Education	FE-701	Perspectives on School Leadership & management	1+1+0	2	35	15	50	2 Hrs.
	FE-702	Curriculum Planning & Development (Text books, Material development etc.)	1+1+0	2	35	15	50	2 Hrs.
Ability Enhancement & Value-Added	AEVA-701	Art Education (Performing and visual)	1+1+0	2	35	15	50	2 Hrs.
	AEVA-702	Sports, Nutrition and Fitness	1+1+0	2	35	15	50	2 Hrs.
School Experience	SE-701	School-based Research Project	2+0+0	2	-	50	50	-
	SE-702	Internship in Teaching	-	10	Internship Assessment		250	-
Total Credits				20	Total Marks 500			

COURSE STRUCTURE AND SCHEME OF EXAMINATION

SEMESTER VIII

Courses	Paper Code	Course/Paper	Credits Division (L+T+P)	Total Credits	External Marks (T+P)	Internal Marks	Max. Marks	Exam Duration
Foundation of Education	FE-801	Philosophical & Sociological Perspectives of Education	3+1+0	4	70	30	100	3 Hrs.
	FE-802	Educational Policy Analysis	1+1+0	2	35	15	50	2 Hrs.
	FE 803	One Elective from the offered courses (Adolescence Education/Art Education/Education for Mental Health/Education for Sustainable Development/Emerging Technologies in Education/Gender Education/ Guidance and Counselling/ Human Rights Education/Peace Education/ Sports and Fitness Education	3+1+0	4	70	30	100	3 Hrs.
Ability Enhancement & Value-	AEVA-801	Yoga and understanding Self	1+1+0	2	35	15	50	2 Hrs.
	AEVA-802	Citizenship education, Sustainability and environmental education	1+1+0	2	35	15	50	2 Hrs.
School Experience	SE-801	Post Internship (Review and Analysis)	1+1+0	2	-	50	50	-
	SE-802	Creating Teaching Learning Material/Work Experience (Educational Toy Making, Local/Traditional Vocations etc.)	1+1+0	2	-	50	50	-
Community engagement and	CES 801	Community Engagement and Service (Participation in NSS- related activities, New India Literacy Programme etc.)	0+1+1	2	-	50	50	
Total Credits				20	Total Marks 500			

Semester wise division of credits and marks

Sr. No.	Semester	Credits	Marks
01	I	20	500
02	II	20	500
03	III	20	500
04	IV	20	500
05	V	20	500
06	VI	20	500
07	VII	20	500
08	VIII	20	500
	Total	**160**	**4000**

EDUCATION

COURSE STRUCTURE OF ITEP, B.Sc./B.A./B.COM. -B.Ed. IN THE SUBJECT OF EDUCATION

SEM.	PAPER CODE	TITLE	CREDITS
I	FE 101	EVOLUTION OF INDIAN EDUCATION	03+01=04
III	FE 301	CHILD DEVELOPMENT AND EDUCATIONAL PSYCHOLOGY	03+01=04
IV	FE 401	PHILOSOPHICAL AND SOCIOLOGICAL PERSPECTIVES OF EDUCATION-I	03+01=04
VI	FE 601	ASSESSMENT AND EVALUATION	01+01=02
	FE 602	INCLUSIVE EDUCATION	01+01=02
VII	FE 701	PERSPECTIVES ON SCHOOL LEADERSHIP AND MANAGEMENT	01+01=02
	FE 702	CURRICULUM PLANNING AND DEVELOPMENT (TEXT BOOKS MATERIAL DEVELOPMENT ETC.)- (STAGE SPECIFIC)	01+01=02
VIII	FE 801	PHILOSOPHICAL AND SOCIOLOGICAL PERSPECTIVES OF EDUCATION-II	03+01=04
	FE 802	EDUCATION POLICY ANALYSIS	01+01=02
	FE 803	ONE ELECTIVE FROM THE OFFERED COURSES AS PER THE CHOICE OF STUDENT-TEACHERS (E.G., ADOLESCENCE EDUCATION, EDUCATION FOR MENTAL HEALTH, EDUCATION FOR SUSTAINABLE DEVELOPMENT, EMERGING TECHNOLOGIES IN EDUCATION, GENDER EDUCATION, GUIDANCE AND COUNSELING, HUMAN RIGHTS EDUCATION, PEACE EDUCATION, SPORTS AND FITNESS EDUCATION, TRIBAL EDUCATION, ECONOMICS OF EDUCATION, OR ANY OTHER RELEVANT COURSE DECIDED BY THE UNIVERSITY/INSTITUTION)	03+01=04

FOUNDATION OF EDUCATION
101: EVOLUTION OF INDIAN EDUCATION

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course

The course seeks to develop an understanding among student teachers of the evolution of education in India that would allow student teachers to locate themselves within the larger system of education. The course aims at orienting student teachers to the historical perspective of Indian education including the development and features of education in ancient India such as the Gurukuls, post-Vedic period, during colonial era and post-independence period, and future perspectives about education development in India, and progression from Education 1.0 to Education 4.0 etc. This course also provides an overview of the contribution of Indian thinkers to evolve Indian Education system- Rabindranath Tagore, Swami Vivekananda, Mahatma Gandhi, GijubhaiBadheka, Dr. Bhima Rao Ambedkar and others.

Unit: I-Concept of Education

- Meaning and Nature of Education
- Agencies of education: Formal, Informal and Non-formal
- Aims of Education in Indian society and Qualities of a good Citizen

Unit: II-Ancient Indian Education

- Vision, Objectives and silent features of vedic, Buddhist, Muslim and British period.
- Teaching and Learning Process.
- Famous Indian Educational Institutions (like Ancient Period) development, Finance and management.
- Brief outline of Education at the time of Epics: Ramayana and Mahabharata.

Unit: III-Indian Thinkers and their Educational Contribution

- Rabindranath Tagore, Swami Vivekanand, Mahatma Gandhi, Dr. Bhim Rao Ambedkar, Gujjubhai Badheka and Bhakt darshan
- Education in Independent India, constitutional provisions for Education: specific provision for Education.
- Education for Fundamental Rights and duties.
- National values and national integration, international Understanding Globalisation privatisation and liberalization

Unit: IV-Modern Indian Education

- Colonial Education in India Inception of modern English Education system and Charter Act 1793
- Wood Despatch, Macaulay minutes and Westernization of Indian Education.
- Overview of 20th century committees, commissions and Policies-
  UEE, RMSA, RTE- Act 2009.
- NEP 2020 vision and implementation for a vibrant India.
- National council for Education (NCTE), University Grant Commission (UGC)

Suggestive Practicum:

1. Prepare a report highlighting educational reforms with special reference to school education in the light of NEP 2020.
2. Critically analyze the concept of good citizen from the perspective of education for democratic citizenship.
3. Compare vision, objectives and salient features of education during different periods.
4. Working out a plan to develop awareness, attitude and practices related to Fundamental Rights or fundamental duties or democratic citizenship qualities, execute it in the class and write the details in form of a report.
5. Sharing of student experiences (in groups) related to Indian constitutional values, help them to reshape their concept and enable them to develop vision, mission and objectives for a school and their plan to accomplish the objectives in form of a group report.
6. Analyses of current educational strengths and weaknesses of one's own locality and work out a critical report.
7. Visit to places of educational significance and value centres and developing a project report.
8. Observation of unity and diversity in a social locality and matching it with unity and diversity in the class and work out a plan for awareness for national-emotional integration for class to develop awareness, attitudes, skills and participatory values, execute it in the class and report the details.

Suggestive Reading Materials: -

Teachers may suggest books/readings as per the need of the learners and learning content.

Suggestive books:

- उदीयमान भारतीय समाज में शिक्षक N.R.Swaroop Saxena
- शिक्षा कें दार्शनिक एवं समाजशास्त्रीय आधार रमन बिहारीलाल
- भारतीय शिक्षा की समस्याऐं P.D Pathak
- History of Education in India R.N. Sharma
- अधिगम एवं शिक्षण डा0 योगेशकुमार

FE 301 CHILD DEVELOPMENT & EDUCATIONAL PSYCHOLOGY

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

To enable student teachers to understand the interplay of three different processes namely biological processes, cognitive processes, and socio-emotional processes that influence development of a child. Biological, cognitive, and socio-emotional processes are intricately interwoven with each other. Each of these processes plays a role in the development of a child whose body and mind are interdependent.

The course seeks to provide an understanding of the developmental characteristics of a child:

• During infancy that ranges from birth to 24 months of age,

• During Early Childhood stage which begins around age 3 and usually extends up to 6-7 years of age,

• Middle to Late Childhood stage which begins around 6-7 years to 10-11 years of age

• Adolescence stage which begins at approximately the age of 12 years, and which is a period of transition from childhood to early adulthood.

The course will introduce development across domains – physical development, cognitive development, language development, socio-emotional development, aesthetic development, moral development – during each of the above-mentioned developmental stages of a child. **Educational Psychology component of the course:**

Informs student teachers about the various theories of learning and motivational states for learning and their implications for pedagogy. It includes the study of how people learn, pedagogical approaches that are required to improve student learning, teaching-learning processes that enable learners to attain the defined learning outcomes, and individual differences in learning. It provides opportunities to student teachers to explore the behavioral, cognitive and constructivist approach to facilitating student learning, and the emotional and social factors that influence the learning process.

Learning Outcomes:

After completion of this course, student teachers will be able to:

•Describe the meaning, concept, characteristics, and factors affecting growth and development,

• Use the knowledge of Indian concept of self,

• Apply various problem solving and learning strategies in real classroom settings,

• Identify the various approaches of the process of learning,

• Explain group dynamics and apply strategies to facilitate group learning.

UNIT - I

Child Development:

A. Meaning and significance of understanding the process of Child Development

• Biological, cognitive, socio-emotional, and moral.

B. Developmental characteristics of a child during:
• Infancy stage
• Early Childhood stage
• Middle to Late Childhood stage
• Adolescence stage
C. The Indian concept of self: Mind (मनस्), Intellect (बद्धि), Memory (द्धित्त). Panch-koshIya Vikas
D. Educational Implications.

UNIT - II

Developmental Process

A. Development across domains:
• Physical Development
• Cognitive Development
• Language Development
• Socio-Emotional Development
• Aesthetic Development
• Moral Development During each of the above-mentioned developmental stages of a child.
B. Factors affecting development.
C. Individual differences:
• Children with special needs including developmental disorders.
• Tools and Techniques for Identifying Learner with different abilities.
D. Teachers' role and strategies to address the needs of learners with different learning abilities.

UNIT - III Process of Learning

A. Conceptual Clarity and significance.
B. Approaches:
• Behaviorist
• Cognitivist
• Constructivist
• Developmental
• Information processing Model of learning
• Shri Aurobindo's Integral approach
C. Problem Solving and Learning Strategies: Inquiry and problem-based learning, Steps and Strategies in problem solving, Factors hindering problem solving. D. How to Learn: Significance and Strategies

UNIT - IV Motivation and Classroom Management

A. Motivation
• Conceptual clarity, nature, and significance
• Intrinsic and Extrinsic Motivation
• Strategies for Motivation
B. Classroom management
• Creating a positive learning environment
• Planning space for learning

• Managing behavioral problems

C. Group dynamics:

• Classroom as a social group

• Characteristics of group

• Understanding group interaction-sociometry

• Strategies to facilitate group learning.

Suggestive Practicum:

1. Spending day with a child and preparing a report based on our observations of children for:

• A day from different economic status (low and affluent)

• Focus on various factors: Physical, emotional, social, language, cultural and religious influencing the child on daily basis.

2. Observing children to understand the styles of children learning process.

3. Identifying the Learning Difficulties of Students in Different learning areas and the Possible Reason for them- Case Study Report.

4. Preparing Personalized Intervention plan for Students with Learning Difficulties.

5. Plan to use advanced technology to encourage talented / gifted children.

6. Encouraging gifted / talented students beyond the general school curriculum.

7. Familiarization and Reporting of Individual Psychological Tests.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on

experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 401: PHILOSOPHICAL & SOCIOLOGICAL PERSPECTIVES OF EDUCATION – I

Credits: 03+01=04
Maximum Marks: 70+30
About the Course:
The course aims at enabling student teachers to explore educational philosophy, including the concept, nature and scope; the aims of educational philosophy; relationship between philosophy and education; Indian philosophical traditions and their implications for education; some of the key philosophical schools of thought such as idealism, naturalism, pragmatism, progressivism and existentialism and their implication for educational practices. The course also would provide an analysis of the Western schools of philosophy and their approaches etc.
Learning Outcomes:
• To encourage students to explore the nature of knowledge, the nature of human beings, the nature of society and its aims and the educational implications of these understandings.
• To engage the prospective teachers to read and acquaint themselves with the meaning of terms like Vidya, Avidya, Shiksha, Education etc. and to facilitate them to understand and differentiate them through reflections on these terms on the basis of ancient Indian texts.
• To facilitate prospective teachers to engage themselves in peer groups for sharing of their real-life reflective experiences regarding socio-cultural and philosophical living and facilitate them to conceptualize the meaning of terms like philosophical, social and cultural traditions in Indian educational context.
• To orient and engage prospective teachers to read, observe and understand the vision of some great Indian and global educators and categorically reflect on vision/aim, process of education and the contemporary relevance.
UNIT - I Education and Philosophy
A. Conceptual clarity, nature and relationships.
B. Aims of studying philosophical perspective of education.
C. Branches of Philosophy and their educational implications: Metaphysics (तत्मीमांसा), Epistemology (ज्ञानमीमांसा), Axiology (मूल्यमीमांसा)
D. Understanding Indian Perspective of Education
• Meaning, nature and aims of education with special reference to Vedic, Buddhist, Jain, Sikh and Islamic traditions.
E. Understanding Western Perspective of Education
UNIT - II Philosophical Schools and Education
Conceptual Clarity of the following schools of thoughts with their implications for educational practices:
• Western: Idealism, Naturalism, Pragmatism, Progressivism.

UNIT - III Educational Thinkers

Deliberations on aims, process and educational institutions developed on thoughts of following thinkers and practitioners:

• Bharatiya: Sri Aurobindo Ghosh.J. Krishnamurti, Mahamana Madan Mohan Malaviya,

• Western: J. Rousse, Maria Montessori, Friedrich Froebel, John Dewey.

UNIT - IV Value Education

A. Conceptual Clarity, Significance and Types of Values.

B. Indian Traditional Values.

C. Convocation message in Taittiriya Upanishad.

D. NEP, 2020 and Values with special reference to 21st Century.

Suggestive Practicum:

1. Individual/group assignments/tasks in various forms like writing small paragraphs/brief notes, conceptualizations on specific terms etc.

2. Institutional visits in small groups in coordination to institutions related to different thinker/s and preparation of a report followed by individual/group presentation.

3. Sharing of student experiences (in groups) related to readings on great thinkers help them to reshape their concept and enable them to develop vision, mission and objectives for a school and their plan to accomplish the objectives in form of a group report.

4. Identification and reporting of Indian perspective related to educational aims, student teacher characteristics, methods, evaluation procedure, convocation etc. based on critical study of life and thoughts of thinkers.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Organized lectures using variety of media.

• Small group discussion, panel interactions, small theme based seminars, group discussions, cooperative teaching and team teaching, engagement of in reading of primary or secondary sources of literature (Original texts, reference books etc.) related to different aspects of life and education of Great Educators, case studies, short term project work etc.

• Critically examining their experiences to carve out their world and life view and further analyze them from philosophical point of view to reshape their perspective.

They will engage prospective teachers in the development of comparative educational charts related to vision, aims, process, institution etc. They will also lead reading-based interactions and critical reflections related to process and significance of entry/admission rituals, convocation system etc.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 601: ASSESSMENT AND EVALUATION

Credits: 01+01=02

Maximum Marks: 35+15=50

About the Course:

The main thrust of this course on assessment and evaluation is to equip student teachers with the knowledge and capacities required to develop and implement approaches to assessment that is more regular and formative, is more competency-based, is appropriate for assessing learning outcomes relating to all domains of learning, is appropriate for testing not only subject-related learning but also generic learning outcomes such as problem solving, critical thinking, creative thinking, communication skills, judgement and decision making, ethical and moral reasoning etc.

Learning Outcomes:

After completion of this course, student teachers will be able to:

• use different approaches to assess and evaluate of student performance such as time constrained examinations; closed/open-book tests; problem-based assignments; practical assignment reports; observation of practical skills; individual and group project reports; oral presentations; viva voce interviews; computerized adaptive testing; peer and self-assessment etc.,

• develop and use informal and formal diagnostic, formative, and summative assessment strategies to monitor student learning levels and help the teacher continuously revise teaching-learning processes to optimize learning and development for all students,

• develop an understanding among student teachers of the approaches to provide timely, effective, and appropriate feedback to students about their performance relative to the expected learning outcomes and organizing learning enhancement initiatives that are required to bridge the gap in student learning levels,

• present report on student achievement, making use of accurate and reliable records etc.

• develop assessment "as", "of", and "for" learning that are aligned to the expected learning outcomes,

• design the progress card of students based on school-based assessment to make it a holistic, 360-degree, multidimensional report that reflects the progress as well as the performance of learners assessed through self-assessment and peer assessment, project based and inquiry-based learning, quizzes, role plays, group work, portfolios, etc., along with teacher assessment that would provide students with valuable information on their strengths, areas of interest, and needed areas of improvement.

UNIT - I

Assessment and Education

A. Assessment and Evaluation

• Meaning and significance of assessment and evaluation in educational field.

• Conceptual Clarity and purpose of Measurement, Assessment, Examination, Appraisal and Evaluation in Education.

• Learning outcomes across the stages and assessment.

• Taxonomy of Objectives (Revised in 2001) and Implications.

B. Forms of Assessment

• Formative, Summative, diagnostic, prognostic.

• Internal and External assessment.

• Assessment for learning, of learning and as learning.

• Authentic Assessment; Online Assessment.

C. Improving Assessment and Evaluation in Schools: Brief Historical Review (1975, 1988, 2000, 2005, 2020)

UNIT – II

Process of Assessment and Evaluation

A. Formative and Summative Assessment: Concept and Characteristics.

B. Approaches to assess and evaluate student performance such as time-constrained examinations; closed/open-book tests; problem-based assignments; practical assignment reports; observation of practical skills; individual and group project reports; oral presentations; viva-voce interviews; computerized adaptive testing; peer and self assessment etc.

C. Assessing Higher Order Thinking Abilities: Problem solving, critical thinking, creative thinking, communication skills, judgement and decision making, ethical and moral reasoning.

D. Tools and Techniques

• Observation, rating scale, check list, anecdotes, interviews.

• Assessment of attitudes and interests. • Socio-metric techniques.

• Criteria for assessment of social and personal behaviour.

• Self-assessment and Peer Assessment.

UNIT - III

Analysis and Interpretation

A. Analysis of students' performance and scores: credit and grading

B. Graphical representation (Histogram, Frequency Curves)

C. Interpretation of student's performance based on the analysis and their further uses in improving learner's performance: credit and grading, constructive feedback.

D. Reporting student's performance: 360-degree progress reports, cumulative records and their uses, portfolios, PTA meetings, qualitative reporting based on the observations, descriptive indicators in report-cards.

Suggestive Practicum:

1. Review of various education commission, Policies and reports and NCF 2005 to get a brief view of the recommendations on Assessment and Evaluation.
2. Constructing a unit test using table of specifications.
3. Construction of any one of the tools (rating scale, check list, observation schedule, etc.) and administering it to group of students or using it to observe the school and classroom environment and interpreting it.
4. Analysis of question papers of various Boards.
5. Analysis of report cards - State and Central (CBSE)
6. Preparing format of 360-degree report Card.

7. Review of learning outcomes by NCERT in different subject areas.
8. Interviews with teachers and students to study the assessment practices, issues and problems related to it followed by presentation.
9. Reviewing Assessment Discussions in NPE (2020).

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 602: INCLUSIVE EDUCATION

Credits: 01+01=02

Maximum Marks: 35+15=50

About the Course:

This course seeks to orient student teachers to the approaches to bridging gender and social category gaps in terms of participation rates and student learning levels at all levels of school education. The course will provide orientation to the strategies pursued and required to improve participation and learning levels of children from Socio-Economically Disadvantaged Groups (SEDGs) that can be broadly categorized based on gender identities, particularly female and transgender individuals, socio-cultural identities (such as Scheduled Castes, Scheduled Tribes, OBCs, and minorities), geographical identities (such as students from remote locations, villages, small towns, and aspirational districts), disabilities (including learning disabilities), linguistic identities, and socio- economic conditions (such as migrant communities, low income households, children in vulnerable situations, including orphans and the urban poor).

Learning Outcomes:

After completion of this course, student teachers will be able to:

• ensure inclusion and equal participation in education of children with disabilities in the regular schooling process that allows students with and without disabilities learn together, ensuring their retention in the school system, and enabling them to achieve the defined learning outcomes,

• adapt teaching and learning process to meet the learning needs of different students with disabilities, including providing education and opportunities for participating in arts, sports, and vocation-related activities, making school buildings and compounds as well as other facilities barrier free and accessible for children with disabilities, supporting activities that help the

provision of individualized learning environment and learning activities/resources, making available assistive devices and appropriate technology-based tools, as well as adequate and language-appropriate teaching-learning materials (e.g., textbooks in accessible formats such as large print and Braille) to help children with disabilities integrate more easily into classrooms and engage with teachers and their peers, using appropriate modes and means of communication, detecting specific learning disabilities in children at the earliest and taking appropriate measures to overcome them, monitoring completion of education and learning levels of students with disabilities etc.

UNIT - I

Inclusion and Education

A. Conceptual Clarity, relation, and significance with special reference to:

• UNCRPD, 2006, • RPWD Act, 2016, With special reference to Indian Context.

B. Clarity of various terms and phrases associated with Inclusive Education: Integrated Education, Special Education, Impairment and Disability, Assessment and Evaluation, Curriculum, adaptation, modification and differentiation, universal design of learning

C. Shifting from Disability to the Inclusive view.

D. Shifting Paradigms from Bio centric to Human Rights.

E. Introductory reference of Policies/Acts with reference to educational implications for Children with Disabilities: Right to Education Act, 2009/ 2012, RPWD Act, 2016, UNCRPD, National Trust Act, 1999, National Educational Policy, 2020.

UNIT - II

Children with Disabilities and Marginalized Groups

A. Nature and needs of children with sensory impairments: cognitive impairments and intellectual disability, physical disabilities, cerebral palsy, multiple disabilities.

B. Specific needs of children with behavioral, emotional learning disabilities

C. Health Problems.

D. Educational needs of children belonging to Marginalized Groups.

UNIT - III

Pedagogical Issues

A. Conceptual clarity and significance.

B. Meeting the specific needs of Children with Disabilities with special reference to:

• education and opportunities for participating in arts, sports, and vocation-related activities,

• making school buildings and compounds as well as other facilities barrier free and accessible • supporting the learning activities and resources for individualized learning environment

• making available assistive devices and appropriate technology-based tools,

• language-appropriate teaching-learning materials (e.g., textbooks in accessible formats such as large print and Braille)

• assessing strategies

C. Designing strategies assessment for inclusive classrooms.

Suggestive Practicum:

1. Developing a checklist for identifying the various needs of children with disabilities.
2. Visiting schools of different categories and talking to parents, teachers, and Children with and without disabilities and list the problems faced by these children and the families at the local level in gaining access to education.
3. Analyzing RPWD Act 2016 and list its implications for CWD in inclusive settings.
4. Outlining the problems faced by children with Visual Disabilities while learning mathematics and EVS.
5. Giving a few exemplary adaptations based on the Preparatory Level textbooks.
6. Outlining the problems faced by children with hearing impairments while learning language. Give a few exemplar adaptations based on the primary level textbooks.
7. Students work in small groups of 10 or so to prepare a street play highlighting the meaning and provisions of inclusive education.
8. Analyzing the Context of NPE 2020 in the light of Inclusive Education.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children, and schools. 2.5.5 Suggestive Mode of Assessment The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 701: PERSPECTIVES ON SCHOOL LEADERSHIP AND MANAGEMENT

Credit: 01+01=02
Maximum Marks: 35+15=50
About the Course:

Amidst the changing policy landscape, the new curriculum framework, the challenge of accommodating and adapting to the changing demands and the increasing expectations that come with the culture of performativity. The role of the school leader has never been more complex. School leaders are key change agents and as instructional leaders are responsible for improving practice while navigating an increasingly challenging school environment. Understanding the school system, its nuances, the social, cultural, and political contexts, and leading schools requires a strong foundation of knowledge and skills to effectively manage improvement and lead successful schools. The course on 'Perspectives on School Leadership and Management' is designed to equip student teachers with the competencies they need to drive school transformation and help diverse stakeholders establish priorities and improve practice.

Learning Outcomes:

After completion of the course, student teachers will be able to:

• describe the diversity of schools in India, its structure, its governance, issues, challenges and school leadership need,
• critically examine the different leadership theories and practices and its relationship with the governance structures, the autonomy and accountability mechanisms and the larger educational policy context,
• critically think in relation to education leadership and its potential application to different contexts,
• reflect critically on school-based data for reflection and improvement,
• develop a culture of cooperation collaboration and teamwork,
• synthesise effectively to develop coherent and compelling arguments in the area of study,
• develop school vision, mission, goals, and School Development Plans.

UNIT - I

Understanding Indian School System

A. School as a normative organization vis-a-vis school as a socio-emotional-cultural space for learning.

B. Studying the diversity of schools in India; their structure, governance, socio-political and cultural context, funding, management, autonomy and accountability mechanisms, support systems.

C. Relationship between school leadership and school diversity issues, challenges, and needs.

D. Engagement with diversity discourses, educational policies, reforms and practices and role in developing inclusive schools.

UNIT - II

Understanding School Leadership

A. School Leadership: concept as defined, and concept as practiced.

B. Being a School Leader: exploring the multiple roles and responsibilities, issues and challenges of school leadership in the Indian context.

C. What works in schools: sharing National and International best practices on School leadership.

UNIT - III

Schools as Learning Organizations: Role of School Leadership

A. Schools as motivating learning spaces: Developing inspiring school ethos.

B. Schools as learning organization: promoting personal mastery, examining mental models, and developing a shared vision, team learning and a system's thinking perspective.

C. Development of a shared vision and shaping of the school culture.

D. Use of data for school improvement focused on students' learning, addressing equity challenges, and building an equitable school culture that promotes excellence for all.

E. Nurturing school belongingness: engaging students, teachers, staff, parents, SMC, and community in the formulation of a whole school development plan.

F. Designing professional and collaborative learning opportunities for self and others (teachers, parents, and SMC members) and improving teaching and learning.

Suggestive Mode of Transaction:

Perspectives on school leadership and management is a practitioner-centric course and aims to enable future teachers to be efficient school leaders. The approach to curriculum transaction therefore would include a blend of lectures, tutorials, group-work, case-based approaches, and enquiry-based learning.

• Student teachers would engage in case-based learning on topics like improving student learning, classroom observation and feedback, planning and budgeting for school improvement, leadership in diversified school contexts and such others.

• Exposure of student teachers to virtual case studies featuring leaders from a representative cross-section of Schools in India and analyze their experiences, insights, and best practices.

• Learning activities that help student teachers to understand the entire structure and functioning of school organization through interactive lectures and panel discussion with education officers who hold leadership positions at different levels from schools to cluster, block, and district and state levels and understand their leadership issues, challenges and needs and thus get a perspective of the school ecosystem.

• Learners would reflect on their practice as pre-service interns, knowledge, skills, and understandings—and identify opportunities to apply course learnings to their school context.

Suggestive Mode of Assessment:

Being a practitioner centric course, the assessment would largely include application-based tasks. This includes exploring the work and life of a school principal and writing a detailed report on the observations and the learning. The following are some exemplars. The institutes may choose either

of these or think of other innovative assignment that would enhance the leadership learning experience:

• Preparing school vision, mission, goals, and school development plan.

• Shadowing school principals: a critical observation of the principal's daily work life.

• A critical examination of the diversity of schools; their governance structure, leadership, autonomy and accountability mechanisms, issues and challenges and work life of the school principal

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 702: CURRICULUM PLANNING AND DEVELOPMENT

Credit: 01+01=02

Maximum Marks: 35+15=50

About the Course:

The course on curriculum planning and development will introduce to student teachers to the process of designing and organizing the curriculum i.e., the totality of learning experience provided to learners through a deliberate and organized set of arrangements (the selection of subjects that are to be taught, the pedagogical approaches and practices to be pursued, books and other teaching-learning-material to be used, examinations and other forms of learning assessment, school culture and processes etc.) that contribute to the development of the knowledge, capacities, and values and dispositions that help fulfill the aims of school education derived from the purposes and goals articulated in NEP 2020.

Learning Outcomes:

After completion of this course, student teachers will be able to:

• discuss aims of education,

• identify and formulate of desirable values and dispositions,

• explain capacities and knowledge,

• outline curricular areas, • demonstrate teaching-learning assessment processes and

• practice the relevance in terms of achieving the aims of school education.

UNIT - I

Education and Curriculum

A. Meaning, need, relationship and significance.

B. Types of Curriculums: subject-centered, activity-centered, environmental centered, community-centered

C. Relationship and difference between curriculum, curriculum framework, syllabus and textbooks.

UNIT - II

Developing the Curriculum

A. Basic principles of Curriculum Development

B. Concerns for developing the Curriculum - aims to be achieved, structure and nature of discipline, different perspectives on learning and their implications to curriculum development, socio–cultural aspects and aspirations of society, value transitions, social efficiency and needs, environmental concerns, gender concerns, inclusiveness, technological advancement.

C. Impact of Globalization.

UNIT - III

Approaches, Planning, and Implementation

A. Approaches to Curriculum Development: Learner and activity centered, Constructivist, Knowledge Construction

B. Curriculum planning as a cyclic process.

C. Curriculum Implementation: Operationalizing curriculum into learning situations, Converting curriculum into syllabus, Curriculum engagement activities, Role of school at Regional, State and National level for implementation.

D. Role of teachers in operationalizing and evaluating the curriculum with special reference to: textbooks and teachers handbooks, source books, workbooks and manuals, other learning material such as kits, AV and software materials, library, laboratory, playground, neighbourhood etc.

Suggestive Practicum:

Arranging discussion on:

1. Basis of National curriculum frame works (1975, 1988, 2000, and 2005).
   - Document: Learning without burden" by Prof. Yashpal
2. Preparing of Report based on observation of:
   - Facilities and infrastructure to implement the present curriculum.
3. Interviewing teachers to understand their role in:
   - Implementing and assessment of the curriculum.
4. Analysis of the following in the context of principles of developing the Curriculum:
   - Guidelines of NEP, 2020.
   - Curriculum of 4 Years B.Ed. Integrated Programme
   - Learning without Burden, MHRD, and India.
   - Position paper (2006). National Focus Group on 'Curriculum, Syllabus, Textbooks', NCERT.
   - NCERT (1988) National Curriculum for Elementary and Secondary Education: A framework.
   - NCERT (2000) National Curriculum Framework for school Education.
   - NCERT (2005) National Curriculum Framework. NCERT publications.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
• Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

• The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content

FE 801: PHILOSOPHICAL AND SOCIOLOGICAL PERSPECTIVES OF EDUCATION – II

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

Sociological Perspectives of Education seek to encourage students to explore the relationship between social structures and educational provision. The course focuses on the study of the social behaviour of individuals, groups, and societies. It provides opportunities to student teachers to examine relationships among individuals, as well as relationships between people and their societies.

Learning Outcomes:

After completion of this course, student teachers will be able to:

• recognize the social context of education,
• outline the meaning, nature, and scope of educational sociology,
• establish the link between education and socialization,
• analyze the main agents of socialization, such as family, school, community and peer groups,
• analyze the impact of culture on education through a study of dimensions of culture and their importance to education practices,
• recognize the different aspects of social stratification,
• identify the close relationship between education and modernization, the role of education in Modernization, and factors and constraints to social change.

UNIT - I

Education and Society

A. Conceptual clarity, relationship, significance and aims of studying relationship between these two.

B. Educational sociology and social perspective of education: meaning and functions.

C. Education as a Social System.

D. Conceptual clarity of the following terms: society, social behavior, status, institution, ideology, system, sub-system, socialization, social system, social values and norms, conflict, modernization.

E. Understanding the relation between individual and group behavior with special reference to purpose of education.

UNIT - II

Education and Social Change

A. Meaning, relation, and dimensions of Social Change.

B. Factors affecting Education and Social Change: technology, social and educational movements, curricular innovations, value conflict, legal provisions.

C. Constitution of India and Education.

D. Education and Modernity.

E. Role of education with reference to social change.

UNIT - III

Education, Culture and Socialization

A. Relationship between Education and Culture.

B. Education as a process of Socialization.

C. Impact of following on Culture and Educational Process: Social Welfare, Social Reform Movements, Legal interventions on Child Marriage and child labor Act, Educational Policies and Acts, Adult Literacy, New Technology of communication, Equality.

D. Constitutional Provisions and Education with special reference to Social Equality and Equity.

UNIT – IV

Education and Values

A. Conceptual Clarity, Relationship and Significance.

B. Types of Values.

C. Constitutional Values and its impact on our Education.

D. Human Rights and Values.

E. Environment and Education.

F. Pedagogical issues.

Suggestive Practicum:

1. Critical/Reflective study of contemporary aims of education and their social determinants. 2. Observation and critical study on how textbooks determine every activity of teacher and learner in the school.

3. A critique of text-book culture in school.

4.Observing the process of knowledge construction by children in structured and unstructured environments to appreciate their learning processes and nature.

5. A critical analysis of Constitution of India in the context of process of Education in India / Educational Policies / Educational Commissions)

6. Critically observing nearby society/ locality in groups of 4-5 students and sharing observations related to cultural/ social influences on educational practice.

7. Analyzing social purpose of NEP, 2020.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

• The assessment will be based on the tests and assignments.

Suggestive Reading Materials: Teachers may suggest books/readings as per the need of the learners and learning content.

FE 802: EDUCATION POLICY ANALYSIS

Credits: 01+01=02

Maximum Marks: 35+15+50

About the Course:

This course on Education Policy Analysis aims at orienting student teachers to the theoretical frameworks and methodology that will help assess and evaluate the effectiveness of policies at the national, state and programme levels.

Learning Outcomes:

After completion of this course, student teachers will be able to:

• discuss knowledge and capacity to engage in education policy analysis and evaluate their effectiveness,

• explain processes involved in policy analysis including undertaking situation analysis and research.

• To identify possible policy options,

• Describing these possible options,

• Comparing the potential policy options,

• Ranking the possible policy options and

• Choosing the most effective option that could address issues and problems confronting school education.

UNIT - I

Planning an Educational Policy

A. Meaning and significance of `Policy on Education'.

B. Purpose and Dimensions of an Educational Policy at local and Global level.

C. Philosophical and Sociological Perspective of planning an Educational Policy.

D. Historical development of Educational Policies in India.

E. Basic steps involved in planning.

F. Constitutional provision for Policy on Education.

G. Fundamental principles for analyzing an Educational Policy.

UNIT – II

Educational Policies in India

• Critical analysis of Policies on Education since Independence: 1968, 1986 (Modified in 1992), 2020 in the context of: need and significance, goals and frameworks of educational policies, content of policies, issues raised in policies, constitutional provisions, special stress, modification of policies, implementation strategies.

• Issue of modifying an Educational Policy.

UNIT - III

Implementation of an Educational Policy

A. Meaning, need and significance.

B. Mechanism of Policy Implementation.

C. Strategies to Implement an Educational Policy.

D. Programme of action and implementation: conceptual clarification and significance.

E. Role of different Organization / Groups: Legislature/ Judiciary/ Political Will and Parties/ Voluntary Organizations/ Non-governmental organizations (NGOs)/ Pressure Groups/ Public. F. Challenges for Implementation.

Suggestive Practicum:

1. Reviewing and presenting report on NEP, 2020 in reference to Policy Implementation.
2. To present a critical review of the Programme of Action (1987).
3. Preparing a list of challenges to implement the present new National Education Policy, 2020 in our States.
4. Preparing a list of Measures to be taken or taken to implement National Education Policy, 2020 in our State.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children and schools.

Suggestive Mode of Assessment:

• The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 803 (I): EDUCATION FOR MENTAL HEALTH

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

This course on Education for Mental Health will give a comprehensive understanding on the concept of meaning and determinants of Mental Health. The course will further enhance the student teacher's ability to know different stress management and adjustment techniques. The course aims to introduce historical and contemporary developments of Mental Health Education programs in Indian and Global perspectives.

Learning Outcome:

After studying this course, student teachers will be able to:

- express the meaning and significance of mental health,
- describe social and psychological determinants of mental health,
- analyze the causes of stress and process of stress management,
- analyze the significance of adjustment in life,
- analyze the needs and importance of global mental health education programme,
- explain the special role of teachers and parents to maintain the good mental health of children,
- suggest prevention and promotional measures to maintain good mental health of society,
- express the need for health policies globally.

UNIT- I

Mental Health

A. Meaning and determinants of Mental Health.

B. Mental Health Vs Mental Hygiene.

C. Mental disorders: Characteristics and Types.

D. Causes of poor Mental Health.

E. Myths Vs Facts about Mental Health.

F. Legal perspectives of Mental Health in India.

G. Concept of Healthy Personality

UNIT- II

Stress, Stress Management and Adjustment

A. Stress: meaning, nature and symptoms, types of stress, social and psychological perspectives, remedial measures.

B. Stress management and adjustment: meaning and significance of stress management and adjustment, prevention and promotion, role of parents, peer group and teachers.

UNIT - III

Mental Health Education Programme

A. Meaning and significance of Mental Health Education Programme.

B. Dimensions of Mental Health Education Programme in India.

C. Historical development of Mental Health Education Programmes in India.

D. Local and Global Perspective of Mental Health Education Programme.

E. Organizations at local and international level.

F. Characteristics of a good Mental Health Education Programme.

G. Role of Educational Institutions.

UNIT - IV

Challenges to Pedagogical Issues

A. Home Vs. school

- Diverse school and home contexts
- Lifestyles of teachers and parents
- Stereo-type roles
- Mental health concerns of teachers and parents
- Material availability/ production

B. Guidance and Counselling Programme:

- Concept, need and techniques.
- Teacher as a counsellor

C. Designing and evaluating Mental Health Programmes

Suggestive Practicum:

1. Visiting of Mental hospital and preparing list of four cases admitted in Hospital.
2. Preparation of two case histories on causes of abnormal behaviour.
3. Critical analysis of laws and Public Health Policies.
4. Critical analysis of National Educational Policy, 2020 in the context of Health of children at school.
5. Critical analysis of Legal perspectives Mental Health Education in India.
6. Preparing comprehensive report on Mental Health Education Programme in India.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 803 (II): EDUCATION FOR SUSTAINABLE DEVELOPMENT

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

This course is designed to highlight the meaning, nature and significance of Education and Sustainable Development in the light of 17 sustainable development goals envisaged in United nations agenda. The course is designed to make student teachers aware and understand SDG 4 goal of Inclusive and Quality Education in the light of NEP 2020. The course also highlights the politics and policies involved in Sustainable Development.

Learning Outcome:

After studying this course, student teachers will be able to:

• clarify the meaning and significance of sustainable development,
• explore the relationship among education, development and environment,
• appreciate the relation between education and sustainable development,
• describe the characteristics of ESD,
• explain the role of education in sustainable development,
• critically analyze the meaning and importance of education in the context of sustainable development.,
• explain the role of education to achieve sustainable development,
• analyze the pedagogical issues related to ESD.

UNIT - I

Education and Sustainable Development

A. Meaning, relationship, goals, and significance.
B. Characteristics of ESD
C. Education for Sustainable Development: Historical Perspective
D. Philosophical, Sociological and Psychological Perspective.
E. Role of Education for Sustainable Development.
F. Decolonizing Knowledge for Sustainable Development.
G. Challenges of Education for Sustainable Development.

UNIT - II

Sustainable Development Goals (SDGs)

A. Meaning, nature and significance of SDGs.
B. 17 Sustainable Development Goals (SDGs): UNESCO agenda.
C. SDGs and Social Transformation as Universal Commitment.
D. Education as a Human Right to achieve Sustainable Development.
E. Sustainable Development and Peace.
F. Role of Educational Institutions and Challenges to achieve SDGs.

UNIT - III

SD Goal-4: Quality Education for All

A. Meaning, Nature, and Significance.

• NEP, 2020 on SDG-4: Sustainable lifestyle, Gender equality, Promotion of peace & non-violence, Global citizenship, Good mental health & wellbeing, Justice in society

B. Pedagogical issues for SDG-4.

UNIT - IV

Sustainable Development: Politics and Policies

A. Understanding the Policy-Making Process.

B. Policy Analysis.

C. Democratizing Science and Technology.

D. Globalization and the Environment: Capitalism, Ecology and Power.

E. Perspectives, Methods, and Skills.

F. Innovation for Sustainability.

G. Key Issues from an International perspective.

H. Critical issues involved in sustainability.

Suggestive Practicum:

1. To present critical review on NEP, 2020 in the context of SDGs.
2. Critical study of Delors Commission Report, 1996: Learning: The Treasure within with reference to SDGs.
3. To review and present a critical report on legal perspective on SDGs.
4. To prepare Toolkit for Educations for Sustainable Development.
5. To organize discussions/ seminars of Teachers of all streams to present their views on SDGs and to present Action Plan for this.
6. To prepare and present a short Video/film to promote SDGs.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 803 (III): EMERGING TECHNOLOGIES IN EDUCATION

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is designed to use Information and Communication Technology in a classroom as an important 21st century skill and an important step for ICT enabled education of the country. The course explores various ICT approaches and its integration in Pedagogy, Assessment and Management. The course will help student teachers to know and apply online and offline software applications and it will enhance their understanding related to social, economic, and ethical issues associated with the use of ICT.

Learning Outcome:

After studying this course, student teachers will be able to:

- describe the need and uses of technology in the field of education,
- use various digital technologies for creating the resources,
- provide learning experiences for all types of learners including differently abled.
- create learning environment in the classroom,
- understand the role of ICT to enhance the creativity of students,
- view the use of massive open online courses (MOOCs),
- explain the role of ICT in authentic and alternative assessment,
- discuss the social, economic, and ethical issues associated with the use of ICT.

UNIT - I

Education and Technology A. Relationship between Education and Technology.

B. Conceptual clarity of Technology of Education and Technology in Education.

C. Meaning, Nature, and significance of Technology in Education.

D. Historical Development of use of Technology in Education.

E. Principles of using Technology in Education.

F. Emerging trends in Technology in Education.

UNIT - II

Information and Communication Technology

A. Meaning, nature, and types.

B. Fundamentals of Information and Communication Technology.

C. ICT Tools and application.

D. Hardware and Software: meaning, difference and types.

E. System software and Application software.

F. ICT application and multiple intelligence.

G. Social, Economic, and Ethical issues associated with the use of ICT.

UNIT - III

Technology in Education and Pedagogy

A. Approaches of integration of Technology in teaching and learning.

B. Subject specific ICT tools for creating and facilitating learning.

C. Subject specific online resources and their uses in lesson Planning.
D. Technology integrated learning experiences and creating learning Environment.
E. Use of Technology for children with special needs: Tools and processes; Universal Design for Learning.
F. Massive Open Online Courses (MOOC)-Concept and use.
G. ICT for Assessment and Management.

UNIT - IV

Online and Offline Software Applications

A. Application software- meaning and types.
B. Word processing, spreadsheet, presentation: Features and educational applications.
C. Drawing tools – diagrams, concept maps, timelines, flow charts. Educational applications of these tools.
D. Web 2.0 technology and tools: meaning characteristics and types.
E. Social networking and social book marking: Educational Applications.
F. Blog and micro blog – reflective journaling and other educational applications.
G. Wiki, YouTube, TED, Skype – collaborative authoring and projects.
H. Instant messaging and its educational applications.
I. Online forums/discussion groups and chats: educational applications.
J. Social media sharing – video, presentations, audio (podcasts), graphics, and text.
K. Web 2.0 tools for creating, sharing, collaborating, and networking.

UNIT - V

Instructional Design and E-content

A. Instructional Design: concept, principles, models, and stages.
B. E-learning courseware (e-content) design.
C. Identifying and organizing course content: need analysis (learner, content, and task), learning objectives and course sequence.
D. Designing instructional media, evaluation, and delivery strategies.
E. Creating interactive content: story board, courseware outline, interactivity, and interface
F. Courseware delivery and evaluation.
G. Multimedia tools: Audio editing, video editing, screen casting, graphic editing, and basics of animation, and creating interactive media.
H. Reusable learning objects (RLO) – meaning, types and characteristics, RLO repositories, metadata and standards.
I. E-content authoring tools- open source and proprietary alternatives.
J. Open Educational Resources – Meaning and importance, various OER initiatives, creative common licensing.

Suggestive Practicum:

1. Creating an account in wikispace/ wikipedia/ mediawiki and adding/editing content.
2. Developing an educational blog in www.blogger.com, www.wordpress.com.
3. A critical study of some e-learning course.

4. Developing a multimedia e-content for a topic.
5. Field visits to the EDUSAT centre and take part in teleconferencing.
6. Planning and creating digital rubrics for any topic
7. Organizing web conferencing using Skype/Yahoo/ Messenger/ Google+.
8. Interview of computer hardware engineer/ICT specialist regarding Hardware planning, evaluation, maintenance, and up gradation
9. Review of NEP, National ICT policy and curriculum in the context of Technology in Education.
10. Enrolling and completing some MOOC courses of interest.
11. Developing technology integrated unit/lesson plans and trying them out in schools.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 803 (IV): GENDER EDUCATION

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course Gender Education seeks to develop understanding and interlinkages between gender and education. The course is designed to develop a conceptual understanding of the overall gender discourse with special emphasis on issues such as gender bias, gender stereotypes in school, curriculum and in textual materials. The course also addresses gender sexuality, sexual violence, abuse, and legal perspectives.

Learning Outcomes:

After completion of this course the students will be able to:

• clarify key concepts like gender, transgender, gender bias, gender stereotype, empowerment, gender parity, equity and equality and patriarchy,

• explain the shifting from women studies to gender studies,

• clarify gender issues in school, curriculum, and textual materials across disciplines, pedagogical processes and its intersection with class, caste, religion, and region,

• examine school environment, curriculum, and pedagogy with reference to gender related issues,

• address issues related to sexuality, sexual violence, and abuse,
• draw framework for gender sensitized classroom and school environment.

UNIT - I

Gender and Education A. Meaning, relationship, and significance of studying.

B. Conceptual clarity of related terms: Gender, gender perspective, sexuality, patriarchy, masculinity, feminist, gender bias, transgender, gender stereotyping and empowerment.

C. Gender as the basis in school education.

D. Constitutional Provisions with special reference to equity and equality, rights of girls.

E. Education and women's empowerment.

F. Shifting from women's studies to Gender Studies.

UNIT - II

Learning Gender Roles

A. Social and Cultural Perspectives of Gender Identity: role of family and school, media, and other formal and informal organizations/ agencies

B. Socialization and learning gender roles.

C. Gender stereotyping/Role models.

D. Preventing Measures: role of school and home

UNIT - III

Gender, Sexuality, Sexual Violence and Abuse

A. Development of sexuality and its impact on children with reference to gender, body image, role-models.

B. Sexual violence in formal and informal institutions.

C. Child sexual abuse from pre-primary stage to secondary stage: providing accurate information on child sexual abuse, helping, and identifying signs of sexual abuse in children. D. Providing dos and don'ts about sexual abuse.

E. Legal perspective: Laws for safety and Security of girls and women, Implementation of the POCSO Act.

UNIT – IV

Pedagogical Issues

A. Analyzing classroom practices.

B. Creating gender friendly classrooms and school environment.

C. Analyzing Curriculum from gender perspective: learning outcomes, textual material, teaching-learning processes, language used, teaching aids, assessment strategies.

D. ICT pedagogy for gender sensitive school curriculum.

E. Challenges for pedagogical issues.

Suggestive Practicum:

1. Preparing a Report on National Educational Policies, (1986/1992 and2020) in the context of gender issues in Education.
2. Preparation of projects on:

• Analysis of textual materials from the gender perspective for identifying gender bias and gender stereotype in textual materials.
• Recommendations of commissions and policies on education to empower girls/women.
• Mahila Samakhya Programme.
• Women Role Models in various fields with emphasis on women in unconventional roles.
• Video clipping on portrayal of women.
• Folklores reflecting socialization process.
• How students perceive sexuality and their own body images.
3. Field visits to schools to observe the schooling processes from a gender perspective.
4. Preparing Analytical Report on portrayal of men and women in print and electronic media.

Suggestive Mode of Transaction:

The course content transaction will include the following:
• Planned lectures infused with multimedia /power-point presentations.
• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
• Hands on experience of engaging with diverse communities, children, and schools. **Suggestive Mode of Assessment:**

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 803 (V): GUIDANCE AND COUNSELLING

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

This course comprises of four units aiming to develop the understanding about the concept, need and significance of guidance and counselling. It will give a comprehensive understanding of guidance and counselling principles, techniques, and real-world applications. This course also deals with psychological testing and diagnosis in counselling. It examines the factors affecting guidance and counselling along with ethical considerations. The importance of counselling for individuals with disabilities, visual impairment, and hearing impairment is also emphasized in this course along with challenges related to providing counselling services in schools.

Learning Outcomes:

After completion of this course the students will be able to:
• explain the basic meaning, need and significance of Guidance and Counseling in the context of education,
• differentiate between Guidance and Counselling with special reference to the purpose and strategies,

• clarify the general social, psychological, and historical perspective of Guidance and Counselling,
• describe the basic features of Guidance and Counseling with reference to students needs at school level,
• explain the basic principles of Guidance and Counselling,
• organize guidance program,
• analyze the reports of educational commission and educational policies with reference to Guidance and Counselling.

UNIT - I

Guidance

A. Meaning, need, nature and scope of Guidance.
B. Brief historical background of Guidance movement in India.
C. Individual and Group Guidance.
D. Basic assumptions and principles of Guidance.
E. Need to understand the needs of the individual and group in the context of Guidance.
F. Essential information for Effective Guidance.
G. Vocational Guidance and Role of teachers.

UNIT - II

Counselling

A. Meaning, importance, areas, and types of Counselling.
B. Approaches to Counselling: directive, non-directive and eclectic, behaviourally, and cognitively oriented.
C. Process of Counselling: initiating counselling, preparation, and intake procedures, establishing rapport, termination of and response to initial interview.
D. Establishing Structure: attending behaviour, observation, non-verbal behaviour, listening, verbal patterning and communication responses, silence, use of questions. transference and countertransference. regarding and respect in counseling relationships. Involuntary clients, client expectation.
E. Role of family and community.

UNIT - III

Tools and Techniques to Collect Data

A. Psychological Testing and Diagnosis: Need and Nature.
B. Test use and interpretation, appraisal techniques.
C. Counseling Interview: Essential aspects, basis procedures, problems, and their handling.
D. Personality Assessment: Historical perspective
E. Material administration, scoring, interpretation, and evaluation of frequently used personality inventories/ questionnaire and projective tests. Personal Orientation Tests and Rating Scales: Type a behaviour, Locus of Control, Attitude scale, ST AI etc., and other clinical rating scales.
F. Case Study: Need and Importance.

UNIT - IV

Issues Related to Guidance and Counselling

A. Factors affecting Guidance and Counselling.

B. Ethical issues in Guidance and Counseling.

C. Limitation of diagnosis with special reference to Counselling.

D. Challenges to organize Guidance and Counselling programmes in schools.

E. Counselling and Guidance of persons with learning disabilities, visual and hearing impairment.

F. Challenges related to counselling services in schools.

Suggestive Practicum:

1. Prepare a case study on students with learning difficulties.
2. Prepare a report on challenges of organizing guidance and counselling programmes in school.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials: Teachers may suggest books/readings as per the need of the learners and learning content.

FE 803 (VI): PEACE EDUCATION

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is designed to develop a holistic and critical understanding of the theoretical and practical bases of peace education in National and Global perspectives both. The aim is to inculcate values and attitudes required to become a reflective peace practitioner who promotes peace and harmony in society. The course further enhances the contribution of various leaders or educationists in promoting culture of peace.

Learning Outcomes:

After the completion of this course students will be able to:

• acquire a holistic and critical understanding of the theoretical and practical bases of peace education,

• trace the historical development and status of the peace education field,

• searching and identifying the best ways to follow peace in life,

• show ability to select and use appropriate method of resolving conflict,
• become critical learners and reflective peace practitioners,
• appreciate the foundations of just and peaceful societies,
• understand and practice the positive action and non-violent conflict resolution in society,
• enhance students' intellectual flexibility, creativity & problem-solving capacities,
• connect course content to current public events and issues worldwide.

UNIT - I

Peace Education: Nature and Significance

A. Peace and Peace Education.
B. Meaning, need, dimensions and goal of Peace Education.
C. A brief review of Historical Development of Peace Education.
D. Philosophical, sociological, and psychological perspectives of Peace Education.
E. Types of Peace: positive, negative, inner, social and with nature.
F. Conflict-Resolution and Peace Education.
G. Relationship between Development and Peacebuilding.
H. Learning from experiences to explore the scope of Peace Education.
I. Challenges to Peace Education.

UNIT - II

Towards the Global Culture of Peace

A. Process of Peacebuilding.
B. Culture of Peace Vs Culture of War.
C. Approaches to Peace Education.
D. Conflict Analysis and Resolution.
E. Role of Social and Religious Foundations in Peacebuilding.
F. Role of local and International Agencies in the Peacebuilding process.
G. Contribution of Mahatma Gandhi, Tagore, Shri Aurbindo and Dalai lama to build the Culture of Peace at Global level.

UNIT - III

Thoughts on Peace and Harmony

A. Ancient Indian views.
B. UNO role for Global Peace Education.
C. Constitutional provisions.
D. Study of following thinkers in context of global Peace and Harmony: J. Krishnamurti, Sri Aurobindo, Rabindra Nath Thakur, Mahatma Gandhi, Montessori, Russell, Dalai Lama.

UNIT - IV

Pedagogical Issues for Peace Education

A. Assessing curriculum policy for social and civic reconstruction.
B. Comparative and historical perspective on school knowledge and peace.
C. Socio-historical processes on curriculum change.
D. Teachers' perceptions of the effects of young people's war experiences and pandemic.

E. Critical analysis of school curriculum at school level in the light of peace building process. F. Challenges of Pedagogical issues of Peace Education.

Suggestive Practicum:

1. Critical analysis of Educational Policies, Curriculum and Text Material for Peacebuilding Process.
2. Reflection on Human Rights, with special reference to Constitution of India, as a process of Social-cohesion and Peace.
3. Analyzing the Role of UNESCO in the context of Peace at Global level.
4. Collection of statements, shloka or sukti (Good Sayings) from ancient Indian literature related to inner and Social Peace.
5. Study of Yoga-Darshana as a process of Peace and Harmony.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 803 (VII): SPORTS AND FITNESS EDUCATION

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course seeks to develop a comprehensive and holistic understanding about the concept of health, its various dimensions, and determinants. The course traces the evolution of Health and Physical Education, historical development of the discipline with special reference to Indian Education and its relation to other subjects. It further highlights the importance of physical fitness policies, programs and services addressing health initiatives in school context.

Learning Outcomes:

After completion of this course the students will be able to:

• understand the concept of holistic health, its various dimensions, and determinants,

• develop positive attitude towards health physical education and yoga as individual,

• sensitize, motivate, and help them to acquire the skills for physical fitness, learn correct postural habits and activities for its development,

• create interest for the practice of yogasana and meditations,
• understand various policies and programmes related to health, physical education and yoga, • help them to understand the process of assessment of health and physical fitness.

UNIT - I

Evolution of Health and Physical Education

A. Health and Physical Education: Conceptual Clarity (locally as well as globally), importance and aims.

B. Place in School Curriculum: Historical Development as a subject, Objectives with special reference to Indian Education and its relationship with other subjects.

C. Status of Health and Physical Education: From primary to secondary education in a global perspective, ayurvedic and yogic concept of Health Education, legal perspective of Health and Health Education in India.

UNIT - II

Health Education

A. Concept, dimensions, and determinants of health with special to India.

B. Psycho-social concerns of children and adolescents including differently able children.

C. Understanding the body system and its functions

D. Common health problems and diseases: causes, prevention and cure, immunization and first aid.

E. Impact of Physical activities, games, sports and yoga on different body systems.

F. Food and nutrition, nutrients and their functions.

UNIT - III

Games and Fitness

A. Physical fitness and its components: athletics (general physical fitness exercises), games (lead-up games, relays, and major games), Rhythmic activities, gymnastics, and their impact on health.

B. Development of physical fitness: Postures and Importance of relaxation, Fitness tests; Resources and services for games and sports and Health.

C. Fundamentals skills of sports: Sports for recreation and competition, Sports awards and scholarships, sport person ship, Indigenous and self-defense activities.

D. School and family, health services, policies and major health and physical educationrelated programmes, blood banks, role of media.

E. Safety and security.

F. First Aid: Need and Principles.

UNIT - IV

Policies, Programmes and Assessment

A. Policies, programmes, and services for addressing health needs.

B. School Health Programme: school health services, health promoting schools, global school health initiatives.

C. Yoga: Meaning, initiation, historicity, classification, streams, and schools of yoga, Need and importance and role of yoga for healthy life and living, Yoga as a Psychotherapy.

D. POCSO (Protection of Children from Sexual Offences Act, 2012), PWD 2016, the Integrated Child Protection Scheme.

E. Assessment of health performance testing in games and sports, reporting of health condition and performance of child in the sport fields.

Suggestive Practicum:

1. Recognizing important indicators of health and wellbeing of children and mental health.
2. Undertaking a survey, understanding local food related matters and understanding the importance of the right to food.
3. Analyzing NEP, 2020 with reference to Games Oriented Education.
4. Planning activities for development of physical fitness.
5. Organization of games and sports tournaments
6. Learning and performing basic yogic activities, asanas, and pranayama, Kriyas and Meditation. Celebration of yoga day, yoga week.
7. Arranging reflective Dialogues on Serials and related videos.
8. Preparation of inventories on myths on exercises and different types of food.
9. Preparation of First Aid kit.
10. A critical review of YOGA-SUTRA.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc. Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 803 (VIII): ADOLESCENCE EDUCATION

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is designed to develop a comprehensive understanding and knowledge about Adolescence and Adolescence education with special references of Adolescence Education programmes in India at School level. There is an attempt to develop understanding about intellectual, emotional, physiological, socio-cultural, and interpersonal issues related to the processes of growing up and to inculcate healthy attitude towards sex and sexuality, respect for the opposite gender and understanding of responsible social behaviour. The course highlights core

life skills and their significance in adolescence life period and try to know about the various Adolescence Education programmes undergoing for Adolescence in India.

Learning Outcomes:

After the completion of this course students will be able to:

• develop sensitivity, understanding and knowledge about Adolescence and Adolescence Education,

• know the historical development of Adolescent Educational Programme in India,

• know the role of local as well as international agencies towards Adolescent Educational Programme,

• develop a positive attitude towards the importance of Adolescence Education Programmes at the school level,

• develop knowledge and sensitivity on matters related to reproductive health, sex and sexuality and communicate effectively on these issues,

• develop understanding about intellectual, emotional, physiological, socio-cultural, and interpersonal issues related to the processes of growing-up,

• inculcate a healthy attitude towards sex and sexuality, respect for the opposite gender and an understanding of responsible sexual behavior,

• develop an understanding about the desired life skills,

• acquire pedagogical related skills for Adolescence Education Programmes.

UNIT – I

Adolescence and Adolescence Education

A. Understanding Adolescence: intellectual, emotional, social, and physiological aspects of Adolescence, issues and challenges during Adolescence, myths and realities.

B. Adolescence Education: concept, nature, and significance of Adolescence Education in Indian context, aims and objectives of Adolescence Education.

C. Role of school, family, media, and community as social agencies in Adolescence Education. D. Challenges of Adolescence Education.

UNIT - II

Life Skills and Adolescence Education

A. Concept, nature, and significance of Life Skills for Adolescence Education.

B. Relationship between Life Skills and Adolescence Education.

C. Core Life Skills and their significance.

D. Understanding sexual and reproductive health.

E. STIs and HIV/AIDS: causes, prevention, cure, and skills of coping.

UNIT - III

Adolescence Education Programme in India (AEP)

A. Historical Development of Adolescence Education Programme in India.

B. Goals and Significance of Adolescence Education Programme in India.

C. Role of Teachers in Adolescence Education in India (AEP).

D. Challenges to Educational Programmes in India.

E. Myths / Misconceptions

UNIT - IV

Pedagogical Issues

A. Meaning, goals and significance.

B. Challenges of teaching adolescence education: understanding student's behavior, dealing with personal self-constraints, socio- cultural issues, class-room issues and challenges, material production, methodology

C. Preparation of teachers

D. Approaches to adolescence education: case studies and critical incidents, brainstorming, role-playing, gaming, value clarifications, question box, discussions and debates, puppet shows, role reversal, video shows.

Suggestive Practicum:

1. Study of Case studies and Critical Incidents. a) Field visit/s
2. Review and analysis of the work done by Government and Non-Government.
3. Study of Organizations (NGO) at national and international level.
4. A research study or detailed case study: Adolescents' behavior in different socioeconomic settings, a study on child abuse victims, adolescents in drug rehabilitation centers, adolescents residing in the precincts of industrial areas and factory establishments, adolescents in the educational regions showing either higher or lower drop-out rate, adolescents belonging to communities in which social evils affecting them are manifested like child marriages, conducting Adolescence Education sessions in School.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

FE 803 (IX): ART IN EDUCATION

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course seeks to develop an understanding of Art with special reference to its relevance in human life in general and Education in particular. It will further develop imagination and sense of appreciation and aesthetic of art. The theoretical considerations of Art Education are highlighted from Indian and western perspectives of art in Life. The course talks about the fundamental principles of Art Education at school level. The pedagogical issues of art education and approaches to teaching-learning process are also discussed.

Learning Outcomes:

After completion of this course, student teachers will be able to:

• develop art appreciation with special reference to relevance and place of Art in human life,

• acquaint with conceptual understanding of the key ideas of Art Education,

• discuss critically the value development in Art Education.,

• understand the implications of Art in Education, • sensitize towards the problems and issues in Art Education,

• sensitize towards pedagogical issues of Art Education,

UNIT - I

Art and Education

A. Conceptual clarity, relationship, and significance of studying art education with special reference to place of art in Human life.

B. Historical development of art education in school education.

C. Goals of studying art education in school curriculum at different stages.

D. Studying art education across the curriculum.

E. Perspective of NEP, 2020 on Art Education.

UNIT - II

Theoretical Consideration of Art Education

A. Philosophical, psychological and sociological perspective of Art Education.

B. Formal and informal theories of art.

C. Indian perspective of art in life.

D. Western perspective of art in life.

E. Critical analysis of theories of Art Education.

UNIT - III

Fundamentals of Art Education

A. Literature of Art Education

B. Conceptual clarity of the following basic concepts of art at school level: aesthetics, criticism and judgement at school level, beauty, reality, idea, truth, taste, sense.

C. Basic requirements of teaching-learning art at school across stages.

D. Question of social ethics.

UNIT - IV

Pedagogical Issues of Art Education

A. Approaches to teaching-learning process of Art Education.

B. Curriculum of art education with special to challenges of developing curriculum.

C. Material production and its challenges.

D. Assessment and Evaluation strategies with special reference to challenges.

E. Criterion of analyzing: curriculum of Art Education, teaching-learning material, assessment and evaluation strategies, teaching strategies of art at school level.

F. Values in Art teaching.

Suggestive Practicum:

1. Preparing multimedia material for Art Education in senior secondary schools.
2. Preparation of instructional material for education in the arts for secondary school.
3. Organizing the Art Club.
4. Case studies of the children's work of art and their understanding of the concept of Art.

Suggestive Mode of Transaction:

The course content transaction will include the following:

• Planned lectures infused with multimedia /power-point presentations.

• Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

• Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment: The assessment will be based on the tests and assignments.

Suggestive Reading Materials: Teachers may suggest books/readings as per the need of the learners and learning content.

MATHEMATICS

COURSE STRUCTURE OF ITEP, B.Sc.-B.Ed. IN THE SUBJECT OF MATHEMATICS

SEM.	PAPER CODE	TITLE	CREDITS
I	MTH 101	SETS, THEORY OF EQUATIONS AND TRIGONOMETRY	03+01=04
	MTH 102	VECTOR CALCULUS AND MATRICES	03+01=04
II	MTH 201	COORDINATE GEOMETRY	03+01=04
	MTH 202	ANALYTICAL GEOMETRY	03+01=04
	MTH 203	MATHEMATICS I	03+01=04
III	MTH 301	DIFFERENTIAL CALCULUS	03+01=04
	MTH 302	INTEGRAL CALCULUS	03+01=04
	MTH 303	MATHEMATICS II	03+01=04
IV	MTH 401	ORDINARY DIFFERENTIAL EQUATIONS	03+01=04
	MTH 402	PARTIAL DIFFERENTIAL EQUATIONS	03+01=04
	MTH 403	DIFFERENTIAL EQUATIONS	03+01=04
V	MTH 501	ABSTRACT ALGEBRA	03+01=04
	MTH 502	LINEAR ALGEBRA	03+01=04
	MTH 503	THEORY OF EQUATIONS	03+01=04
VI	MTH 601	REAL ANALYSIS	03+01=04
	MTH 602	NUMERICAL ANALYSIS	03+01=04

MATHEMATICS

MTH 101: SETS, THEORY OF EQUATIONS AND TRIGONOMETRY

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The importance of Mathematics is well known. Without the study of Mathematics, student cannot think to pursue the higher studies not only in science but also some other subjects in humanities. The purpose of program at the university is to prepare our students for all those fields where basic knowledge of science subjects is required including academia for careers as well as professionals in various industries and research institutions.

Learning Outcome:

- Students will have a firm foundation in the fundamentals and applications of Mathematics and scientific theories.
- Students will develop skills in problem solving, critical thinking and analytical reasoning as applied to scientific problems
- Students will be able to explore new directions to pursue higher studies in science subjects.
- Students will be able to contest and qualify different competitive exams where graduation degree is one of the essential qualifications.

UNIT I: Sets

Preliminaries-Sets, representation of sets, operations on sets, Index set and family of sets, Relations, Equivalence relations, Functions, principle of mathematical induction.

UNIT II: Theory of Equations

Relations between Roots and Coefficients of algebraic equations, Transformation of equations, Descartes rule of sign, Solutions of equations.

UNIT III: Trigonometry:

Complex numbers with elementary properties, De- Moivre's theorem, exponential functions, Euler's theorem, circular and hyperbolic functions, Gregory series, Summation of Trigonometric series.

Suggestive Mode of Transaction:

Lecture cum discussion, group work, Library visits, self- study, Classroom presentation, ICT enabled methods.

Suggestive Mode of Assessment:

Written tests, classroom Presentation, Assignments, Practicum, Sessional and terminal semester examination (As per UGC norms).

Suggested books:

1.C. C. MacDuffee: Theory of Equations, John Wiley & Sons, 1994.

2. R. K. Sharma, S. K. Shah and A. G. Shankar: Complex numbers and the Theory of Equations, Anthem Press, 2011.

3. N. P. Bali: Real Anaylis

MTH 102: VECTOR CALCULUS AND MATRICES

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning Outcome:

By the time students complete the course they will have knowledge of complex numbers, vectors and a glimpse of 3D- Geometry. The students will be able to compute numerical based on concepts as well.

UNIT I: Vector Calculus

Dot product, cross product, triple product, Differential operators- del, Gradient, Divergence and curl, Line, surface and volumes integrals, simple applications of Gauss divergence theorem, Green's theorem and Stokes ' theorem.

UNIT II: Matrices

Basics of matrices, Types of Matrices, Transpose, trace and determinant of a matrix, Elementary operations, Rank, Adjoint and inverse of a matrix.

UNIT III: System of equations:

Solutions of a system of linear equations, Solutions of Homogeneous and non-Homogeneous equations using Matrix, characteristics equation of a matrix, eigen values, eigen vectors, Cayley-Hamilton theorem.

Suggestive Mode of Transaction:

Lecture cum discussion, group work, Library visits, self- study, Classroom presentation, ICT enabled methods.

Suggestive Mode of Assessment:

Written tests, classroom Presentation, Assignments, Practicum, Sessional and terminal semester examination (As per UGC norms).

Suggested books:

1. C. C. MacDuffee: Theory of Equations, John Wiley & Sons, 1994.
2. Shanti Narayan and P. K. Mittal: A testbook of Vector Calculus, S. Chand& Company, 1987.
3. J. G. Chakravorty and P. R. Ghosh: Analytical Geometry and vector analysis, U. N. Dhur& Sons Pvt. Ltd, 1973.
4. R. K. Sharma, S. K. Shah and A. G. Shankar: Complex numbers and the Theory of Equations, Anthem Press, 2011.

MTH 201: CORDINATE GEOMETRY

Credits 03+01=04

Maximum Marks: 70+30=100

About the course:

The course seeks to develop an understanding of fundamentals of Analytical geometry that would allow to learn basic prerequisites for higher Mathematical concepts.

Learning Outcomes:

This course will enhance the understanding of Mathematical concepts with geometrical/graphical interpretations. After this course students will be able to visualise Mathematical concepts geometrically.

UNIT I: Cartesion Coordinate

Cartesion Coordinate**,** Equation of a line in different forms, Polar Coordinates, Conics, General equation of conic.

UNIT II: Circle and Parabola

Equation of circle whose centre and radius is known, General equation of circle, Equation of circle passing through three points, Tangent and Normal to a given circle at given point, Parabola, General equation of Parabola, Equation of tangent to parabola, Equation of Normal to Prabola.

UNIT III: Ellipse and Hyperbola

Ellipse**,** General equation of ellipse, Hyperbola, Equation of tangent to Ellipse, General equation of Hyperbola, Equation of tangent to Ellipse,

Properties of Ellipse and Hyperbola.

Suggestive Practicum - Class Tests and/or assignments/ group discussion / oral presentation.

Suggestive Mode of Transaction:

Lecture cum discussion, group work, Library visits, self- study, Classroom presentation, ICT enabled methods.

Suggestive Mode of Assessment:

Written tests, classroom Presentation, Assignments, Practicum, Sessional and terminal semester examination (As per UGC norms).

Suggestive Readings:

1. P. R. Vittal: Analytical Geometry -2D & 3D, Pearson education,2013.
2. Jyoti Das: Analytical Geometry, Academic Publisher, 2011.
3. P. K. Jain: A Textbook of Analytical Geometry, New Age Publication, 2014.

MTH 202: ANALYTICAL GEOMETRY

Credits 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

This course will enhance the understanding of Mathematical concepts with geometrical figures and their properties. After successful completion of this course students will be able to describe some of the surfaces by using analytical geometry.

UNIT I: Straight Line and Plane

Equation of line in different form, co-planar lines, Shortest distance, Length of perpendicular from appoint to a line, Equation of Plane in various forms, Length of perpendicular from appoint to a plane, angle between two planes, angle between line and plane, intersection of three planes.

UNIT II: Sphere and Cylinder

The sphere: Definition and equation of a sphere, plane section of a sphere, Intersection of two spheres, Sphere through a given circle, Intersection of a sphere and a line, Power of a point, Tangent plane, Plane of contact, Polar planes and polar lines, Poleof a plane, conjugate points and conjugate planes, Angle of intersection of two spheres.

Cylinder: Definition and equation of a cylinder, Right circular Cylinder, Enveloping cylinder, General equation of second degree, Tangent plane, Conjugate planes and conjugate points.

UNIT III: **Cone**

Cone: Definition and equation of a cone with various properties, Three mutually perpendicular generators, Intersection of a line with a cone, Tangent line and tangent plane, Reciprocal cone, Right circular cone.

Suggestive Practicum:

Class Tests and/or assignments/ group discussion / oral presentation.

Suggestive Mode of Transaction:

Lecture cum discussion, group work, Library visits, self- study, Classroom presentation, ICT enabled methods.

SuggestiveMode of Assessment:

Written tests, classroom Presentation, Assignments, Practicum, Sessional and terminal semester examination (As per UGC norms).

Suggestive Readings:

1. S. L. Loney: The elements of coordinate geometry, McMillan and company, London, 2008.
2. Shanti Narayan and P. K. Mittal: Analytical solid geometry, S. Chand & Company, 2007.
3. Jyoti Das: Analytical Geometry, Academic Publisher, 2011.
4. Robert J. T. Bell, An elementary Treatise on Coordinate geometry of three dimensions, MacMillan India Ltd., 1923.

MINOR/ELECTIVE

MTH 203: MATHEMATICS- I

Credits: 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

After completing this course students will be able to learn the basic concepts of continuity, Differentiability and methods of finding derivatives. The students will be able to understand concept of Matrices, their algebra and how to apply matrices to obtain solution to system of linear equations. The students will be able to apply these concepts in other areas of study.

UNIT I: Sets

Representation of sets, operations on sets, Index set and family of sets, Relations, Equivalence relations, Functions, principle of mathematical induction

UNIT II: Matrix

Basics of matrices, Types of Matrices, Transpose, trace and determinant of a matrix, Sum, difference and Product of Matrix, Adjoint and inverse of a matrix.

UNIT III: Limit, Continuity and Differentiability

Limit, Continuity and differentiability of functions, Differentiation of polynomial functions, Trigonometric functions, exponential function and logarithmic function, Derivative of sum of functions, derivative of a product of functions.

Suggestive Practicum:

Class Tests and/or assignments/group discussion/oral presentation.

Suggestive Mode of Transaction:

Lecture cum discussion, group work, Library visits, self- study, Classroom presentation, ICT enabled methods.

Suggestive Mode of Assessment:

Written tests, classroom Presentation, Assignments, Practicum, Sessional and terminal semester examination (As per UGC norms).

Suggestive Readings:

1. T. M. Apostol: Calculus Vol. I, John Wiley & sons, 1999.
2. S. Lang: A First Course in Calculus, Springer- Verlag New York Inc., 1986.
3. Gorakh Prasad: Differential calculus, Pothishala publication, Allahabad, 2016.
4. Fuzhen Zhang: Matrix theory - Basic results and Techniques, Springer, 1999.

MTH 301: DIFFERENTIAL CALCULUS

Credits: 03+01=04

Maximum Marks: 70+30=100

About The Course:

This paper provides detailed knowledge of differentiation and integration of various classes of functions. It relates and gives an analytical aptitude for various mathematical problems. After completing the course students will be able to understand basic concepts of calculus and able to apply these concepts in other areas of study especially physics and engineering.

Learning outcomes:

Students will have a firm foundation in the fundamentals and applications of Differential Calculus. The notion of limits, continuity and differentiability of functions will be developed. It will enable students to understand higher order derivatives, and various theorems on the calculus.

UNIT- I

Functions of one variable, Limit and Continuity of a Function, Properties of continuous functions, Classification of Discontinuities, Differentiability of a function, Rolle's Theorem, Successive Differentiation.

UNIT- II

Nth Differential coefficient of functions, Leibnitz Theorem; Taylor's Theorem, Maclaurin's Theorem, Taylor's and Maclaurin's series expansions, Indeterminate forms.

UNIT- III

Tangents and Normals, Geometrical meaning of dy/dx, Definition and equation of Tangent and Normal, Angle of intersection of two curves, Subtangent and Subnormal, Curvature, Radius of curvature; Asymptotes of algebraic curves, Methods of finding asymptotes.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. T. M. Apostol: *Calculus Vol. I***,** John Willey & Sons, 1999.

2. Gorakh Prasad: *Differential Calculus*, Pothishala publication, Allahabad, 2016.

3. M. Ray, H. S. Sharma and S. S. Seth: *Differential Calculus*, Shiva Lal Agarwal & Company, Agra.

4. S. Balachandra Rao and C. K. Shantha: *Differential Calculus*, New Age Publication, 1992

MTH 302: INTEGRAL CALCULUS

Credits: 03+01=04
Maximum Marks: 70+30=100
Learning outcomes:

The course will enable the students to learn basics of Integral Calculus, properties of integrals. they would be able to solve problems related to definite and multiple integrals. It will develop a firm understanding of geometrical applications of Definite Integrals**.**

UNIT- I

Definite Integrals: Integral as a limit of sum, Properties of Definite integrals, Beta function, Gamma function, Relation between Beta and Gamma function.

UNIT- II

Multiple Integrals: Double integrals, Evaluation of Double integrals, Double integral in polar Coordinates, Change of order of integration in Double integrals, Triple integrals, Evaluation of Triple integrals, Dirichlet's theorem and it's Liouvelle's extension.

UNIT- III

Geometrical Applications of Definite Integrals: Area bounded by curves (quadrature), Rectification (length of curves), Volumes and Surfaces of Solids of revolution.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested Books:

1. Gorakh Prasad: *Integral Calculus*, Pothishala Publication, Allahabad, 2016
2. M. Ray, H. S. Sharma and S. S. Seth: *Integral Calculus*, Shiva Lal Agarwal & Company, Agra.
3. T. M. Apostol: *Calculus Vol. I***,** John Willey & Sons, 1999.

MINOR/ ELECTIVE
MTH 303: MATHEMATICS II

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

This paper provides basic knowledge of integration of functions that would allow to learn basic prerequisites of Mathematics to be used in other subjects as well.

Learning outcomes:

After completing this course students will be able to learn the concepts of integrability, methods of finding integration by substitution, by parts and using partial fractions.

UNIT- I: Integration as an Inverse Process of Differentiation, Indefinite integrals, properties of indefinite integrals.

UNIT- II

Integration of some particular functions, Integration of standard functions like polynomials, trigonometric and exponential functions.

UNIT- III

Methods of integration, Integration by substitution, Integration using Partial Fractions, Integration by parts, definite integrals.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. T. M. Apostol: Calculus Vol. I, John Willey & Sons, 1999.
2. Gorakh Prasad: Integral Calculus, Pothisahla Publication, Allahabad, 2016.
3. NCERT Mathematics Textbook for class XII, part II.

MTH 401: ORDINARY DIFFERENTIAL EQUATIONS

Credits: 03+01=04
Maximum Marks: 70+30=100
About the course:

This course provides detailed knowledge of differential equations and their solutions. This course is useful for the students to solve not only mathematical problems in daily life but also helps to understand typical problems of physics and other related areas.

Learning outcomes:

The course will develop a firm understanding of basics of Ordinary differential equations. Students will develop skills in solving differential equations of first degree. Students will have a firm foundation in Linear differential equations as well.

UNIT- I

Order and Degree of Differential Equations, Complete primitive (general solution, particular solution and singular solutions), Differential equations of first order and first degree, Separation of variables, Homogeneous Equations, Linear Differential Equations.

UNIT- II

Exact Differential Equations, Integrating Factor, Equation of First order but not of first degree, variation of parameters, Clairaut's form.

UNIT- III

Linear Differential Equations: Linear equations with constant coefficients, Complementary function, Particular integral, working rule for finding solution.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. G. F. Simmons: *Differential Equations with Application and Historical Notes*, McGraw Hill Edition, 2002.
2. Shepley L. Ross: *Differential Equations*, John Wiley & Sons, 1984.
3. M. D. Raisinghania: *Ordinary & Partial Differential Equation,* S. Chand & Co. Ltd, 2017.
4. B. Rai, D. P. Choudhary and H. J. Freedman: *A Course of Ordinary Differential Equations,* Narosa, 2002.

MTH 402: PARTIAL DIFFERENTIAL EQUATIONS

Credits: 03+01=04

Maximum Marks: 70+30=100

Learning outcomes:

The course will develop a firm understanding of basics of Partial differential equations. Students will be capable of solving numerical problems of partial differential equations and non-linear partial differential equations with various methods.

UNIT- I

Classification of Partial Differential Equations, order and degree of Partial Differential Equations, formation of partial differential equations, partial differential equations of first order

UNIT- II

Charpit's method, Linear partial differential equations with constant coefficients. First-order linear, quasi-linear and non-linear partial differential equations using the method of characteristics: explicit solutions.

UNIT- III

Partial differential equations of second order: Classification of second order linear equations in two independent variables.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. G. F. Simmons: *Differential Equations with Application and Historical Notes*, McGraw Hill
   Edition, 2002
2. Shepley L. Ross: *Differential Equations*, John Wiley & Sons, 1984.
3. M. D. Raisinghania: *Ordinary & Partial Differential Equation,* S. Chand & Co. Ltd, 2017.
4. Ravi P. Agarwal and Donal O'Regan: *Ordinary and Partial Differential Equations,* Springer, 2009

MINOR/ ELECTIVE
MTH 403: DIFFERENTIAL EQUATIONS

Credits: 03+01=04

Maximum Marks: 70+30=100

About the Course:

This paper will provide basic knowledge of differential equations. The students will be able to apply these concepts in other areas of study like economics, geography etc.

Learning outcomes:

The course will develop a firm understanding of basics of Partial differential equations. Students will be capable of solving numerical problems related to differential equations.

UNIT- I

Order of differential equation, degree of Differential Equation, General solution and Particular solution of a differential equation, formation of differential equation whose General solution is given.

UNIT- II

Differential equations of first order and first degree, Methods of solving first order, first degree differential equations, Differential Equations with variables separable, Homogeneous differential equations.

UNIT- III

Linear differential equation ($dy/dx + py = q$), exact differential equation ($Mdx + Ndy = 0$), integrating factor.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. G. F. Simmons: *Differential Equations with Application and Historical Notes*, McGraw Hill Edition, 2002
2. Shepley L. Ross: *Differential Equations*, John Wiley & Sons, 1984.

MTH 501: ABSTRACT ALGEBRA

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

This course is useful to understand the concepts of algebraic structures and their properties. It will help the students for better understanding of other subjects, especially atomic structures in chemistry and certain concepts of physics.

Learning outcomes:

The students will develop the concept of binary operation and Algebraic structure. Students will develop concept of Homomorphism and isomorphism and related theorems.

UNIT- I

Groups: Binary operation and Algebraic structure, Subgroups, Permutation groups, Cyclic groups, Coset decomposition, Lagrange theorem.

UNIT- II

Homomorphism and Isomorphism, Fundamental theorems of homomorphism, Cayley's theorem, Normalizer and center of group.

UNIT- III

Rings, Sub rings, Integral domain, Field, Skew field, Ideals, Characteristic of a ring, Ring Homomorphism, Quotient rings.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. I. N. Herstein: *Topics in Algebra*, John Wiley & Sons, 2006.

2. Joseph A. Gallian: *Contemporary Abstract Algebra*, Narosa Publishing House, 2016.

3. David S. Dummit and Richard M. Foote: *Abstract Algebra*, John Wiley & Sons, 2011.

4. Surjeet Singh and Qazi Zameeruddin: *Modern Algebra*, Vikas Publishing House, India, 2021.

MTH 502: LINEAR ALGEBRA

Credits: 03+01=04

Maximum Marks: 70+30=100

Learning outcomes:

After completing the course students will have a firm foundation in vector spaces and linear combinations. It will enable the students to understand the interrelation of vectors with matrices. Familiarize with concepts of bases, dimension and linear transformation.

UNIT- I

Vector space, subspaces, Linear combinations, linear spans, Sums and direct sums, Linear dependence and independence, Bases and dimensions, Dimensions and subspaces.

UNIT- II

Linear transformations, rank-nullity theorem, Linear operators, Invertible linear transformations, Matrix representation of a linear transformation, Linear functional.

UNIT- III

Eigen values and Eigen vectors, Algebraic and Geometrical Multiplicity, Characteristic and Minimal Polynomials, Cayley-Hamilton theorem.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. Michael Artin: *Algebra*, Pearson Education, 2015.
2. N. Jacobson: Basic Algebra-*Vol. I & II*, Dover Publications Inc., 2009.
3. R. S. Aggarwal: *A Textbook on Modern Algebra*, S Chand & Company, 1973.

MINOR/ ELECTIVE
MTH 503: THEORY OF EQUATIONS

Credits: 03+01= 04

Maximum Marks: 70+30=100

About the course:

This course gives basic knowledge and background to understand polynomial equations and other cubic and bi-quadratic equations. It will prepare background to understand other courses either in mathematics pr physics.

Learning outcomes:

Students will be solving problems related to polynomial; equations. They will have a firm understanding of relation between roots and coefficients of quadratic equations. Students will develop skills solving problem of cubic and bi-quadratic polynomial equations**.**

UNIT- I

Polynomial equation, Roots of polynomial equation, quadratic equations, cubic equations, bi-quadratic equations, Descartes rule of sign.

UNIT- II

Relation between the roots and co-efficients of quadratic equation, cubic equation and bi-quadratic polynomial equation.

UNIT- III

Cardon's method of solving the cubic equations, solution of biquadratic equations by Descarte's Method, Ferrari's method of solving the biquadratic.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. C. C. MacDuffee: Theory of Equations, John Willey & Sons, 1994.
2. R. K. Sharma, S. K. Shah andA. G. Shankar: Complex numbers and theory of Equations, Anthem Press, 2011.

MTH 601: REAL ANALYSIS

Credits: 03+01= 04

Maximum Marks: 70+30=100

About the Course:

The core concepts of Analysis have been included in this course with a view that students can understand the behaviour of real numbers in a critical way.

Learning outcomes:

By the time students complete the course they will have knowledge of real analysis. The students will be able to compute numerical based on concepts as well.

UNIT- I

Number system, properties of Real numbers, Archimedean Property, Supremum and infimum, Neighborhood of a point, interior of a set, open set, closed set.

UNIT- II

Functions, Limit, continuity and Differentiability of functions, Uniform continuity of a function, Taylor's theorem with various forms of remainders.

UNIT- III

Sequence, convergent sequence, limit of sequence, Divergent sequence, series, various tests for convergence of series.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. Walter Rudin: Principle of Mathematical Analysis, McGraw Hill Edition, 1976.
2. R.G. Bartle and D.R. Sherbert: Introduction to Real Analysis, John Wiley & Sons, 1999.

MTH 602: NUMERICAL ANALYSIS

Credits: 03+01= 04
Maximum Marks: 70+30=100
About the course:

After completion of this course, the students will be able to understand the methods to find alternate/ approximate solutions of certain mathematical problems.

Learning outcomes:

By the time students complete the course they will have knowledge of Numerical analysis. The students will be able to compute numericals based on interpolation, numerical differentiation and integration as well.

UNIT- I

Solutions of Algebraic and Transcendental Equations: Bisection method, False position method, Newton Raphson method, Picard's iteration method.

UNIT- II

Interpolation: Finite Differences, Forward differences, Backward differences, Central Differences, Newton's Forward and Backward Interpolation, Gauss, Stirling, Bessel's and Everett's Formulae.

UNIT- III

Numerical differentiation, Numerical integration by Trapezoidal rule, Simpson's 1/3, Simpson's 3/8 rule.

Suggestive mode of Transaction:

Lecture cum discussion, group work, Library visits, self-study, Classroom presentation. ICT enabled methods.

Suggestive mode of Assessment:

Written tests, classroom presentation, Assignments, Practicum, Sessional and Terminal semester examinations (As per UGC norms).

Suggested books:

1. S. S. Sastry: Introductory of Methods Numerical analysis, Prentice Hall of India, 2012.
2. J. W. Thomas: Numerical Partial Differential Equations: Finite Difference Methods, Springer, 1998.
3. P. Henrici: Elements of Numerical analysis, John Wiley and sons, 1964.

PHYSICS

COURSE STRUCTURE OF ITEP, B.Sc.-B.Ed. IN THE SUBJECT OF PHYSICS

SEM.	PAPER CODE	TITLE	CREDITS
I	PHY 101	MECHANICS	03+01=04
	PHY 102	ELECTRICITY	03+01=04
II	PHY 201	THEORY OF OSCILLATION AND WAVES	03+01=04
	PHY 202	MAGNETISM	03+01=04
	PHY 203	BASIC PHYSICS-I	03+01=04
III	PHY 301	THERMODYNAMICS	03+01=04
	PHY 302	HEAT TRANSFER, KINETIC THEORY OF GASES AND STATISTICAL PHYSICS	03+01=04
	PHY 303	BASIC PHYSICS-II	03+01=04
IV	PHY 401	GEOMETRICAL OPTICS	03+01=04
	PHY 402	PHYSICAL OPTICS	03+01=04
	PHY 403	BASIC ELECTRICITY AND MAGNETISM	03+01=04
V	PHY 501	QUANTUM MECHANICS	03+01=04
	PHY 502	BASIC ELECTRONICS	03+01=04
	PHY 503	BASICS OF HEAT TRANSFER	03+01=04
VI	PHY 601	MODERN PHYSICS	03+01=04
	PHY 602	DIGITAL ELECTRONICS	03+01=04

PHY 101: MECHANICS

Credits: 03+01=04

Maximum marks: 70+30=100

About the course:

Students having Degree in B.Sc. (with Physics) should have knowledge of different concepts and fundamentals of Physics and ability to apply this knowledge in various fields of academics and industry. They may pursue their future career in the field of academics, research and industry.

Learning outcomes:

After completing this course, the students will be able to:

- Understanding of Vector Algebra and Vector Calculus.
- Understand the physical interpretation of gradient, divergence and curl.
- Study of gravitational field and potential and understanding of Kepler's laws of Planetary motion.
- Understanding of different frames of references and conservation laws.
- Understand the dynamics of rigid body and concept of moment of inertia. Study of moment of inertia of different bodies and its applications.

UNIT I: Vectors Algebra

Scalar and Vector triple products, scalar and vector field, Derivative of a vector, line, surface and volume integral of vector function, Del operator, Gradient, Divergence and curl of vectors, Application of divergence and curl, Gauss's divergence and Stoke's curl theorem.

UNIT II: Gravitation field and potential

Gravitational field and potential, Gravitational potential energy, Gravitational field Intensity and potential due to a ring, a spherical shell, solid sphere and circular disc, gravitational self energy, Inverse square law of forces, Kepler's laws of planetary motion, artificial satellite.

UNIT III: Conservation laws

Concept of inertial and non-inertial frames of references, Work energy theorem, Conservative & non-Conservative forces, Linear restoring force, Gradient of potential, Conservation of energy for the particle; Energy function, motion of a body near the surface of the earth, Law of conservation of total energy**,** Conservation of Linear momentum, Centre of mass, System of variable mass, the rocket, Angular momentum and torque, Areal velocity, Examples of Conservation of Angular momentum.

Suggestive Practical:

1. Oscillations of mass spring system.
2. 'g' by simple pendulum
3. Moment of inertia of a fly wheel
4. Inertia table of experiment and Study of relaxation in a simple pendulum
5. Study of under damped harmonic oscillator

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations (as per UGC norms).

Suggestive readings:

Mechanics and General Properties of matter.

1. Berkeley physics course Vol.I Mechanics (McGraw Hill)
2. R.P. Feynman, R.B. Lightan and MSand "The Feynman Lectures in Physics"
3. J.C. Upadhayay "General Properties of matter" Vol-I
4. D.S. Mathur "Mechanics" S. Chand and Co.
5. D.S. Mathur "Elements of Properties of Matter" S. Chand and Co.
6. B.S. Rajput "Physics for Engineers" Vol II Pragati Prakashan

PHY 102: ELECTRICITY

Credits: 03+01=04

Maximum marks: 70+30=100

Learning outcomes:

- After completing this course, the student will be able to:
- Understand electric field and potential
- Understand electric field in matter and electric current.

UNIT-I- Electric field and potential

Coulomb law, Gauss' theory, its integral and differential forms, line integral of Electric field, Electric field and potential due to an arbitrary charge distribution, Electrostatic energy, energy stored in an Electric field, Electric field and petunias due to a long-charged wire, Spherical shell, Sphere, Disc, Dipole.

UNIT-II- Electric field in Matter

Moments of Charge distribution, Polar and non-polar molecule, polarization vector, Electric displacement vector, three electric vector, dielectric susceptibility and permittivity, polarizability.

UNIT-III- Electric currents (Steady and Varying)

Current density, Equation of continuity, ohm's law, electric conductivity, Lorents-Drude theory, Wiedmann-Frenz law, Kirchoff's laws and their applications, Transient current, growth and decay of D.C. in L-R and L-C circuits, charging and discharging of a capacitor through a resistance.

Suggestive Practical:

1.Calibration of ammeter by potentiometer.
2. Calibration of voltmeter by potentiometer.
3. Specific resistance determination.
4. Conversion of Galvanometer in to a voltmeter.

5. Conversion of Galvanometer in to a ammeter.
7. Charging and discharging through a capacitor.
8. De Sauty's bridge- C1/C2. 15. R1/R2 by potentiometer.

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations (as per UGC norms).

Suggestive Readings:

1. Berkeley physics course Vol.II "Electricity and Magnetism" (McGraw Hill)
2. Hilliday and Resnick-Vol-II
3. Mahajan and Rangwala "Electricity and Magnetism" (Tata McGraw Hill)
4. K.K Tewari, "Electricity and Magnetism", S. Chand and Co.
5. B.B. Laud, "Electricity and Magnetism"
6. D.C. Tayal "Electricity and Magnetism" Himalaya Publishing.
7. B.S. Rajput "Physics for Engineers" Vol II Pragati Prakashan**.**

PHY201: THEORY OF OSCILLATION AND WAVES

Credits: 03+01=04

Maximum marks: 70+30=100

About the course:

Students having Degree in B.Sc. (with Physics) should have knowledge of different concepts and fundamentals of Physics and ability to apply this knowledge in various fields of academics and industry. They may pursue their future career in the field of academics, research and industry.

Learning outcomes:

- After completing this course, the students will be able to:
- Understand the concepts related with wave motion.
- Apply different wave motion.
- Develop concepts related with ultrasonics.
- Discriminate among sound waves.
- Determine Energy density of plane acoustic waves etc.

Unit –I Oscillation:

SHM, Differential equation of SHM and its solution, Energy of harmonic oscillator, Lissajous's Figures for equal frequencies ratio and 2:1Frequencies ratio, damping forces, damped harmonic oscillator and its differential equation, relaxation time, quality factor, simple and compound pendulum, driven harmonic oscillator and its different equation, amplitude, resonance, velocity resonance, sharpness of resonance.

UNIT II: Analysis of Wave Motion

Characteristics, Differential equation of a wave motion, principle of superposition, Interference, Beats, stationary waves, Energy of stationary waves, Wave velocity and group velocity, Fourier theorem, Fourier analysis of square, triangular and saw-tooth waves.

UNIT III: Ultrasonics &Acoustics

Ultrasonics, Quartz crystal and Piezo electric effect, Magnetostriction effect, Detection of ultrasonic waves, Determination of velocity of ultrasonic waves in liquid (Acoustic grating method), Applications of Ultrasonics, Energy density of plane acoustic waves, Acoustic intensity, Measurement of acoustic intensity – the dB scale, Characteristics and loudness of Musical sound, Acoustic impedance, Reflection and transmission of acoustic waves, Acoustics of buildings, reverberation time.

Suggestive Practical:

1. Lissajous figures.
2. Viscosity of water by Poiseuille's method.
3. Determination of velocity of sound in a medium.
4. Surface Tension determination, Determination of Ultrasonic velocity.
5. Hysteresis

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations (as per UGC norms).

Suggestive readings:

1. Brijlal and Subrahmanyam, "Waves and Oscillations", S. Chand and Co
2. B.S. Semwal and M.S. Pasewar, "Wave Phenomena and material Science"
3. Waves: Berkeley Physics Course (SIE) by Franks Crawford (Tata McGrawHill).
4. R.K. Ghose, "The mathematics of waves and Vibrations" McMillan
5. D.P. Khandelwal, "Oscillations and Waves" Himalaya Publishing
6. I.I. Pain "Physics of Vibration"
7. A. P. French, "Vibrations and Waves" (CBS Pub. & Dist., 1987)
8. B.S. Rajput "Physics for Engineers" Vol II Pragati Prakashan.

PHY-202 MAGNETISM

Credits: 03+01=04

Maximum marks: 70+30=100

Learning outcomes:

After completing this course, the students will be able to:

- Describe magnetostatics and analyse its different principles and laws.
- Understand magnetic field in matter.
- Understand alternating currents and electromagnetic induction.

UNIT I: Magnetostatics

Lorentz force, Bio-Savert's law, Ampere's law, Application of Biot-Savert law, magnetic field due to steady current in a long straight wire, Interaction between two wires, field due a Helmholtz coil, solenoid and current loop, magnetic vector potential, permeability, Energy stored in Magnetic field.

UNIT II: Magnetic field in matter

Magnetization, magnetic susceptibility, diamagnetic, paramagnetic and ferromagnetic substances, Hysteresis and B-H curve, Langevin's theories of Diamagnetism and paramagnetism, Weiss theory of ferromagnetism.

UNIT III: Electromagnetic Induction and Alternating Current.

Faraday's laws of induction, Lenz's law, Electromotive Force, Eddy current, Mutual inductance, Self-inductance. Admittance and reactance Impedance, R-C, R-L and L-C circuits with alternative E.M.F. source, series and parallel L-C-R circuits, resonance and sharpness, Power in A-C circuits, choke coil, Transformers

Suggestive Practical:

1. Frequency of A.C mains.
2. Determination of Ballistic Constant.
3. Comparison of capacities by Ballistic Galvanometer.
4. Variation of magnetic field along the axis of a current carrying circular coil.
5. Determination of self-inductance/ Mutual inductance.
6. Study of R-C, LCR circuits.

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations (as per UGC norms).

Suggested Reading:

1. Edward M. Purcell: Electricity and Magnetism
2. J.H. Fewkes&J. Yarwood: Electricity & Magnetism, Vol. I
3. D C Tayal: Electricity and Magnetism", Himalaya Publishing House Pvt. Ltd., 2019.
4. D.J. Griffiths: Introduction to Electrodynamics.

5. Lal and Ahmed: Electricity and Magnetism
6. H. K. Malik and A.K. Singh "Engineering Physics", McGraw Hill Education (India) Private Limited, 2018.
7. Richard P. Feynman, Robert B. Leighton, Matthew Sands, "The Feynman Lectures on Physics Vol. 2", Pearson Education Limited, 2012.

MINOR/ELECTIVE

PHY- 203: BASIC PHYSICS-I

(FOR THOSE STUDENTS WHO DO NOT HAVE PHYSICS AS A MAJOR)

Credits: 03+01=04

Maximum marks: 70+30=100

Learning outcomes:

After completing this course, the students will be able to:

- Describe rest and motion its different principles and laws.
- Understand forces.
- Understand circular motion.

UNIT I: Rest and motion

Distance and displacement, Speed, velocity and acceleration, Motion in a straight line, Motion in a plane, Newton's first, second and third law of motion, Pseudo forces, Vector and scalars, Equality of vectors, addition and subtraction of vectors, Resolution of vectors, scalar and vector product of two vectors.

UNIT II: Forces

Gravitational, electromagnetic, nuclear and weak forces, scope of classical physics, Friction as a component of central force, Kinetic and static frictions, Laws of Frictions, Friction at atomic levels.

UNIT III: Circular Motion

angular variables, acceleration in a circular motion, Dynamics of a circular motion, Circular turnings and banking of roads, Centrifugal and centripetal forces, Effect of Earth's rotation on apparent weight, Work and energy: Kinetic and potential energy, Work and work energy theorem, Calculation of work done, work energy theorem for a system of particles.

Suggested readings:

H.C. Verma: Basic Physics I
Berkeley Physics Course Vol I "Mechanics" McGraw-Hill book company
J.P. Upadhyay "General Properties of Matter" Vol. I Ram Prasad & Sons, Agra
D. S. Mathur "Elements of Properties if Matter" S. Chand & Co.

PHY301: THERMODYNAMICS

Credits:03+01=04

Maximum marks: 70+30

Learning outcomes:

After completing this course, the students will be able to

- Understand Basic concepts of Thermodynamics
- Understand the concepts of thermal equilibrium and Zeroth Law of thermodynamics.
- Study of First, Second and Third Law of Thermodynamics and concept of Entropy.
- Understand the physical significance of thermodynamic relations.
- Study of Maxwell's thermodynamical potentials.

UNIT- I

Basic concepts and First law of thermodynamics

Thermodynamic Systems, Thermal equilibrium and Zeroth law of thermodynamics, Equation of state and First law of thermodynamics, Discussion of Heat and Work, Quasi-static Work; Reversible and Irreversible; Path Dependence; Heat Capacities Adiabatic Processes, Vander Wall equation, Distinction between Joule, Joule-Thompson and Adiabatic expansion of a gas.

UNIT- II

Second law of Thermodynamics and Entropy

Insufficiency of first law of thermodynamics, Condition of Reversibility, Carnot's Engine and Carnot's Cycle, Second law of thermodynamics, Carnot's Theorem, Thermodynamic scale of temperature and its identity to perfect gas, scale of temperature. Entropy, Mathematical formulation of Second law of thermodynamics, Entropy of an ideal gas, T-S diagram and its applications, Evaluation of Entropy changes in simple cases, Third law of thermodynamics.

UNIT- III

Thermodynamic Relations

Thermodynamic potentials, Maxwell's equation from thermodynamic potentials, some useful manipulations with partial derivatives (cooling in adiabatic processes and Adiabatic stretching of a wire), The Clausius– Clapeyron's equations, Triple point, Applications of Maxwell's thermodynamical relations.

Suggestive Practical:

1. Mechanical equivalent of heat by Searle's method.
2. Platinum resistance thermometer.
3. J by Callendar and Barnes method.
4. Constant volume thermometer.
5. Variation of thermo-emf across two junctions of a thermocouple with Temperature

Suggested Reading

1. S. Loknathan: Thermodynamics, Heat and Statistical Physics
2. Sharma and K.K. Sarkar: Thermodynamics, and Statistical Physics
3. Brijlal and Subrahmanyam: Heat and Thermodynamics
4. Garg, Bansal and Ghose: Thermal Physics, McGraw Hill, 2012.

5. M.W. Zemansky, R. Dittman, “Heat and Thermodynamics”, McGraw Hill, 1997.
6. Enrico Fermi, “Thermodynamics”, Dover Publications, 1956.
7. Meghnad Saha, B.N. Srivastava, “A Treatise on Heat”, Indian Press, 1973
8. F.W. Sears, G.L. Salinger, “Thermodynamics, Kinetic theory & Statistical thermodynamics”, Narosa Publishing House, 1998.
9. Singhal and Prakash: Heat and Thermodynamics, Pragati Prakashan

PHY302: HEAT TRANSFER, KINETIC THEORY OF GASES AND STATISTICAL PHYSICS

Credits:03+01=04

Maximum marks: 70+30=100

Learning outcomes:

After completing this course, the students will be able to

- Understand the physical significance of the different modes of Heat Transfer.
- Comprehend the kinetic model of gases w.r.t. various gas laws.
- Study the implementations and limitations of fundamental radiation laws.
- Understand basics of statistical Physics and concept of thermodynamic probability

UNIT- I

Transport of Heat:

Conduction, Convection and Radiation, Fourier’s law, One dimensional steady state conduction, Thermal conductivity and its experimental detection, Newton’s law of cooling, Black body radiation, Thermodynamics of radiations inside a hollow enclosure, Kirchoff’s Laws, Stefan Boltzmann Law, Wien’s displacement law, Raleigh Jean’s Law, Quantum theory of Radiation, Planck’s formula, Wien’s law.

UNIT- II

Kinetic Theory of Gases:

Kinetic theory of gases, microscopic description of an Ideal gas, Degrees of freedom, Law of Equipartition of Energy, Distribution law of velocities, most probable speed, Average speed and root mean square velocity of molecules, Pressure exerted by a perfect gas, Kinetic Interpretation of Temperature.

UNIT- III

Basics of Statistical Physics:

Basic postulates of Statistical Physics, Macro and Micro States, Phase Space, Condition of equilibrium, Postulate of equal a priori probability, Entropy and Thermodynamic probability, Boltzmann entropy relation, Maxwell-Boltzmann (M-B) statistics and Distribution law.

Suggestive Practical:

1. Thermal conductivity of a bad conductor by Lee's method.
2. Thermal conductivity of a good conductor by Searle's method.
3. Newton's law of cooling, sp. heat of Kerosene oil.
4. Random throw- statistical method.

Suggested Readings:

1. S. Loknathan: Thermodynamics, Heat and Statistical Physics
2. Sharma and K.K. Sarkar: Thermodynamics, and Statistical Physics
3. Brijlal and Subrahmanyam: Heat and Thermodynamics
4. Garg, Bansal and Ghose: Thermal Physics, McGraw Hill, 2012.
5. M.W. Zemansky, R. Dittman, "Heat and Thermodynamics", McGraw Hill, 1997.
6. Enrico Fermi, "Thermodynamics", Dover Publications, 1956.
7. MeghnadSaha, B.N. Srivastava, "A Treatise on Heat", Indian Press, 1973
8. F.W. Sears, G.L. Salinger, "Thermodynamics, Kinetic theory & Statistical thermodynamics", Narosa Publishing House, 1998.
9. Singhal and Prakash: Heat and Thermodynamics, Pragati Prakashan

MINOR/ELECTIVE
PHY303: BASIC PHYSICS-II

Credits:03+01= 04

Maximum marks: 70+30 =100

Learning outcomes:

- To understand the Gravitational field
- To understand the Simple Harmonic Motion
- To learn about the mechanical properties of matter

UNIT- I

Gravitation:

Historical introduction, measurement of gravitational constant 'G', Gravitational potential energy, Gravitational potential, Gravitational field, Relation between gravitational field and potential, Variation in the value of acceleration due to gravity, Planets and satellites, Kepler's law, Weightlessness in a satellite, Escape velocity, Gravitational binding energy, Black holes.

UNIT- II

Simple Harmonic Motion (SHM):

Qualitative nature of SHM, Equation of motion of a SHM, Terms associated with SHM, SHM as a projection of a circular motion, Energy conservation in SHM, Angular SHM.

UNIT- III

Mechanical properties of matter:

Molecular structure of a material, Elasticity, Stress, Strain, Hooke's law and the modulus of elasticity, Relation between longitudinal stress and strain, Elastic potential energy of a strained body, Surface tension and energy, Viscosity, Poiseuille's equation, Stoke's law.

Suggested Reading

1. H. C. Verma: Concepts of Phyiscs part I
2. Robert Resnick Jearl Walker, David Halliday: Principles of Physics
3. Halliday, Resnick, Walker: Fundamentals of Physics Extended (Old Edition)

PHY401: GEOMETRICAL OPTICS

Credits:03+01=04

Maximum marks: 70+30=100

Learning outcomes:

After completing this course, the students will be able to

- Study of Fermat's Principle of Extremum Path and understand fundamental physics behind reflection and refraction of light.
- Concept of cardinal points and theory of image formation by an optical system.
- Study of different types of optical Aberrations and techniques for their reduction.

UNIT- I

Fermat's Principle and its application:

Basics of Geometrical optics, Fermat's principle of extremum path and its application to deduce laws of reflection and refraction, Fermat's principle and refraction at concave surface, Principal foci, Lateral and longitudinal magnifications, Aplanatic points and planes of spherical surface.

UNIT- II

Cardinal Points and Eyepieces:

Cardinal points and planes of an optical system, Construction of the image using cardinal points, Cardinal points of a thick Lens, Construction of Eyepiece, Its advantages over single lens, Types of Eyepieces: Kellner's, Ramsden, Huygens and Gaussian eyepieces, their comparison. Cardinal points of different types of eyepieces.

UNIT- III

Optical Aberrations:

Theory of Dispersion, angular dispersion, dispersive power, Monochromatic aberrations: Spherical aberration, Coma, Astigmatism, Curvature of field, Distortion, Techniques for the reduction of monochromatic aberrations, Chromatic aberration, Condition of achromatism, Achromatic combination of lenses in contact and separated lenses

Suggestive Practical:

1. Nodal slide assembly, Location of cardinal points of lens system.
2. Newton's formula.
3. Dispersive power of prism.
4. Resolving power of a telescope.
5. To determine the Resolving Power of a Prism.
6. To verify the Cauchy's dispersion formula.
7. To find the thickness of the wire using optical bench.

Suggested Reading

1. D.P. Khandelwaland: Optics and Atomic Physics
2. Jenkins and White: Fundamentals of Optics
3. A.K. Ghatak: Physical Optics
4. Brijlal and Subrahmanyam: Optics
5. K.D. Moltev: Optics
6. B. K. Mathur: Optics

PHY402: PHYSICAL OPTICS

Credits: 03+01=04

Maximum marks: 70+30=100

Learning outcomes:

After completing this course, the students will be able to

- Study of Interference of light. Interference by division of wavefront and division of amplitude.
- Understanding Diffraction of Light and concept of Zone Plate.
- Understand the polarization of light.

UNIT- I

Interference:

Interference The principle of superposition, Two slit interference, coherence, Division of wave front and amplitude, Optical path retardations lateral shift of fringes, Fresnel biprism, Interference with multiple reflection, Thin films, Application for precision measurements, Haidinger fringes, Fringes of equal thickness and equal inclination.

Unit-II

Diffraction: Diffraction Fresnel's and Fraunhofer diffraction: Diffraction of single slit, Zone plates, intensity distribution, Resolution of image, Rayleigh criterion, Resolving power of telescopes and microscopes, Diffraction due to 2-slits and N-slits, Diffraction grating, Resolving power of grating and comparison with resolving powers of prisms.

UNIT- III

Polarizatioin:

Polarization Plane polarized, Circular polarized and elliptically polarized light, Malus law, Brewster's law, Double reflection and uniaxial crystals, Application of bi-refringence, Dichroism, Optical rotation, Rotation of plane of polarization.

Suggestive Practical:

1. Biprism- determination of λ.
2. Newton's ring experiment- Determination of λ.
3. Determination of λ by a transmission grating.
4. Zone-plate experiment study of different orders.
5. Malus Law
6. Polarimeter: Specific rotation of sugar solution.

Suggested Reading

1. D.P. Khandelwal and: Optics and Atomic Physics
2. Jenkins and White: Fundamentals of Optics
3. A.K. Ghatak: Physical Optics
4. Brijlal and Subrahmanyam: Optics

MINOR/ELECTIVE

PHY 403: BASIC ELECTRICITY AND MAGNETISM

Credits:03+01=04

Maximum marks: 70+30=100

Learning outcomes:

- To understand the concepts of Elecric Field and potential
- To understand the concepts of mahnetism
- To learn about the electromagnetic induction and concepts of AC.

UNIT- I

Electrostatics:

Force between point charges, Qulombs law, Electrostatic Field, electric flux, Gauss's theorem of electrostatics. Applications of Gauss theorem- Electric field due to point charge, infinite line of charge, Electric potential, Electric potential as line integral of electricfield, potential due to a point charge, electric dipole

UNIT- II

Magnetism

Magnetostatics: Biot-Savart's law and its applications- straight conductor, circular coil, solenoid carrying current, Ampere's circuital law. Magnetic properties of materials: Magnetic intensity, magnetic induction, permeability, magnetic susceptibility. Brief introduction of dia-, para-and ferromagnetic materials.

UNIT- III

Electromagnetic Induction and Alternating Current

Faraday's laws of electromagnetic induction, Lenz's law, self and mutual inductance, L of single coil, M of two coils. Energy stored in magnetic field. Basic concepts of alternating currents

Suggested Reading

1. Edward M. Purcell: Electricity and Magnetism
2. J.H. Fewkes & J. Yarwood: Electricity & Magnetism, Vol. I
3. D C Tayal: Electricity and Magnetism
4. Ronald Lane Reese: University Physics

PHY501: QUANTUM MECHANICS

Credits:03+01=04

Maximum marks: 70+30=100

Learning outcomes:

After completing this course, the students will be able to

- Study of quantum theory of light.
- Concept of photo electric effect and Compton effect.
- Study of wave particle duality.
- Understand the formalism of quantum mechanics

UNIT-I

Origin of Quantum theory

Origin of quantum theory, limitation of Classical Physics, Black body Radiation, Planck's radiation law and Einstein's explanation, The photo electric effect and Einstein correction, Compton effect

UNIT-II

Wave-Particle Duality

De Broglie's Hypothesis, Wave-Particle Duality, Davisson-Germer Experiment, G.P Thomson experiment, Taylor's experiment, Wave description of Particles by Wave Packets, Group and Phase Velocities, Principle of Complimentarity, Heisenberg Uncertainty principle, Gamma ray microscope, Single slit experiment.

UNIT-III

Formalism of Quantum mechanics

Linear vector space, Linear Operator, Definition of position, momentum, Energy and Angular momentum operator, Eigen value and Eigen functions, Hermitian operators, Postulates and basic theorems of Quantum mechanics, Operator method for solving Eigen values problem, Energy of Harmonic oscillator.

Suggestive Practical:

1. Frank-Hertz Experiment.
2. Determination of 'h' Planck's constant by Photoelectric effect.
3. To determine the Planck's constant using LEDs of at least 4 different colours.
4. Inverse square law

Suggested Reading

1. L.I. Schiff, "Quantum Mechanics" (McGraw Hill Book Co.)
2. Chris J. Isham, "Lectures on Quantum Theory" (Allied Publisher)
3. B.S. Rajput, "Advanced Quantum Mechanics" (Pragati Prakashan)
4. Ghatak and Lokanathan, "Quantum Mechanics" (Macmillan Pub.)
5. Mathew and Venkatesan, "Quantum Mechanics" (Tata McGraw-Hill

PHY502: BASIC ELECTRONICS

Credits:03+01=04

Maximum marks: 70+30=100

Learning outcomes:

After completing this course, the students will be able to

- Study of different Network Theorems for simplifying complicated electronics circuits
- Study of Regulated Power Supply. Understand different types of Rectifiers, Filters and Voltage Regulator.
- Study of different types of special diodes and their applications
- Study of different types of Transistors

UNIT- I

Network Theorems:

Kirchhoff's Laws, Superposition Theorem, Constant voltage source and constant current source, Conversion of voltage source into current source, Thevenin's Theorem and procedure for finding thevenin equivalent circuit, Norton's Theorem and procedure for finding Norton equivalent circuit, Maximum power transfer theorem, Applications of Network Theorems, Four terminal Network and h-parameters.

UNIT- II

Power Supplies

Semiconductor diode: P-N Junction diode, Diode Parameters, Equation of diode current, Diode circuits with DC and AC Voltage sources, Diode as a rectifier: Half and Full wave rectifiers, Bridge rectifiers, Peak inverse voltage, Efficiency, Ripple factor, Filters: Low pass and High pass filters, Band pass and Band stop filters, L and π – filters (Series inductor, Shunt capacitor, LC, CLC filters), Zener diode, its characteristics, Voltage regulation.

UNIT- III

Solid State Devices

Special Diodes: Tunneling effect, Tunnel diode, Varactor diode, Point contact diode, V-I characteristic of these diodes, Optoelectronic devices: Light emitting diode, Photodiode, Photo multiplier tube, Bipolar junction transistor, Transistor operation and its Biasing rule, Transistor currents, Transistor circuit configuration (CB, CE, and CC configuration), Transistor characteristics in different configuration, cut-off and saturation points, Active region, Leakage current in transistor and thermal runaway, Relation between transistor current in various configuration, General idea of FETs.

Suggestive Practical:

1. To study the characteristics of integrating and differentiating circuit.
2. To draw the characteristics of P-N junction diode.
3. To draw the characteristics of PNP and NPN junction transistor.
4. Measurements of h-parameters of a transistor.
5. Study of different types of Rectifiers and Filters.
6. Verification of Network theorems.
7. Triode/ Tetrode/ Pentode characteristics and constants.
8. Study of power supply (Ripple factor).
9. Study of Zener diode and regulation (taking different source voltage and loads).
10. To study the Characteristics of a Photo-diode

Suggested Reading

1. M.K. Baagde, S.P. Singh and Kamal Singh: Elements of Electronics
2. B.L. Theraja: Basic Electronics
3. V.K. Mehta: Elements of Electronics
4. J.D. Ryder: Networks, Lines and Fields
5. J.D. Ryder: Electronic Fundamentals and Applications.
6. Millman and Halkias: Integrated Electronics

MINOR/ELECTIVE

PHY 503: BASICS OF HEAT TRANSFER

Credits:03+01=04

Maximum marks: 70+30=100

Learning outcomes:

- To understand the concepts of heat, transfer via conduction and concept of thermal conductivity
- Study the concepts of convection and cooling
- To learn about the concepts of black body radiation.

UNIT- I

Conduction

Modes of heat transfer via Conduction: Fourier's law, One dimensional steady state conduction, Heat conduction through plane and composite walls, Cylinders and spheres, Electrical analogy, Thermal conductivity and its experimental detection.

UNIT- II

Convection

Modes of heat transfer via Convection: Newton's law of cooling, Dimensional analysis applied to forced and free convection, Dimensionless numbers and their physical significance.

UNIT- III

Thermal Radiation

Physical quantities associated with Radiation, Black body, Radiation from non-blackbodies, Thermodynamics of radiations inside a hollow enclosure, Kirchoff's Laws, Derivation of Stefan Boltzmann Law, Wein's displacement law.

Suggested Reading

1. S. Loknathan, "Thermodynamics, Heat and Statistical Physics" (Prentice Hall India)
2. Sharma and K.K. Sarkar "Thermodynamics, and Statistical Physics" (Himalaya Pub.)
3. Brijlal and Subrahmanyam, "Heat and Thermodynamics" (S Chand)
4. Saha and Srivastav "Treatise on heats", (The Indian Press Publications)
5. S.C. Garg, R.M. Bansal and Ghose, "Thermal Physics" (Tata McGraw-Hill)

PHY601: MODERN PHYSICS

Credits:03+01=04

Maximum marks: 70+30=100

Learning outcomes:

After completing this course, the students will be able to

- Understand different atomic models.
- Study of optical spectra, X- rays and LASERS.
- Study of structure of atomic nucleus and Elementary Particle Physics.

UNIT- I

Atomic Models

Thomson model, Rutherford model, Bohr model and spectra of hydrogen atom, Fine structure, Bohr Magnetron, Larmor‟s precession, Somerfield model, Stern-Gerlach experiment, Vector atomic model, Space Quantization and Spinning of an electron

UNIT- II

Optical Spectra and X-rays

Optical spectra, Spectral notations, L-S, J-J coupling, Selection rules and intensity rules, Explanation of fine structure of Sodium D line, Zeeman effect, X-ray spectra (characteristics and continuous), Moseley‟s law.

UNIT- III

Theory of Lasers

Einstein A and B coefficients, Spatial and Temporal coherence, Optical pumping, Population inversion, Laser action, Basic idea of LASER and MASER, Ruby Laser and He-Ne laser, Some applications

Suggestive Practical:

1. ‘e/m’ by Thomson method.
2. ‘e/m’ Magnetron method.
3. ‘e/m’ Helical method
4. Determination of Ionization Potential using thyratron valve.
5. Verification of Cauchy Formula

Suggested Reading

1. 1. H.S. Mani and Mehta: Introduction to Modern Physics
2. A. Beiser: Perspective of Modern Physics
3. Ahmad and Lal: Modern Physics
4. B.V.N. Rao: Modern Physics
5. R. Murugeshan: Modern Physics

PHY602: DIGITAL ELECTRONICS

Credits:03+01=04

Maximum marks: 70+30=100

Learning outcomes:

After completing this course, the students will be able to

- Study of different number systems and their inter conversion.
- Concepts of Boolean Algebra used in digital electronics.
- Study of different types of logic gates and their applications
- Study of simple combinational circuits.

UNIT- I

Number system:

Number systems, Decimal, Binary, Octal and Hexadecimal number systems, Binary to decimal conversion, Double-Dadd method, Binary operations, Binary addition, Binary subtravtion, Complement of a number (1‟s complement and 2‟s complement), Binary divison, Representation of a Binary number as electrical signals, Conversion of Binary to octal, Binary to hexadecimal and vice-versa (Inter-conversion).

UNIT- II

Boolean Algebra

BCD, GREY, EXCESS-3 codes, Boolean algebra, Features of Boolean algebra, Laws of Boolean algebra, Equivalent switching circuit, De Morgan's theorems and Duals.

UNIT- III

Logic Gates and Combinational Circuits

Positive and Negative logic, two input OR gate, Diode OR gate and transistor OR gate, three input OR gate and its truth table, Exclusive OR gates, The AND gate, Diode AND gate and transistor AND gate, The NOT gate, Bubbled gates, The NOR gate, The NAND gate, NAND and NOR as universal gates, The XNOR gate, Adders and subtractors, Half Adders, Full adders, Parallel binary adder, Half subtractor and Full subtractor

Suggestive Practical:

1. Study of Logic Gates.
2. Verification of De Morgan’s Theorem
3. Study of Half Adder
4. Study of Full Adder

Suggested Reading:

1. M.K. Baagde, S.P. Singh and Kamal Singh: Elements of Electronics
2. B.L. Theraja: Basic Electronics
3. V.K. Mehta: Elements of Electronics
4. J.D. Ryder: Electronic Fundamentals and Applications.
5. Millman and Halkias: Integrated Electronics

CHEMISTRY

COURSE STRUCTURE OF ITEP, B.Sc.-B.Ed. IN THE SUBJECT OF CHEMISTRY

SEM.	PAPER CODE	TITLE	CREDITS
I	CHE 101	FUNDAMENTALS OF CHEMISTRY-I	03+01=04
	CHE 102	FUNDAMENTALS OF CHEMISTRY-II	03+01=04
II	CHE 201	PERIODICITY, BONDING & THERMODYNAMICS	03+01=04
	CHE 202	HYDROCARBONS, STRUCTURE, PROPERTIES & REACTIVITY	03+01=04
	CHE 203	BASICS OF CHEMISTRY	03+01=04
III	CHE 301	TRANSITION ELEMENTS, COORDINATIONCHEMISTRY & THERMODYNAMICS	03+01=04
	CHE 302	CHEMISTRY OF HALIDES, ALCOHOL, PHENOL & ETHER	03+01=04
	CHE 303	FUNDAMENTALS OF CHEMISTRY	03+01=04
IV	CHE 401	ACID, BASE & INNER TRANSITION ELEMENTS	03+01=04
	CHE 402	ALDEHYDE, KETONES & CARBOXYLIC ACIDS	03+01=04
	CHE 403	GENERAL CHEMISTRY-I	03+01=04
V	CHE 501	TRANSITION METAL COMPLEXES & ORGANOMETALLIC CHEMISTRY	03+01=04
	CHE 502	NITROGEN CONTAINING COMPOUNDS, REAGENT & BIOMOLECULES	03+01=04
	CHE 503	GENERAL CHEMISTRY-II	03+01=04
VI	CHE 601	SURFACE CHEMISTRY, PHOTO CHEMISTRY SOLUTIONS & CHEMICAL EQUILIBRIUM	03+01=04
	CHE 602	BIOCHEMISTRY, NANO CHEMISTRY, GREEN CHEMISTRY & SPECTROSCOPY	03+01=04

CHEMISTRY
CHE 101: FUNDAMENTALS OF CHEMISTRY-I

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The importance of chemistry arises because so many other disciplines draw on certain chemical principles and concepts. The purpose of the undergraduate chemistry program at the university and college level is to prepare the students for all those fields where basic knowledge of chemistry is required including academia for careers as professionals in various industries and research institutions.

Learning Outcomes:

- Current bonding models for simple inorganic and organic molecules in order to predict structures and important bonding parameters.
- This course gives a broader theoretical picture in multiple stages in an overall chemical reaction.
- It describes reactive intermediates, transition states and states of all the bonds broken and formed.
- It enables to understand the reactants, catalyst, stereochemistry and major and minor products of any organic reaction. It describes the types of reactions and the kinetic and thermodynamic aspects one should know for carrying out any reaction and the ways how the reaction mechanism can be determined. ·
- The chapter stereochemistry gives the clear picture of two-dimensional and three-dimensional structure of the molecules, and their role in reaction mechanism.
- The course will help the students to explain the existence of different states of matter in terms of balance between intermolecular forces and thermal energy of particles; explain the laws governing the behavior of ideal gases; apply the gas laws in various real-life situations. In general, the course will also strengthen the knowledge of students regarding complete picture of states of matter that includes gaseous, liquid, solid and colloidal states.

UNIT- I

Atomic Structure and Periodic Properties

Bohr's theory and its limitation. Heisenberg uncertainty principle; its significance. Atomic orbitals, Quantum numbers and their significance, shapes of s, p and d orbitals. Aufbau energy diagram, Pauli's exclusion principle. Hund's rule of maximum multiplicity. Electronic configuration of elements (s block, p block and first series of d-block elements). Effective nuclear charge, shielding effect, Slater's rule.

The general idea of Modern periodic table, atomic radii (Vander wall, metallic, covalent and ionic radii), ionization potential, electron affinity, electronegativity-definition, trends of variation in periodic table and their application in prediction and explaining the chemical behaviour of elements and compounds.

UNIT- II

Chemical Bonding-I

Valence Shell Electron Pair Repulsion Theory (VSEPR) and shapes of NH_3, H_2O, SF_4, ClF_3, XeF_2, $XeOF_2$, $XeOF_4$, XeO_3, XeF_4). Valence Bond Theory and its limitations; various types of hybridization and shapes of different inorganic and organic molecules (SO_2, BCl_3, SF_6, $BeCl_2$, PCl_5, IF_7).

UNIT- III

States of Matter-I

Gaseous State-Postulates of kinetic theory of gases, deviation from ideal behavior, van der Waal's equation of states.

Liquid State-Intermolecular forces, Structural differences between solids, liquids and gases. Physical properties of liquids: Surface tension and viscosity.

Solid State: Introduction to crystalline materials, Definition of space lattice, unit cell, Laws of crystallography – (i) law of constancy of interfacial angles (ii) law of rationality of indices (iii) law of symmetry.

Colloidal State: Definition of colloids, classification of colloids. Solids in liquids (sols). stability of colloids.

Practical:

Topics: Laboratory hazards and safety precautions.

Inorganic Exercise: Acid-base titrations; preparation of a solution in normal/molar terms, its standardization using a primary standard solution, determination of the strength of unknown solution. For example, preparation of NaOH solution (secondary standard say N/10), preparation of $(COOH)_2$ solution (primary standard say N/10), standardization of NaOH solution titrating it against $(COOH)_2$ solution using phenolphthalein (indicator) and then determination of the strength of given HCl solution.

Physical exercise: Determination of relative surface tension of the given liquid using Stalagmometer.

Suggestive Mode of Transaction:

The course content transaction will include the following:

Planned lectures infused with multimedia /power-point presentations. Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, discussion. Surveys, short term project work etc. hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition. 2. Puri, B.R., Sharma, L.R., and Kalia, K.C., "Principles of Inorganic Chemistry",
2. Vishal Publishing Co., India, 2020, 33rd edition. iii.Madan, R.L., "Chemistry for Degree Students, B. Sc. First Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.

3. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010**.**
4. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
5. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
6. Atkins P.W., "Atkin's Physical Chemistry: International", Oxford University Press, 2018, 11th edition.
7. Ball D.W., "Physical Chemistry", Cengage India Private Limited, 2017, 2nd edition.
8. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
9. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010.

CHE 102: FUNDAMENTALS OF CHEMISTRY-II

Credit: 03+01=04
Maximum Marks: 70+30=100
Learning Outcomes:

- Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistries.
- Students will be able to design and carry out scientific experiments as well as accurately record and analyse the results of such experiments.
- Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.
- Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.

UNIT- I

Mechanism of Organic Reactions-I

Hybridization, Bond length and bond energy, localized and delocalized chemical bonding, Mechanism of organic reactions: curved arrow notation, drawing electron movements with arrow, half added and double added arrow, Homolytic and heterolytic bond breaking.

UNIT- II

Mechanism of Organic Reactions-II

Types of reagents- electrophiles and nucleophiles. Resonance, hyperconjugation, field effects-inductive, mesomeric, electromeric effect. Types of organic reactions: Substitution. Addition,

rearrangement, elimination. Reactive intermediates- carbocations, carbanions, free radicals, carbenes, arynes and nitrenes (with examples).

UNIT- II

Stereochemistry of Organic Compounds

Types of isomerism- optical isomerism- elements of symmetry, molecular chirality, enantiomers, optical activity, properties of enantiomers, chiral and achiral molecules, diastereomers, threo and erythro diastereomers. Relative and absolute configuration, sequence rules, D & L and R & S systems of nomenclature. Geometrical isomerism: determination of configuration of geometrical isomers, E & Z system of nomenclature.

Practical:

The students will able to:

- Determine the strength of unknown solution by titration.
- Determine the relative surface tension of a given liquid.
- Analyze and identify the unknown organic compound.
- Laboratory hazards and safety precautions

Organic exercise: Using Molecular Models: chiral and achiral molecules Determination of Relative and Absolute configuration, sequence rules, D & L and R & S systems of nomenclature.

- Geometrical isomerism: Using molecular models' determination of configuration of geometrical isomers, E & Z system of nomenclature.

Suggestive Mode of Transaction:

Preparing multimedia material for chemistry education in undergraduate students, Preparation of instructional material for chemistry at university level. Organizing the science Club, planned lectures infused with multimedia /power-point presentations. Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, surveys, short term project work etc.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
2. Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Willey, 1994,1st edition.
3. Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
4. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.
5. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
6. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.
7. Bariyar, A., Singh, R.P. and Dwivedi, A., "Text Book for B. Sc. Chemistry I", Anu Books, 2019.

Suggested online links:

1. https://www.youtube.com/watch?v=ZeV3V0DjupQ&list=PLmxSS9XYst219YI3DjJUP52AP mR9bea1Y
2. https://www.youtube.com/watch?v=q-P79gnqNR8&list=PLmUlqVgZsTVVRvO3R8gx12EMc5vmcq_c
3. https://www.youtube.com/watch?v=gahQYHs0c8s
4. https://www.youtube.com/watch?v=w2He_Q0Mf0c
5. https://www.youtube.com/watch?v=q1qMFcZVlPk
6. https://www.youtube.com/watch?v=nWTgMr6idf0
7. https://www.youtube.com/watch?v=JNLJyhqXaTc&t=10s
8. https://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/intro1.htm
9. https://onlinecourses.nptel.ac.in/noc22_cy36/preview
10. https://onlinecourses.swayam2.ac.in/cec20_lb01/preview

CHE 201: PERIODICITY, BONDING AND THERMODYNAMICS

Credits: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The purpose of the undergraduate chemistry program at the University is to provide the key knowledge base and laboratory resources to prepare students for careers as professionals in the field of chemistry, for graduate study in chemistry, biological chemistry and related fields, and for professional school including medical, dental, law and business programs.

Learning Outcomes:

- Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistries.
- Students will be able to design and carry out scientific experiments as well as accurately record and analyse the results of such experiments.
- Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.
- Students will be able to function as a member of an interdisciplinary problem-solving team.

UNIT I:

Salient Features of s- and p-Block Elements:

General discussion with respect to all periodic (Occurrence, electronic configuration, atomic & ionic radii, density, ionization potential, metallic behaviour, electropositive nature, electronegativity, electron affinity, flame colouration, polarization power, boiling and melting point) and chemical properties (reactivity towards water, oxygen, air and moisture, hydrogen, halogens). Diagonal relationship, inert pair effect. basic properties of iodine.

UNIT II:

Chemical Bonding-II:

Molecular Orbital Theory (MOT) as applied to diatomic homonuclear/heteronuclear inorganic molecules. MO diagrams and bond order of H_2, He_2, Li_2, Be_2, B_2, C_2, N_2, O_2, F_2, Ne_2, CO difference between VB and MO theories. Polarization of covalent molecules. Polarizing power and polarizability; Fajan's rule. Weak interactions, Types of intermolecular forces.

UNIT III:

Chemical Kinetics and Catalysis:

Chemical kinetics and its scope, rate of a reaction, factors influencing the rate of a reaction– concentration, temperature, solvent, catalyst. Order of reaction- zero order, first order, second order, pseudo-order, half-life period.

UNIT IV:

Thermodynamics I:

Definition of thermodynamic terms, system, surroundings etc. Types of thermodynamic systems and thermodynamic processes. Intensive and extensive properties. Concept of heat and work, first law of thermodynamics, definition of internal energy and enthalpy. Thermochemistry; standard state, standard enthalpy of formation.

Suggestive Practical:

Laboratory hazards and safety precautions

Inorganic exercise: Salt analysis: Identification of acidic radicals and basic radicals up to I Group in the given salt.

Physical exercise: Determination of relative viscosity of the given liquid using Ostwald viscometer.

Suggestive Mode of Transaction-

1. Preparing multimedia material for chemistry education in undergraduate students.
2. Preparation of instructional material for chemistry in university level.
3. Organizing the science Club.
4. Planned lectures infused with multimedia /power-point presentations.
5. Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, surveys, short term project work etc.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition.
2. Puri, B.R., Sharma, L.R., and Kalia, K.C., "Principles of Inorganic Chemistry", Vishal Publishing Co., India, 2020, 33rd edition.
3. Madan, R.L., "Chemistry for Degree Students, B. Sc. First Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
4. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010**.**
5. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
6. Atkins P.W., "Atkin's Physical Chemistry: International", Oxford University Press, 2018, 11th edition.
7. Ball D.W., "Physical Chemistry", Cengage India Private Limited, 2017, 2nd edition.
8. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
9. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010.
10. Bariyar, A., Singh, R.P. and Dwivedi, A., "Text Book for B. Sc. Chemistry I", Anu Books, 2019.

CHE 202: HYDROCARBONS, STRUCTURE, PROPERTIES AND REACTIVITY

Credits: 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

- Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.
- Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
- Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behaviour in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.

UNIT- I

Alkane: Structure of alkane, Preparation of alkanes: wurtz reaction, decarboxylation, Kolbe electrolytic method. Corey house reaction, physical properties, chemical properties: substitution reaction (chlorination reaction mechanism), uses.

UNIT- II

Alkenes: Structure of alkene, properties of alkene- reduction dehydrohalogenation, physical properties, chemical properties- electrophilic addition reaction with mechanism, Markownikoff's Rule. Peroxide effect, hydration, oxidation reaction (kmno4, ozone reaction) Polymerization of alkenes.

UNIT- III

Alkynes: Structure of alkyne, properties of alkyne: dehydrohalogenation from calcium carbide. physical properties, Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions, hydroboration, oxidation reaction (kmno4, ozone), cyclic polymerisation, uses.

UNIT- IV

Aromatic Compounds: Aromaticity- the Hückel rule, aromatic ions. Aromatic electrophilic substitution- general pattern of the mechanism. Mechanism of nitration, halogenation, sulphonation, mercuriation and Friedel- Crafts reaction. Activating and deactivating substituents, orientation and ortho/para ratio. Side chain reactions of benzene derivatives.

Practical:

Organic exercise: Systematic analysis and identification of any two of the following organic compounds (minimum one from each group)

- **Simple Hydrocarbons:** Napthalene, Anthracene Biphenyl.
- **Hydrocarbons with special elements:** *m*-Dinitrobenzene, *p*-Dichlorobenzene

Suggestive Mode of transaction:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, surveys, short term project work etc.

Suggestive Mode of assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
2. Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Willey, 1994,1st edition.
3. Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
4. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.

5. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
6. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.

Suggested online links:

1. https://www.youtube.com/watch?v=Gg4-go6tTiA&list=PLmxSS9XYst208kJs0npO_v_LAGkHZJlS
2. https://www.youtube.com/watch?v=sz17_NnMPak&t=51s
3. https://www.youtube.com/channel/UCUxhnr9H2IYKsuRypG0MAfw/videos
4. https://onlinecourses.swayam2.ac.in/nce19_sc15/preview
5. https://www.openlearning.com/courses/introduction-to-physical-chemistry/?cl=1
6. https://www.careers360.com/university/indian-institute-of-technology-bombay/chemistry-ofmain-group-elements-certification-course
7. https://onlinecourses.swayam2.ac.in/cec20_lb01/preview
8. https://nptel.ac.in/courses/104/103/104103071/

MINOR/ELECTIVE
CHE 203: BASICS OF CHEMISTRY

Credits: 03+01=04
Maximum Marks: 70+30=100
Learning Outcomes:

- Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behaviour in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.
- Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.
- Students will be able to function as a member of an interdisciplinary problem-solving team.

UNIT- I:

Basic Concepts of Chemistry

Nature of Matter: States of Matter, Chemical and Physical Classification of Matter

Properties of Matter and their Measurement: Physical and chemical properties, The International System of Units (SI), Mass and Weight, Volume, Density, Temperature,

Laws of Chemical Combinations: Law of Conservation, Law of Mass, Law of Definite Proportions, Law of Multiple Proportions, Avogadro's Law, and Dalton's Atomic Theory.

Atomic and Molecular Masses- Atomic and molecular Mass, Average Atomic Mass, Formula Mass,

UNIT- II:

Basic Principles of Organic chemistry

Tetravalence of Carbon: Shapes of Organic Compounds,

Classification of Organic Compounds – Acyclic, open chain compounds, Cyclic, closed chain or ring compounds; Alicyclic compounds, Aromatic compounds, Functional Group, Homologous Series.

Nomenclature of Organic Compounds: The IUPAC System of Nomenclature, IUPAC Nomenclature of Straight chain hydrocarbons, Branched chain, Unbranched Saturated hydrocarbons, Substituted Benzene Compounds.

Isomerism: Concept of isomerism, Types of isomerism.

UNIT III:

Structure of Atom:

Dalton's Atomic Theory:

Discovery of Sub-atomic Particles: Discovery of Electron, Protons and Neutrons, Charge on the Electron**.**

Atomic Models: Thomson Model of Atom, Rutherford's Nuclear Model of Atom, Atomic Number and Mass Number, Isobars and Isotopes, Drawbacks of Rutherford Model

UNIT IV: States of Matter:

Intermolecular Forces: Meaning, dipole-dipole, hydrogen bonding taking examples of, HCl, H_2, and H_2O molecules.

Common states of matter: Solid, liquid, gas and their observable properties e.g. rigidity, density, shape, volume, etc.

Practical:

Laboratory hazards and safety precautions.

Inorganic exercise:

Salt mixture analysis: Acid-base test.

Identification of acidic radicals and basic radicals up to I Group in the given salt.

Suggestive Mode of Transaction:

Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, with group discussion. surveys, short term project work etc. Hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. NCERT Chemistry Text Book Class 11th and 12^{th} class.
2. Puri, Sharma, Pathania, physical chemistry
3. Ajai Kumar. *Basic Inorganic Chemistry*, Aaryush Education (2019).
4. Lee, J. D. *Concise Inorganic Chemistry* ELBS,1991.
5. Cotton, F. A., Wilkinson, G. &Gaus, P.L. *Basic Inorganic Chemistry*,3rded., Wiley.

6. Douglas, B. E., McDaniel, D.H. &Alexander, J.J. *Concepts and Models in Inorganic Chemistry*, JohnWiley&Sons (2004).
7. Puri, B.R., Sharma, L.R., and Kalia, K.C., "Principles of Inorganic Chemistry", Vishal Publishing Co., India, 2020, 33rd edition.
8. Madan, R.L., "Chemistry for Degree Students, B. Sc. First Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
9. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010**.**
10. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
11. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.

Suggested online links:

1. https://onlinecourses.nptel.ac.in/noc22_cy36/preview
2. https://onlinecourses.swayam2.ac.in/cec20_lb01/preview
3. https://www.youtube.com/watch?v=ZeV3V0DjupQ&list=PLmxSS9XYst20arjxnrIpnL0P99A nswmSs
4. https://www.youtube.com/watch?v=zGk6VeTfpuE&list=PLmxSS9XYst21tCVcVKQ9nZdW3 OO-20iNW
5. https://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/intro1.htm

CHE 301: TRANSITION ELEMENTS, COORDINATION CHEMISTRY & THERMODYNAMICS

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

This paper provides a detailed understanding of the d-block elements and their characteristics. After successful completion of this course, the students will be able to gather the information regarding Werner's theory and VBT of transition metal complexes.

Learning outcomes:

After completing this course, the students will be able to test the inorganic salts for the presence of acidic and basic radicals from IIA and IIB groups.

Students will be able to determine the critical solution temperature of partially miscible liquids.

UNIT- I

Chemistry of Transition Elements (First, second and third Transition Series): Characteristic properties of the elements; electronic configuration, atomic & ionic radii, oxidation states, ionization energy, boiling & melting points, complex compound formation, colour, catalytic properties and magnetic properties. coordination number and geometry.

UNIT- II

Coordination Chemistry-I: Definition, terminology (ligand, coordination number, coordination sphere, complex ion etc.), Nomenclature of coordination compounds (IUPAC system), Werner's theory for coordination compounds; effective atomic number (EAN) concept, 18-electron rule, stability of complexes and factors contributing to the stability, magnetic properties of complex compounds.

UNIT- III

Thermodynamics II: Second law of thermodynamics, different statements of the law. Concept of entropy: entropy as a state function, entropy as a function of V and T, entropy as a function of P and T, entropy change in physical and chemical processes, entropy change for reversible, irreversible and equilibrium condition. Entropy as criteria of spontaneity and equilibrium. Entropy changes in ideal gases. Gibbs free energy and Helmholtz work functions.

Suggestive Practical:

Laboratory hazards and safety precautions.

Inorganic exercise:

Inorganic salt analysis including acidic (all) and basic radicals from II A and IIB group.

Suggestive Mode of Transaction:

The course content transaction will include the following:

Scheduled lectures incorporate multimedia and PowerPoint slides.

Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, discussion.

Surveys, short term project work etc. hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition.
2. Puri, B.R., Sharma, L.R., and Kalia, K.C., "Principles of Inorganic Chemistry", Vishal Publishing Co., India, 2020, 33rd edition.
3. Madan, R.L., "Chemistry for Degree Students, B. Sc. Second Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
4. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010**.**
5. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
6. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
7. Atkins P.W., "Atkin's Physical Chemistry: International", Oxford University Press, 2018, 11th edition.
8. Ball D.W., "Physical Chemistry", Cengage India Private Limited, 2017, 2nd edition.

9. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
10. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010.

CHE 302: CHEMISTRY OF HALIDES, ALCOHOL, PHENOL & ETHER

Credits: 03+01=04
Maximum Marks: 70+30=100
Learning Outcomes:

This paper provides detailed knowledge of properties of halides, alcohols and phenols, highlighting their chemical reactions and their mechanism.

UNIT- I

Alkyl, aryl and vinyl halides: Preparation and comparison of their chemical properties. Mechanism of nucleophilic substitution reactions, S_N2 and S_N1 reactions with energy profile diagrams.

UNIT- II

Alcohols: Preparation and chemical properties Reactions of alcohols. Dihydric alcohols-Chemical reactions of vicinal glycols and pinacol-pinacolone rearrangement. Trihydric alcohols-methods of formation, chemical reactions of glycerol.

UNIT- III

Phenols: Preparation and chemical properties acidic character. Comparative acidic strengths of alcohols and phenols, Reactions of phenols. Mechanism of Fries rearrangement, Claisen condensation, Gattermann synthesis, Houben-Hoesch reaction, Lederer-Manasse reaction and Reimer-Tiemann reaction, Kolbe reaction.

UNIT IV

Ethers: Classification of ether, preparation of ether. Williamson' synthesis of alcohol with mechanism, physical properties, chemical properties-halogenation, oxidation, reaction with halogen acids, electrophilic substitution reaction of anisol.

Practicals:

Laboratory hazards and safety precautions.
Organic exercise
Systematic analysis and identification of organic compounds: Alcohols and Phenols

Suggested Mode of Transaction:

Scheduled lectures incorporate multimedia and PowerPoint slides.
Small-scale group conversations, panel talks, theme-based small-scale seminars, group discussions, team and cooperative instruction, readings from theoretical texts, and discussions. surveys, short-term projects, etc. provide practical experience working with children, other communities, and educational institutions.

Suggestive Mode of Assessment:
Students can be evaluated on the basis of score obtained in viva voce, record and overall performance.

Suggestive Readings:

1. Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
2. Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Willey, 1994,1st edition. ix. Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
3. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.
4. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
5. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.

MINOR/ELECTIVE
CHE 303: FUNDAMENTALS OF CHEMISTRY

Credits: 03+01=04
Maximum Marks: 70+30=100
Learning Outcomes:

- Current bonding models for simple inorganic and organic molecules in order to predict structures and important bonding parameters.
- This course provides a more comprehensive theoretical understanding of various phases of a chemical reaction.
- The course will assist students in comprehending the laws regulating the behaviour of ideal gases, explaining the existence of diverse states of matter in terms of the balance between intermolecular interactions and particle thermal energy, and applying the gas laws in a variety of real-world scenarios. Generally speaking, the course will also improve students' understanding of the full range of states of matter, including gaseous, liquid, solid, and colloidal forms.

UNIT– I

Atomic Structure: Concept of atom in ancient India, Bohr's theory and its limitation. Heisenberg uncertainty principle; its significance. Atomic orbitals, Quantum numbers and their significance, shapes of s, p and d orbitals. Aufbau energy diagram, Pauli's exclusion principle. Hund's rule of maximum multiplicity. Effective nuclear charge, shielding effect, Slater's rule.

UNIT– II

Hybridization, bond lengths and bond angles, bond energy, localized and delocalized chemical bonding, homolytic and heterolytic bond breaking, Types of reagents – electrophiles and

nucleophiles, field effects- inductive, mesomeric, electromeric effect. Types of organic reactions: Substitution. Addition, rearrangement, elimination. Reactive intermediates- carbocations, carbanions, free radicals, carbenes, arynes and nitrenes (with examples).

UNIT- III

States of Matter-I:

Liquid State-Intermolecular forces, Structural differences between solids, liquids and gases. Physical properties of liquids: Surface tension and viscosity.

Solid State: crystalline solids, amorphous solids, unit cell, space lattice, defects.

Colloidal State: Definition of colloids, classification of colloids.

Practical:

Topics: Laboratory hazards and safety precautions.

Acid-base titrations; preparation of a solution in normal/molar terms, its standardization using a primary standard solution, determination of the strength of unknown solution.

Suggestive Mode of Transaction:

The course content transaction will include the following:

PowerPoint presentations and multimedia are included in scheduled lectures.

Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, discussion. Surveys, short term project work etc. hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition. Puri, B.R., Sharma, L.R., and Kalia, K.C.,
2. "Principles of Inorganic Chemistry", Vishal Publishing Co., India, 2020, 33rd edition.
3. Madan, R.L., "Chemistry for Degree Students, B. Sc. First Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
4. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010**.**
5. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.

CHE 401: ACID, BASE & INNER TRANSITION ELEMENTS

Credit: 03+01=04
Maximum Marks: 70+30=100
About the course:
This paper provides detailed knowledge of acids and bases. Students will be able to define the acids and bases on the basis of various concepts/ theories and will be able to identify the position of Inner transition elements in the periodic table and able to explain their properties on the basis of their position.
Learning outcomes:
The students will be able to describe the concepts of electrochemistry in detail and its applications. Also, they will be able to solve the numerical problems based on these concepts.
UNIT- I
Acids and Bases: Arrhenius concept, Bronsted-Lowry concept, Lux-Flood and Lewis concept of acids and bases; Hard and Soft Acid-Base Theory: Classification of acids and bases as hard and soft. Pearson's hard and soft acid base concept, acid base strength and hardness and softness.
UNIT- II
Chemistry of Inner Transition Elements:
Chemistry of Lanthanides: Electronic configuration, oxidation states, atomic & ionic radii, lanthanide contraction and its consequences, complex formation, colour; Methods of separation of lanthanides- fractional crystallization, fractional precipitation, change in oxidation state.
Chemistry of Actinides: General features of actinides-electronic configuration, atomic & ionic radii, ionization potential, oxidation states and complex formation.
UNIT- III
Electrochemistry I: Electrical transport-conduction in metals and electrolytic solutions. Arrhenius theory of electrolytic dissociation and its limitations, weak and strong electrolytes, Ostwald's dilution law, its uses and limitations.
Electrochemistry II: Oxidation state, types of redox reactions, Meaning of electrode (Half-cell), Electrode reactions, determination of standard electrode potential. Galvanic cells.

Practical:
Laboratory hazards and safety precautions
Inorganic exercise:
Inorganic salt analysis including acidic/ Interfering radicals and basic radicals from III and IV groups.
Physical exercise: Determination of solubility of salts.
Suggestive Mode of Transaction:
The following will be included in the transaction for course content: PowerPoint slides and multimedia were integrated into scheduled lectures. Small-scale group conversations, panel talks, theme-based small-scale seminars, group discussions, team and cooperative instruction, readings from theoretical texts, and discussions. surveys, short-term

projects, etc. provide practical experience working with children, other communities, and educational institutions.

Suggestive Mode of Assessment:

Students can be evaluated on the basis of score obtained in a mid-term exam, together with the performance of other activities which can include short exams, in-class or on-line tests, home assignments, group discussions or oral presentations.

Suggestive Readings:

1. Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition.
2. Puri, B.R., Sharma, L.R., and Kalia, K.C., "Principles of Inorganic Chemistry", Vishal Publishing Co., India, 2020, 33rd edition.
3. Madan, R.L., "Chemistry for Degree Students, B. Sc. Second Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
4. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010**.**
5. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
6. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
7. Atkins P.W., "Atkin's Physical Chemistry: International", Oxford University Press, 2018, 11th edition.
8. Ball D.W., "Physical Chemistry", Cengage India Private Limited, 2017, 2nd edition.
9. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
10. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010

CHE 402: ALDEHYDE, KETONES & CARBOXYLIC ACIDS

Credit: 03+01=04
Maximum Marks: 70+30=100
Learning outcomes: This paper provides detailed knowledge of synthesis of aldehydes, ketones, carboxylic acids and functional groups inter conversion.

UNIT- I

Aldehydes: Nomenclature of aldehydes, General methods of preparation of aldehydes and their chemical properties- Rossenmund reaction, Stephen's reduction, Gattermann Koch reaction. Chemical properties of aldehydes- Aldol Condensation, Cannizzaro reaction. Oxidation of aldehydes.

UNIT- II

Ketones: Nomenclature of Ketones, General methods of preparation of Ketones – from Grignard Reagent and Fridel Craft acylation. Chemical properties – Clemmensen reduction.

UNIT- II

Carboxylic Acids: General methods of preparation Reactions of carboxylic acids, Hell-Volhard-Zelinsky reaction. Reduction of carboxylic acids, mechanism of decarboxylation. Methods of formation and chemical reactions of hydroxy acids- malic, tartaric. Dicarboxylic acids-methods of preparation and effect of heat and dehydrating agents.

Practicals:

Laboratory hazards and safety precautions

Organic exercise: Systematic analysis and identification of aldehydes, ketones and carboxylic acids. Differentiation between aldehyde and ketones.

Suggestive Mode of Transaction:

The course content transaction will include the following:

Planned lectures infused with multimedia /power-point presentations. Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, discussion. Surveys, short term project work etc. hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

Students can be evaluated on the basis of score obtained in a mid-term exam, together with the performance of other activities which can include short exams, in-class or on-line tests, home assignments, group discussions or oral presentations.

Suggestive Readings:

1. Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Willey, 1994,1st edition. ix. Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
2. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.
3. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
4. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition

MINOR/ELECTIVE
CHE 403: GENERAL CHEMISTRY-I

Credits: 03+01=04
Maximum Marks: 70+30=100
Learning Outcomes:

- The foundation of modern chemical and scientific ideas, such as those in analytical, inorganic, organic, and physical chemistry, will be solidly understood by students.
- Students will be able to design and carry out scientific experiments as well as accurately record and analyse the results of such experiments.
- Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.
- Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.

UNIT- I:

Periodic properties: General discussion with respect to all periodic (Occurrence, electronic configuration, atomic & ionic radii, density, ionization potential, metallic behaviour, electropositive nature, electronegativity, electron affinity, flame colouration, boiling and melting point) and chemical properties (reactivity towards water, oxygen, air and moisture, hydrogen, halogens).

UNIT- II:

Chemical Bonding-I and II:

Valence Shell Electron Pair Repulsion Theory (VSEPR) and shapes of NH_3, H_2O, SF_4, ClF_3, XeF_2, $XeOF_2$, $XeOF_4$, XeO_3, XeF_4). Valence Bond Theory and its limitations.

Chemical Bonding-II: Molecular Orbital Theory (MOT) as applied to diatomic homonuclear/heteronuclear inorganic molecules. Polarization of covalent molecules, Percentage ionic character from dipole and electronegativity difference. Polarizing power and polarizability; Fajan's rule. Weak interactions, Types of intermolecular forces.

UNIT- III:

Metallurgy and corrosion: ore, mineral, calcination, roasting, smelting, flugs, rusting of irons.

Practical:

Laboratory hazards and safety precautions

Inorganic exercise: Salt mixture analysis: Identification of acidic radicals and basic radicals up to I Group in the given salt.

Physical exercise: Determination of relative viscosity of the given liquid using Ostwald viscometer.

Suggestive Mode of Transaction-

Preparing multimedia material for chemistry education in undergraduate students. Preparation of instructional material for chemistry in university level. Organizing the science Club. Planned lectures infused with multimedia /power-point presentations. Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, surveys, short term project work etc.

Suggestive Mode of Assessment

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition.
2. Puri, B.R., Sharma, L.R., and Kalia, K.C., "Principles of Inorganic Chemistry", Vishal Publishing Co., India, 2020, 33rd edition.
3. Madan, R.L., "Chemistry for Degree Students, B. Sc. First Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
4. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010**.**
5. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
6. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
7. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
8. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010.

CHE 501: TRANSITION METAL COMPLEXES & ORGANOMETALLIC CHEMISTRY

Credits: 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

Upon successful completion of this course, the students will be able to describe the stability, crystal field theory, electronic spectra and magnetic properties of coordination compounds. They will also learn about organometallic compounds. It will assist them to get a suitable job in the relevant industrial and scientific field.

UNIT- I

Metal-Ligand Bonding in Transition Metal Complexes: Limitations of valence bond theory, an elementary idea about crystal field theory (CFT); crystal field splitting of octahedral and tetrahedral complexes, crystal field splitting of square planar and trigonal bipyramidal complexes, factors affecting the crystal-field parameters. Applications (color and magnetic properties).

UNIT- II

Thermodynamic and Kinetic Aspects of Coordination Compounds: Stability of metal complexes- thermodynamic and kinetic stability, stable and unstable complexes, inert and labile complexes, stepwise and overall stability constants, factors affecting the thermodynamic.

UNIT- III

Electronic Spectra of Transition Metal Complexes: Types of electronic transitions, selection rules for d-d transitions, calculations of spectroscopic ground states (Russell Saunders/L-S coupling), Orgel energy level diagram for d^1, d^4 and d^6, d^9 tetrahedral and octahedral complexes, discussion of the electronic spectrum of $[Ti(H_2O)_6]^{3+}$ complex ion.

UNIT- IV

Organometallic Chemistry: Definition, nomenclature and classification based on nature of metal-carbon bond. Definition, nomenclature, classification, general methods of preparation of organometallic compounds. Applications of organometallic compounds-Ziegler-Natta catalyst, Wilkinson catalyst (No mechanism).

Suggestive practicals:

Laboratory hazards and safety precautions

Inorganic exercise:

i. Inorganic synthesis:

Cuprous chloride, potash alum, chrome alum, ferrous oxalate, ferrous ammonium sulphate, tetra amminecopper (II), sulphate and hexaamminenickel (II) chloride. Crystallization of compounds.

ii. Inorganic salt analysis:

Acidic radicals and basic radicals from V and VI groups.

Suggestive Mode of Transaction:

The course content transaction will include the following:

Planned lectures infused with multimedia /power-point presentations. Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, discussion. Surveys, short term project work etc. hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition.
2. Puri, B.R., Sharma, L.R., and Kalia, K.C., "Principles of Inorganic Chemistry", Vishal Publishing Co., India, 2020, 33rd edition.
3. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010**.**
4. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
5. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
6. Madan, R.L., "Chemistry for Degree Students, B. Sc. Third Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.

CHE 502: NITROGEN CONTAINING COMPOUNDS, REAGENT & BIOMOLECULES

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

Upon successful completion of this course, the students should be able to describe the chemistry of nitrogen containing compounds, the basic understanding of the chemistry of industrially important materials such as lipids, fats, soaps, detergents, dyes and reagents in organic synthesis. Upon completion of this course students may get job opportunities in food, soap, detergent, and other organic material based synthetic labs and industries. Biomolecules such as carbohydrates and proteins are important for the functioning of living organisms. These molecules perform or trigger important biochemical reactions in living organisms. When studying biomolecules, one can understand the physiological function that regulates the proper growth and development of a human body. This course aims to introduce the students with basic experimental understanding of carbohydrates and proteins.

UNIT- I

Lipids and Fats: Lipids & Fats-Definition; classifications; Iodine value, Saponification value, Acid value, Soaps, Detergents and their action mechanism**.**

UNIT- II

Reagents in Organic Synthesis: Reagent compounds, types of reagents, Bayer's reagent, NBS, chromium trioxide, Fehling reagent, $LiAlH_4$, Potassium dichromate, Potassium permanganate, Raney Ni, sodium borohydride ($NaBH_4$), Tollen's reagent.

UNIT- III

Nitrogen Containing Organic Compounds:

Nitro compounds: Chemical reactions of nitroalkanes. Mechanism of nucleophilic substitution in nitroarenes and their reduction in acidic, neutral and alkaline medium.

Amines: Physical properties, Structural features affecting basicity of amines. Preparation of alkyl and aryl amines, Hofmann bromamide reaction. Reaction of amines. Synthetic transformations of aryl diazonium salts, azo coupling.

UNIT- IV

Carbohydrates and Proteins:

Carbohydrates: Classification, Monosaccharides, interconversion of glucose and fructose, chain lengthening and chain shortening of aldoses. Conversion of glucose into mannose.

Proteins: Classification. structure and stereochemistry of amino acids. Acid-base behavior, Zwitter ions, peptides, Levels of structure of protein.

Practical:

Laboratory hazards and safety precautions

Organic exercise:

Organic qualitative analysis:

Separation and identification of organic mixture by water.

Suggestive Mode of Transaction:

The following will be included in the transaction for course content: Scheduled lectures incorporate multimedia and PowerPoint slides. Small-scale group conversations, panel talks, theme-based small-scale seminars, group discussions, team and cooperative instruction, readings from theoretical texts, and discussions. surveys, short-term projects, etc. provide practical experience working with children, other communities, and educational institutions.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
2. Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Willey, 1994,1st edition.
3. Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
4. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.

5. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
6. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.
7. Madan, R.L., "Chemistry for Degree Students, B. Sc. Third Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
8. Bahl, A. and Bahl, B.S. a "Advance Organic Chemistry", S. Chand Publishing, India, 2010.

MINOR/ELECTIVE
CHE 503: GENERAL CHEMISTRY-II

Credits: 03+01=04
Maximum Marks: 70+30=100
Learning Outcomes:
This paper provides detailed knowledge of acids and bases. Students will be able to define the acids and bases on the basis of various concepts/ theories
Students will be able to learn the basic concepts of Aliphatic Compounds, and Bimolecule.

UNIT- I

Acids and Bases: Arrhenius concept, Bronsted-Lowry concept, Lux-Flood and Lewis concept of acids and bases, strength of acid and base, pH, salt hydrolysis (basic elementary idea) , common ion effect , buffer solution .

UNIT- II

Aliphatic Compounds: Alkane- Structure of alkane, Preparation of alkanes: wurtz reaction, Corey house reaction, physical properties, chemical properties: substitution reaction (chlorination reaction mechanism), uses.

Alkenes- Structure of alkene, properties of alkene- reduction dehydrohalogenation, physical properties, chemical properties- electrophilic addition reaction with mechanism, Markownikoff's Rule. Peroxide effect, Polymerization of alkenes.

Alkynes- Structure of alkyne, properties of alkyne. physical properties, Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactionsuses.

UNIT- III

Bimolecule – Carbohydrate, protein, vitamin, nucleic acid.

Suggestive Practical:

Inorganic exercise:

Inorganic salt analysis including acidic/ Interfering radicals and basic radicals from III and IV groups.

Organic qualitative analysis:

Separation and identification of organic mixture by water.

- **Simple Hydrocarbons:** Naphthalene, Anthracene Biphenyl.

Suggestive Mode of transaction:

- Planned lectures infused with multimedia /power-point presentations.

- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, surveys, short term project work etc.

Suggestive Mode of assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
2. Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Willey, 1994,1st edition.
3. Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
4. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.
5. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
6. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.

CHE 601: SURFACE CHEMISTRY, PHOTO CHEMISTRY SOLUTIONS & CHEMICAL EQUILIBRIUM

Credit: 03+01=04
Maximum Marks: 70+30=10
Learning outcomes:
The core concepts of Physical Chemistry have been included in this semester with a view that students' command over these topics will help them to understand the higher chemistry in PG classes. Their understanding of Surface Chemistry, Photochemistry and Solutions will help him to explain the day today phenomenon of the relevant filed whereas.

UNIT- I

Surface Chemistry: Definition of surface phenomenon- Adsorption. Chemical and physical adsorption, Factors affecting adsorption. Isotherm and Isobar. Adsorption in catalysis, characteristics of catalysed reactions.

UNIT- II

Photochemistry: Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry; Grothuss-Drapper law, Lambert's law, Lambert Beer's law, fluorescence, phosphorescence.

UNIT- III

Solutions and Colligative Properties: Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient. Dilute solutions, colligative properties. Osmosis, Elevation of boiling point and depression in freezing point.

UNIT- IV

Chemical Equilibrium: The law of mass action, free energy and equilibrium constant, factors influencing equilibrium constant relationship between Kp and Kc. Le-Chatelier's principle.

Practical:
Laboratory hazards and safety precautions
Physical exercise:
Determination of Heat of neutralization.
Organic exercise: Separation & identification of binary mixture of organic compounds using $NaHCO_3$ (Sodium bicarbonate).

Suggestive Mode of Transaction:
The course content transaction will include the following:
Planned lectures infused with multimedia /power-point presentations. Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, discussion. Surveys, short term project work etc. hands on experience of engaging with diverse communities, children, and schools.

Suggestive Mode of Assessment:
The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Madan, R.L., "Chemistry for Degree Students, B. Sc. Third Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
2. Atkins P.W., "Atkin's Physical Chemistry: International", Oxford University Press, 2018, 11th edition.
3. Ball D.W., "Physical Chemistry", Cengage India Private Limited, 2017, 2nd edition.
4. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
5. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010.
6. Atkins, P. and de Paula, J. (2005). Physical Chemistry: 7th edition. Oxford University Press.
7. Moore, W.J. (1976). Physical Chemistry: 5th edition. Orient Longman Limited.
8. Fundamentals of Photochemistry, K.K. Rohtagi-Mukherji, Wiley-Eastern.
9.

CHE 602: BIOCHEMISTRY, NANO CHEMISTRY, GREEN CHEMISTRY & SPECTROSCOPY

Credits: 03+01= 04
Maximum Marks: 70+30=10
Learning outcomes:

After completion of this course, the students will be able to understand the chemistry of biomolecules. They will become acquainted in the field of data analysis. The new frontiers of chemistry such as nano-chemistry and green chemistry are the part of syllabi of this course which boost the knowledge of the students in these fields. The students will also able to understand the analytical techniques such as electro-gravimetric analysis, coulometric analysis, thermogravimetry, polarography and chromatography.

- Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
- Students will be able to function as a member of an interdisciplinary problem-solving team.
- Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- Students will gain an understanding of how to determine the structure of organic molecules using UV, IR and NMR spectroscopic techniques.

UNIT- I

General Biochemistry: Introduction to biomolecules, Enzymes; Definition, classification. General introduction to hormones. Nucleic acids; Nitrogen bases, purines, pyrimidines, nucleosides, nucleotides, structure of RNA and DNA molecule.

UNIT- II

Fundamentals of Nano chemistry: Definition, brief history, classification, general approach of nano synthesis, general applications.

UNIT- III

Basics of Green Chemistry: Introduction, role of green chemistry in sustainable development, principles of green chemistry.

UNIT- IV

Spectroscopy: Ultraviolet (UV) spectroscopy- molar absorptivity, types of electronic transitions, effect of conjugation, concept of chromophore and auxochrome. Bathochromic, hypsochromic, hyperchromic and hypochromic shifts.

Infra-Red (IR) spectroscopy- molecular vibrations, selection rules, intensity and position of IR bands, measurement of IR spectrum.

Nuclear magnetic resonance (NMR) spectroscopy; nuclear shielding and deshielding, chemical shift and molecular structure, spin-spin splitting and coupling constants.

Practical:

Laboratory hazards and safety precautions

Inorganic Exercise: Gravimetric analysis of any one or two metal ions; Ba^{2+}, Fe^{3+}, Ni^{2+}, Cu^{2+}, Zn^{2+} etc.

Chromatographic technique: Demonstrative Chromatography- paper chromatography (separation of organic compounds- Amino acids/ dyes)

Suggestive Mode of Transaction:

Scheduled lectures incorporate multimedia and PowerPoint slides.

Small-scale group conversations, panel talks, theme-based small-scale seminars, group discussions, team and cooperative instruction, readings from theoretical texts, and discussions. surveys, short-term projects, etc. provide practical experience working with children, other communities, and educational institutions.

Suggestive Mode of Assessment:

The assessment will be based on the tests and assignments.

Suggestive Readings:

1. Clark, J. H., and Macquarrie, D.J., Handbook of Green Chemistry and Technology, WileyBlackwell, 2002.
2. Anastas, P.T., and Williamson, T.C. Green Chemistry: Frontiers in Benign Chemical Syntheses and Processes, Oxford University Press, New York, 1999.
3. Ozin, G.A., Arsenault, A.C. and L. Cademartiri, Nanochemistry: A Chemical Approach to Nanomaterials, Royal Society of Chemistry, 2008, 2nd edition.
4. P. H. Raven, Biology, Tata MacGraw Hill.
5. P. Sheeler, Cell and Molecular Biology, John Wiley.
6. N. A. Campbell, Biology Pearson.
7. L. Styer, Biochemistry, Freeman & Co.
8. Outlines of biochemistry. Fourth edition (Conn, Eric E.; Stumpf, P. K.). Wiley India Pvt. Limited

BOTANY

COURSE STRUCTURE OF ITEP, B.Sc.-B.Ed. IN THE SUBJECT OF BOTANY

SEM.	PAPER CODE	TITLE	CREDITS
I	BOT 101	CYTOLOGY, MICROBES AND FUNGI	03+01=04
	BOT 102	ALGAE, BRYOPHYTES AND PTERIDOPHYTES	03+01=04
II	BOT 201	GYMNOSPERMS AND TAXONOMY OF ANGIOSPERMS	03+01=04
	BOT 202	PLANT PHYSIOLOGY AND ECOLOGY	03+01=04
	BOT 203	PLANT SCIENCE	03+01=04
III	BOT 301	PLANT BIOCHEMISTRY AND PHYSIOLOGY	03+01=04
	BOT 302	BIOTECHNOLOGY & MOLUCULER BIOLOGY	03+01=04
	BOT 303	PLANT SCIENCE-II	03+01=04
IV	BOT 401	GENETICS & PLANT BREEDING	03+01=04
	BOT 402	BIOSTATISTICS & ENVIRONMENTAL BIOLOGY	03+01=04
	BOT 403	PLANT SCIENCE-III	03+01=04
V	BOT 501	PLANT MORPHOLOGY & ANATOMY	03+01=04
	BOT 502	PLANT DEVELOPMENTAL BIOLOGY	03+01=04
	BOT 503	PLANT SCIENCE-IV	03+01=04
VI	BOT 601	ECONOMIC BOTANY	03+01=04
	BOT 602	CONSERVATION BIOLOGY AND MANAGEMENT OF BIODIVERSITY (CONSERVATION AND NATURAL RESOURCE MANAGEMENT)	03+01=04

BOTANY

BOT 101: CYTOLOGY, MICROBES AND FUNGI

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course seeks to develop a comprehensive and holistic understanding about the Cell structure and their organization and diversity of different Microbes, Fungi & Lichens & their economic importance. Through field study they will be able to see these plants grow in nature and become familiar with the biodiversity. It further highlights the structure and reproduction of certain selected microbes, fungi and lichens.

Learning Outcomes:

After the completion of the course the students will be able to:

• Understand cell structure, nucleic acids, organization of DNA in prokaryotes and Eukaryotes, overview of cell cycle, mitosis and meiosis.

• Develop understanding about the classification and diversity of Microbes, Fungi & Lichens & their economic importance.

• Develop conceptual skill about identifying pathogens, bio-fertilizers & lichens.

• Gain knowledge about developing commercial enterprise of microbial products.

• Learn host –pathogen relationship and disease management.

• Understand the structure and reproduction of certain selected microbes, fungi and lichens.

• Students would have understanding of the classification, characteristics features, cell structure and growth and reproduction in Microbes, Fungi & Lichens and their ecological importance.

UNIT-I: Cytology

A. The cell theories, prokaryotic and eukaryotic cells,

B. Cell organelles (Mitochondria, Chloroplast, ER, Golgi body, Lysosomes, Peroxisomes, Glyoxisomes, Nucleus, Chromatin;

C. DNA packaging in eukaryotes, euchromatin and heterochromatin, nucleolus and ribosome structure),

D. Cell membrane and cell wall; models of membrane structure,

E. Cell cycle (overview of cell cycle, mitosis and meiosis, molecular controls).

UNIT-II: Microbes

A. Viruses-discovery, general structure, classification and replication (general account),

B. DNA virus (T-phage); Lytic and Lysogenic cycle,

C. RNA virus (TMV);

D. Economic importance; bacteria–discovery, general characteristics and cell structure

E. Reproduction–vegetative, asexual and recombination (conjugation, transformation and transduction).

F. Economic importance.

UNIT-III: Fungi

A. Introduction-general characteristics, ecology and significance, range of somatic thallus organization, cell wall composition, nutrition, reproduction and classification (G.C. Ainsworth)

B. Life cycle of

• Stemonitis (Myxomycota)

• Rhizopus (Zygomycota)

• Penicillium (Ascomycota)

• Puccinia, Agaricus, Ustilago (Basidiomycota)

• Alternaria (Deutromycota)

C. Symbiotic associations.

D. General account of lichens, reproduction and significance; Mycorrhiza: ectomycorrhiza, endomycorrhiza and their significance.

Suggestive Practical:

After the completion of the course the students will be able to:

Learn to identify algae, lichens and plant pathogens along with their symbiotic and parasitic associations. Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding diversity, economic values & taxonomy of bryophytes.

Topic:

1. Study of types of Cells, Study the phenomenon of Mitosis and meiosis in root tip of Onion.

2. Types of Bacteria from temporary/permanent slides/photographs; EM of bacterium; Binary Fission; Conjugation; Structure of root nodule; Gram staining technique.

3. *Rhizopus and Penicillium*: Asexual stages from temporary mounts. *Alternaria:* Specimens/photographs and tease mounts. *Puccinia*: Herbarium specimens of Black 5. 5.

4. Rust of Wheat and infected Barberry leaves; section/tease mounts of spores on wheat and permanent slides of both the hosts. *Agaricus*: Specimens of button stage and full-grown mushroom.

5. Lichens: Study of growth forms of lichens (crustose, foliose and fruticose). Mycorrhiza: ectomycorrhiza and endomycorrhiza (Photographs).

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Pandey, S.N and Trivedi, P.S. (2015). A text book of Botany Vol.IVikas publishing House Pvt/ Ltd, New Delhi.
- Raven, P.H., Johnson, G.B., Losos, J.B., Singer, S.R. (2005). Biology. Tata McGraw Hill, Delhi, India.

- Sethi, I.K. and Walia, S.K. (2011). Text book of Fungi and Their Allies, MacMillan Publishers Pvt. Ltd., Delhi.
- Sharma, O. P. (2011). Algae. Tata McGraw Hill Education Private Limited, U.K. 1st edition.
- Bergey's Manual of Systematic Bacteriology, 2nd ed., vol. 1-3, Springer Verlag, New York, NY.
- Pandey, B.P. (2014). Modern Practical Botany Vol. I. S. Chand and Company Ltd. Ramnagar, New Delhi.
- Purohit, S.D., Kundra, G. K. and Singhvi, A. (2013). Practical Botany (part I). Apex Publishing House Durga Nursery Road Udaipur, Rajasthan.
- Webster, J. and Weber, R. (2007). Introduction to Fungi. Third Edition. Cambridge University Press. Cambridge and New York.
- Alberts, B., Johnson, A.D., Lewis, J., Morgan, D., Raff, M.and Roberts, K. (2014). Molecular Biologyof the Cell. CRC Press, Taylor &Francis Group, USA.; 1464pages
- Cooper, G.M. and Hausman, R.E. (2009). The Cell: A Molecular Approach.5 the dition. ASM Press and Sunderl and, Washington, D.C.; SinauerAssociates, MA.
- De Robertis, E.D.P. and De Robertis, E.M.F. (2006). Celland Molecular Biology. 8 the dition. Lippin cott Williams and Wilkins, Philadelphia.
- Karp, G.(2010).Celland Molecular Biology: Concepts and Experiments.6th Edition. John Wiley and Sons.Inc.

BOT102: ALGAE, BRYOPHYTES AND PTERIDOPHYTES

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course seeks to develop a comprehensive and holistic understanding about the classification and diversity of different algae, bryophytes and Pteridophytes & their economic importance. Through field study they will be able to see these plants grow in nature and become familiar with the biodiversity. It further highlights the critical understanding on morphology, anatomy and reproduction of Bryophytes.

Learning Outcomes:

After the completion of the course the students will be able to:

• Develop understanding about the classification and diversity of different algae, bryophytes and pteridophytes & their economic importance.

• Understanding of plant evolution and their transition to land habitat.

• Develop conceptual skill about identifying algae, bryophytes & pteridophytes.

• Gain knowledge about developing commercial enterprise of microbial products.

• Understand the structure and reproduction of certain selected algae, bryophytes & pteridophytes.

• Students would have understanding of the classification, characteristics features, cell structure and growth and reproduction in algae, bryophytes & pteridophytes and their ecological importance.

• To deliver knowledge on latest developments in the field of Plant sciences with a practical approach.

UNIT-I: Algae

A. General characteristics; Range of thallus organization and reproduction.

B. Classification of algae

C. Morphology and life-cycles of:

- ❖ Nostoc,
- ❖ Chlamydomonas
- ❖ Oedogonium

- ❖ Vaucheria,
- ❖ Sargassum,
- ❖ Volvox

D. Economic importance of algae.

UNIT-II: Bryophytes

A. General characteristics, adaptations to land habit.

B. Classification (up to family), morphology, anatomy and reproduction of Marchantia, Anthoceros and Funaria.

C. Ecology and economic importance of bryophytes.

UNIT-II: Pteridophytes

A. General characteristics, classification (up to family) including The Pteridophyte Phylogeny Group (PPG) classification, early land plants (*Rhynia*); morphology, anatomy and reproduction of *Selaginella*, *Equisetum* and *Pteris*; heterospory and seed habit, stelar evolution.

B. Ecological and economic importance of Pteridophytes, Telome theory.

Suggestive Practical:

After the completion of the course the students will be able to:

1. Students would learn to create their small digital reports where they can capture the zoomed in and zoomed out pictures as well as videos in case, they are able to find some rare structure or phenomenon related to Algae, Bryophytes &Pteridopytes.
2. Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding diversity, economic values & taxonomy of algae, bryophytes & pteridophytes.
3. The students will be made aware of the group of plants that have given rise to land habit.

Topic:

1. Study of vegetative and reproductive structures of *Nostoc*, *Chlamydomonas* (electron micrographs), *Oedogonium, Vaucheria, Sargassum*and*Polysiphonia*through temporary preparations and permanent slides/specimens.

2. Riccia, Marchantia and Anthoceros: Morphology of thallus, rhizoids and scales, V.S. thallus through gemma cup, gemmae whole mount (all temporary slides),

3. V.S antheridiophore, archegoniophore, L.S. sporophyte (all permanent slides).

4. Funaria- Morphology, whole mount leaf, rhizoids, operculum, peristome, annulus, spores (temporary slides); permanent slides showing antheridial and archegonial heads, L.S capsule and protonema.

5. Selaginella: Morphology, whole mount leaf with ligule, strobilus, microsporophyll and megasporophyll (temporary slides), T.S. stem, L.S. strobilus (permanent slide).

6. Equisetum: Morphology, T.S. internode, L.S. strobilus, T.S and L.S. Strobilus, whole mount sporangiophore, spores (wet and dry) (temporary slides); T.S. rhizome (permanent slide).

7. Pteris: Morphology, T.S rachis, V.S. sporophyll, whole mount sporangium and spores (temporary slides), T.S. rhizome, whole mount prothallus with sex organs and young sporophyte (permanent slide).

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggested readings:

- Barsanti, L. and Gualtieri, P. (2014). Algae: Anatomy, Biochemistry and Biotechnology, 2nd Edition. CRC/ Taylor & Francis, NY.
- Lee, R.E. (2018). Phycology, Fifth Edition. Cambridge University Press, Cambridge.
- Pandey, S.N and Trivedi, P.S. (2015). A text book of Botany Vol.I Vikas publishing House Pvt/ Ltd, New Delhi.

- Parihar, N.S. (1991). An Introduction to Embryophyta Vol. I Bryophyta. Central Book Depot, Allahabad.
- Sharma, O. P. (2011). Algae. Tata McGraw Hill Education Private Limited, U.K. 1st edition.
- Pandey, B.P. (2014). Modern Practical Botany Vol. I. S. Chand and Company Ltd. Ramnagar, New Delhi.
- Purohit, S.D., Kundra, G. K. and Singhvi, A. (2013). Practical Botany (part I). Apex Publishing House Durga Nursery Road Udaipur, Rajasthan.
- Sambamurty, A.V.S.S. (2006). A text book of Algae. I.K International Publishing House, Pvt. Ltd.

BOT 201: GYMNOSPERMS AND TAXONOMY OF ANGIOSPERMS

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The course seeks to develop a comprehensive and holistic understanding about the classification and diversity of different Gymnosperms, Angiosperms & their economic importance. Through field study they will be able to see these plants grow in nature and become familiar with the biodiversity. Develop critical understanding on morphology, anatomy and reproduction of Gymnosperms. It further highlights to become familiar with major taxa and their identifying characteristics, and to develop in depth knowledge of the current taxonomy of a major plant family.

Learning Outcome:

After the completion of the course the students will be able to:

- Understand the general characters, distribution and significance of Gymnosperms.
- Understand the morphology, anatomy and reproduction of common Gymnosperms.
- To learn the major patterns of diversity among plants, and the characters and types of data used to classify plants.
- To become familiar with major taxa and their identifying characteristics, and to develop in depth knowledge of the current taxonomy of a major plant family.
- To discover and use diverse taxonomic resources, reference materials, herbarium collections, publications.

UNIT-I: Gymnosperms

- A. General characteristics, classification (up to family), morphology, anatomy and reproduction of *Cycas, Pinus* and *Gnetum*
- B. Ecological and economic importance of Gymnosperms.

UNIT-II: Introduction to plant taxonomy

A. Identification, classification, nomenclature, functions of herbarium, important herbaria and botanical gardens of the world and India.

B. Important flora, botanical nomenclature (principles and rules (ICN); ranks and names; binominal system, typification, author citation, valid publication, rejection of names, principle of priority and its limitations).

C. Classification: Types of classification-artificial, natural and phylogenetic Bentham and Hooker (up to series), Hutchinson classification and Angiosperm Phylogeny Group (APG IV) classification.

D.Taxonomy of plant families

Ranunculaceae, Malvaceae, Rutaceae, Fabaceae, Apiaceae, Asteraceae, Solanaceae, Lamiaceae, Euphorbiaceae, Orchidaceae and Poaceae.

Suggestive Practical:

1. The students will be made aware of the group of plants that have given rise to land habit and the flowering plants. Through field study they will be able to see these plants growing in nature and become familiar with the biodiversity.

2. Develop an understanding by observation and table study of representative members of phylogenetically important groups to learn the process of evolution in a broad sense.

3. Understand morphology, reproduction and developmental changes therein through typological study and create a knowledge base in understanding the basis of plant diversity, economic values and taxonomy of plants.

Topic

- *Cycas*: Morphology (coralloid roots, bulbil, leaf), T.S. coralloid root and rachis, V.S. leaflet and microsporophyll, whole mount spores (temporary slides), L.S. ovule, T.S. root (permanent slide).

- *Pinus*: Morphology (long and dwarf shoots, male and female cones), T.S. needle and stem, L.S./T.S. male cone, whole mount microsporophyll and microspores (temporary slides), L.S. female cone, TLS and RLS stem (permanent slide).
- Taxonomic Identification: Description of an angiospermic plant, study of vegetative and floral characters (description, V.S. flower, section of ovary, floral diagram/s, floral formula/e) and systematic position of the following families according to Bentham and Hooker's system of classification: Brassicaceae, Asteraceae, Solanaceae, Lamiaceae, and Liliaceae. **(Plants can be chosen as per availability of local flora)**

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggested Books:

- Bhatnagar, S.P. and Moitra, A. (1996). Gymnosperms. New Age International (P) Ltd Publishers, New Delhi, India.
- Gangulee H.C., Kar, A.K. and
- Pandey, B.P. (2010). College Botany Vol II. S. Chand and Company Ltd., New Delhi, India.
- Singh, G. (2012). Plant Systematics: Theory and Practice. Oxford and IBH Pvt. Ltd., New Delhi. 3rd edition.
- Vashishta, P.C., Sinha, A.K. and Kumar, A. (2010). Gymnosperms, S. Chand and Company Ltd., Ramnagar, New Delhi, India.

- Pandey, B.P. (2014). Modern Practical Botany Vol. II. S. Chand and Company Ltd., New Delhi.
- Bendre, A.M. and Kumar A. (2003). Manual of Practical Botany Vol. II. Rastogi Publications, Meerut.
- Santra S.C. and Chatterjee (2005). College Botany Practical Vol. II New Central Book Agency Pvt. Ltd.

BOT 202: PLANT PHYSIOLOGY AND PLANT ECOLOGY

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The course seeks to develop a comprehensive and holistic understanding about life forms of plants, design and execute experiments related to basic studies on plant physiology and biochemistry. Through field study they will be able to see these plants grow in nature and become familiar how plant functions and respond to their environment. It further highlights the basic concepts of plant ecology and evaluates the effects of environmental and biotic factors on plant communities.

Learning Outcomes:

After the completion of the course the students will be able to:

- Understand the role of physiological and metabolic processes for plant growth and development.
- Assimilate knowledge about Biochemical constitution of plant diversity.
- Understand the interrelationship between organisms and environment;
- Make them understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography.
- Understanding the strategies for sustainable natural resource management and biodiversity conservation.

UNIT-I: Plant Physiology

A. Plant-water relations: Importance of water, water potential and its components; transpiration and its significance; factors affecting transpiration; root pressure and guttation.

B. Photosynthesis: Photosynthetic Pigments (Chl a, b, xanthophylls, carotene); photosystem I and II, electron transport and mechanism of ATP synthesis; C3, C4 and CAM pathways of carbon fixation; photorespiration). Respiration (glycolysis, anaerobic respiration, TCA cycle; oxidative phosphorylation, glyoxylate cycle).

C. Biochemistry: General introduction to carbohydrates, lipids and proteins. Enzymes (structure and properties; mechanism of enzyme catalysis and enzyme inhibition, factors affecting enzyme action).

UNIT-II: Plant Ecology

A. Ecological factors: Soil (Origin, formation, composition, soil profile), Plant adaptationin relation to water **(**Hydrophytes and xerophytes), light (Sciophytes and heliophytes) and temperature, Pollution: Water, Soil and Radioactive.
B. Ecosystem: Types, structure, energy flow, trophic organization, food chains and food webs, ecological pyramids.
C. Biogeochemical cycles: Cycling of carbon, nitrogen and phosphorous.
D. Population: Characteristics, Growth curves, Ecotypes and Ecads
E. Plant communities: Characteristics, plant succession, biological spectrum
F. Biodiversity conservation

Suggestive Practicals:

1. The students will be made aware of the different physiological and metabolic processes of plants.

2. Gaining practical knowledge implemented in the biodiversity assessment and conservation.

Topic:

Plant Physiology:

- Demonstration of process of diffusion, osmosis and plasmolysis
- Demonstration of transpiration in dorsiventral leaf by four leaf and cobalt chloride method.
- Determination of rate of transpiration by Ganong's/Farm potometer.
- Demonstration of the effect of light intensity and bicarbonate concentration on O2 evolution in photosynthesis by Wilmott' s bublar
- Determination of R.Q of different respiratory substrates by Ganong's respirometer
- Demonstration of anaerobic respiration in germinating seeds.
- Test of carbohydrates, proteins and fats.

Plant Ecology:

- Observation and study of different ecosystems mentioned in the syllabus.
- Determination of minimum quadrat size for the study of herbaceous vegetation by species area curve method (species to be listed).

- Quantitative analysis of herbaceous vegetation in the college campus for frequency, density, abundance and A/F ratio.
- Population structure study of dominant tree species of the locality.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies,
- marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggested books:

- Taiz, L., Zeiger, E., (2010). Plant Physiology. Sinauer Associates Inc., U.S.A. 5th Edition.
- Hopkins, W.G., Huner, N.P., (2009). Introduction to Plant Physiology. John Wiley and Sons, U.S.A. 4th Edition.
- Bajracharya, D., (1999). Experiments in Plant Physiology- A Laboratory Manual. Narosa Publishing House, New Delhi.
- Plummer, D.T. (1996). An Introduction to Practical Biochemistry. Tata McGraw-Hill Publishing Co. Ltd. New Delhi. 3rd edition.
- Sharma, P.D. (2010) Ecology and Environment. Rastogi Publications, Meerut, India. 8th edition.
- Shukla, R.S. and Chandel P.S. (2005). A text book of Plant Ecology. S. Chand and Company Ltd., Ram Nagar, New Delhi.
- Rastogi, V.B. (2015). Biostatistics. Medtech, 3rd Edition.
- Banerjee, P.K. (2006). Introduction to Biostatistics. S. Chand and Company Ltd., Ram Nagar, New Delhi.
- Singh, J.S. Singh S.P. and Gupta, S.R. (2014). Ecology, Environment and Resource Conservation. S. Chand and Compony Pvt. Ltd., New Delhi.

MINOR/ELECTIVE
BOT 203: PLANT SCIENCE

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The course seeks to develop a comprehensive and holistic understanding about the classification and diversity of different Microbes, Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms and their economic importance. Through field study they will be able to see these plants grow in nature and become familiar with the biodiversity. This course will also provide knowledge on basic concepts of plant taxonomy. Further students will be able to know about plant morphogenesis, anatomy and embryology of plants.

Learning Outcome:

After the completion of the course the students will be able to:

- Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi & Lichens & their economic importance.
- Gain knowledge about uses of microbes in various fields.
- Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens
- Develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms.
- Understand the basic concepts of plant taxonomy
- Understand morphology, anatomy and embryology of plants.

UNIT-I:

Microbes: General characteristics and economic importance of bacteria and viruses.

Algae: General characteristics; range of thallus, reproduction and economic importance

Fungi: General characteristics, reproduction, ecology and significance.

UNIT-II:

Bryophytes: General characteristics, adaptations to land habit, reproduction and economic importance of bryophytes.

Pteridophytes: General characteristics, ecological and economic importance of Pteridophytes.

UNIT-III:

Gymnosperms: General characteristics, ecological and economic importance.

Introduction to plant taxonomy: Identification, classification, nomenclature, functions of herbarium, important herbaria and botanical gardens of the world and India.

UNIT-IV:

Plant Embryology: Embryo, Types of ovules and embryo sacs; endosperm; types of endosperms; dicot and monocot embryo, pollination, fertilization.

Plant Anatomy: Types of tissues, Root and shoot apical meristems, simple, complex and secretary tissues, structure of dicot and monocot root, stem and leaf.

Suggestive Practical:

After the completion of the course the students will be able to:

1. Types of Bacteria from temporary/permanent slides/photographs; EM of bacterium; Binary Fission; Conjugation; Structure of root nodule; Gram staining technique.

2. Study of vegetative and reproductive structures of *Nostoc*, *Chlamydomonas* (electron micrographs), *Oedogonium, Vaucheria, Sargassum*and*Polysiphonia*through temporary preparations and permanent slides/specimens.

3. *Rhizopus and Penicillium*: Asexual stages from temporary mounts. *Alternaria:* Specimens/photographs and tease mounts. *Puccinia*: Herbarium specimens of Black Rust of Wheat and infected Barberry leaves; section/tease mounts of spores on wheat and permanent slides of both the hosts. *Agaricus*: Specimens of button stage and full-grown mushroom.

4. Lichens: Study of growth forms of lichens (crustose, foliose and fruticose). Mycorrhiza: ectomycorrhiza and endomycorrhiza (Photographs).

5. The students will be made aware of the group of plants that have given rise to land habit and the flowering plants. Through field study they will be able to see these plants growing in nature and become familiar with the biodiversity.

6. Develop an understanding by observation and table study of representative members of phylogenetically important groups to learn the process of evolution in a broad sense.

7. Understand morphology, reproduction and developmental changes therein through typological study and create a knowledge base in understanding the basis of plant diversity, economic values and taxonomy of plants.

8. Taxonomic Identification: Description of an angiospermic plant, study of vegetative and floral characters (description, V.S. flower, section of ovary, floral diagram/s, floral formula/e) and systematic position of the following families according to Bentham and Hooker's system of classification: Brassicaceae, Asteraceae, Solanaceae, Lamiassceae, and Liliaceae.
9. Herbarium techniques: Plant collection, preservation and mounting of two properly dried and pressed specimen of any wild plant with herbarium label (to be submitted in the record book), digital/virtual herbarium.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggested Readings:

- Pandey, B.P. (2014). Modern Practical Botany Vol. II. S. Chand and Company Ltd., New Delhi.
- Bergey's Manual of Systematic Bacteriology, 2nd ed., vol. 1-3, Springer Verlag, New York, NY.
- Pandey, B.P. (2014). Modern Practical Botany Vol. I. S. Chand and Company Ltd. Ramnagar, New Delhi.
- Purohit, S.D., Kundra, G. K. and Singhvi, A. (2013). Practical Botany (part I). Apex Publishing House Durga Nursery Road Udaipur, Rajasthan.
- Sambamurty, A.V.S.S. (2006). A text book of Algae. I.K International Publishing House, Pvt. Ltd.
- Bendre, A.M. and Kumar A. (2003). Manual of Practical Botany Vol. II. Rastogi Publications, Meerut.
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- Santra S.C. and Chatterjee (2005). College Botany Practical Vol. II New Central Book Agency Pvt. Ltd.

BOT 301: PLANT BIOCHEMISTRY AND PHYSIOLOGY

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course on Plant Biochemistry and Physiology for undergraduate students typically integrates both theoretical knowledge and practical applications related to plant metabolism, growth, and development. It covers fundamental concepts such as cell structure, photosynthesis, respiration, water relations, mineral nutrition, plant hormones, secondary metabolism, plant growth and development, environmental physiology, and experimental techniques. Practical components involve hands-on experiments in microscopy, photosynthesis and respiration measurements, water relations studies, nutrient analysis, hormone bioassays, secondary metabolite quantification, experimental design, and data analysis. These elements collectively provide students with a comprehensive understanding of plant biology at the biochemical and physiological levels.

Learning Outcomes:

After the completion of the course the students will be able to:

- Demonstrate understanding of fundamental principles of plant biochemistry and physiology, including cell structure, metabolism, and growth processes, integrate theoretical knowledge with practical skills
- To investigate plant responses to environmental factors, nutrient availability, and hormonal regulation, cultivates a curiosity for ongoing learning in plant biology, staying updated with current research and technological advancements in the field.

UNIT- I

A. Introduction to Plant Biochemistry and Physiology: Overview of plant structure and function, Importance of plants in ecosystems and human life**.**

B. Cell Structure and Function: Cellular components specific to plants, Cell wall structure and function, Membrane transport processes.

UNIT- II

A. Photosynthesis: Light reactions: Photosystems and electron transport, Calvin cycle: Carbon fixation and carbohydrate synthesis, Factors affecting photosynthesis

B. Respiration: Aerobic respiration: Glycolysis, Krebs cycle, electron transport chain, Anaerobic respiration, and fermentation.

UNIT- III: Water Relations and Transport and Mineral Nutrition

A. Water uptake and transport in plants, Transpiration and its regulation, Plant adaptations to water stress, biological nitrogen fixation; nitrate and ammonia assimilation.

B. Essential elements for plant growth, Uptake mechanisms and nutrient transport, Nutrient deficiency and toxicity symptoms

UNIT- IV: Secondary Metabolism & Plant Growth and Development

A. Biosynthesis and functions of secondary metabolites, Role of secondary metabolites in plant defence and human uses.

B. Control of plant growth, Flowering and fruit development, Senescence and programmed cell death.

Practical:

After the completion of the course the students will be able to:

Understand Seed Germination, Comprehend Osmosis, Analyze Membrane Permeability, Demonstrate Plasmolysis and Transpiration, Evaluate Soil Properties, Assess Transpiration Rates, Investigate Photosynthesis, Illustrate Photosynthetic Requirements, Separate Photosynthetic Pigments and Differentiate Respiration Types.

The following experiments are to be conducted:

- To compare the rates of photosynthesis under different environmental conditions.
- To demonstrate the necessity of light, CO2 and chlorophyll for photosynthesis.
- Demonstration of aerobic respiration & anaerobic respiration.
- To demonstrate the liberation of CO2 during aerobic respiration.
- To demonstrate the water potential and osmotic potential in plant tissues
- To demonstrate the effects of nutrient deficiencies on plant growth
- Bioassays to demonstrate the effects of plant hormones (e.g., auxins, cytokinins) on plant growth
- Extraction and quantification of secondary metabolites (e.g., phenolics, alkaloids)

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies,

analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments, and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Bajracharya, D., (1999). Experiments in Plant Physiology- A Laboratory Manual. Narosa Publishing House, New Delhi.
- Buchanan, B., Gruissem, G. and Jones, R. (2000). Biochemistry and Molecular Biology of Plants, American Society of Plant Physiologists, USA.
- Davies P J. (2004). Plant Hormones: Biosynthesis, Signal Transduction, Action. 3rd Edition, Kluwer Academic Publisher, Dordrecht, The Netherlands.
- Hopkins, W.G., Huner, N.P., (2009). Introduction to Plant Physiology. John Wiley and Sons, U.S.A. 4th Edition.
- Nelson, D.L., and Cox, M.M. (2008). *Lehninger Principles of Biochemistry* (5th ed.). W.H. Freeman & Co., New York.
- Taiz, L., Zeiger, E., (2014). Plant Physiology. Sinauer Associates Inc., U.S.A. 6th Edition.
- Salisbury F.B. & Ross C.W. 1992 Plant physiology, Widsworth Publishing Co. California, U.S.A.

BOT 302: BIOTECHNOLOGY & MOLUCULER BIOLOGY

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The course seeks to develop a comprehensive and holistic understanding about the knowledge acquired in other course by handling of classical and modern plant biotechnology processes, including tissue culture for healthy plants, plants with improved characteristics and how to use of biotechnology to both generate genetic variation in plants and to understand how factors at the cellular level contribute to the expression of genotypes and hence to phenotypic variation. How to understanding of biotechnological processes such as recombinant DNA technology and its applicative value in pharmaceuticals (vaccines, antibodies, antibiotics etc.), food industry (transgenic crops with improved qualities (nutraceuticals, industrial enzymes etc.), agriculture (biotic and abiotic stress tolerant plants, disease and pest resistant plants, improved horticultural varieties etc.), ecology (plants role in bioremediation). This knowledge is central to our ability to modify plant responses and properties for global food security and commercial gains in biotechnology and agriculture.

Learning Outcomes:

- Explain the branches of biotechnology and illustrate the tools and techniques of genetic engineering.
- Justify various successful examples of genetic engineering with their merits and demerits as well as alternate technology of direct gene transfer methods.
- Infer the success of industrial biotechnology and the need for IPR and Patent filing.
- Assess the regulation of gene expression using operon concept and gene expression in Eukaryotes.
- Understanding of nucleic acid, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process.
- Processing and modification of RNA and translation process, function and regulation of expression.

UNIT-I:

Biotechnology - A brief introduction to branches of Biotechnology, Genetic Engineering: Tools and Techniques- Bacterial Plasmids, Bacteriophage, Yeast Vectors, Cosmides and Enzymes.

Screening of recombinants: Blue-white selection, DNA probes and Colony hybridization, PCR Technique and Blotting techniques, Western and Southern blotting.

UNIT-II:

Genetic Engineering in plants: aim and scope for developing transgenic plants Agrobacterium mediated gene transfer technique: Development of stress tolerant plants, pest resistant plants – Bt cotton and food quality – Golden rice, Antisense RNA technology – Flavr Savr Tomato an Early Example. Direct gene transfer methods. Merit and demerit of rDNA technology.

Industrial biotechnology: Pharmaceutically important compounds. Antibiotics-Penicillin and Streptomycin. Proteins- Insulin and Vaccines. Biodegradable plastics, Strain improvement of microorganisms and Design of fermenter (STR). Biosafety and Bioethics. Intellectual Property Rights (IPR): Patent filing and patent rights.

UNIT-III:

Central Dogma of molecular biology, one gene - one polypeptide hypothesis. Regulation of gene expression; Gene expression in prokaryotes – Operon concept (lac operon and trp operon); structure of mRNA gene; Gene expression in eukaryotes – post-transcriptional and translational processing.

Suggestive Practical:

After the completion of the course the students will be able to:

- Understand and Apply Biotechnology Concepts, Utilize Genetic Engineering Tools and Techniques, conduct blotting techniques including Southern and Western blotting, interpret results from these techniques to identify specific DNA or protein sequences, Understand the working of following instruments: PCR, incubator, Gel electrophoretic assembly, water bath, Spectrophotometer, Gel documentation Unit and centrifuge etc. Understand the life history of various scientists and their contribution in the field of Molecular Biology

Topic:

- To study the working of following instruments: PCR, Laminar air flow chamber, autoclave, incubator, and centrifuge.
- To study the Gram positive and Gram-negative bacteria in root nodule, curd and soil. Culture media preparation. Sterilization techniques including surface sterilization of explants. Study the use of Azolla as biofertilizer
- Comment upon the given photographs, specimens etc.

- To study the working of following instruments: PCR, incubator, Gel electrophoretic assembly, water bath, Spectrophotometer, Gel documentation Unit and centrifuge etc.
- To study about life history of various scientists and their contribution in the field of Molecular Biology

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggested readings:

- Bernard R. Glick and Jack J. Pasternak, 2002. Molecular Biotechnology: Principles and Applications of Recombinant DNA, American Society for Microbiology, USA.
- Slater A, Scott N, Fowler M. 2003. Plant Biotechnology: The Genetic Manipulation of Plants Oxford: Oxford University Press.
- Gupta, P. K. 2005, Elements of Biotechnology. Rastogi publications, Meerut
- Dubey, R. C. 2014. A Textbook of Biotechnology, Fifth Edition. S Chand and Co., New Delhi.
- Satyanarayana, U. 2020. Biotechnology. NCB, Calcutta.
- Verma, P.S. and Agarwal, V.K. 1986. Cell Biology and Molecular Biology (Cytology). S. Chand and Company Ltd., New Delhi.
- De Robertis & De Robertis. 1990. Cell and Molecular Biology, Saunders College, Philadelphia, USA.
- Freifelder, D.1993. Essentials of Molecular Biology, Jones & Bartlett, Boston.
- Elliott, W. H. and Elliott, D. C. 2005. Biochemistry and Molecular Biology, 3rd edition. Oxford University, Oxford

MINOR/ELECTIVE

BOT 303: PLANT SCIENCE-II

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course on Plant Biochemistry and Physiology for undergraduate students typically integrates both theoretical knowledge and practical applications related to plant metabolism, growth, and development. It covers fundamental concepts such as cell structure, photosynthesis, water relations, mineral nutrition, environmental physiology, and experimental techniques. The course seeks to develop a comprehensive and holistic understanding about the knowledge acquired in other course by handling of classical and modern plant biotechnology processes, including tissue culture for healthy plants, plants with improved characteristics and how to use of biotechnology to both generate genetic variation in plants and to understand how factors at the cellular level contribute to the expression of genotypes and hence to phenotypic variation. This knowledge is central to our ability to modify plant responses and properties for global food security and commercial gains in biotechnology and agriculture.

Learning Outcomes:

After the completion of the course the students will be able to:

- Demonstrate understanding of fundamental principles of plant biochemistry and physiology, including cell structure, metabolism, and growth processes, integrate theoretical knowledge with practical skills.
- To investigate plant responses to environmental factors, nutrient availability, and hormonal regulation, cultivate a curiosity for ongoing learning in plant biology, staying updated with current research and technological advancements in the field.
- Explain the branches of biotechnology and illustrate the tools and techniques of genetic engineering.
- Justify various successful examples of genetic engineering with their merits and demerits as well as alternate technology of direct gene transfer methods.

UNIT-I:

A. **Introduction to Plant Biochemistry and Physiology**: Overview of plant structure and function, Importance of plants in ecosystems and human life**.**

B. **Cell Structure and Function:** Cellular components specific to plants, Cell wall structure and function.

UNIT-II: Photosynthesis

Light reactions: Photosystems and electron transport, Factors affecting photosynthesis

UNIT-III: Water Relations and Transport

Water uptake and transport in plants, Transpiration and its regulation, Plant adaptations to water stress, biological nitrogen fixation; nitrate and ammonia assimilation.

UNIT-IV: Biotechnology

A brief introduction to branches of Biotechnology, Genetic Engineering: Tools and Techniques-Bacterial Plasmids, Bacteriophage, Yeast Vectors, Cosmides and Enzymes.

UNIT-V: Genetic Engineering in plants

Aim and scope for developing transgenic plants. Agrobacterium mediated gene transfer technique: Development of stress tolerant plants, pest resistant plants.

Industrial Biotechnology: Pharmaceutically important compounds. Antibiotics-Penicillin and Streptomycin.

UNIT-VI: Molecular Biology

Central Dogma of molecular biology, one gene - one polypeptide hypothesis. Regulation of gene.

Practical:

After the completion of the course the students will be able to:

Understand Seed Germination, Comprehend Osmosis, Analyze Membrane Permeability, Demonstrate Plasmolysis and Transpiration, Evaluate Soil Properties, Assess Transpiration Rates, Investigate Photosynthesis, Illustrate Photosynthetic Requirements, Separate Photosynthetic Pigments and Differentiate Respiration Types.

Understand and Apply Biotechnology Concepts, Utilize Genetic Engineering Tools and Techniques, conduct blotting techniques including Southern and Western blotting, interpret results from these techniques to identify specific DNA or protein sequences, Understand the working of following instruments: PCR, incubator, Gel electrophoretic assembly, water bath, Spectrophotometer, Gel documentation Unit and centrifuge etc. Understand the life history of various scientists and their contribution in the field of Molecular Biology

Topic:

The following experiments are to be conducted:

- To compare the rates of photosynthesis under different environmental conditions.
- To demonstrate the necessity of light, CO2 and chlorophyll for photosynthesis.
- To demonstrate the water potential and osmotic potential in plant tissues
- To demonstrate the effects of nutrient deficiencies on plant growth
- Bioassays to demonstrate the effects of plant hormones (e.g., auxins, cytokinins) on plant growth
- To study the working of following instruments: PCR, Laminar air flow chamber, autoclave, incubator, and centrifuge.
- To study the Gram positive and Gram-negative bacteria in root nodule, curd and soil. Culture media preparation. Sterilization techniques including surface sterilization of explants. Study the use of Azolla as biofertilizer
- To study about life history of various scientists and their contribution in the field of Molecular Biology

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments, and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Bajracharya, D., (1999). Experiments in Plant Physiology- A Laboratory Manual. Narosa Publishing House, New Delhi.
- Buchanan, B., Gruissem, G. and Jones, R. (2000). Biochemistry and Molecular Biology of Plants, American Society of Plant Physiologists, USA.
- Davies P J. (2004). Plant Hormones: Biosynthesis, Signal Transduction, Action. 3rd Edition, Kluwer Academic Publisher, Dordrecht, The Netherlands.
- Hopkins, W.G., Huner, N.P., (2009). Introduction to Plant Physiology. John Wiley and Sons, U.S.A. 4th Edition.
- Nelson, D.L., and Cox, M.M. (2008). *Lehninger Principles of Biochemistry* (5th ed.). W.H. Freeman & Co., New York.
- Taiz, L., Zeiger, E., (2014). Plant Physiology. Sinauer Associates Inc., U.S.A. 6th Edition.
- Salisbury F.B. & Ross C.W. 1992 Plant physiology, Widsworth Publishing Co. California, U.S.A.
- Bernard R. Glick and Jack J. Pasternak, 2002. Molecular Biotechnology: Principles and Applications of Recombinant DNA, American Society for Microbiology, USA.
- Slater A, Scott N, Fowler M. 2003. Plant Biotechnology: The Genetic Manipulation of Plants Oxford: Oxford University Press.
- Gupta, P. K. 2005, Elements of Biotechnology. Rastogi publications, Meerut
- Dubey, R. C. 2014. A Textbook of Biotechnology, Fifth Edition. S Chand and Co., New Delhi.
- Satyanarayana, U. 2020. Biotechnology. NCB, Calcutta.
- Verma, P.S. and Agarwal, V.K. 1986. Cell Biology and Molecular Biology (Cytology). S. Chand and Company Ltd., New Delhi.
- De Robertis & De Robertis. 1990. Cell and Molecular Biology, Saunders College, Philadelphia, USA.
- Freifelder, D.1993. Essentials of Molecular Biology, Jones & Bartlett, Boston.
- Elliott, W. H. and Elliott, D. C. 2005. Biochemistry and Molecular Biology, 3rd edition. Oxford University, Oxford.

BOT 401: GENETICS & PLANT BREEDING

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The course seeks to develop a comprehensive and holistic understanding about the knowledge of Mendelian and non-Mendelian inheritance, Chromosome biology and structure and function of genes and develop an understanding of the concepts of plant breeding and its applications. To provide adequate knowledge on the natural breeding systems of different agriculturally important plant and strategies employed for crop improvement. To impart skills on plant genome analysis and gene mapping using DNA markers and their use in increasing efficiency of plant breeding. Understand the genetic basis of hybrid vigour and development of hybrid varieties and make students familiar with the concept of varietal release and rights of a farmer and plant breeder.

Learning Outcomes:

After the completion of the course the students will be able to:

- Explain the basic laws of inheritance and variations.
- Gain knowledge on the importance of plant breeding for developing new cultivars and use of breeding strategies for improvement of crop plants. •
- Understand the concept of gene pool and germplasm resources that are fundamental to crop improvement.
- Know various gene interactions.
- Explicate the breeding methods for commercially important crop plants.
- Process basics of Mutation.
- Demonstrate the Mendelian principles of inheritance.
- Associate the relationship between alleles and their interaction in inheritance.
- Evaluate the variations in chromosome number and ploidy of an organism.
- Infer the significance of chromosomal mutations in inheritance of a character.
- Recognize extra chromosomal inheritance and population genetics.
- Explain the process of sex determination in plants.
- Extrapolate the various plant breeding methods for production of new varieties and theories of evolution.
- To generate interest among the students in Genetics and make them aware about the importance and opportunities in higher education and research, the first unit should be Introductory dealing

with how this area has revolutionized all aspects of our life from its growth from Mendel to Genetic Engineering. Modes of inheritance of traits/ phenotypes and Phenotype-genotype correlation are the basic learning.

UNIT-I: Mendelism

Mendal`s law of inheritance, back cross and test cross, Linkage and crossing over; multiple allelism, gene interaction and modified dihybrid ratio complementary, supplementary, duplicate and epistasis factors

UNIT-II:

Chromosome aberrations – deletions, duplication, inversions and translocations; Variations in chromosome number – aneuploidy, euploidy, sex chromosomes.

UNIT-III: Gene expression:

Structure of gene; transfer of genetic information; proteins. Structure and classification; transcription; translation; regulation of gene expression in prokaryotes and eukaryotes Genetic variations: Mutations - spontaneous and induced; transposable genetic elements; DNA damage and repair.

UNIT-IV: Plant breeding:

Introduction, objectives of plant breeding, type of plant reproduction: vegetative, sexual and apomixes, their effect on generating and fixing genotype variation, green revolution Methods of plant improvements: Pureline and mass selection; Hybridization in self and cross pollinated crops, introduction and acclimatization, hybrid vigor and inbreeding depression

Suggestive Practical:

After the completion of the course the students will be able to:

Interpret the Mendel's principles; and understand the monohybrid and dihybrid crosses and their ratio and chromosomal changes. Understand the Contribution of Mendel. Understand the Hybridization techniques – Emasculation and Bagging. Understand the concept of polyploidy in plants, Learn about the techniques used for Crop Improvement. Understand the Contribution of Dr. M.S. Swaminathan, T.S. Venkataraman, B.P. Pal, Dharampal Singh, V. Santhanam in plant breeding

Topic:

- Mendel's laws through seed ratios. Laboratory exercises in probability and chi-square.
- Monohybrid cross (dominance and incomplete dominance).

- Dihybrid cross and gene interactions.
- Pedigree analysis for dominant and recessive autosomal and sex linked traits.
- Incomplete dominance and gene interaction through seed ratios (9:7, 9:6:1, 13:3, 15:1, 12:3:1, 9:3:4).
- Contribution of Mendel.
- Hybridization techniques - Emasculation, Bagging (For demonstration only).
- Induction of polyploidy in plants (For demonstration only).
- Techniques used for Crop Improvement.
- Contribution of Dr. M.S. Swaminathen, T.S. Venkataraman, B.P. Pal, Dharampal Singh, V. Santhanam in plant breeding.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Alberts, B., Bray, D., J., Raff, M., Roberts, K and Watson, I. D. 2001. Molecular Biology of Cell Garland, publishing Co. Inc., New York, USA.
- Atherely. G., Girton, J. R. and McDonald, J. F. 1999. The Science of Genetics Saunders College Publishing, Fort Worth, USA.
- Gupta, P.K. 1999. A Textbook of Cell and Molecular Biology. Rastogi Publications, Meerut.

- Kleinsmith, L. J. and Kish. V.M. 1995, Principles of Cell and Molecular Biology (3nd edition). Harper Collins College Publishers, New York, USA.
- Lodish, H., Berk, A., Aipursky, S.L., Matsudaira, P., Baltimore, D. and Darnell, J. 2000. Molecular Cell Biology. W.H. Freeman & Co. New York, USA.
- Russel, P. J. 1998. Genetics. The Benjamin/Cummings Publishing Co. Inc., USA. 63
- Gupta, P. K. 1979. A Textbook of Cytology, Genetics and Evolution, 3rd edition. Rastogi Publications, Meerut, India.
- Basu, S. B. and Hossain, M. 2006. Principles of Genetics. Books & Allied (P) Ltd, Kolkata.

BOT402: BIOSTATISTICS & ENVIRONMENTAL BIOLOGY

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The course seeks to develop a comprehensive and holistic understanding about the interpreting the scientific data that is generated during scientific experiments and responsibility of biostatisticians and other experts to consider the variables in subjects to understand them, and to make sense of different sources of variation. It emphasizes uses the application of statistical methods to conduct research in the areas of biology, public health, and medicine. Many times, experts in biostatistics collaborate with other scientists and researchers. To make the students familiar with disentangle the data received and make valid inferences that can be used to solve problems in public health in their daily life. To introduce students with the environmental microbiology: concepts, principles, scope and application

Learning Outcomes:

After the completion of the course the students will be able to:

- Organize and interpret the data from biological experiments statistically.
- Understanding of interpreting the scientific data that is generated during scientific experiments. It is the responsibility of biostatisticians and other experts to consider the variables in subjects to understand them, and to make sense of different sources of variation.
- In essence, the goal of biostatistics is to disentangle the data received and make valid inferences that can be used to solve problems in public health.
- Biostatistics uses the application of statistical methods to conduct research in the areas of biology, public health, and medicine.

- Learn the occurrence, abundance and distribution of microorganism in the environment and their role in the environment and also learn different methods for their detection.
- Understand the basic principles of environment microbiology and application of the same in solving environmental problems – waste water treatment and bioremediation.
- Comprehend the various methods to determine the quality of water

UNIT-I

Biostatistics: Data - types (Primary and Secondary Data), methods of data collection, Sampling methods, Frequency distribution, Tabulation - General rules, parts and types of tables, Diagrammatic and Graphical representation of Data.

UNIT-II

Analysis of Data - Measures of Central tendency (Mean, Median and Mode), Measures of Dispersion (Range, Standard Deviation and Standard Error), Test of Significance: Chi-square test. ANOVA. Correlation and its types: Probability Distribution – normal, binomial and Poisson distribution.

UNIT-III

Ecosystem

Concept, abiotic and biotic components; food chain, food web, ecological pyramids; Energy flow, Biochemical cycles (N and P), primary productivity and its measurement.

UNIT- IV

Environmental pollution - Sources and kinds of air, water and soil pollution. Impact of water pollution on aquatic ecosystems, eutrophication. Impact of air pollution on plants; acid rain - causes and effects. Impact of soil Pollution on plants and ecosystems. Eco restoration.

Suggestive Practical:

After the completion of the course the students will be able to:

Calculation of mean, standard deviation, standard error, correlation coefficient values and finding out the probability and calculation of 'F' value. Learn the basic structure, function and used of environmental biology.

Topic:

- To calculate the chi square value Representation of data by making graphs and diagrams etc.
- Comment upon given graphs, diagrams etc.
- Emasculation techniques in the field along with bagging and labelling.
- Estimation of dockage percentage in seed samples.
- Representation of data through graphs and diagrams.
- Comment upon given graphs and diagrams.
- Statistical problems of Central Tendencies, Standard Deviation, Correlation and Chi Square Test.
- Uses of software in biostatistics.
- Serial dilution method for isolation of microorganisms from water and soil and study of aero microflora.
- Determination of BOD, COD, TDS and TOC of water samples.
- Determination of coliforms in water samples using eosin methylene blue (EMB) medium.

- A visit to any educational institute/ industry to see an industrial fermenter, and other downstream processing operations and a report to be submitted.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggested readings:

- Antonisamy, B., Solomon Christopher and Prasanna Samuel, P. 2010. Biostatistics: Principles and Practice. Tata McGraw-Hill Education Private Limited, New Delhi.
- Ambasht, R.S. A Text Book of Plant Ecology, 15th Ed, Students Friends Publishers, Varanasi.
- Ambasht, R.S and Ambasht, P. K. Environment and Pollution. CBS Pub.
- Banerjee, P.K. Introduction to Biostatistics: A Textbook of Biometry. S Chand & Company.
- Balaji, K., Raghavaiah, A.V.S. & Jayaveera, K.N. Biostatistics. I.K. International Pub. House
- Koromondy, E.J.: Concepts of Ecology, Prentice Hall of India Pvt. Ltd., New Delhi.
- Odum, E.P.: Fundamental of Ecology, Natraj Publishers, Dehra Dun.
- Sharma, P. D. Ecology and Environment, Rastogi Pub.
- Singh, J. S., Singh, S. P. and Gupta, S. R. Ecology, environment and resource conservation. Anamaya Publishers, New Delhi.
- Rajagopalan, R.: Basics of Environmental Studies, 1st Ed., (Indian Edition), Oxford University Press.

- Grafen, A. & Hails, R. Modern Statistics for the Life Sciences, 1st Ed., (Indian Edition), Oxford University Press.
- Patel, A.H. (2008) Industrial Microbiology, Bangalore, India: McMillan India Limited (Chapter 2, 3, 5, 7, 11, 12, 14, 20 for Unit 1 to 6). Mohapatra. P.K. (2008).
- Textbook of Environmental Microbiology New Delhi, Delhi, I.K. International Publishing House Pvt.Ltd. (Chapter 1,5,6, 11,12,14 for Unit 5, 6, & 7)

ELECTIVE/MINOR
BOT 403: PLANT SCIENCE-III

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The course seeks to develop a comprehensive and holistic understanding about the knowledge of Mendelian and non-Mendelian inheritance, Chromosome biology and structure and function of genes and develop an understanding of the concepts of plant breeding and its applications. To provide adequate knowledge on the natural breeding systems of different agriculturally important plant and strategies employed for crop improvement. To impart skills on plant genome analysis and gene mapping using DNA markers and their use in increasing efficiency of plant breeding. Understand the genetic basis of hybrid vigour and development of hybrid varieties and make students familiar with the concept of varietal release and rights of a farmer and plant breeder.

The course seeks to develop a comprehensive and holistic understanding about the interpreting the scientific data that is generated during scientific experiments and responsibility of biostatisticians and other experts to consider the variables in subjects to understand them, and to make sense of different sources of variation. It emphasizes uses the application of statistical methods to conduct research in the areas of biology, public health, and medicine. Many times, experts in biostatistics collaborate with other scientists and researchers. To make the students familiar with disentangle the data received and make valid inferences that can be used to solve problems in public health in their daily life. To introduce students with the environmental microbiology: concepts, principles, scope and application

Learning Outcomes:

After the completion of the course the students will be able to:

- Explain the basic laws of inheritance and variations.

- Gain knowledge on the importance of plant breeding for developing new cultivars and use of breeding strategies for improvement of crop plants.
- Understand the concept of gene pool and germplasm resources that are fundamental to crop improvement.
- Know various gene interactions.
- Explicate the breeding methods for commercially important crop plants.
- Process basics of Mutation.
- Demonstrate the Mendelian principles of inheritance.
- Associate the relationship between alleles and their interaction in inheritance.
- Evaluate the variations in chromosome number and ploidy of an organism.
- Infer the significance of chromosomal mutations in inheritance of a character.
- Recognize extra chromosomal inheritance and population genetics.
- Explain the process of sex determination in plants.
- Extrapolate the various plant breeding methods for production of new varieties and theories of evolution.
- To generate interest among the students in Genetics and make them aware about the importance and opportunities in higher education and research, the first unit should be Introductory dealing with how this area has revolutionized all aspects of our life from its growth from Mendel to Genetic Engineering. Modes of inheritance of traits/ phenotypes and Phenotype-genotype correlation are the basic learning.
- Organize and interpret the data from biological experiments statistically.
- Understanding of interpreting the scientific data that is generated during scientific experiments. It is the responsibility of biostatisticians and other experts to consider the variables in subjects to understand them, and to make sense of different sources of variation.
- In essence, the goal of biostatistics is to disentangle the data received and make valid inferences that can be used to solve problems in public health.
- Biostatistics uses the application of statistical methods to conduct research in the areas of biology, public health, and medicine.
- Learn the occurrence, abundance and distribution of microorganism in the environment and their role in the environment and also learn different methods for their detection.

- Understand the basic principles of environment microbiology and application of the same in solving environmental problems – waste water treatment and bioremediation.
- Comprehend the various methods to determine the quality of water.

UNIT-I: Mendelism

Mendal`s law of inheritance, back cross and test cross, Linkage and crossing over.

UNIT-II:

Chromosome aberrations – deletions, duplication, inversions and translocations.

UNIT-III: Gene expression:

Structure of gene; transfer of genetic information; proteins.

UNIT-IV: Plant breeding:

Introduction, objectives of plant breeding, type of plant reproduction: vegetative, sexual and apomixes, their effect on generating and fixing genotype variation, green revolution.

UNIT-V:

Biostatistics: Data - types (Primary and Secondary Data), methods of data collection, Sampling methods, Analysis of Data - Measures of Central tendency (Mean, Median and Mode), Measures of Dispersion (Range, Standard Deviation and Standard Error)

UNIT-VI: Ecosystem

Concept, abiotic and biotic components; food chain, food web, ecological pyramids; Energy flow, function of ecosystem & types.

UNIT-VII:

Environmental pollution - Sources and kinds of air, water and soil pollution. Impact of water pollution on aquatic ecosystems, eutrophication. Impact of air pollution on plants; acid rain - causes and effects. BOD & COD in water.

Suggestive Practical:

After the completion of the course the students will be able to:

Interpret the Mendel's principles; and understand the monohybrid and dihybrid crosses and their ratio and chromosomal changes. Understand the Contribution of Mendel. Understand the Hybridization techniques – Emasculation and Bagging. Understand the concept of polyploidy in plants, Learn about the techniques used for Crop Improvement. Understand the Contribution of Dr. M.S. Swaminathan, T.S. Venkataraman, B.P. Pal, Dharampal Singh, V. Santhanam in plant breeding

Topic:

- Mendel's laws through seed ratios. Laboratory exercises in probability and chi-square.
- Monohybrid cross (dominance and incomplete dominance).
- Dihybrid cross and gene interactions.
- Pedigree analysis for dominant and recessive autosomal and sex linked traits.
- Incomplete dominance and gene interaction through seed ratios (9:7, 9:6:1, 13:3, 15:1, 12:3:1, 9:3:4).
- Contribution of Mendel.
- Hybridization techniques - Emasculation, Bagging (For demonstration only).
- Induction of polyploidy in plants (For demonstration only).
- Techniques used for Crop Improvement.
- Contribution of Dr. M.S. Swaminathen, T.S. Venkataraman, B.P. Pal, Dharampal Singh, V. Santhanam in plant breeding.
- Comment upon given graphs, diagrams etc.
- Emasculation techniques in the field along with bagging and labelling.
- Estimation of dockage percentage in seed samples.
- Representation of data through graphs and diagrams.
- Comment upon given graphs and diagrams.
- Statistical problems of Central Tendencies, Standard Deviation and Correlation.
- Uses of software in biostatistics.
- Serial dilution method for isolation of microorganisms from water and soil and study of aero microflora.
- Determination of BOD and COD of water samples.
- Determination of coliforms in water samples using eosin methylene blue (EMB) medium.
- A visit to any educational institute/ industry to see an industrial fermenter, and other downstream processing operations and a report to be submitted

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.

- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Alberts, B., Bray, D., J., Raff, M., Roberts, K and Watson, I. D. 2001. Molecular Biology of Cell Garland, publishing Co. Inc., New York, USA.
- Atherely. G., Girton, J. R. and McDonald, J. F. 1999. The Science of Genetics Saunders College Publishing, Fort Worth, USA.
- Gupta, P.K. 1999. A Textbook of Cell and Molecular Biology. Rastogi Publications, Meerut.
- Kleinsmith, L. J. and Kish. V.M. 1995, Principles of Cell and Molecular Biology (3nd edition). Harper Collins College Publishers, New York, USA.
- Lodish, H., Berk, A., Aipursky, S.L., Matsudaira, P., Baltimore, D. and Darnell, J. 2000. Molecular Cell Biology. W.H. Freeman & Co. New York, USA.
- Russel, P. J. 1998. Genetics. The Benjamin/Cummings Publishing Co. Inc., USA. 63
- Gupta, P. K. 1979. A Textbook of Cytology, Genetics and Evolution, 3rd edition. Rastogi Publications, Meerut, India.
- Basu, S. B. and Hossain, M. 2006. Principles of Genetics. Books & Allied (P) Ltd, Kolkata.
- Antonisamy, B., Solomon Christopher and Prasanna Samuel, P. 2010. Biostatistics: Principles and Practice. Tata McGraw-Hill Education Private Limited, New Delhi.
- Ambasht, R.S.A Text Book of Plant Ecology, 15th Ed, Students Friends Publishers, Varanasi.
- Ambasht, R.S and Ambasht, P. K. Environment and Pollution. CBS Pub.
- Banerjee, P.K. Introduction to Biostatistics: A Textbook of Biometry. S Chand & Company.
- Balaji, K., Raghavaiah, A.V.S. & Jayaveera, K.N. Biostatistics. I.K. International Pub. House
- Koromondy, E.J.: Concepts of Ecology, Prentice Hall of India Pvt. Ltd., New Delhi.
- Odum, E.P.: Fundamental of Ecology, Natraj Publishers, Dehra Dun.
- Sharma, P. D. Ecology and Environment, Rastogi Pub.
- Singh, J. S., Singh, S. P. and Gupta, S. R. Ecology, environment and resource conservation. Anamaya Publishers, New Delhi.
- Rajagopalan, R.: Basics of Environmental Studies, 1st Ed., (Indian Edition), Oxford University Press.
- Grafen, A. & Hails, R. Modern Statistics for the Life Sciences, 1st Ed., (Indian Edition), Oxford University Press.

BOT 501: PLANT MORPHOLOGY & ANATOMY

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The course seeks to develop a comprehensive and holistic understanding about the morphology, anatomy and embryology of plants. The course aims at making students realize that the role of tissues in plant functions and to give a brief understanding the composition, modifications, internal structure & architecture of plants. Understand reproduction and developmental changes in plants. Understand reproduction and developmental changes in plants.

Learning Outcomes:

After the completion of the course the students will be able to:

- Understand morphology, anatomy and Embryology.
- Understand role of tissues in plant functions.
- Understand the composition, modifications, internal structure & architecture of plants.
- Understand reproduction and developmental changes in plants.

UNIT-I: Meristematic and permanent tissues:

A. Types of tissues, Root and shoot apical meristems.

B. Theories related to apical meristem, simple, complex and secretary tissues.

C. Organs: Structure of dicot and monocot root, stem and leaf, root stem transition.

UNIT-II: Adaptive and protective systems:

A. Epidermis, cuticle and stomata.

B. Secondary growth: Structure and function of Vascular cambium, secondary growth in stem and roots (Sunflower, Beet root), abnormal secondary growth (Monocot stem: Dracaena; Dicot stem: *Achyranthes, Amaranthus, Bignonia, Boerhaavia, Bougainvillea, Chenopodium, Mirabilis, Nyctanthes, Salvadora*)

UNIT-III: Pollination and fertilization:

A. Pollination mechanisms and adaptation, structure of anther and pollen, development of male and female gametophytes, double fertilization.

UNIT-IV: Embryo and endosperm:

A. Types of ovules and embryo sacs; embryo and endosperm; types of endosperm; dicot and monocot embryo; apomixis and polyembryony.

Suggestive Practical:

After the completion of the course the students will be able to:

- Understand cell structure in monocot and dicot plants.
- Understand cell structure, secondary growth and adaptive anatomy in plants.
- Understand the pollination and seed dispersal mechanism.
- Study the structure of ovules and female gametophytes.

Topic:

- Study of meristems through permanent slides and photographs. Tissues (parenchyma, collenchyma and sclerenchyma), complex and secretary tissues. Anatomy of monocot and dicot Stem; monocot and dicot leaf; monocot and dicot root.
- Adaptive anatomy: Xerophytes, Hydrophytes, Epiphytes.
- Normal and abnormal secondary growth in different plants.
- Pollination types and seed dispersal mechanisms (photographs and specimens)
- Structure of anther (young and mature).
- Types of ovules: anatropous, orthotropous, circinotropous, amphitropous, campylotropous.
- Female gametophyte: *Polygonum* (monosporic) type of embryo sac development (permanent slides/photographs)
- Ultrastructure of mature egg apparatus cells through electron micrographs (permanent slides/photographs)

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students

involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Beck, C.B. (2010). An Introduction to Plant Structure and Development, II edition.
- Bhatnagar S.P, Dantu, P.K. Bhojwai S.S. (2018). The embryology of Angiosperms. Vikas Publ. House. New Delhi.
- Bhojwani, S.S. and Bhatnagar, S.P. (2010). The Embryology of Angiosperms. Vikas Publication House Pvt. Ltd. New Delhi. 5th edition.
- Fosket, D.E. (1994). Plant, Growth and Development: A Molecular Approach, Academic Press.
- Hopkins, W.G. (2006). The Green World: Plant Development, Chelsea House Publication.
- Johri, B.M. (1984). Embryology of Angiosperms. Springer-Verlag, Berlin.
- Leins, P., Tucker, S.C. and Endress, P.K. (1988). Aspects of floral development. J. Cramer. Germany.
- Maheshwari, P. (1971). An Introduction to Embryology of Angiosperms. McGraw Hill Book Co. London.
- Pandey, B.P. (2001) Plant Anatomy. S. Chand and Company Ltd., New Delhi.
- Raghwan, (1997). Molecular embryology of flowering plants. Cambridge Univ. Press. Cambridge.
- Sharma, M.K. (2013) Plant Structures (An Introduction to Plant Anatomy). Vayu Education of India.
- Sharma, P.C. (2017). Text Book of Plant Anatomy. Arjun Publishing House.
- Shivanna, K.R. (2003). Pollen Biology and Biotechnology, Science Publishers. Verlag.

BOT 502: PLANT DEVELOPMENTAL BIOLOGY

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

This course provides an in-depth understanding of the principles and mechanisms underlying plant development. It covers the genetic, molecular, and hormonal regulation of plant growth and development, from seed germination to senescence. The course includes lectures, practical lab sessions, and discussions on recent research in the field of plant developmental biology.

Learning Outcomes:

After the completion of the course the students will be able to:

- Understand the fundamental processes of plant development, explore the genetic and molecular basis of plant growth and differentiation.
- To study the role of hormones and environmental factors in plant development.
- To investigate the mechanisms of signal transduction in plants, discuss contemporary research and advances in plant developmental biology.

UNIT-I: Introduction to Plant Development

A. Overview of Plant Developmental Biology: Definition and scope, Historical perspectives, Model organisms in plant developmental biology (e.g., Arabidopsis thaliana, Zea mays)
B. Plant Cell Structure and Function: Plant cell organization, Cell wall composition and dynamics, Plasmodesmata and cell-to-cell communication

UNIT-II: Embryogenesis and Seed Development

A. Embryogenesis: Zygote formation and polarity establishment, Stages of embryogenesis, Genetic control of embryogenesis
B. Seed Development and Dormancy: Seed structure and types, Mechanisms of seed development, Seed dormancy and germination

UNIT-III: Meristems and Organogenesis

A. Meristems: Types of meristems (apical, lateral, intercalary), Maintenance and differentiation of meristematic cells, Genetic regulation of meristem function
B. Shoot and Root Development: Shoot apical meristem (SAM) and leaf development, Root apical meristem (RAM) and root architecture, Lateral root formation and root hairs

UNIT-IV: Hormonal Regulation of Plant Development

A. Plant Hormones: Auxins, gibberellins, cytokinins, abscisic acid, ethylene, brassinosteroids, and strigolactones, Biosynthesis, transport, and signal transduction pathways

B. Hormonal Control of Developmental Processes: Role of hormones in seed germination, stem elongation, leaf senescence, and flowering, Hormonal interactions and crosstalk

UNIT-V: Reproductive Development and Senescence

A. Flower Development: Floral meristem identity genes, ABC model of flower development, Flowering time regulation

B. Fruit Development and Ripening: Fruit set and growth, Molecular mechanisms of fruit ripening, Ethylene and fruit ripening

C. Senescence: Genetic and hormonal regulation of leaf senescence, Senescence-associated genes, Programmed cell death in plants

Suggestive Practical:

After the completion of the course the students will be able to:

Understand histological staining to identify different plant cell types and structures, analyze growth parameters such as root length, shoot length, and biomass, Analyze the effects of hormones on root and shoot development, as well as other developmental processes, Examine the effects of abiotic stress factors (drought, salinity) on plant development and survival. Understand the development of shoots, roots, and leaves from meristematic tissues, understand the role of specific signaling molecules and pathways in regulating plant development.

Topic:

Microscopy Techniques:

- Observation of plant cells and tissues using light and electron microscopy
- Histological staining methods

Seed Germination and Growth:

- Germination assays under different environmental conditions
- Measurement of seedling growth parameters

Hormone Treatments:

- Application of plant hormones and observation of phenotypic changes
- Analysis of hormone effects on root and shoot development

Floral Development:

- Dissection and study of floral organs
- Analysis of floral mutants

Environmental Impact Studies:

- Effects of light and temperature on plant development
- Response of plants to abiotic stress

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggested readings:

1. Taiz, L., Zeiger, E., Møller, I. M., & Murphy, A. (2018). "Plant Physiology and Development," 6th Edition. Sinauer Associates.
2. Raghavan, V. (2000). "Developmental Biology of Flowering Plants." Springer.
3. Howell, S. H. (1998). "Molecular Genetics of Plant Development." Cambridge University Press.

MINOR/ELECTIVE

BOT 503: PLANT SCIENCE-IV

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

The course seeks to develop a comprehensive and holistic understanding about the morphology, anatomy and embryology of plants. The course aims at making students realize that the role of tissues in plant functions and to give a brief understanding the composition, modifications, internal structure & architecture of plants. Understand reproduction and developmental changes in plants. This course provides an in-depth understanding of the principles and mechanisms underlying plant development. It covers the genetic, molecular, and hormonal regulation of plant growth and development, from seed germination to senescence. The course includes lectures, practical lab sessions, and discussions on recent research in the field of plant developmental biology.

Learning Outcomes:

After the completion of the course the students will be able to:

- Understand morphology, anatomy and Embryology.
- Understand role of tissues in plant functions.
- Understand the composition, modifications, internal structure & architecture of plants.
- Understand reproduction and developmental changes in plants.
- Understand the fundamental processes of plant development, explore the genetic and molecular basis of plant growth and differentiation.
- To study the role of hormones and environmental factors in plant development, investigate the mechanisms of signal transduction in plants, and discuss contemporary research and advances in plant developmental biology.

UNIT-I: Meristematic and permanent tissues:

A. Types of tissues, Root and shoot apical meristems.

B. Theories related to apical meristem, simple, complex and secretary tissues.

UNIT-II: Adaptive and protective systems:

A. Epidermis, cuticle and stomata.

B. Secondary growth: Structure and function of Vascular cambium, secondary growth in stem and roots (Sunflower, Beet root)

UNIT-III: Pollination and fertilization:

Pollination mechanisms and adaptation, structure of anther and pollen.

UNIT-IV: Embryo and endosperm:

Types of ovules and embryo sacs; embryo and endosperm; types of endosperm; dicot and monocot embryo.

UNIT-V: Introduction to Plant Development

A. Overview of Plant Developmental Biology: Definition and scope, Historical perspectives.

B. Plant Cell Structure and Function: Plant cell organization, Cell wall composition and dynamics.

UNIT-VI: Embryogenesis and Seed Development

A. Embryogenesis: Zygote formation and polarity establishment, Stages of embryogenesis, Genetic control of embryogenesis.

B. Seed Development and Dormancy: Seed structure and types, Mechanisms of seed development, Seed dormancy and germination

UNIT-VII: Meristems and Organogenesis

A. Meristems: Types of meristems (apical, lateral, intercalary), Maintenance and differentiation of meristematic cells, Genetic regulation of meristem function.

B. Shoot and Root Development: Shoot apical meristem (SAM) and leaf development, Root apical meristem (RAM) and root architecture, Lateral root formation and root hairs

UNIT-VIII: Hormonal Regulation of Plant Development

A. Plant Hormones: Auxins, gibberellins, cytokinins, abscisic acid, ethylene, brassinosteroids, and strigolactones, Biosynthesis, transport, and signal transduction pathways.

B. Hormonal Control of Developmental Processes: Role of hormones in seed germination, stem elongation, leaf senescence, and flowering, Hormonal interactions and crosstalk

UNIT-IX: Reproductive Development and Senescence

A. Flower Development: Floral meristem identity genes, ABC model of flower development, Flowering time regulation.

B. Fruit Development and Ripening: Fruit set and growth, Molecular mechanisms of fruit ripening, Ethylene and fruit ripening.

C. Senescence: Genetic and hormonal regulation of leaf senescence, Senescence-associated genes, Programmed cell death in plants

Suggestive Practical:

After the completion of the course the students will be able to:

- Understand cell structure in monocot and dicot plants.
- Understand cell structure, secondary growth and adaptive anatomy in plants.
- Understand the pollination and seed dispersal mechanism.
- Study the structure of ovules and female gametophytes.
- Understand histological staining to identify different plant cell types and structures, analyze growth parameters such as root length, shoot length, and biomass.
- Analyze the effects of hormones on root and shoot development, as well as other developmental processes, examine the effects of abiotic stress factors (drought, salinity) on plant development and survival.
- Understand the development of shoots, roots, and leaves from meristematic tissues, understand the role of specific signaling molecules and pathways in regulating plant development.

Topic:

- Study of meristems through permanent slides and photographs. Tissues (parenchyma, collenchyma and sclerenchyma), complex and secretary tissues. Anatomy of monocot and dicot Stem; monocot and dicot leaf; monocot and dicot root.
- Adaptive anatomy: Xerophytes, Hydrophytes, Epiphytes.
- Normal and abnormal secondary growth in different plants.
- Pollination types and seed dispersal mechanisms (photographs and specimens)
- Structure of anther (young and mature).
- Types of ovules: anatropous, orthotropous, circinotropous, amphitropous, campylotropous.
- Female gametophyte: *Polygonum* (monosporic) type of embryo sac development (permanent slides/photographs)
- Ultrastructure of mature egg apparatus cells through electron micrographs (permanent slides/photographs)

Microscopy Techniques:

A. Observation of plant cells and tissues using light and electron microscopy

B. Histological staining methods

Seed Germination and Growth:

- Germination assays under different environmental conditions

- Measurement of seedling growth parameters

Hormone Treatments:

- Application of plant hormones and observation of phenotypic changes
- Analysis of hormone effects on root and shoot development

Floral Development:

- Dissection and study of floral organs
- Analysis of floral mutants

Environmental Impact Studies:

- Effects of light and temperature on plant development
- Response of plants to abiotic stress

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Beck, C.B. (2010). An Introduction to Plant Structure and Development, II edition.
- Bhatnagar S.P, Dantu, P.K. Bhojwai S.S. (2018). The embryology of Angiosperms. Vikas Publ. House. New Delhi.
- Bhojwani, S.S. and Bhatnagar, S.P. (2010). The Embryology of Angiosperms. Vikas Publication House Pvt. Ltd. New Delhi. 5th edition.

- Fosket, D.E. (1994). Plant, Growth and Development: A Molecular Approach, Academic Press.
- Hopkins, W.G. (2006). The Green World: Plant Development, Chelsea House Publication.
- Johri, B.M. (1984). Embryology of Angiosperms. Springer-Verlag, Berlin.
- Leins, P., Tucker, S.C. and Endress, P.K. (1988). Aspects of floral development. J. Cramer. Germany.
- Maheshwari, P. (1971). An Introduction to Embryology of Angiosperms. McGraw Hill Book Co. London.
- Pandey, B.P. (2001) Plant Anatomy. S. Chand and Company Ltd., New Delhi.
- Raghwan, (1997). Molecular embryology of flowering plants. Cambridge Univ. Press. Cambridge.
- Sharma, M.K. (2013) Plant Structures (An Introduction to Plant Anatomy). Vayu Education of India.
- Sharma, P.C. (2017). Text Book of Plant Anatomy. Arjun Publishing House.
- Shivanna, K.R. (2003). Pollen Biology and Biotechnology, Science Publishers. Verlag.
- Taiz, L., Zeiger, E., Møller, I. M., & Murphy, A. (2018). "Plant Physiology and Development," 6th Edition. Sinauer Associates.
- Raghavan, V. (2000). "Developmental Biology of Flowering Plants." Springer.
- Howell, S. H. (1998). "Molecular Genetics of Plant Development." Cambridge University Press.

BOT 601: ECONOMIC BOTANY

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

Know about the importance of medicinal plants and its useful parts, economically important plants in our daily life and about the traditional medicines and herbs, and its relevance in modern times. To make the students familiar with economic importance of diverse plants that offer resources to human life. It emphasizes the plants used as- food for man, fodder for cattle, feed for poultry, plants having medicinal value and also plant source of huge economic value etc.

Learning Outcomes:

After the completion of the course the students will be able to:

- Know about the commercial products from plants
- Understand about the ethno-botanical details of plants.
- Learn about the chemistry of plants and herbal preparations.
- This course would provide students with information about the economic importance and products derived from plants and their roles in our daily lives.
- Students will learn to perform micro-chemical tests to study presence of various components.
- Students will explore the regional diversity in food crops and other plants and their ethnobotanical importance.
- After studying Economic Botany, students would have first-hand information of plants used as food, the various kinds of nutrients available in the plants. The dietary requirements of proteins, fats, amino-acids, vitamins etc. that can be met by plants. The students will learn to perform the micro-chemical tests to demonstrate various components. The students will learn about the use of fiber plants, beverages, fruits and vegetables that are integral to day to day life of plants. Students will learn to explore the regional diversity in food crops and other plants and their ethno-botanical importance as well.

UNIT-I:

A. Origin of cultivated plants (concept of centers of origin, their importance with reference to Vavilov's work)

UNIT-II:

A. A brief knowledge of botany and commercial utilization and uses of the following plants:

B. Cereals and millets- Wheat, Rice and Maize, Ragi, Pearl millet.

C. Sugar yielding plants- Sugarcane and Sugar beet.

D. Fruits- Mango, Apple, Banana, Citrus and Litchi.

E. Fibers- Cotton, Jute, Hemp, Coir, Agave and Semal.

F. Vegetables- Root vegetables stem vegetables and fruit vegetables.

G. Timbers- Teak, Shisham, Sal, Chir and Deodar.

UNIT-III:

A. Oils, Beverages, Fumitories, masticatories, Spices and Condiments.

B. Medicinal plants- *Aconitum*, *Atropa*, *Cinchona*, *Rauwolfia*, *Ephedra*, *Withania*, and *Alovera.*

C. Bio prospects of medicinal plants.

UNIT-IV:

A. Lesser-known plants of Uttarakhand and their economic importance (Jhangora- Barnyard Millet, Koni- Foxtail millet, Jakhya, Bhangjeera, Tarur,)

B. Wild edible plants of Uttarakhand: Kilmora, Hisalu, Ghigaru, Kafal, Timla, Bedu, Jamun, Lingura, Kachnar, Bichhu-Ghas.

C. Conservation of traditional crops: Role of organizations (NBPGR, CIMAP, ICAR, VPKAS, GBPUAT)

Suggestive Practical:

After the completion of the course the students will be able to:

- Know about the commercial products produced from plants.
- Understand about the ethno-botanical details of plants.
- Learn about the chemistry of plants and herbal preparations.

Topic:

- Structure of prokaryotic cells (bacteria), viruses, eukaryotic cells with the help of light and electron micrographs.
- Study of the photomicrographs of cell organelles, structure of plant cell through temporary mounts.
- Study of mitosis and meiosis (temporary mounts and permanent slides). Demonstration of the effect of temperature, organic solvent on semi permeable membrane.
- Study of plasmolysis, deplasmolysis, Endo- and Exo-osmosis.
- Instruments and equipments used in molecular biology
- The cell size measurements (either length or breadth/diameter) by micrometry. Study the structure of nuclear pore complex by photograph (from Gerald Karp) Study of special chromosomes (polytene and lampbrush) either by slides or photographs.
- Study DNA packaging by micrographs.
- Preparation of the karyotype and ideogram from given photograph of somatic metaphase chromosome.
- Study of economically important plants:

- Cereals: Wheat, Rice, Maize Millets: Fingermillet, Foxtail, Ragi
- Pulses: Gram, Green gram, Pea, Pigeon pea, Soyabean, Chick pea Timbers: Shisam, Sal, Teak, Deodar, Pine
- Medicinal plants: Dhatura, Berginia, Hedychium, Poppy, Basil, Barberry Beverages: Tea, Coffee
- Oils: Mustard, Seseame, Coconut, Linseed, Groundnut, Castor, Laung, Sandal wood, Mentha
- Spices: Coriander, Cardmum, Curcuma, Cinamom, Laung, Cumin, Thyme, Nigella, Cinamom leaf.
- Fibers: Jute, Coconut, Hemp, Urtica, Cotton
- Wild edible plants:
- Sugars and starch yielding plants: Sugarcane, Potato, Beet root Fruits and vegetables cultivated in the area.
- Gums and Resins.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Kochhar, S.L. (2011). Economic Botany in the Tropics, MacMillan Publishers India Ltd., New Delhi. 4th edition.
- Kochhar, S.L. (2016). Economic Botany: A comprehensive study, Fifth edition, Cambridge University Press, NY.
- Pandey, B.P. (1999). Economic Botany. S. Chand, New Delhi.
- Singh, H.B. and R.K. Arora. (1978). Wild edible plants of India (1st ed.). ICAR Publication, New Delhi.
- Wickens, G.E. (2004). Economic Botany: Principles and Practices, Springer, ISBN 978-0- 7923-6781-9.

BOT602: CONSERVATION BIOLOGY AND MANAGEMENT OF BIODIVERSITY (CONSERVATION AND NATURAL RESOURCE MANAGEMENT)

Credit: 03+01=04
Maximum Marks: 70+30=100
About the Course:

Know about the importance of biodiversity and its useful parts, economically important in our daily life and also about the traditional biodiversity, and its relevance in modern times. To make the students familiar with importance of diverse plants that offer resources to human life. It emphasizes the Agricultural diversity, biodiversity loss and biodiversity management.

Learning Outcomes:

After the completion of the course the students will be able to:

- Understand the importance, benefits, and services of biodiversity.
- To learn the strategies for the conservation of biodiversity.
- The students would be able to judge the value of biodiversity and its role in stabilizing the climate and economy.
- They would know the causes and consequences of loss of biodiversity and planning of conservation strategies.

UNIT-I: Plant diversity and its scope

A. Genetic diversity, Species diversity, Plant diversity at the ecosystem level.

B. Agrobiodiversity and cultivated plant taxa, wild taxa.

C. Values and uses of Biodiversity: Ethical and aesthetic values.

D. Precautionary principle, Methodologies for valuation.

E. Uses of plants, Uses of microbes

UNIT-II:

A. Loss of Biodiversity; Loss of genetic diversity, Loss of species diversity, Loss of ecosystem diversity, Loss of agrobiodiversity, Projected scenario for biodiversity loss.

B. Management of Plant Biodiversity: Organizations associated with biodiversity management-Methodology for execution-IUCN, UNEP, UNESCO, WWF, NBPGR; Biodiversity legislation and conservations, Biodiversity information management and communication.

UNIT-III: Conservation of Biodiversity

A. Conservation of genetic diversity, species diversity and ecosystem diversity, *In situ* and *ex situ* conservation.

B. Social approaches to conservation.

C. Biodiversity awareness programmes.

D. Sustainable development

UNIT-IV: Role of plants in relation to Human Welfare

A. Importance of forestry their utilization and commercial aspects.

B. Avenue trees.

C. Ornamental plants of India.

D. Alcoholic beverages through ages.

E. Fruits and nuts: Important fruit crops their commercial importance.

F. Wood and its uses.

G. National and state institutes related to the activity.

Suggestive Practical:

After the completion of the course the students will be able to:

- Know about the strategies for the conservation of biodiversity.
- Understand about the value of biodiversity and its role in stabilizing the climate and economy.
- Learn about the causes and consequences of loss of biodiversity and planning of conservation strategies.

Topic:

- Mapping species diversity.
- Mapping of crop diversity.
- Visits of plant conservatories.
- Study of wood features.
- Herbarium study of Avenue trees, Ornamental plants Fruits and nuts: Important fruit crops.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

- Hands on experience of engaging with diverse forest, park, and sanctuary.

Suggestive Mode of Assessment:

The assessment will be based on the tests, assignments and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggested readings:

- Barbour, M.G., Burk, J.H. and Pitts, W.D. (1987). Terrestrial Plant Ecology. Benjamin/Cummings Publication Company, California
- Baskin and Baskin, (2001). Seeds: Ecology, Biogeography and Evolution of Dormancy and Germination Elsevier
- Kormondy, E.J. (2017). Concept of Ecology. Pearson India.
- Krishnamurthy, K.V. (2004). An Advanced Text Book of Biodiversity – Principles and Practices. Oxford and IBH Publications Co. Pvt. Ltd. New Delhi.
- Odum, E.P. (1983). Basic Ecology Saunders, Philadelphia
- Singh, J.S. Singh S.P. and Gupta, S.R. (2014). Ecology, Environment and Resource Conservation. S. Chand and Compony Pvt. Ltd., New Delhi.
- Smith, R.L. (1996). Ecology and Field Biology Harper Collins, New York.

ZOOLOGY

COURSE STRUCTURE OF ITEP, B.Sc.-B.Ed. IN THE SUBJECT OF ZOOLOGY

SEM.	PAPER CODE	TITLE	CREDITS
I	ZOO 101	ANIMAL DIVERSITY I	03+01=04
	ZOO 102	ANIMAL DIVERSITY II	03+01=04
II	ZOO 201	LOWER CHORDATA	03+01=04
	ZOO 202	HIGHER CHORDATA	03+01=04
	ZOO 203	ANIMAL DIVERSITY	03+01=04
III	ZOO 301	CELL BIOLOGY AND GENETICS	03+01=04
	ZOO 302	MOLECULAR BIOLOGY & HISTOLOGY	03+01=04
	ZOO 303	LOWER CHORDATA	03+01=04
IV	ZOO 401	ANIMAL BEHAVIOUR & MICROBIOLOGY	03+01=04
	ZOO 402	DEVELOPMENT BIOLOGY OF VERTEBRATES	03+01=04
	ZOO 403	HIGHER CHORDATA	03+01=04
V	ZOO 501	ELEMENTARY ENTOMOLOGY & ICHTHYOLOGY	03+01=04
	ZOO 502	ELEMENTARY BIOTECHNOLOGY & BIOLOGICAL TECHNIQUES	03+01=04
	ZOO 503	ENVIRONMENTAL SCIENCE & BASIC CONCEPTS OF ECOLOGY	03+01=04
VI	ZOO 601	ENDOCRINOLOGY & BIOCHEMISTRY	03+01=04
	ZOO 602	ANIMAL PHYSIOLOGY	03+01=04

ZOO 101: ANIMAL DIVERSITY I

Credit: 03+01=04
Maximum Marks: 70+30=100
About the course:

The course aims to enable student teachers to explore different terms and concepts of animal diversity. The course also would provide an understanding to student teachers about the classification of animals and different phyla such as; Protozoa, Porifera, Coelenterate, Ctenophora, Platyhelminthes and Aschelminthes.

Learning outcomes:

- The student teacher will be able to understand the Animal diversity around us.
- The student teacher will be able to understand the underlying principles of the classification of animals.
- The student teacher will be able to understand the terminology needed in classification.
- The student teacher will be able to understand the differences and similarities in the various aspects of classification.
- The student teachers will be able to prepare themselves for teaching in schools, colleges and universities.

UNIT- I

Salient features and outline classification (up to orders) of various Non-Chordata Phyla (from Protozoa to Aschelminthes).

Protozoa: Type study of Paramecium with particular reference to locomotion, nutrition, osmoregulation and reproduction.

Porifera: Type study of Sycon concerning structure, reproduction, and development. The canal system and affinities of Porifera.

UNIT- II

Coelenterate: Type study of Aurelia and Obelia concerning structure, reproduction, and development. Polymorphism in Coelenterate. A brief account of Corals and Coral reefs.

Ctenophora: Type study of Comb jelly concerning structure, characteristics and adaptation.

UNIT- III

Platyhelminthes: Fasciola hepatica and Taenia solium concerning structure, reproduction, and development.

Aschelminthes: Type study of Ascaris lumbricoides concerning structure, reproduction, and development.

Practical/ Practicum:

- Study of living animals: Amoeba, paramecium, Euglena, Hydra.
- Permanent preparation of Obelia colony.
- Study of permanent slides/museum specimens/models belonging to the following phyla; **Protozoa**: Amoeba, Paramecium, Euglena and Noctiluca, **Porifera**: T.S. and L.S. of Sycon, Euplectella, Hyalonema, and Spongilla, **Coelenterata**: Medusa of Obelia, larval stages of Aurelia, Physalia, Porpita, Vellela, Tubipora, Millepora, Aurelia, Gorgonium, Pennatula.
- Study of following with the help of permanent slides/ museum specimens/ models/ Pictures for spotting.
- Study of Parasites: (a) Protozoa: Plasmodium, Moncystis, Trypanosoma, Leishmania, Entamoeba, Giardia, (b) Helminthes: Fasciola, Taenia, Ascaris, Schistosoma, and filarial including larval stages. Life Cycle of the following: - Entamoeba, T. solium, A. lumbricoides, F. hepatica, Schistosoma

Mode of Transaction

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Mode of Assessment

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested books;

1. Barnes, R.D. (1982). Invertebrate Zoology, V Edition. Holt Saunders International Edition.
2. Barnes, R.S.K., Calow, P., Olive, P.J.W., Golding, D.W. and Spicer, J.I. (2002). The Invertebrates: A New Synthesis, III Edition, Blackwell Science
3. Barrington, E.J.W. (1979). Invertebrate Structure and Functions. II Edition, E.L.B.S., and Nelson.
4. Young, J. Z. (2004). The Life of Vertebrates. III Edition. Oxford university press.
5. Pough H. Vertebrate life, VIII Edition, Pearson International.
6. Kotpal, Agrawal & Khetrapal: Modern Text-book of Zoology, Invertebrates. Rastogi, 1976.
7. Nigam: Biology of Non-Chordates, Nagin Chand.
8. Parker TJ & haswell WA: Textbook of zoology Vol I & II, Mcmillan.

ZOO 102: ANIMAL DIVERSITY II

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

The course focuses on the study of non-chordates. It provides an opportunity for student teachers to understand and represent the terms related to the subject. This course is designed to highlight the introduction of various phylum such as; Annelida, Arthropods, Mollusca and Echinodermata.

Learning outcomes

- The student teacher will be able to understand, classify, and identify various phylum.
- The student teacher knows his role in nature as a protector, preserver, and promoter of life which he has achieved by learning, observing, and understanding life.
- The student teachers will be able to prepare themselves for teaching in schools, colleges and universities.

UNIT- I

Salient features and outline classification (up to orders) of various Non-Chordata Phyla (From Annelida to Echinodermata).

Annelida: Type study of Nereis- External features, excretory organs, and reproduction. Metamerism in Annelida, its origin, and significance. Trochophore larva and its significance. Parasitic adaptations in Hirudinaria.

UNIT- II

Arthropoda: Type study of Palaemon- External features and reproduction. Peripatus- Its distribution and Zoological importance.

UNIT- III

Mollusca: Type study of Pila- External features, Organs of Pallial complex. Reproduction. A brief account of torsion in Gastropoda.

Echinodermata: Type study of Asterias- External features. Water vascular system. Mode of feeding and reproduction.

Practical/ Practicum:

1. Study of Parasites: (a) Annelida: Leeches, (d) Arthropod: Sacculina, lice, fleas, bedbugs, ticks and mites.
2. Study of following with the help of permanent slides/ museum specimens/ models/ Pictures for spotting.
3. Study of permanent slides/museum specimens/models belonging to the following phyla; Annelida: T.S. of earthworm and Nereis through different body regions. Neries, Heteronereis, Arenicola, Chaetopterus, Arthropoda: Mouthparts of insects, Crab, hermit crab, Lepas, Balanus, Astaxus, Squilla, millipede, mantis, cricket, stick insect, waterbug, beetle, locust, moth and butterfly, scorpion, spider, king crab, and peripatus, Mollusca:Various larval stages, T.S. of Unio through gills; Dentalium, Octopus, Loligo, Sepia, Nautilus, Teredo, Ostera, Pecten, Echiodermata: Various larval stages, T.S. of an arm of starfish; Echinus, Holothuria, Asteria, Antedon.
4. Study of the nervous system/General anatomy with the help of charts/models and simulation of Earthworm, Prawns, Pila, and Unio.
5. Permanent preparation of parapodia of Nereis and Heteroneris, salivary glands, mouth parts, and trachea of cockroach; gill lamina of Unio, statocyst, and hastate plate of prawn.

Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Mode of Assessment

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested books:

1. Barnes, R.D. (1982). Invertebrate Zoology, V Edition. Holt Saunders International Edition.
2. Barnes, R.S.K., Calow, P., Olive, P.J.W., Golding, D.W. and Spicer, J.I. (2002). The Invertebrates: A New Synthesis, III Edition, Blackwell Science
3. Barrington, E.J.W. (1979). Invertebrate Structure and Functions. II Edition, E.L.B.S., and Nelson.
4. Kotpal, Agrawal & Khetrapal: Modern Text-book of Zoology, Invertebrates. Rastogi, 1976.
5. Nigam: Biology of Non-Chordates, Nagin Chand.
6. Parker TJ & haswell WA: Textbook of zoology Vol I & II, Mcmillan.

ZOO 201: LOWER CHORDATA

Credit: 03+01 = 04

Maximum Marks: 70+30 =100

About the course:

This course is designed to make student teachers aware of the different concepts of lower chordata. The main objective of this course is to develop an understanding and critical thinking about the classification of various subphylum such as; Protochordata, Hemichordata, Urochordata, Cephalochordata and Vertebrata.

Learning outcomes:

- The student teachers will be able to differentiate the characteristics of lower chordates.
- The student teachers will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand the practical knowledge of different specimens.

UNIT- I

Origin of chordates: Introduction and general charteristics of chordates (Hemichordata, Urochordata, Cephalochordata, Cyclostomata). Classification of chordates up to order level.

Protochordates: General characteristics and habit and habitat.

UNIT– II

Hemichordata: Type study of Balanoglossus concerning habits and habitat, external morphology, digestive system and development (tornaria larva).

Urochordata: Type study of Herdmania concerning habits and habitat, external morphology and digestive system, development (tadpole larva).

UNIT- III

Cephalochordates: Type study of Branchiostoma (Amphioxus) concerning habits and habitat, external morphology and digestive system, excretory system, development.

Cyclostomata: Type study of Petromyzon and its affinities. concerning habits and habitat, external morphology and development (ammocoete larva).

Practical/ Practicum:

1. Protochordata: Study of permanent slides of Amphioxus and Balanoglossus passing through different body regions, Doliolum, Salpa. Museum specimens of Herdmania, and Balanoglossus.
2. Cyclostomata: Museum specimens of Petromyzon and Myxine.
3. Chart/ Model/ Assignment and projects related to content.

Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested books;

1. Agarwal VK (2011) Zoology for degree students. S. Chand, New Delhi.
2. Arora MP (2006) Chordata-1. 1st Edition. Himalaya Publishing House, New Delhi.
3. Hall BK and Hallgrimsson B (2008) Strickberger's Evolution. 4th Edition. Jones and Bartlett Publishers Inc., USA.
4. Jordan EL and Verma PS (1963) Chordate Zoology. Revised Edition. S. Chand, New Delhi.
5. Mohanty PK (2000) Illustrated Dictionary of Biology. Kalyani Publishers, Ludhiana.
6. Young JZ (2004) The Life of Vertebrates. 3rd Edition. Oxford University Press, USA.
7.

ZOO 202: HIGHER CHORDATA

Credits: 03+01 = 04

Maximum Marks: 70+30=100

About the course:

The course is designed to make student teachers aware and understand the concept of Higher Chordata. The course aims to enable student teachers to explore the topics, including different classes such as; Pisces, Ambhibians, Reptilia, Aves and Mammalia.

Learning outcomes:

- The student teachers will be able to understand the different classes of higher chordates.
- The student will be able to identify Poisonous and non-poisonous snakes.
- The student will understand the economic importance of mammals.
- The student teachers will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand general anatomy of fishes.

UNIT- I

Salient features and outline classification (up to orders) of various Chordata (Pisces, Ambhibians, Reptiles, Aves and Mammalia).

Pisces: Types of scales in fishes. Scoliodon as type study concerning habits and habitat, external features. migration. Parental care in fishes.

Amphibians: General characteristics of amphibians, Parental care in Amphibia, Neoteny and paedogenesis.

UNIT- II

Reptilia: A brief knowledge of extinct reptiles. Poisonous and non-poisonous snakes. Poison apparatus of snake. Snake venom and anti-venom.

UNIT- III

Aves: General characteristics and classification. Pigeon as type study. Flightless birds and their distribution. Flight adaptations in birds. Migration of birds.

Mammalia: General characteristics and affinities of Prototheria, Metatheria and Eutheria. Economic importance of mammals. Aquatic adaptation of mammals and flying adaptation of mammals.

Practical/ Practicum:

1. Fishes: Afferent and efferent branchial arteries, cranial nerves, and internal ear of Scoliodon. Museum specimens of Pristis, Torpedo, Trygon, Acipenser, Polypterus, Hippocampus, Exocoetus, Anguilla, Echeneis, Diodon, Protopterus, Synaptura and Chimaera.
2. Amphibia: Dissections only with the help of Simulations, charts/models of cranial nerves. Study of museum specimens of Salamandra, Proteus, Amphiuma, Nectures, Siren, Ambyostoma, Axolotl larva. Rhacophorus,
3. Alytes, Hyla, Pipa, and Bufo. Study of the skeleton of frog and permanent histological slides of Amphibia.
4. Reptilia: Study of the skeleton of Varanus. Study of a museum specimen of the following: Varanus, Heloderma, Hemidactylus, Phrynosoma, Chameleon, Draco, Calotes, Cobra, Pit-viper, Pitless –viper, Rattle snake, Krait, Dhaman, Typhlops and marine snake; Alligator, Crocodile, Gavialis, Turtle, and tortoise.
5. Aves: Study of the skeleton of fowl. Study of museum specimens of Psittacula, Corvus, Pavo, Bubo, and model of Archaeopteryx.
6. Mammalia: Dissection only with the help of Simulations, charts/models of the general anatomy and blood vascular system of a mammal. Study of permanent slides of mammals. Study of the skeleton of rabbit. Study of the museum specimens of Ornithorynchus (models) , Hedgehog, and Loris.

Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested books;

1. Agarwal VK (2011) Zoology for degree students. S. Chand, New Delhi.
2. Arora MP (2006) Chordata-1. 1st Edition. Himalaya Publishing House, New Delhi.
3. Hall BK and Hallgrimsson B (2008) Strickberger's Evolution. 4th Edition. Jones and Bartlett Publishers Inc., USA.
4. Jordan EL and Verma PS (1963) Chordate Zoology. Revised Edition. S. Chand, New Delhi.
5. Mohanty PK (2000) Illustrated Dictionary of Biology. Kalyani Publishers, Ludhiana.
6. Young JZ (2004) The Life of Vertebrates. 3rd Edition. Oxford University Press, USA.

MINOR/ELECTIVE
ZOO 203: ANIMAL DIVERSITY

Credits: 03+01= 04
Maximum Marks: 70+30= 100
About the course:
The course aims to enable student teachers to explore different terms and concepts of animal diversity. The course also would provide an understanding to student teachers about the classification of animals and different phyla protozoa to Echinodermata.
Learning outcomes

- The student teacher will be able to understand the Animal diversity around us.
- The student teacher will be able to understand the underlying principles of the classification of animals.
- The student teacher will be able to understand the terminology needed in classification.
- The student teacher will be able to understand the differences and similarities in the various aspects of classification.
- The student teachers will be able to prepare themselves for teaching in schools, colleges and universities.

UNIT- I
Salient features and outline classification (up to orders) of various Non-Chordata Phyla (from Protozoa to Echinodermata).
Protozoa: Type study of Paramecium reference to locomotion, nutrition and reproduction.
Porifera: Type study of Sycon concerning structure, The canal system.
UNIT- II
Coelenterata: Type study of Aurelia concerning structure, reproduction.
Ctenophora: Type study of Comb jelly concerning structure, characteristics.
Platyhelminthes: Taenia solium concerning structure and life - cycle.
UNIT- III
Aschelminthes: Type study of Ascaris lumbricoides concerning structure and life-cycle.
Annelida: Type study of Nereis- External features, excretory organs. Trochophore larva and its significance.
UNIT- IV
Arthropoda: Peripatus- Its distribution and Zoological importance.
Mollusca: Type study of Pila- External features.
Echinodermata: Type study of Asterias- External features. Water vascular system.
Practical/ Practicum:

1. Study of living animals: Amoeba, paramecium, Euglena, Hydra.
2. Permanent preparation of Obelia colony.
3. Study of permanent slides/museum specimens/models belonging to the following phyla; **Protozoa**: Amoeba, Paramecium, Euglena and Noctiluca, **Porifera**: T.S. and L.S. of Sycon, Euplectella, Hyalonema, and Spongilla, **Coelenterata**: Medusa of Obelia, larval stages of Aurelia, Physalia, Porpita, Vellela, Tubipora, Millepora, Aurelia, Gorgonium, Pennatula.
4. Study of following with the help of permanent slides/ museum specimens/ models/ Pictures for

spotting.

5. Study of Parasites: (a) Protozoa: Plasmodium, Moncystis, Trypanosoma, Leishmania, Entamoeba, Giardia, (b) Helminthes: Fasciola, Taenia, Ascaris, Schistosoma, and filarial including larval stages: (a) Annelida: Leeches, (d) Arthropod: Sacculina, lice, fleas, bedbugs, ticks and mites.
6. Life Cycle of the following: - Entamoeba, T. solium, A. lumbricoides, F. hepatica, Schistosoma.
7. Study of permanent slides/museum specimens/models belonging to the following phyla; Annelida: T.S. of earthworm and Nereis through different body regions. Neries, Heteronereis, Arenicola, Chaetopterus, Arthropoda: Mouthparts of insects, Crab, hermit crab, Lepas, Balanus, Astaxus, Squilla, millipede, mantis, cricket, stick insect, waterbug, beetle, locust, moth and butterfly, scorpion, spider, king crab, and peripatus, Mollusca:Various larval stages, T.S. of Unio through gills; Dentalium, Octopus, Loligo, Sepia, Nautilus, Teredo, Ostera, Pecten, Echiodermata: Various larval stages, T.S. of an arm of starfish; Echinus, Holothuria, Asteria, Antedon.
8. Study of the nervous system/General anatomy with the help of charts/models and simulation of Earthworm, Prawns, Pila, and Unio.
9. Permanent preparation of parapodia of Nereis and Heteroneris, salivary glands, mouth parts, and trachea of cockroach; gill lamina of Unio, statocyst, and hastate plate of prawn.

Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested books:

1. Barnes, R.D. (1982). Invertebrate Zoology, V Edition. Holt Saunders International Edition.
2. Barnes, R.S.K., Calow, P., Olive, P.J.W., Golding, D.W. and Spicer, J.I. (2002). The Invertebrates: A New Synthesis, III Edition, Blackwell Science
3. Barrington, E.J.W. (1979). Invertebrate Structure and Functions. II Edition, E.L.B.S., and Nelson.
4. Young, J. Z. (2004). The Life of Vertebrates. III Edition. Oxford university press.
5. Pough H. Vertebrate life, VIII Edition, Pearson International.
6. Kotpal, Agrawal & Khetrapal: Modern Text-book of Zoology, Invertebrates. Rastogi, 1976.
7. Nigam: Biology of Non-Chordates, Nagin Chand.
8. Parker TJ & haswell WA: Textbook of zoology Vol I & II, Mcmillan.

ZOO 301: CELL BIOLOGY AND GENETICS

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

The course aims to enable student teachers to explore different terms and concepts of cell biology and genetics. The course also would provide an understanding to student teachers about the cell, Mendel's law, crossing over and linkage.

Learning outcomes:

- The student teacher will be able to understand About the plasma membrane.
- The student teacher will be able to understand About the different cell organelles.

- The student teacher will be able to understand the Morgan's view of linkage.
- The student teacher will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand about the practical knowledge of practical knowledge of cyotology and genetics.

UNIT- I

Cell Biology

Prokaryotic and Eukaryotic cells; Ultrastructure of eukaryotic cell; Plasma membrane (Ultrastructure, chemical composition, models of plasma membrane.

Structure and functions of following cell organelles: (a) Mitochondria (b) Ribosomes (c) Lysosomes (d) Centrioles (e) Golgi Complex (f) Endoplasmic reticulum. Structure and functions of Nucleus and nucleolus.

Cell division – (a) Cell cycle (b) Mitosis (c) Meiosis

UNIT– II

Genetics

Mendel's life, Pre-Mendelian experiments, Laws of dominance, segregation and independent assortment. Linkage: Coupling and repulsion hypothesis, Morgan's view of linkage, kinds of linkage, chromosome theory of linkage.

Crossing over: Somatic and germinal crossing over, kinds of crossing over, theories of the mechanism of crossing over, significance.

Determination of sex: chromosome mechanism.

Sex linked inheritance: Inheritance of X-linked gene (Colour blindness and haemophilia in man).

Suggested Practical:

The practical work will consist of the following:

1. Cytology experiments:

(b) Study of mitosis and meiosis using available material

(c) Study of permanent slides showing stages of cell division, giant chromosome, mitochondria, Golgi body etc.

2. Genetics:

(i) Experiments on Mendelian and non- Mendelian inheritance.

Suggested Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggested Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested Readings:

1. Strickberger: Genetics, Prentice hall.
2. Principles of Genetics, Snustad and Simmons, John Wiley & Sons, USA.
3. Modern Genetics Anaysis: Integrating Genes and Genomes, Griffith, J.F., Gelbart, M., Lewontin, C and Miller, W.H. Freeman and Company, New York, USA.
4. Genetics, J Russell, Benjamin- Cummings Publishing Company, San Francisco, California, USA.
5. P.K. GUPTA, Cell Biology and Genetics.

ZOO 302: MOLECULAR BIOLOGY & HISTOLOGY

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

This course is designed to make student teachers aware of the different concepts of Molecular biology and Histology. The main objective of this course is to develop an understanding and critical thinking about the structure of DNA, RNA and histological structure of gonads, liver and kidney.

Learning outcomes:

- The student teacher will be able to understand About the DNA double helix model.
- The student teacher will be able to differentiate the characteristics of DNA and RNA.
- The student teacher will be able to draw the histological structures.
- The student teacher will be able to prepare themselves for teaching in schools, colleges and universities.

UNIT- I

Molecular Biology

Nucleic acids (DNA & RNA): DNA chemistry, nucleosides, nucleotides, polynucleotide chain. Watson and Crick DNA double helix model.

Identification of genetic material (DNA - as genetic material).

RNA-chemistry, genetic and non- genetic RNAs.

Lac operon concept. Mechanism of DNA damage & repair.

UNIT- II

Histology

Histology: Structure of epithelium, connective tissue, cartilage, bone, smooth, striped and cardiac muscles, and nervous tissue as studied under light microscope.

Histological structure of gonads, liver, lung, pancreas and kidney in mammals.

Suggested Practical:

Study of the permanent slides of cartilage, bone, epithelium, connective tissue, nervous tissue, blood, striped and unstriped muscles, liver, kidney, lungs, pancreas, pituitary, thyroid, and adrenal of mammals. Preparation of smooth and striped muscles.

Suggested Mode of Transaction

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggested Mode of Assessment

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested Readings:

1. Molecular Cell Biology, Lodish et al., W.H. Freeman and Company, New York, USA.

2. Molecular Biology of the Cell, Alberts et al., Garland Science, Taylor and Francis Group, New York, USA.

3. De- Robertis- Cell and Molecular Biology.

4. Verma, P.S. and Agrawal, V.K. Molecular Biology

5. Tortora- Microbiology and Introduction.

6. Parija- Textbook of Microbiology.
7. Pelczar: Microbiology, Tata McGraw Hill.
8. Davis: Microbiology Harper & Row, Publ. Inc.

MINOR/ ELECTIVE
ZOO 303: LOWER CHORDATA

Credits: 03+01= 04
Maximum Marks: 70+30= 100
About the course:

This course is designed to make student teachers aware of the different concepts of lower chordata. The main objective of this course is to develop an understanding and critical thinking about the classification of various subphylum.

Learning outcomes:

- The student teachers will be able to understand about the different subphylum.
- The student teachers will be able to differentiate the characteristics of lower chordates.
- The student teachers will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand the practical knowledge of different specimen.

UNIT- I

Origin of chordates: Introduction and general charteristics of chordates (Hemichordata, Urochordata, Cephalochordata, Cyclostomata). Classification of chordates up to order level.

Protochordates: General characteristics.

UNIT- II

Hemichordata: Type study of Balanoglossus concerning habits and habitat, external morphology, digestive system and development (tornaria larva).

Urochordata: Type study of Herdmania concerning habits and habitat, external morphology and digestive system, development (tadpole larva).

UNIT- III

Cephalochordates: Type study of Branchiostoma (Amphioxus) concerning habits and habitat, external morphology and digestive system, excretory system, development.

Cyclostomata: Type study of Petromyzon and its affinities. concerning habits and habitat, external morphology and development (ammocoete larva).

Practical/ Practicum

1. Protochordata: Study of permanent slides of Amphioxus and Balanoglossus passing through different body regions. Museum specimens of Herdmania, and Balanoglossus.
2. Cyclostomata: Museum specimens of Petromyzon.
3. Chart/ Model/ Assignment and projects related to content.

Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and

terminal semester examinations (as per UGC norms).

Suggested books;

1. Agarwal VK (2011) Zoology for degree students. S. Chand, New Delhi.
2. Arora MP (2006) Chordata-1. 1st Edition. Himalaya Publishing House, New Delhi.
3. Hall BK and Hallgrimsson B (2008) Strickberger's Evolution. 4th Edition. Jones and Bartlett Publishers Inc., USA.
4. Jordan EL and Verma PS (1963) Chordate Zoology. Revised Edition. S. Chand, New Delhi.
5. Mohanty PK (2000) Illustrated Dictionary of Biology. Kalyani Publishers, Ludhiana.
6. Young JZ (2004) The Life of Vertebrates. 3rd Edition. Oxford University Press, USA.

ZOO 401: ANIMAL BEHAVIOUR & MICROBIOLOGY

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

The course focuses on the study of Animal behaviour and Microbiology. It provides an opportunity for student teachers to understand the concept of behaviour pattern and develop their critical thinking to understand the concept of communication.

Learning outcomes

- The student teacher will be able to understand different concepts of behaviour.
- The student teacher will be able to understand about the insight learning.
- The student teacher will be able to differentiate different behaviour pattern.
- The student teacher will be able to understand about the microbes.
- The student teacher will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand about the practical knowledge of animal behaviour and Microbiology.

UNIT- I

Animal Behaviour

Patterns of behaviour: Stereotype innate behaviour: Kinases, Taxes and Reflexes.

Concepts of (i) Fixed action patterns (ii) Sign or key stimulus or releasers and (iii) Innate releasing mechanism, Instinctive behaviour.

Learned behaviour: Habituation, Conditioned reflexes, Selective learning, Insight learning, Imprinting, Song learning in birds.

Communication: Chemical, Visual, Auditory, Electric and tactile, Dance language of honey bees, Biological clocks. Bird migration. Introduction to Socio-biology.

UNIT- I

Microbiology

Introduction to microbiology: kinds of microbes, Typical structure of a bacterium, Gram positive and Gram negative bacteria and virus. With reference to (COVID)

Microbes of medical importance: Bacteriophages, Mycobacterium, Actinomycetes.

A brief knowledge of AIDS.

Environmental use of microorganisms: pest control, waste water treatment and Bioremediation.

Industrial microbiology- Food production, dairy products, A brief knowledge of Antibiotics.

Practicals:

Animal behaviour:

Study of different kinds of behaviour with the help of photographs.

Microbiology:

(i) Cleaning of glassware and sterilization

(ii) Preparation of liquid and solid media for cultivation of bacteria

(iii) Preparation of media for the culture of fungi.

(iv) Isolation of microorganisms from water/soil.

(v) Gram staining of bacteria

(vi) Micrometry of microorganisms

Suggested Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggested Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested Readings:

1. Mechanism of Animal Behaviour Peter Marlar & J. Hamilton.
2. Animal Behaviour by David McFarland.
3. Animal Behaviour John Alcock.
4. Pelczar Microbiology
5. Davies Microbiology

ZOO 402: DEVELOPMENT BIOLOGY OF VERTEBRATES

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

The course is designed to make student teachers aware and understand the concept of developmental biology of Vertebrates. The course aims to enable student teachers to explore the topics, including gametogenesis, Fertilization and Cleavage.

Learning outcomes

- The student teacher will be able to understand the significance of fertilization.
- The student teacher will be able to identify the different patterns of cleavage.
- The student teacher will be able to draw the different diagrams of developmental biology.
- The student teacher will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand about the practical knowledge of the slides of chick embryos.

UNIT- I

Gametogenesis: Spermatogenesis and Oogenesis including structure, differentiation and longevity of gametes. Chemical and metabolic events during gamete formation. Types of eggs.

UNIT- II

Fertilization: Significance of fertilization, approximation of gametes, Capacitation, Acrosome reaction, formation of fertilization membrane, egg activation, Blockage to polyspermy.

UNIT- III

Cleavage: Patterns, control of cleavage patterns, chemical changes during cleavage, totipotency. Blastulation and Gastrulation: A complete study in frog and chick.

Foetal membranes: Their formation and functions in chick.

Placentation in mammals.

Practicals:

Study of the permanent slides of the chick embryos (whole mounts) and those showing the embryology of frog.

Suggested Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggested Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested Readings:

1. Gilbert: Development Biology Sinauers Ass. Publ. Massachusetts.
2. Wolpert: Analysis of Biological development, Oxford.
3. Kolthoff, Analysis of Biological development, McGraw- Hill Science, New Delhi, India.
4. Balinsky: Introduction to Embryology Saunders co. Philadelphia and London.
5. Berill: Development Biology Tata McGraw Hill.

MINOR/ELECTIVE
ZOO 403: HIGHER CHORDATA

Credits: 03+01= 04

Maximum Marks: 70+30= 100

About the course:

The course is designed to make student teachers aware and understand the concept of Higher Chordata. The course aims to enable student teachers to explore the topics, including different classes such as; Pisces, Ambhibians, Reptilia, Aves and Mammalia.

Learning outcomes:

- The student teachers will be able to understand the different classes of higher chordates.
- The student will be able to identify Poisonous and non-poisonous snakes.
- The student will understand the economic importance of mammals.
- The student teachers will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand general anatomy of fishes.

UNIT- I

Salient features and outline classification (up to orders) of various Chordata (Pisces, Ambhibians, Reptiles, Aves and Mammalia).

Pisces: Types of scales in fishes. Scoliodon as type study concerning habits and habitat, external features.

migration. Parental care in fishes.

Amphibians: Parental care in Amphibia, Neoteny and paedogenesis.

UNIT- II

Reptilia: Poisonous and non-poisonous snakes. Poison apparatus of snake. Snake venom and anti-venom.

UNIT-III

Aves: Flightless birds and their distribution. Flight adaptations in birds. Migration of birds.

Mammalia: Economic importance of mammals. Aquatic adaptation of mammals and flying adaptation of mammals.

Practical:

- Fishes: Afferent and efferent branchial arteries, cranial nerves, and internal ear of Scoliodon. Museum specimens of Pristis, Torpedo, Trygon, Acipenser, Polypterus, Hippocampus, Exocoetus, Anguilla, Echeneis, Diodon, Protopterus, Synaptura and Chimaera.
- Amphibia: Dissections only with the help of Simulations, charts/models of cranial nerves. Study of museum specimens of Salamandra, Proteus, Amphiuma, Nectures, Siren, Ambyostoma, Axolotl larva. Rhacophorus,
- Alytes, Hyla, Pipa, and Bufo. Study of the skeleton of frog and permanent histological slides of Amphibia.
- Reptilia: Study of the skeleton of Varanus. Study of a museum specimen of the following: Varanus, Heloderma, Hemidactylus, Phrynosoma, Chameleon, Draco, Calotes, Cobra, Pit-viper, Pitless –viper, Rattle snake, Krait, Dhaman, Typhlops and marine snake; Alligator, Crocodile, Gavialis, Turtle, and tortoise.
- Aves: Study of the skeleton of fowl. Study of museum specimens of Psittacula, Corvus, Pavo, Bubo, and model of Archaeopteryx.
- Mammalia: Dissection only with the help of Simulations, charts/models of the general anatomy and blood vascular system of a mammal. Study of permanent slides of mammals. Study of the skeleton of rabbit. Study of the museum specimens of Ornithorynchus (models), Hedgehog, and Loris.

Suggested Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggested Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested books:

1. Agarwal VK (2011) Zoology for degree students. S. Chand, New Delhi.
2. Arora MP (2006) Chordata-1. 1st Edition. Himalaya Publishing House, New Delhi.
3. Hall BK and Hallgrimsson B (2008) Strickberger's Evolution. 4th Edition. Jones and Bartlett Publishers Inc., USA.
4. Jordan EL and Verma PS (1963) Chordate Zoology. Revised Edition. S. Chand, New Delhi.
5. Mohanty PK (2000) Illustrated Dictionary of Biology. Kalyani Publishers, Ludhiana.
6. Young JZ (2004) The Life of Vertebrates. 3rd Edition. Oxford University Press, USA.

ZOO 501: ELEMENTARY ENTOMOLOGY & ICHTHYOLOGY

Credits: 03+01= 04

Maximum Marks: 70+30=100

About the course:

The course aims to enable student teachers to explore different terms and concepts of elementary Entomology & Ichthyology. The course also would provide an understanding to student teachers about the classification of insects, Social life of insects, economic importance of insects and classification of fishes.

Learning outcomes:

- The student teacher will be able to understand about the different orders of insects.
- The student teacher will be able to understand the economic importance of insects.
- The student teacher will be able to understand about the classification of fishes.
- The student teacher will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand about the practical knowledge of Entomology & Ichthyology.

UNIT- I

Entomology

Classification of insects up to orders: Brief knowledge of general characters of following insect orders- Thysanura, Collembola, Orthoptera, Odonata, Isoptera, Herteroptera, Coleoptera, Lepidoptera, Hymenoptera and Diptera.

Methods of insect collection and preservation.

Social life in insects: Termites. Insect pollinators.

A brief account on the life-cycle, pathogenecity and control measures of the following: Household insects: Cockroach and Silverfish.

Insect injurious to man and Livestock.

Economic importance of insect.

UNIT- II

Ichthyology

Classification of fishes up to orders. Integrated fish farming.

Ornamental fishes: Construction of aquaria and its maintenance. Exotic fishes. Carp farming.

Hill stream fishes and their adaptations.

Induced breeding: Induction agents and their applications.

Methods of fish collection and types of nets. Fish processing and preservation techniques.

Practical:

Salient features and outline classification (up to order) of various insect groups as covered under respective taxonomic groups.

Salient features and outline classification (up to order) of various fishes as covered under respective taxonomic groups.

Suggested Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggested Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested Readings:

1. A general text book of entomology, Imms, A. D., Chapman & Hall, UK.
2. The Insects: Structure and function, Chapman, R. F., Cambridge University Press, UK.
3. Principles of Insect Morphology, Snodgrass, R. E., Cornell Univ. Press, USA.
4. Introduction to the study of insects, Borror, D. J., Triplehorn, C. A., and Johnson, N. F., M Saunders College Publication, USA.
5. The Insect Societies, Wilson, E. O., Harward Univ. Press, UK.
6. The Insects, An outline of Entomology, Gullan, P. J., and Cranston, P. S., Wiley Blackwell, UK
7. Srivastava CBL: Fish Biology, Narendra Publishing House.
8. Singh HR: Advance in Fish Biology, Hindustan Publishing Corp.
9. Munshi & Munsi: Fundamental of Freshwater Biology. Narendra Publishing House.
10. Kyle: The biology of Fishes.
11. Khanna & Singh: Fish and Fisheries**.**

ZOO 502: ELEMENTARY BIOTECHNOLOGY & BIOLOGICAL TECHNIQUES

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

This course is designed to make student teachers aware of the different concepts of elementary biotechnology & biological techniques. The main objective of this course is to develop an understanding and critical thinking about the different biological techniques.

Learning outcomes:

1. The student teacher will be able to define biotechnology.
2. The student teacher will be able to understand about the cloning techniques.
3. The student teacher will be able to understand the application of different biological techniques.
4. The student teacher will be able to prepare themselves for teaching in schools, colleges and universities.
5. The student teacher will be able to understand about the practical knowledge of biotechnology and biological techniques.

UNIT- I

Biotechnology

Origin and definition, scope and importance of Biotechnology.

Restriction enzymes and cloning techniques used in recombinant DNA technology.

DNA fingerprinting.

UNIT- II

Biological Techniques

Introductory knowledge of the application of following biological techniques:

(a) Spectrophotometery

(b) Chromatography (Paper and thin layer)

(c) Electrophoresis (Agarose and PAGE)

(d) Microscopy (Light and compound of microscopy, Phase contrast microscopy)

(e) A Brief knowledge of PCR machine (Thermal cycler) and its significance.

Practicals:

Biotechnology

a. Laminar flow

b. Autoclave

c. PCR machine

d. Refrigerated centrifuge

Biological Techniques

Instruments and techniques regarding:

(i) Spectrophotometer

(ii) Chromatography

(iii) Electrophoresis

Suggested Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggested Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested Readings:

1. Glick, B.R. and Pasternak, J.J. (2009). Molecular Biotechnology - Principles and Applications of Recombinant DNA. IV Edition, ASM press, Washington, USA.
2. Griffiths, A.J.F., J.H. Miller, Suzuki, D.T., Lewontin, R.C. and Gelbart, W.M. (2009). An Introduction to Genetic Analysis. IX Edition. Freeman and Co., N.Y., USA.
3. Methods in Gene Biotechnology, W. Wu, M.J. Welsh, P.B. Kaufman & H.H. Zhang, 1997, CRC Press, New York.
4. P.K. Gupta: Biotechnology and Genomics, Rastogi publishers (2003).
5. T.A. Brown: Gene cloning and DNA analysis: An Introduction, Blackwell Science (2001).
6. Watson, J.D., Myers, R.M., Caudy, A. and Witkowski, J.K. (2007). Recombinant DNA- Genes and Genomes- A Short Course. III Edition, Freeman and Co., N.Y., USA.
7.

MINOR/ELECTIVE

ZOO 503: ENVIRONMENTAL SCIENCE & BASIC CONCEPTS OF ECOLOGY

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

The course focuses on the study of environmental science and the study of ecology. It provides an opportunity for student teachers to understand the concept of environment and develop their critical thinking to understand the concept of environment. it is essential for the sustainable development of the country.

Learning outcomes:

- The student teachers will be able to incorporate critical thinking into their study to carry out scientific investigations objectively.

- The student teachers will be able to become enlightened citizens with a commitment to deliver their responsibilities to society and the country at large.
- The student teachers will be able to give their contribute to the sustainable development of the country by protecting the environment and balancing the ecosystem.

UNIT- I

Introduction of environmental Science: Definition, principles, and scope of environmental science, structure and composition of the atmosphere, hydrosphere, lithosphere, and biosphere. Environmental Pollution: Types, causes, effects and controls, air, water, soil and noise pollution.

UNIT- II

Environmental Policies & Practices: Climate change, global warming, ozone layer depletion, acid rain, and impacts on human communities and agriculture. Environmental laws Environmental Protection Act Air (Prevention & Control of Pollution) Act. Water (Prevention & Control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act.

UNIT- III

Definition of ecology and its relation to humanity.

The environment: Abiotic factors, biotic factors, edaphic factors.

Concept of ecosystem with reference to pond, Grassland ecosystem. Energy flow in ecosystem. Pyramids of number, biomass and energy. Food chain, Food web and trophic levels. Biogeochemical cycles: Carbon and Nitrogen cycles.

Practicals:

- Study of wild animals with the help of stuffed preparations/ models/ charts/ photographs.
- Study of indicator organisms of different kinds of water pollution
- Simple experiments on the effect of environmental pollution on animals.
- Estimation of the pH of water/ soil sample.
- Determination of dissolved oxygen and carbon dioxide in water sample.
- Study of adaptations in animals inhabiting different ecological environments.

Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested books:

1. Singh & Kumar: Ecology and Environmental Science, Vishal Publ.
2. Ecology and Environment by P.D. Sharma.
3. Odum, E.P: Fundamental of Ecology, Saunders Co. Publ. Indian Ed.
4. Chapman & Reiss: Ecology.

ZOO 601: ENDOCRINOLOGY & BIOCHEMISTRY

Credits: 03+01= 04

Maximum Marks: 70+30= 100

About the course:

The course focuses on the study of Endocrinology & Biochemistry. It provides an opportunity for student teachers to understand the concept of endocrine system and biological molecules and also develop their critical thinking to understand the concept of enzyme action.

Learning outcomes:

- The student teacher will be able to understand the hormonal function of the glands.
- The student teacher will be able to differentiate the different diseases.
- The student teacher will be able to understand the classification and significance of biological molecules.
- The student teacher will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand about the practical knowledge of qualitative identification of carbohydrate, protein and lipid.

UNIT- I

Endocrinology

Endocrine system: A brief knowledge of the structure and hormonal functions of the glands- Pituitary, Thyroid, Pancreas, Adrenal, Testis and Ovary.

Elementary knowledge of the Dwarfism, gigantism, acromegaly, diabetes insipidus, Goitre, Cretinism, Myxoedema, Diabetes mellitus and Addison's disease.

UNIT- II

Biochemistry

Introduction to biological molecules: Proteins, Amino acids, Carbohydrates and Lipids- their structure, classification and significance. Metabolism of Carbohydrates. Enzymes and Vitamins.

(glycolyisis, Krebs cycle, gluconeogenesis, glyscogenesis glyogenolysis)

Mechanism of Enzyme Action, Kinetics, Inhibition & Regulation Vitamins, Types & source, deficiencies.

Practicals:

Qualitative identification of carbohydrate, protein and lipid.

Study of the action of salivary amylase on starch.

Study of endocrine glands and related disorders with the help of slides/photographs/ charts/ models.

Suggested Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggested Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested Readings:

1. General Endocrinology C. Donnell Turner Pub- Saunders Toppan.
2. Endocrinology: An Integrated Approach; Stephen Nussey and Saffron Whitehead.

3. Oxford: BIOS Scientific Publishers; 2001.
4. Hadley, M.E. and Levine J.E. 2007. Endocrinology, 6th Edition. Pearson Prentice-Hall, Pearson Education Inc., New Jersey.
5. Vertebrate Endocrinology by David O. Norris.
6. Berg, J.M., Tymoczko, J.L. and Stryer, L. (2007). Biochemistry, VI Edition, W.H. Freeman and Co., New York.
7. Conn And Stumpf: Outlines of Biochemistry, John Wiley.
8. Cox, M.M and Nelson, D.L. (2008). Lehninger's Principles of Biochemistry, V Edition, W.H. Freeman and Co., New York.
9. Hames, B.D. and Hooper, N.M. (2000). Instant Notes in Biochemistry, II Edition, BIOS Scientific Publishers Ltd., U.K.
10. Murray, R.K., Bender, D.A., Botham, K.M., Kennelly, P.J., Rodwell, V.W. and Well, P.A. (2009). Harper's Illustrated Biochemistry, XXVIII Edition, International Edition, The McGraw- Hill Companies Inc.
11. Pandey B.N: Zoology Series- Biochemistry, Physiology, Endocrinology, Tata McGraw Hill Edu Pvt Ltd, New Delhi.

ZOO 602: ANIMAL PHYSIOLOGY

Credits: 03+01=04

Maximum Marks: 70+30=100

About the course:

The course is designed to make student teachers aware and understand the concept of Animal physiology. The course aims to enable student teachers to explore the topics, including nutrition, respiration, Excretion, blood vascular system, Nervous system and Muscular system.

Learning outcomes:

- The student teacher will be able to understand the digestion process.
- The student teacher will be able to understand the physiology of animal.
- The student teacher will be able to differentiate the ammonotelic, ureotelic and guanotelic animals.
- The student teacher will be able to prepare themselves for teaching in schools, colleges and universities.
- The student teacher will be able to understand about the practical knowledge of animal physiology.

UNIT- I

Nutrition: Food constituents, intracellular and extracellular digestion, Digestion and absorption of carbohydrate, fat and protein.

Respiration: Pulmonary ventilation, respiratory pigments, gaseous transport and control of respiration.

UNIT- II

Excretion: Concept of ammonotelic, ureotelic and guanotelic animals, urine formation in mammals.

Blood vascular system: Haemopoiesis, composition and functions of blood, blood coagulation. A brief account of immunity. Types of heart, origin and conduction of heart beat. Cardiac Cycle

UNIT- III

Nervous system: Types of Neurons Resting and action potential of nerves, synapse and transmission of nerve impulse. Neurotransmitter

Muscular system: Types of Muscles molecular and chemical basic of Muscle contraction and its Mechanism.

Practicals:

- Preparation of haemin crystals from human blood
- Determination of clotting and bleeding time
- Counting of RBCs in human blood
- Counting of WBCs in human blood
- Determination of haemoglobin percentage in human blood
- Analysis of urine for identification of sugar, albumin, ketone bodies, etc.

Suggested Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggested Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, and sessional and terminal semester examinations (as per UGC norms).

Suggested Readings:

1. Ganong: Review of Medical Physiology, Lang Medical Publ.
2. Guyton and Hall; Textbook of Medical Physiology WB Saunders.
3. Keel et al: Sampson Wright's Applied Physiology, Oxford Press.
4. C.C. Chatterjee: Human Physiology.
5. Nielson: Animal Physiology, Cambridge.
6. Jain A.K.: Textbook of Physiology, Avical Publishing Company.
7. Pandey B.N: Zoology Series- Biochemistry, Physiology, Endocrinology, Tata McGraw Hill Edu Pvt Ltd, New Delhi.

ENGLISH

COURSE STRUCTURE OF ITEP, B.A.-B.Ed. IN THE SUBJECT OF ENGLISH

SEM.	PAPER CODE	TITLE	CREDITS
I	ENG 101	INTRODUCTION TO ENGLISH PROSE (FICTION)	03+01=04
	ENG 102	INTRODUCTION TO ENGLISH PROSE (NON-FICTION)	03+01=04
II	ENG 201	HISTORY OF ENGLISH LITERATURE (FROM CHAUCER TO RESTORATION PERIOD)	03+01=04
	ENG 202	HISTORY OF ENGLISH LITERATURE (FROM AUGUSTAN TO POSTMODERN PERIOD)	03+01=04
	ENG 203	CREATIVE WRITING	03+01=04
III	ENG 301	BRITISH POETRY: ELIZABETHAN TO NEO-CLASSICAL ERA	03+01=04
	ENG 302	BRITISH POETRY: ROMANTIC TO MODERN ERA	03+01=04
	ENG 303	INTRODUCTION TO POETIC FORMS IN ENGLISH	03+01=04
IV	ENG 401	WOMEN'S WRITINGS IN ENGLISH LITERATURE	03+01=04
	ENG 402	INDIAN LITERATURE IN TRANSLATION	03+01=04
	ENG 403	PROFESSIONAL COMMUNICATION IN ENGLISH	03+01=04
V	ENG 501	INTRODUCTION TO ENGLISH LITERATURE AND FILM	03+01=04
	ENG 502	PARTITION LITERATURE	03+01=04
	ENG 503	REGIONAL LITERATURE WITH SPECIAL REFERENCE TO LITERATURE OF UTTARAKHAND	03+01=04
VI	ENG 601	REGIONAL LITERATURE WITH SPECIAL REFERENCE TO LITERATURE OF UTTARAKHAND	03+01=04
	ENG 602	INDIAN AND NEW LITERATURES IN ENGLISH	03+01=04

ENGLISH

ENG 101: INTRODUCTION TO ENGLISH PROSE (FICTION)

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is designed to make students familiar with different genres of English literature and to acquaint them with different writers/authors of different genres of English literature. The main objective of course is to develop in the students the ability to interpret, analyse and evaluate works of fiction and non-fiction in the perspective of literary theory and devices.

Learning outcomes: After studying the course the students will be able to:

- Acquire an introductory knowledge of different style or genres of English literature.
- Comprehend the wide variety of subjects matter that the genre serves.
- Understand important terms pertaining to prose writings including various literary devices.
- Apprehend the growth of English Short story and essays through the contributions of some of the greatest short story writers and Essayists.

UNIT I:

Introduction to Genres: Poetry, Drama, Novel, Novella and Short Story

UNIT II:

Elements of short Story: Plot, Theme, Characterization, Narrative Techniques**O' Henry:** The Last Leaf, **Anton Chekhov:** The Lament

UNIT III:

Literary Devices: Point of view, Imagery, Antithesis, Aphorism, Humour and Pathos

Suggestive Practicum: Presentation, Assignments, organizing co-curricular activities such as storytelling & story writing competition.

Suggestive Mode of Transaction:

Planned lectures, group discussion, Presentation of assigned topics.

Suggestive Mode of Assessment:

The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive books:

Abrams M.H. & Harpham Geoffrey Galt: A Glossary of Literary termsWordsworth Editions limited: 100 selected stories O Henry, The Routledge Dictionary of Literary Terms by Peter Childs & Roger Fowler

ENG 102: INTRODUCTION TO ENGLISH PROSE (NON-FICTION)

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning outcomes:

After studying the course the students will be able to:

- Define and distinguish various type of prose and prose style.
- Apprehend the growth of English Essays through the contribution of some of the greatest essayist.
- Organize and write paragraphs and short essays in a variety of rhetoric styles.
- Compose a coherent, unified multi-paragraph expository essay.
-

UNIT-I

Type of Prose and Prose style: Autobiography, Biography, Memoir, Travelogue, Essay

UNIT-II

Francis Bacon: Of Studies

Charles Lamb: Dream Children

UNIT-III

Virginia Woolf: Professions for women

A.P.J. Abdul Kalam Azad: "Patriotism beyond Politics and Religion" (From Ignited Minds)

Suggestive Practicum:

Presentation, Assignments, Discussion on theme and style of essays mentioned in syllabus, Practice of Essay writing.

Suggestive Mode of Transaction:

Planned lectures, group discussion, Presentation of assigned topics.

Suggestive Mode of Assessment:

The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive books:

Abrams M.H. & Harpham Geoffrey Galt: A Glossary of Literary terms

Sastri P.S.: Charles lamb Essays of Elia

Asthana B.P.: Bacon's Essays

A.P.J. Abdul Kalam Azad: Ignited Minds, The Routledge Dictionary of Literary Terms by Peter Childs & Roger Fowler

ENG 201: HISTORY OF ENGLISH LITERATURE
(Chaucer to Restoration Period)

Credits 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course seeks to develop among student-teacher an understanding of the evolution of English literature, the causes and impact of Renaissance and Reformation and understanding about religious, social and political movements from 15^{th} to 20^{th} century and their influence on English literature. The course will inform the student-teacher about the characteristics of Elizabethan & Metaphysical poetry. The course also provides the knowledge about the role of French revolution in the evolution of romanticism in literature.

Learning Outcomes:

After completion of this course student-teacher will be able to:

Comprehend the specific characteristics of the major literary tendencies of various ages in the field of Poetry, Drama and Fiction.Organise a chronological study of major literary works according to their literary period.

UNIT-I:

1350-1550 The Age of Chaucer

Introduction of the major works

1558-1603 Elizabethan Age

Introduction to major Poets and Dramatist of the Age

UNIT-II:

1603-1625 Jacobean Age

Introduction to major Poets and
Dramatist of the age

1625-1649 Caroline Age

Major Schools of Poetry

UNIT-III:

1649-1660 Puritan or commonwealth Period

1660-1700 The Restoration Age

Introduction to Restoration comedy

Suggestive Practicum:

Presentation, Assignments

Suggestive Mode of Transaction:

Planned lectures, group discussion, Presentation of assigned topics.

Suggestive Mode of Assessment:

The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

A history of English Literature: Arthur Compton Rickett
History of English Literature: W.J. Long,
A background to the study of English Literature by Birjadish Prasad

ENG 202: HISTORY OF ENGLISH LITERATURE
(Augustan to Postmodern Period)

Credits 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

After completion of this course student-teacher will be able to:

- Develop a critical understanding of the intellectual history of England.
- Analyse literary products within particular socio-historical context.
- Comprehend the Romantic Movement and its implication in the works of romantic poets.
- Trace the transition of themes in the literary works from the medievalism to the birth of the modern age.

UNIT I:

1-1700-1745 The Augustan Age

Rise of Novel, Major writers

2-1745-1785 Age of Sensibility

Introduction to age of Johnson

UNIT II:

1-1789-1832 Romantic Age

Introduction to Romantic Poetry
And Major Romantic poets

2-1832- 1901 Victorian Age

Introduction to Victorian Poetry

And Major Victorian Poets

UNIT III:

1-1901-Modern Age and Postmodern Age

Introduction to Major Writers

Suggestive Practicum:

Presentation, Assignments

Suggestive Mode of Transaction:

Planned lectures, group discussion, Presentation of assigned topics.

Suggestive Mode of Assessment:

The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

A history of English Literature: Arthur Compton RickettHistory of English Literature: W.J. Long, A background to the study of English Literature by Birjadish Prasad

MINOR/ELECTIVE
ENG 203: CREATIVE WRITING

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

- After completion of this course student-teacher will be able to:
- Describe or express their personal thoughts and attitude such as their experiences, hopes and ambitions.
- Read and comprehend different contemporary affairs and conclude their advantages and disadvantages.
- Comprehend and analyse texts in English.
- Develop an understanding of the technical terminology associated with mass media.

UNIT: I

What is creative writing?

Types of writing: Expository, Descriptive, Persuasive and Narrative

UNIT: II

The Art and Craft of writing: Characteristics of Good writing

Poetry: Figurative language, Imagery, Sensory details, Rhyme, Repetition

"Daffodils" by Wordsworth

Short Story: Theme, Point of view, character, setting and plot

"The Barber's Trade Union" by Mulk Raj Anand

UNIT: III

Introduction to Cyber Media and Social-Media.

Social Media, Types of Social-Media, Online Journalism, Basics of Cyber Media

Suggestive Practicum:

Calligraphy exercise, Report writing Practice, Practice of fourfold communication skills.

Suggestive Mode of Transaction:
Planned lectures, Assignments, Communicative ability enhancement activities like debate, speech and skits.
Suggestive Mode of Assessment:
Reading comprehension and writing skill tests
Suggestive Readings:
Creative writing: A Beginner's Manual by Anjana Neira Dev and others, published by Pearson, Delhi, 2009

ENG 301: BRITISH POETRY: ELIZABETHAN TO NEO-CLASSICAL ERA

Credit:03+01=04
Maximum Marks: 70+30=100
About the Course:
The course is designed to develop the knowledge of various forms of poetry and the works of greatest authors of these poetic forms. The course also consists of stanza forms of poetry and the information about war poems and modern poems.
Learning Outcomes:
The students will be able to:
Identify various forms of poetry and understand the development of these forms in the works of greatest practitioners of these poetic forms.
Characterize some basic stanza patterns, their origin and development.
Critically analyse poems with an understanding of its basic elements.
Assess the contribution of the representative poets of these ages towards the growth of English poetry and appreciate their poetic genius.
UNIT I:
Types of Poems: Lyric, Sonnet, Elegy, Ode, Epic, Ballad, Dramatic Monologue, Stanza Forms: The Heroic Couplet, Blank Verse, The Spenserian Stanza, Terza Rima
UNIT II:
William Shakespeare- Let Me Not to the Marriage of True Minds (sonnet no. 116)**,** John Donne- A Valediction: Forbidding Mourning**,** John Milton- On his blindness
UNIT III:
Alexander Pope- From an Essay on criticism (lines-15-32)**,** Thomas Gray- Elegy written in a country Churchyard (stanzas 1-19)
Suggestive Practicum: Poetry recitation & poetry composition practices.
Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.
Suggestive mode of Assessment: The assessment will be based on the assignments,
unit tests, end-semester examination and viva-voce.
Suggestive Readings:

- Poetry of the Romantics (Penguin Popular classics) Paperback, Penguin classics
- Readings in English Poetry Amit Ganguli & Kanika Ganguli/SBPD Pub.
- Poetry of Romantics Penguin Popular Classic pub.

ENG 302: BRITISH POETRY: ROMANTIC TO MODERN ERA

Credit:03+01=04

Maximum Marks: 70+30=100

Learning Outcomes: Gain broader understanding of British poetry and modern British poets.
Learn about transition of poetic style and forms with changing times.
Gain information about Irish poetry, war poems and modern poems.
Learn about changing style and how imagism as a movement in arts influenced the poets.

UNIT I:

William Wordsworth-The World is Too much with us**,** John Keats- Ode to a nightingale

UNIT II:

W.B. Yeats- Second coming, T.S. Eliot- Journey of the magi

UNIT III:

Rupert Brooke-The Soldiers**,** Philip Larkin- Church Going

Suggestive Practicum: Poetry recitation & poetry composition practices

Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

- Poetry of the Romantics (Penguin Popular classics) Paperback, Penguin classics
- Readings in English Poetry Amit Ganguli & Kanika Ganguli/SBPD Pub.
- Poetry of Romantics Penguin Popular Classic pub.
- The Routledge Dictionary of literary terms by Peter Childs & Roger Fowler
- Edward Maline. A preface to W.B. Yeats, London, Longman Group Ltd, 1983.

ENG 303: INTRODUCTION TO POETIC FORMS IN ENGLISH

Credit:03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is designed to develop the knowledge of various forms of poetry and the works of greatest practitioners of these poetic forms. The course also consists of stanza forms of poetry.

Learning Outcomes:

Identify various forms of poetry and understand the development of these forms in the works of greatest practitioners of these poetic forms.
Characterize some basic stanza patterns their origin and development.
Critically analyse poems with an understanding of its basic elements.
Assess the contribution of the representative poets of these ages towards the growth of English poetry and appreciate their poetic genius.

UNIT I:

Forms of Poetry: Lyric, Sonnet, Elegy, Ode,

UNIT II:

William Shakespeare- Let me not to the Marriage of True Minds (Sonnet No.116) **,** Thomas Gray- Elegy written in a country Churchyard (stanzas 1-19)

UNIT III:

John Keats- Ode to a nightingale, W.B. Yeats- Second coming

Suggestive Practicum: Poetry recitation & poetry composition practices

Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

- Poetry of the Romantics (Penguin Popular classics) Paperback, Penguin classics
- Readings in English Poetry Amit Ganguli & Kanika Ganguli/SBPD Pub.
- Poetry of Romantics Penguin Popular Classic pub.
- The Routledge Dictionary of literary terms by Peter Childs & Roger Fowler
- Edward Maline. A preface to W.B. Yeats, London, Longman Group Ltd, 1983.

ENG 401: WOMEN'S WRITING IN ENGLISH LITERATURE

Credit:03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is designed to develop the understanding about the literary works of feminism and the foreground resistance by women writers against gender inequality. Also, the course is focused on the history and significance of translation and the strength of various writers as a translator.

Learning Outcomes:

Examine feminism's concerns of equality with men.

Help students to understand the social construction of woman by patriarchy.

Discuss women's writing as an act of resistance and of grasping agency.

Help students engage with the heterogeneity of the oppression of women in different place, historically and socially.

UNIT I:

Elaine Showalter: 'Introduction' in A literature of Their Own: British Women Novelist from Bronte to Lessing (1977)

UNIT II:

Harriet Jacobs, Incidents in the life of a slave Girl, Chapter 5, Maya Angelou Still, I Rise

UNIT III:

Anne Finger Helen and Frida, in (Call Me Ahab: A short Story collection)**, Sylvia Plath** Lady Lazarus

Suggestive Practicum: Essay writing competition on women empowerment through writings

Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

- Indian Literature in Translation R. Bansal/ Sahitya Bhawan Publication
- Gender Trouble: Judith Butler
- Second Sex by Simone de Beauvoir
- The History of doing: An Illustrated Account of movements for Women's Rights and feminism in India, 1800-1990 by Radha Kumar

ENG 402: INDIAN LITERATURE IN TRANSLATION

Credit:03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

Understand the rich and diverse tradition of literature written in regional and vernacular language.

Develop a comparative and intertextual approach to analyse literatures.

Develop an appreciation of the diverse multilingual and multicultural ethos of India.

Enhance job opportunities by fostering translation skills.

Critically appreciate the poems of Kabir and gain an understanding of his philosophy and assess the strength of Rabindranath Tagore as a translator.

UNIT: I

Introducing Translation: A Brief History and significance of Translation in a multilinguistic and multicultural society like India

UNIT: II

Mahasweta Devi: Draupadi**, Bhisham Sahni:** The train has reached Amritsar

UNIT: III

Rabindranath Tagore: Kabir from One Hundred Poems of Kabir (Verse 1,2,8,12,53,69)

Suggestive Practicum: Task of discovering other translated works of Indian regional languages into English language.

Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

- Indian Literature in Translation R. Bansal/ Sahitya Bhawan Publication
- A Handbook of Translation studies by Bijay Kumar Das
- The Oxford History of Literary Translation in English Vol.4 by Peter France & Kenneth Haynes

ENG 403: PROFESSIONAL COMMUNICATION IN ENGLISH

Credit:03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is focused on developing the communication skills and the art of writing paragraphs, essays, letters, Bio-data, Resume and CV. The course also develops the skill of translation and grammatical competence.

Learning Outcomes:

After studying this course, the students will be able to:

Acquire basic language skills and use them in communication.

Make use of thesaurus for learning synonyms, antonym and one word-substitution.

Comprehend the meaning of prose and verse passages.

Learn basic concepts of phonetics.

Improve fluency through regular practice and speaking drills.

Learn the skills of facing interviews, making a speech, presentations etc.

Improve their grammatical competence.
Learn the art of writing paragraphs, essays, letters, Bio-data, Resume and CV.
Learn the techniques of report writing, minutes, notices and agendas.
Become skilled at translating from Hindi to English and vice-versa.

UNIT I:

Use of IPA Symbols: Learning Correct Pronunciation through dictionary, Writing Officials Correspondences (Letter/Application writing, FIR, Grievance Letters & Right to Information)

UNIT II:

Techniques of CV writing, Report writing, Proposal writing, Notice and Agendas, Interview, Group Discussion, making a speech, Presentation Skills/ Using PowerPoint Presentation

UNIT III:

Translation from Hindi to English, Translation from English to Hindi

Suggestive Practicum: Calligraphy exercise, Report writing Practice
Practice of fourfold communication skills.

Suggestive Mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: Reading comprehension and writing skill tests

Suggestive Reading Materials:

- Shilpa Sapre-Bharmal et al. Communication skills in English Orient Blackswan.2012
- Sanjay Kumar and Pushp Lata: Communication skills, Oxford University Press, 2nd ed. 2015.
- Norman Lewis: Word Power Made Easy, Penguin Books India, 2015.
- R.K. Bansal and J.B. Harrison: Spoken English, Orient Black Swan, 1983.
- Kamlesh Sadanand and Susheela Punitha: Spoken English: A foundation Course (Revised Edition) Part 1, Orient Black Swan; 2014
- Bikram K. Das: Functional Grammar and Spoken and written communication in English, Orient Black Swan; 1st edition 2006
- E, Suresh Kumar, B, Sandhya, J. Savithri and P. Sreehari: Enriching speaking and writing skills, Orient Black Swan, 2014
- V.N. Arora and Lakshmi Chandra: Improve your writing, Oxford University Press, 1981
- Terry O' Brien: Modern writing Skills, Rupa Publisher, 2011
- R.C. Sharma and Krishna Mohan: Business Correspondence and Report writing, McGraw Hill Education (India) Pvt. Ltd. Chennai, 5th ed. 2016

ENG 501: INTRODUCTION TO ENGLISH LITERATURE AND FILM

Credit:03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is about the basic concepts of film making as well as the collaborative mediation between literary works and cinema & textual and the visual.

Learning Outcomes:

This paper attempts to trace the genealogy of this collaborative mediation between literature and cinema between the textual and the visual.
Develop and understanding of the technical terminology associated with film and media studies.
Appraise the process of adaptation of texts into films.

UNIT I:

Introduction to Basic Concepts in Film-Making: Mise-en-scene, Long Takes, Deep Focus, Types of Shots, Colour and Sound, Cinematic Adaptation: Concept & Elements

UNIT II:

Shakespeare's Hamlet and its cinematic adaptation Haider (2014 film, directed by Vishal Bhardwaj)

UNIT III:

Cinematic adaptation of Chetan Bhagat's Five Point Someone, Three Idiots **(**2009 film, directed by Rajkumar Hirani)**,** Cinematic adaptation of Jhumpa Lahiri's The Namesake and its adaptation The Namesake (2006 film, directed by Mira Nair)

Suggestive Practicum: Skit performance on the theme of prescribed works in the syllabus.

Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

- Literature in Films & Media Studies by Sunita Rai
- Film and Literature: An Introduction and reader Timothy Corrigan
- Shail Andrew 'From the Cinematograph to the Pictures' in The Cinema and the Origins of Literary Modernism, New York and London: Routledge 2012) pp.1-4

ENG 502: PARTITION LITERATURE

Credit:03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is designed to lead the knowledge of the students about the features of Partition literature and the trauma of partition through the fictional and nonfictional works of partition.

Learning Outcomes:

The students will be able to know about the partition literature through fiction and non-fiction works of partition.

Students will be able to feel the trauma of people who suffered the pain of Partition.

UNIT: I

Characteristics of Partition Literature: Violence, Dislocation, Trauma, Memory, History, Narrative, Regeneration

UNIT: II

Novel: Train to Pakistan by Khushwant Singh, Short Story: Toba Tek Singh by Sadat Hasan Manto

UNIT: III

Ice Candy Man by Bapsi Sidhwa, Poem: To Waris Shah by Amrita Pritam

UNIT: IV

Non-Fiction**:** The Other Side of Silence: Voices from the Partition of India, (Chapter 2: Blood)

Suggestive Practicum: Presentation of Assigned tasks, debate on the pros & cons of Partition.

Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: The assessment will be based on the assignments, unit test, internal examination and viva-voce.

Suggestive Readings:

- Partition Literature: An Anthology by Debjani Sengupta
- Sukrita P. Kumar, Narrating Partition (Delhi: Indialog.2004).
- Ritu Menon and Kamla Bhasin, Introduction-in Borders and Boundaries (New Delhi: Kali for Women, 1998)
- Urvashi Butalia, The Other Side of Silence: Voices from the Partition of India (Delhi kali for women, 2000

ENG 503: REGIONAL LITERATURE WITH SPECIAL REFERENCE TO UTTARAKHAND

Credit:03+01=04

Maximum Marks: 70+30=100

About the Course: This course seeks to develop an understanding about the regional literature among students.

It focuses on the literary works of the writers belongs to Kumauni and Garhwali region of Uttarakhand.

Learning Outcomes:

Study the language and literature of Kumauni and Garhwali region.

These texts would be read closely to develop understanding of the key concepts and themes of Regional Literature.

UNIT I

Introducing Regional Literature, Manglesh Dabral: Torch

UNIT II

Harshwanti Bisht: Mountain Calling

UNIT III

Govind Chatak: Chatak tales

Namita Gokhale: "Shivani" from Mountain Echoes: Reminiscences of Kumauni women

Suggestive Practicum: Poetry recitation & poetry composition practices

Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

1.Short Stories and memoirs of women writers of Uttarakhand edited by Jayanti Dimri and Madhu D. Singh

2. Mountain Echoes: Reminiscence of Kumauni Women by Namita Gokhale

3.The folktales of Uttarakhand: Govind Chatak (Jaykay Enterprises, Delhi) tr. By Dr. Arun Pant

ENG 601: REGIONAL LITERATURE WITH SPECIAL REFERENCE TO LITERATURE OF UTTARAKHAND

Credit:03+01=04

Maximum Marks: 70+30=100

About the Course:

This course seeks to develop an understanding about the regional literature among students.

It focuses on the literary works of the writers belongs to Kumauni and Garhwali region of Uttarakhand.

Learning Outcomes:

Study the language and literature of Kumauni and Garhwali region.

These texts would be read closely to develop understanding of the key concepts and themes of Regional Literature.

UNIT I:

Introduction to Regional literature, Chatak Tales**:** To be good or bad, The Buffalo Man

UNIT II:

Manglesh Dabral**:** Torch, Ruskin Bond**:** Rusty The Boy from the Hills

UNIT III:

Harshwanti Bisht: A Memoir: Mountain Calling, Namita Gokhale: 'Shivani' from Mountain Echoes: Reminiscence of Kumauni women

Suggestive Practicum: Presentation, Assignments and Speech on the literary contribution of writers from Uttarakhand.

Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

- The folktales of Uttarakhand: Govind Chatak (Jaykay Enterprises, Delhi) tr. By Dr. Arun Pant
- Short Stories and memoirs of women writers of Uttarakhand edited by Jayanti Dimri and Madhu D. Singh
- Mountain Echoes: Reminiscence of Kumauni Women by Namita Gokhale
- Rusty, The boy from the Hills by Ruskin Bond

ENG 602: INDIAN AND NEW LITERATURES IN ENGLISH

Credit:03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is concerned with the postcolonial literature which is emerged from the former colonies of the British. Therefore, literature from India, Canada, Australia, Nigeria, Chile etc. are considered as postcolonial literature and included in this course.

Learning Outcomes:

Develop an understanding of the theme, styles and poetic sensibilities of poets like Nissim Ezekiel, Jayant Mahapatra.

Comprehend and analyse the poetic discourses of poets like Pablo Neruda, Margaret Atwood and the variations in their themes and styles.

Critically analyse texts from a postcolonial perspective.

Comprehend the issues of identity, diaspora and marginalization as explored in the texts prescribed.

Develop an understanding of post colonialism and recognize the strategies deployed by Postcolonial writers to resist cultural oppression.

UNIT I

Nissim Ezekiel- Background casually,

Jayant Mahapatra-Hunger

UNIT II

Pablo Neruda-If you forget me**,**

Margaret Atwood- Spelling

UNIT III

Mahatma Gandhi-Hind Swaraj (Chapter 4- What is Swaraj),

Frantz Fanon- Black Skin, White Mask (Chapter 4- The So-called Dependency Complex of the colonized),

Chinua Achebe- Things Fall Apart

Suggestive Practicum: Poetry writing and reciting activities in classroom & on other platforms.

Suggestive mode of Transaction: Planned lectures, group discussion, Presentation of assigned topics.

Suggestive mode of Assessment: The assessment will be based on the assignments, tests, written examination and viva-voce.

Suggestive Readings:

- Things Fall Apart (Paperback, Achebe Chinua) Penguin books ltd.
- Kamala Das: The Old Playhouse and other Poems (Orient Longman Pvt Ltd.)
- Indian & New Literature in English, (Thakur Publication Pvt. Ltd) Dr Shuchita Srivastav, Dr. Sanjay Sharma

हिन्दी

COURSE STRUCTURE OF ITEP, B.A.-B.Ed. IN THE SUBJECT OF ENGLISH

SEM.	PAPER CODE	TITLE	CREDITS
I	HIN 101	प्राचीन एवं मध्यकालीन काव्य भाग–1	03+01=04
	HIN 102	प्राचीन एवं मध्यकालीन काव्य भाग–2	03+01=04
II	HIN 201	हिन्दी कथा साहित्य भाग–1	03+01=04
	HIN 202	हिन्दी कथा साहित्य भाग–2	03+01=04
	HIN 203	कुमाऊँनी संस्कृति एवं भाषा	03+01=04
III	HIN 301	रीतिकालीन काव्य एवं काव्यांग विवेचन	03+01=04
	HIN 302	हिन्दी भाषा–स्वरूप	03+01=04
	HIN 303	लोक साहित्य	03+01=04
IV	HIN 401	हिन्दी नाटक	03+01=04
	HIN 402	स्मारक साहित्य	03+01=04
	HIN 403	लोक साहित्य	03+01=04
V	HIN 501	द्विवेदी युगीन काव्य	03+01=04
	HIN 502	छायावादी काव्य	03+01=04
	HIN 503	प्रयोजनमूलक हिन्दी	03+01=04
VI	HIN 601	छायावादोत्तर हिन्दी कविता	03+01=04
	HIN 602	हिन्दी निबंध	03+01=04

हिन्दी

HIN-101: प्राचीन एवं मध्यकालीन काव्य भाग–1

Credit: 03+01=04

अधिकतम अंक: 70+30=100

पाठ्यक्रम के विषय में:

साहित्य मानव संवेदना की अभिव्यक्ति का प्रमुख स्रोत रहा है। कलाओं में यह सम्पूर्ण कला है।साहित्य समाज का प्रतिदर्श है।स्नातक उपाधि में इस विषय के चयन व अध्ययन से शिक्षार्थी को साहित्य के सांगोपांग महत्व का ज्ञान होता है।शिक्षार्थी को राष्ट्र की सर्व प्रमुख भाषा हिन्दी के अत्यन्त समृद्ध साहित्य के सम्पूर्ण स्वरूप के ज्ञान के साथ–साथ होता है।शिक्षार्थी को हिन्दी साहित्य की सभी प्रमुख विधाओं का ज्ञान होता है, जिससे उसमें रचनात्मकता का प्रस्फुटन एवं विकास होता है।साहित्य के अध्ययन में अन्य अनुशासनों के सन्दर्भ में यथा सामाजिक, मनोवैज्ञानिक, राजनीतिक, आर्थिक, ऐतिहासिक एवं पर्यावरणीय आदि समाहित होते है।स्नातक में हिन्दी साहित्य का चयन विद्यार्थी को समग्र रूप से शिक्षित करता है।शिक्षार्थी जिसके आलोक में पाठ्यक्रम के अन्तर्गत मुख्य विषय के रूप में प्राचीन एवं मध्यकालीन भक्ति पर साहित्य का ज्ञान अर्जित कर सकेगा।

अधिगम प्रतिफल:

- शिक्षार्थी हिन्दी साहित्य के आरंभिक काल की कविता का ऐतिहासिक एवं सैद्धान्तिक ज्ञान सोदाहरण प्राप्त करता है।
- शिक्षार्थी चन्दबरदायी, कबीर, के कृतित्व को समझने के क्रम में महाकाव्य विधा का शिल्पगत परिचय व ज्ञान प्राप्त करता है।
- शिक्षार्थी आदिकालीन वीरकाव्य का सैद्धान्तिक परिचय व ज्ञान उदाहरण सहित प्राप्त करता है।

Unit-I

प्राचीन हिन्दी काव्य : परिचय एवं इतिहास

Unit-II

भक्तिकालीन हिन्दी काव्य : भक्ति आन्दोलन, प्रमुख सिद्धान्त, निर्गुणकाव्य–ज्ञानमार्ग, प्रेममार्ग, सगुन काव्य–रामभक्ति, कृष्णभक्ति, सूफीकाव्य।

Unit-III

चन्दबरदायी और उनका काव्य (व्याख्या हेतु निर्धारित पाठ्य–पुस्तक प्राचीन एवं भक्तिकालीन काव्य संपा0 डॉ0 मानवेन्द्र पाठक)

Unit-IV

कबीर और उनका काव्य (व्याख्या हेतु निर्धारित पाठ्य–पुस्तक प्राचीन एवं भक्तिकालीन काव्य संपा0 डॉ0 मानवेन्द्र पाठक)

सुझावात्मक अभ्यास:

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

संप्रेषण का सुझावात्मक तरीका:

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, ट्यूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ :

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तकः

प्राचीन एव भक्तिकालीन काव्य संपा0 डॉ0 मानवेन्द्र पाठक, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संतुलित काव्य)
कबीरः एक नई दृष्टि– डॉ0 रघुवंश, लोक भारती, 15–ए, महात्मा गॉधी मार्ग, इलाहाबाद।

HIN-102: प्राचीन एवं मध्यकालीन काव्य भाग–2

Credit: 03+01=04

अधिकतम अंकः 70+30=100

अधिगम प्रतिफलः

- शिक्षार्थी निर्गुण काव्य धारा व संत साहित्य का सैद्धान्तिक परिचय व ज्ञान उदाहरण सहित प्राप्त करता है।
- शिक्षार्थी सूफी काव्यधारा के रूप में मलिक मोहम्मद जायसी, सगुण काव्य धारा तथा उसके अन्तर्गत रामभक्ति तथा कृष्णभक्ति शाखा के महत्वपूर्ण काव्य का सैद्धान्तिक परिचय व ज्ञान सोदाहरण प्राप्त करता है।

Unit-I

जायसी और उनका काव्य (व्याख्या हेतु निर्धारित पाठ्य–पुस्तक प्राचीन एवं भक्तिकालीन काव्य संपा0 डॉ0 मानवेन्द्र पाठक)

Unit-II

सूरदास और उनका काव्य (व्याख्या हेतु निर्धारित पाठ्य–पुस्तक प्राचीन एवं भक्तिकालीन काव्य संपा0 डॉ0 मानवेन्द्र पाठक)

Unit-III

तुलसीदास और उनका काव्य (व्याख्या हेतु निर्धारित पाठ्य–पुस्तक प्राचीन एवं भक्तिकालीन काव्य संपा0 डॉ0 मानवेन्द्र पाठक)

सुझावात्मक अभ्यासः

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।
सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

संप्रेषण का सुझावात्मक तरीकाः

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, ट्यूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे– चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

सुझावात्मक गतिविधियाँ :

यह कक्षा शिक्षण में अधिगम के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य–पुस्तकेंः

- प्राचीन एवं भक्तिकालीन काव्य संपा0 डॉ0 मानवेन्द्र पाठक, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित काव्य)
- कबीरः एक नई दृष्टि– डॉ0 रघुवंश, लोक भारती, 15–ए, महात्मा गाँधी मार्ग, इलाहाबाद।
- जायसी : एक नई दृष्टि– डॉ0 रघुवंश, लोकभारती, इलाहाबाद।
- जायसीतर हिंदी सूफी कवियों की बिम्ब योजना–डॉ. मृदुला जुगरान, सरिता बुक डिपो, नई दिल्ली।
- जायसी–विजय देव नारायण साही ; हिंदुस्तानी अकादमी, इलाहाबाद।

HIN 201: हिन्दी कथा साहित्य

Credit: 03+01=04

अधिकतम अंक: 70+30=100

पाठ्यक्रम के विषय में:

साहित्य जनसमूह के हृदय का विकास है और हृदय का विकास संभावनाओं में निहित होता है जिससे मनुष्य मात्र एक दूसरे के दुःख में दुःखी तथा सुख में सुखी होने का आनन्द ले पाता है। रसमय होने के कारण साहित्य मनुष्य के मन एवं मन में उठने वाले अनेक झंझावातों को उचित दिशा देता है। चाहे वह उपन्यास विधा के रूप में हो अथवा कहानी एवं कोई भी गद्य की अन्य विधा सब कहीं मानवीय संवेदनाओं को संजोने एवं समयानुकूल परिस्थितियों को परिवर्तित करने के लिए मनुष्य को जागरूकता एवं कर्मठता प्रदान करती है।

अधिगम प्रतिफल:

- शिक्षार्थी हिन्दी की कथा परम्परा का परिचय एवं ज्ञान प्राप्त करता है।
- शिक्षार्थी हिन्दी उपन्यास के उद्भव और विकास का ज्ञान प्राप्त करता है।
- शिक्षार्थी हिन्दी कहानी के उद्भव और विकास का ज्ञान प्राप्त करता है।
- शिक्षार्थी पाठ्यक्रम में सम्मिलित उपन्यास के अध्ययन से उपन्यास विधा का शिल्पगत ज्ञान प्राप्त करता है।
- शिक्षार्थी पाठ्यक्रम में सम्मिलित कहानियों के आधार पर कहानी विधा का शिल्पगत ज्ञान प्राप्त करता है।
- शिक्षार्थी कथा साहित्य की समीक्षा एवं हिन्दी गद्य का का ज्ञान प्राप्त करता है।

UNIT-I

- आरम्भः आधुनिककाल।

UNIT-II

हिन्दी उपन्यास का उद्भव एवं विकास।

UNIT-III

हिन्दी कहानी का उद्भव एवं विकास।

UNIT-IV

हिन्दी उपन्यास का शिल्प।

सुझावात्मक अभ्यास

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

सम्प्रेषण का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, ट्यूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे–चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

सुझावात्मक पाठ्यपुस्तक

1.कहानी सप्तक–संपादक : प्रो0 नीरजा टंडन, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित कहानियाँ)

2.कहानी : नई कहानी–डॉ0 नामवर सिंह, लोकभारती, 15–ए महात्मा गाँधी मार्ग, इलाहाबाद,

3.हिन्दी कहानी : पहचान और परख–इन्द्रनाथ मदान, राजकमल प्रकाशन, नई दिल्ली।

4.कहानी : संवाद का तीसरा आयाम–बटरोही, नेशनल पब्लिशिंग हाउस, नई दिल्ली,

5.कहानी की रचना प्रक्रिया–परमानन्द श्रीवास्तव, लोकभारती प्रकाशन, 15–ए महात्मा गाँधी मार्ग, इलाहाबाद।

HIN 202: हिन्दी कथा साहित्य

Credit: 03+01=04

अधिकतम अंक: 70+30=100

अधिगम प्रतिफल:

- शिक्षार्थी पाठ्यक्रम में सम्मिलित उपन्यास के अध्ययन से उपन्यास विधा का शिल्पगत ज्ञान प्राप्त करता है।
- शिक्षार्थी पाठ्यक्रम में सम्मिलित कहानियों के आधार पर कहानी विधा का शिल्पगत ज्ञान प्राप्त करता है।
- शिक्षार्थी कथा साहित्य की समीक्षा का ज्ञान प्राप्त करता है।

UNIT-I

हिन्दी कहानी का शिल्प।

UNIT-II

त्यागपत्रः जेनेन्द्र।

UNIT-III

प्रतिनिधि हिन्दी कहानियाँः उसने कहा था–चन्द्रधरशर्मा गुलेरी, नमक का दरोगा–प्रेमचंद, आकाश दीप–जयशंकर प्रसाद, पाजेब–जेनेन्द्र कुमार, परदा–यशपाल, दोपहर का भोजन–अमरकान्त, वापसी–ऊषा प्रियंवदा।

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

सम्प्रेषण का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, ट्यूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे– चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

सुझावात्मक पाठ्य पुस्तकः

1. कहानी सप्तक–संपादक : प्रो0 नीरजा टंडन, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित कहानियाँ)
2. कहानी की रचना प्रक्रिया–परमानन्द श्रीवास्तव, लोकभारती प्रकाशन, 15–ए महात्मा गाँधी मार्ग, इलाहाबाद।
3. आधुनिकता और हिन्दी उपन्यास–इन्द्रनाथ मदान राजकमल प्रकाशन, नई दिल्ली।
4. समकालीन हिन्दी कहानी–गंगा प्रसाद विमल। सं. मैकमिलन, दिल्ली।

MINOR/ELECTIVE

HIN 203: कुमाऊँनी साहित्य, संस्कृति एवं भाषा

Credit: 03+01=04

अधिकतम अंक: 70+30=100

अधिगम प्रतिफल:

- शिक्षार्थी स्थानीय सांस्कृतिक परम्पराओं से परिचित होता है।
- छात्र कुमाऊँनी संस्कृति के विविध पक्षों तथा उनके अन्दर भाषायी वैविध्य से परिचित हो पाता है।
- शिक्षार्थी कुमाऊँनी के सामान्य व्याकरण तथा उसके विविध रूपों का ज्ञान प्राप्त करता है।

UNIT-I

संस्कृति : अर्थ एवं स्वरूप, मानव सभ्यताओं का विकास और स्थानीय संस्कृतियाँ, कुमाऊँनी संस्कृति का परिचय एवं विविध पक्ष।

UNIT-II

कुमाऊँनी भाषा : परिचय एवं स्वरूप, कुमाऊँनी भाषा के विविध रूप।

UNIT-III

कुमाऊँनी का सामान्य व्याकरण–वर्णमाला, शब्द रचना आदि।

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

सम्प्रेषण का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, ट्यूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे– चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

सुझावात्मक गतिविधियाँ : यह कक्षा शिक्षण में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है जैसे– चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक सहायक ग्रन्थ :

1. 'हम और हमारा कुमाऊँ'– प्रो0 प्रभापंत, अंकित प्रकाशन, हल्द्वानी
2. डॉ0 शशिपाण्डे, कुमाऊँनी संस्कृति एवं भाषा,अंकित प्रकाशन, हल्द्वानी
3. पुर्खनैकिसुणाई का्थ–प्रो0 प्रभापंत,गोलज्यू पब्लिशर्स एण्ड डिस्ट्रीब्यूटर्स, मालरोड,अल्मोड़ा

HIN 301: रीतिकालीन काव्य एवं काव्यांग विवेचन

Credit: 03 +01= 04

अधिकतम अंक : 70 + 30 = 100

पाठ्यक्रम के विषम में

इस विषय के माध्यम से शिक्षार्थी हिन्दी साहित्य के तीसरे काल रीतिकाल के विषय में ऐतिहासिक एवं सैद्धान्तिक ज्ञान प्राप्त करते हुए सम्मिलित कविताओं के आधार पर रीतिकालीन कविता की कला और शिल्प का ज्ञान प्राप्त करेंगे तथा काव्यांग के अन्तर्गत रस के स्वरूप एवं प्रकारों को जान पाएगें।

अधिगम प्रतिफल :

- शिक्षार्थी काव्यांग के अन्तर्गत छंद के स्वरूप एवं प्रकारों का ज्ञान प्राप्त करता है।
- शिक्षार्थी काव्यांग के अन्तर्गत अलंकार के स्वरूप एवं प्रकारों का ज्ञान प्राप्त करता है।
- शिक्षार्थी काव्यांग के अन्तर्गत शब्द शक्ति के स्वरूप एवं प्रकारों का ज्ञान प्राप्त करता है।

Unit- I

रीतिकाल : परिचय व इतिहास।

Unit- II

रीतिकालीन काव्य की प्रवृत्तियाँ।

Unit- III

प्रमुख रीतिकालीन कवि –केशव– 5 , बिहारी – 10, देव –10, घनानन्द – 10, भूषण– 02 पद/दोहे व्याख्या हेतु संकलित काव्य।

Unit- IV

रस – रसावयव– स्थायीभाव, विभाव, अनुभाव, संचारीभाव। रसभेद– श्रृंगार, हास्य, वीर, अद्भुत, करूण, रौद्र, वीभत्स, भयानक, शांत, भक्ति, वात्सल्य रसों के लक्षण एवं उदाहरण।

Unit- V

छंद– निम्नाकिंत छंदों के लक्षण एवं उदाहरण – दोहा, सोरठा, चौपाई, सवैया, रोला, बरवै।

Unit- VI

अलंकार– निम्नाकिंत के लक्षण एवं अलंकार उदाहरण– अनुप्रास, यमक, श्लेष, वक्रोत्ति, उपमा, रूपक, उत्पेक्षा, समासोक्ति।

Unit- VII

शब्दशक्तियाँ – शब्दशक्तियों का सामान्य परिचय– अभिधा, लक्षणा, व्यंजना।

सुझावात्मक अभ्यास :
रकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।
सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :
इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे– चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ
यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है जैसे– चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- रीतिकालीन काव्य– संपादक : प्रो0 मानवेन्द्र पाठक, अंकित प्रकाशन हल्द्वानी, (व्याख्या हेतु संकलित काव्य)
- काव्यप्रदीप – रामबहोरी शुक्ल, लोकभारती प्रकाशन, इलाहाबाद।
- रीतिकाव्य– नंदकिशोर नवल, राजकमल प्रकाशन, नई दिल्ली।
- मध्यकालीन बोध का स्वरूप– डॉ0 हजारी प्रसाद द्विवेदी, राजकमल प्रकाशन, नई दिल्ली।
- मध्यकालीन काव्य साधना– डॉ0 वासुदेवसिह, संजय बुक डिपो, वाराणसी।
- रीतिकालीन कवियों की प्रेम व्यंजना– बच्चन सिंह, लोकभारती प्रकाशन, इलाहाबाद।
- रस, छंद, अंलकार– डॉ0 केशवदत्त रूवाली, अल्मोड़ा बुक डिपो, अल्मोड़ा।

HIN 302: हिन्दी भाषा–स्वरूप

Credit: 03 + 01= 04
अधिकतम अंक : 70 + 30 = 100
अधिगम प्रतिफल :

- शिक्षार्थी को राजभाषा के रूप में हिन्दी की संवैधानिक स्थिति का ज्ञान प्राप्त होता है, जिसकी आवश्यकता उसे सरकारी सेवाओं में होती है।
- शिक्षार्थी विभिन्न व्यावहारिक व व्यावसायिक प्रयोजनों हेतु हिन्दी के मानकीकृत रूप का ज्ञान व प्रशिक्षण पाता है।
- शिक्षार्थी कम्प्यूटर व इंटरनेट की तकनीक में हिन्दी के प्रयोग का आंरभिक ज्ञान व प्रशिक्षण पाता है।

Unit- I
हिन्दी भाषा का उद्भव और विकास।
Unit- II
हिन्दी की उपभाषाएँ एवं बोलियाँ 1. पश्चिमी हिन्दी, 2. पूर्वी हिन्दी, 3. राजस्थानी, 4. बिहारी 5. पहाड़ी एवं उसकी बोलियाँ।
Unit- III
राजभाषा, राष्ट्रभाषा, मानक भाषा, सम्पर्क भाषा
Unit- V
हिन्दी और न्यू मीडिया।
Unit- VI
देवनागरी लिपि एवं अंक।

सुझावात्मक अभ्यास :
रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।
सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :
इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- डॉ0 केशव दत्त रूवाली – हिन्दी भाषा : प्रथम भाग, हिन्दी भाषा : द्वितीय भाग
- डॉ0 धीरेन्द्र वर्मा –हिन्दी भाषा का इतिहास।
- डॉ0 भोलानाथ तिवारी –हिन्दी भाषा।
- डॉ0 देवेन्द्र नाथ शर्मा – हिन्दी भाषा का विकास।
- डॉ0 कैलाश चन्द भाटिया–प्रशासन में राजभाषा का स्वरूप और विकास।
- डॉ0 पूरन चन्द्र टंडन–व्यावहारिक हिन्दी।

MINOR/ELECTIVE
HIN 303: लोक साहित्य

Credits: 03 + 01= 04

अधिकतम अंक : 70 + 30 = 100

अधिगम प्रतिफल

शिक्षार्थी साहित्य के लोकपक्ष का ऐतिहासिक तथा सैद्धान्तिक ज्ञान प्राप्त करता है।

- शिक्षार्थी लोक साहित्य के स्वरूप, अध्ययन की प्रविधियों, संकलन प्रक्रिया आदि का प्रशिक्षण एवं ज्ञान प्राप्त करता है।
- शिक्षार्थी लोक संस्कृति का ज्ञान प्राप्त करता है।
- शिक्षार्थी लोक गीतों के स्वरूप, उनके सामाजिक –सांस्कृतिक स्रोतों तथा विविध रूपों का ज्ञान प्राप्त करता है।
- शिक्षार्थी के स्वरूप, उसके सामाजिक–सांस्कृतिक स्रोतों तथा विविध रूपों का ज्ञान प्राप्त करता है।
- शिक्षार्थी पाठयक्रम में सम्मिलित लोक साहित्य के अध्ययन द्वारा लोक का व्यावहारिक ज्ञान प्राप्त करता।

Unit- I

लोक–साहित्य : परिभाषा, स्वरूप, लोक संस्कृति अध्ययन की प्रक्रिया, संकलन प्रविधि और समस्याएँ।

Unit- II

लोक–गीत : अर्थ एवं स्वरूप, संस्कार–गीत, व्रत–गीत, श्रम परिहार–गीत, ऋतु–गीत।

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- लोक साहित्य–सम्पादक : प्रो0 चन्द्रकला रावत, देवभूमि प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित लोक साहित्य)
- लोक साहित्य की भूमिका : कृष्णदेव उपाध्याय, लोकभारती प्रकाशन, इलाहाबाद।
- लोक और शास्त्र– अन्वय और समन्वय : विद्यानिवास मिश्र, वाणी प्रकाशन, नई दिल्ली।

HIN 401: हिन्दी नाटक

Credits: 03 + 01= 04

अधिकतम अंक : 70 + 30 = 100

पाठ्यक्रम के विषय में

शिक्षार्थी नाटक की भारतीय एवं पाश्चात्य परम्पराओं का ज्ञान प्राप्त करता है तथा शिक्षार्थी नाटक के स्वरूप एवं प्रकारों का ज्ञान प्राप्त करता है। शिक्षार्थी पाठ्यक्रम में सम्मिलित नाटक के अध्ययन के आधार पर नाट्य समीक्षा का ज्ञान प्राप्त करता है।

अधिगम प्रतिफल

- शिक्षार्थी को हिन्दी में नाट्य साहित्य लेखन परम्परा का ज्ञान होता है।
- शिक्षार्थी को नाट्य साहित्य के स्वरूप व उसकी विधाओं का ज्ञान प्राप्त होता है।
- शिक्षार्थी को महान साहित्यकारों के जीवन से जुड़ी घटनाओं को पढ़ने से उच्च जीवन मूल्यों की शिक्षा व प्रेरणा प्राप्त होती है।

Unit- I

नाटकः विधागतस्वरूप,उद्भव एवं विकास

Unit- II

जयशंकर प्रसाद कृत ध्रुवस्वामिनी

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- प्रसाद के नाटक, स्वरूप और संरचना– डॉ0 गोविन्द चातक, तक्षशिला प्रकाशन, 23/4762, अंसारी रोड़, दरियागंज, दिल्ली।
- स्मरण वीथिका– प्रो0 निर्मला ढैला बोरा, देवभूमि प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित संस्मरण एवं रेखाचित्र)
- हिन्दी स्मारक साहित्य – डॉ0 केशवदत्त रूवाली एवं डॉ0 जगत सिंह बिष्ट, तारामण्डल, अलीगढ़।

HIN 402: स्मारक साहित्य

Credits: 03 + 01= 04

अधिकतम अंक : 70 + 30 = 100

अधिगम प्रतिफल

- शिक्षार्थी को हिन्दी में स्मारक साहित्य लेखन परम्परा का ज्ञान होता है।
- शिक्षार्थी को स्मारक साहित्य के स्वरूप व उसकी विधाओं का ज्ञान प्राप्त होता है।
- शिक्षार्थी को महान साहित्यकारों के जीवन से जुड़ी घटनाओं को पढ़ने से उच्च जीवन मूल्यों की शिक्षा व प्रेरणा प्राप्त होती है।

Unit- I

स्मारक साहित्य : अर्थ एवं स्वरूप, उद्भव विकास

Unit- II

संस्मरण : तुम्हारी स्मृति–माखनलाल चतुर्वेदी, स्मरण का स्मृतिकार (रायकृष्ण दास) – अज्ञेय, दादा स्वर्गीय पं0 बालकृष्ण शर्मा, 'नवीन' – डॉ0 नगेन्द्र, निराला भाई– महादेवी वर्मा

रेखाचित्र : महाकवि जयशंकर प्रसाद– शिवपूजन सहाय, मकदूम बख्श–सेठ गोविन्ददास, एक कुत्ता और एक मैना–हजारी प्रसाद द्विवेदी, ये है प्रोफेसर शशांक–विष्णुकान्त शास्त्री।

Unit- III

जीवनी एवं आत्मकथा

Unit- IV

यात्रावृत्त एवं रिपोर्ताज

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- स्मरण वीथिका– प्रो0 निर्मला ढैला बोरा, देवभूमि प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित संस्मरण एवं रेखाचित्र)
- प्रसाद के नाटक, स्वरूप और संरचना– डॉ0 गोविन्द चातक, तक्षशिला प्रकाशन, 23/4762, अंसारी रोड़, दरियागंज, दिल्ली।
- हिन्दी स्मारक साहित्य – डॉ0 केशवदत्त रूवाली एवं डॉ0 जगत सिंह बिष्ट, तारामण्डल, अलीगढ़।
- स्मारक साहित्य और उसकी विधाएँ– डॉ0 निर्मला ढैला एवं डॉ0 रेखा ढैला, ग्रंथायन, अलीगढ़।

MINOR/ELECTIVE
HIN 403 : लोक साहित्य

Credits: 03 + 01= 04

अधिकतम अंक : 70 + 30 = 100

अधिगम प्रतिफल

- शिक्षार्थी लोक नाटय के स्वरूप, उसके सामाजिक–सांस्कृतिक स्रोतों तथा विविध रूपों का ज्ञान प्राप्त करता है।
- शिक्षार्थी लोक कथाओं के स्वरूप, उनके सामाजिक–सांस्कृतिक स्रोतों तथा विविध रूपों का ज्ञान प्राप्त करता है।
- शिक्षार्थी लोक गाथाओं के स्वरूप, उनके सामाजिक–सांस्कृतिक स्रोतों तथा विविध रूपों का ज्ञान प्राप्त करता है।
- शिक्षार्थी पाठयक्रम में सम्मिलित लोक साहित्य के अध्ययन द्वारा लोक का व्यावहारिक ज्ञान प्राप्त करता।

Unit- I

लोक–नाटय : अर्थ एवं स्वरूप, विविध रूप–रामलीला, स्वाँग, भवाई, जात्रा।

Unit- II

लोक–कथा : अर्थ एवं स्वरूप, प्रकार, व्रत–कथा, परीकथा, कथानक रूढ़ियाँ एवं अभिप्राय।

Unit- III

लोक–गाथाः अर्थ एवं स्वरूप, उत्पत्ति, परम्परा, सामान्य प्रवृतियाँ, प्रसिद्ध लोक–गाथाएँ–राजुला–मालूशाही, गौरा–माहेश्वरी, तीलू रौतेली।

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- लोक साहित्य–सम्पादक : प्रो0 चन्द्रकला रावत, देवभूमि प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित लोक साहित्य)
- लोक साहित्य की भूमिका : कृष्णदेव उपाध्याय, लोकभारती प्रकाशन, इलाहाबाद।
- लोक और शास्त्र– अन्वय और समन्वय : विद्यानिवास मिश्र, वाणी प्रकाशन, नई दिल्ली।
- भारतीय लोक साहित्य : श्याम परमार, राजकमल प्रकाशन नई दिल्ली।
- लोक साहित्य का अध्ययन : डॉ0 त्रिलोचन पांडेय।

HIN – 501 द्विवेदी युगीन काव्य

Credits: 03 + 01= 04

अधिकतम अंक : 70 + 30 = 100

पाठ्यक्रम के विषय में :

शिक्षार्थी हिन्दी के द्विवेदी युग व नवजागरण काल के विषय में ऐतिहासिक व सैद्वान्तिक ज्ञान प्राप्त करता है तथा शिक्षार्थी हिन्दी कविता के द्विवेदी युग का ऐतिहासिक व सैद्धान्तिक ज्ञान प्राप्त करता है। शिक्षार्थी खड़ी बोली हिन्दी की आरम्भिक समर्थ काव्य–परम्परा का ज्ञान प्राप्त करता है।

अधिगम प्रतिफल

- शिक्षार्थी पाठ्यक्रम में सम्मिलित द्विवेदीयुगीन कविताओं के अध्ययन से तत्कालीन हिन्दी कविता के स्वरूप, महत्व तथा शिल्प का ज्ञान प्राप्त करता है।
- शिक्षार्थी पाठ्यक्रम में सम्मिलित द्विवेदीयुगीन कविताओं के अध्ययन से तत्कालीन हिन्दी कविता के स्वरूप, महत्व तथा शिल्प का ज्ञान प्राप्त करता है।
- शिक्षार्थी द्विवेदी युगीन कविता की समीक्षा का ज्ञान एवं प्रशिक्षण प्राप्त करता है।

Unit- I

द्विवेदी युगीन काव्य : युगीन प्रवृत्तियाँ, महत्व और संक्षिप्त इतिहास, काव्यभाषा, काव्यशिल्प

Unit- II

अयोध्या सिंह उपाध्याय हरिऔध (माँ की ममता, सच्चे देवते तथा साहसी)

Unit- III

मैथिलीशरण गुप्त (पंचवटी)

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- द्विवेदीयुगीन एवं छायावादी काव्य–संपादक : प्रो0 चन्द्रकला रावत, देवभूमि प्रकाशन हल्द्वानी (व्याख्या हेतु संकलित कविताएँ)
- आधुनिक कविता यात्रा–रामस्वरूप चतुर्वेदी, लोकभारती प्रकाशन, इलाहाबाद।

HIN 502: छायावादी काव्य

Credits: 03 + 01= 04

अधिकतम अंक : 70 + 30 = 100

अधिगम प्रतिफल

- शिक्षार्थी पाठ्यक्रम में सम्मिलित छायावादी काव्य के अध्ययन से तत्कालीन हिन्दी कविता के स्वरूप, महत्व तथा शिल्प का ज्ञान प्राप्त करता है।
- शिक्षार्थी पाठ्यक्रम में सम्मिलित छायावादयुगीन कविताओं के अध्ययन से तत्कालीन हिन्दी कविता के स्वरूप, महत्व तथा शिल्प का ज्ञान प्राप्त करता है।
- शिक्षार्थी आधुनिक कविता की समीक्षा का ज्ञान एवं प्रशिक्षण प्राप्त करता है।

Unit- I

छायावादीकाव्य : युगीन प्रवृत्तियाँ, महत्व और संक्षिप्त इतिहास, काव्यभाषा, काव्यशिल्प

Unit- II

जयशंकर प्रसाद (आँसू तथा गीत)

Unit- III

मैथिलीशरण गुप्त (परिवर्तन तथा प्रथम रश्मि)

Unit- VI

सूर्यकान्त त्रिपाठी निराला (जुही की कली तथा वह तोड़ती पत्थर)

Unit- V

महादेवी वर्मा (गीत–धीरे धीरे उत्तर क्षितिज से, बीन भी हूँ मैं,)

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।

सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- द्विवेदीयुगीन एवं छायावादी काव्य–संपादक : प्रो0 चन्द्रकला रावत, देवभूमि प्रकाशन हल्द्वानी (व्याख्या हेतु संकलित कविताएँ)
- आधुनिक कविता यात्रा–रामस्वरूप चतुर्वेदी, लोकभारती प्रकाशन, इलाहाबाद।
- छायावाद और रहस्यवाद–गंगाप्रसाद पाण्डेय, लोकभारती प्रकाशन, इलाहाबाद।
- निराला, मूल्यांकन–इन्द्रनाथ मदान, लोकभारती प्रकाशन, इलाहाबाद।
- पन्त की काव्य भाषा– कांता पन्त, लोकभारती प्रकाशन, इलाहाबाद।
- छायावाद की परिक्रमा– डॉ0 श्याम किशोर मिश्र, लोकभारती प्रकाशन, इलाहाबाद।

MINOR/ELECTIVE
HIN 503: प्रयोजनमूलक हिन्दी

Credits: 03 + 01= 04
अधिकतम अंक : 70 + 30 = 100
अधिगम प्रतिफल

- शिक्षार्थी हिन्दी भाषा का प्रयोजनमूलक ज्ञान एवं प्रशिक्षण प्राप्त करता है।
- शिक्षार्थी सामान्य कार्यालयी प्रयोजनों यथा कार्यालयी पत्राचार, प्रारूपण, टिप्पण आदि में हिन्दी के प्रयोग का ज्ञान एवं प्रशिक्षण प्राप्त करता है।
- शिक्षार्थी हिन्दी भाषा की कम्प्यूटिंग यथा टाइपिंग, फांट प्रबन्धन, वर्ड प्रोसेसिंग, डाटा प्रोसेसिंग का ज्ञान प्राप्त करता है।
- शिक्षार्थी मीडिया यथा प्रेस, रेडियो, टी0 वी0, वीडियो, इंटरनेट आदि के क्षेत्र में लेखन–सम्पादन सम्बन्धी ज्ञान प्राप्त करता है।
- शिक्षार्थी जनसंचार माध्यमों का सैद्धांतिक एवं व्यावहारिक ज्ञान प्राप्त करता है।

Unit- I
प्रयोजनमूलक हिन्दी : अर्थ, रूप, विशेषताएँ, प्रयुक्तियाँ, महत्व, उपयोगिता, सीमाएँ और सम्भावनाएँ।
Unit- II
पत्राचार : प्रारूपण आलेखन, टिप्पण, शासकीय पत्र, अर्द्धशासकीय पत्र, कार्यालय–ज्ञापन, ज्ञापन, परिपत्र, कार्यालय आदेश, पृष्ठांकन, अधिसूचना, अनुस्मारक, प्रेस विज्ञप्ति, सूचना।
Unit- III
भाषा कम्प्यूटिंग : डेटा, वर्ड प्रोसेसिंग, फांट प्रबंधन, यूनिकोड हिन्दी फांट।
सुझावात्मक अभ्यास :
रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।
सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।
लेन–देन का सुझावात्मक तरीका :
इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।
गतिविधियाँ
यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।
सुझावात्मक पाठ्य पुस्तक :

- प्रयोजनमूलक हिन्दी : विविध सन्दर्भ–प्रो0 निर्मला ढैला बोरा, देवभूमि प्रकाशन, हल्द्वानी
- हिन्दी कार्मिकी (प्रयोजनमूलक हिन्दी) –डॉ0 शंकरक्षेम एवं डॉ0 कंचन शर्मा, प्रकाश बुक डिपो, बरेली।
- प्रयोजनमूलक हिन्दी – विनोद गोदरे, वाणी प्रकाशन, दरियागंज, दिल्ली।
- प्रयोजनमूलक हिन्दी : सिद्धांत और प्रयोग– दंगल झाल्टे, वाणी प्रकाशन।
- प्रयोगात्मक और प्रयोजनमूलक हिन्दी– डॉ0 रमाप्रकाश, राधाकृष्ण प्रकाशन दरियागंज, नई दिल्ली।
- प्रारूपण, टिप्पण और प्रूफ पठन– डॉ0 भोलानाथ तिवारी, वाणी प्रकाशन।
- कामकाजी हिन्दी – डॉ0 कैलाश चन्द्र भाटिया, वाणी प्रकाशन दिल्ली।

]HIN601: छायावादोत्तर हिन्दी कविता

Credits: 03 + 01= 04

अधिकतम अंक : 70 + 30 = 100

पाठ्यक्रम के विषय में :

शिक्षार्थी छायावादोत्तरी कविता का ऐतिहासिक एवं सैद्धान्तिक ज्ञान प्राप्त करता है तथा शिक्षार्थी आधुनिक हिन्दी कविता में प्रयोगवाद का रचनात्मक व आलोचनात्मक ज्ञान प्राप्त करता है।

अधिगम प्रतिफल

- शिक्षार्थी आधुनिक हिन्दी कविता में नयी कविता का रचनात्मक व आलोचनात्मक ज्ञान प्राप्त करता है।
- शिक्षार्थी आधुनिक हिन्दी कविता में समकालीन कविता का रचनात्मक व आलोचनात्मक ज्ञान प्राप्त करता है।

Unit- I

प्रगतिवादः विचार, काव्यप्रवृत्ति, विशेषताएँ, महत्व प्रमुख कवि।
प्रयोगवादः विचार, काव्यप्रवृत्ति, विशेषताएँ, महत्व प्रमुख कवि।
नयी कविता : काव्यप्रवृत्ति, विशेषताएँ, महत्व प्रमुख कवि।

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।
सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- छायावादोत्तर हिन्दी कविता – सम्पादक प्रो0 शिरीष कुमार मौर्य, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित कविताए।)
- नई कविताएँ : एक साक्ष्य– डॉ0 रामस्वरूप चतुर्वेदी, लोकभारती प्रकाशन, इलाहाबाद।
- नयी कविता : नये कवि – डॉ0 विश्वम्भर मानव, लोकभारती , इलाहाबाद।

HIN 602: हिन्दी निबंध

Credits: 03 + 01= 04

अधिकतम अंक : 70 + 30 = 100

पाठ्यक्रम के विषय में :

शिक्षार्थी निबंध विधा के स्वरूप का ज्ञान प्राप्त करता है एवं हिन्दी में निबंध विधा के उद्भव और विकास का ज्ञान प्राप्त करता है। शिक्षार्थी सामाजिक व साहित्यिक विषयों से निबंध के वैचारिक सम्बन्ध तथा अभिव्यक्ति का ज्ञान प्राप्त करता है।

अधिगम प्रतिफल

- शिक्षार्थी निबंध के प्रकारों का ज्ञान प्राप्त करता है।
- शिक्षार्थी पाठ्यक्रम में सम्मिलित निबंधकारों के अध्ययन से विचार के क्षेत्र में मौलिक अभिव्यक्ति का ज्ञान एवं प्रशिक्षण प्राप्त करता है।

Unit- I

निबन्ध विधा– परिचय, स्वरूप, शिल्प तथा प्रकार उद्भव एवं विकास।

सुझावात्मक अभ्यास :

रिकॉर्ड किए गए भाषण को सुनें और इसे ध्वनियों के आधार पर वर्गीकृत करें।
सरल, जटिल और मिश्रित वाक्यों के रूप में वाक्यों और उनके घटकों का विश्लेषण करें।

लेन–देन का सुझावात्मक तरीका :

इस पाठ्यक्रम को पढ़ाने में इंटरैक्टिव व्याख्यान, टयूटोरियल और व्यावहारिक समावेशन का मिश्रण शामिल होगा जैसे चर्चा, भूमिका निभाना, परियोजनाएँ, अनुकरण, कार्यशालाएँ और भाषा–जागरूकता।

गतिविधियाँ

यह शिक्षण कक्षा में सीखने के लिए गहन दृष्टिकोण का इरादा रखता है चर्चा, छात्रों के बीच आलोचनात्मक सोच/समस्या समाधान क्षमताओं का विकास करना।

सुझावात्मक पाठ्य पुस्तक :

- प्रतिनिधि हिन्दी निबंध– संपादक प्रो0 नीरजा टंडन, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित निबंध)
- हिन्दी साहित्य में निबंध और निबंधकार– डॉ0 गंगा प्रसाद, रचना प्रकाशन, इलाहाबाद।
- प्रतिनिधि हिन्दी निबंन्धकार – डॉ0 हरिमोहन, तक्षशिला प्रकाशन, 23/4762, अंसारी रोड़ दरियागंज, दिल्ली।

SOCIOLOGY

COURSE STRUCTURE OF ITEP, B.A.-B.Ed. IN THE SUBJECT OF SOCIOLOGY

SEM.	PAPER CODE	TITLE	CREDITS
I	SOC 101	INTRODUCTORY SOCIOLOGY	03+01=04
	SOC 102	MAN AND SOCIETY	03+01=04
II	SOC 201	INDIAN SOCIAL SYSTEM	03+01=04
	SOC 202	SOCIETY IN INDIA	03+01=04
	SOC 203	INDUSTRIAL SOCIOLOGY	03+01=04
III	SOC 301	SOCIAL PROBLEMS AND DISORGANIZATION	03+01=04
	SOC 302	SOCIAL PROBLEMS IN INDIA	03+01=04
	SOC 303	APPLIED SOCIOLOGY	03+01=04
IV	SOC 401	SOCIAL CONTROL	03+01=04
	SOC 402	MEANS AND AGENCIES OF SOCIAL CONTROL	03+01=04
	SOC 403	DATA PRESENTATION IN SOCIAL RESEARCH	03+01=04
V	SOC 501	DEVELOPMENT OF SOCIOLOGICAL THOUGHT	03+01=04
	SOC 502	SOCIAL CHANGE	03+01=04
	SOC 503	SOCIAL CHANGE IN INDIA	03+01=04
VI	SOC 601	INDIAN SOCIOLOGICAL THOUGHT	03+01=04
	SOC 602	RESEARCH METHODOLOGY IN SOCIOLOGY	03+01=04

SOCIOLOGY

SOC 101: INTRODUCTORY SOCIOLOGY

Credits: 03+01=04

Maximum marks: 70+30= 100

About the Course:

The course is designed to incorporate all the key concepts of sociology which would enable the learner to develop keen insights to distinguish between the common-sense knowledge and Sociological knowledge. It introduces the learners with fundamental concepts of social systems, social processes and social functions. These Concepts will enhance the conceptual learning and understanding of the basic concepts used in Sociology. After completing the course, the students will be able to understand the development of sociology as a discipline and its basic concepts.

Learning Outcomes:

- Students will be able to identify major foundational orientations used in sociology; compare and contrast the underlying assumptions of those orientations.
- Students will be able to understand the relationship of sociology with other disciplines.
- This paper will contribute in enriching the vocabulary and scientific temperament of the students.
- This course will enrich the understanding of the learners about social institutions and help them to understand their functions.

UNIT I

Sociology: Meaning aand definition, Origin and Growth of Sociology, Nature and Scope of Sociology, New Trends in Sociology

UNIT II

Relationship of Sociology with Other Social Sciences: Philosophy, Anthropology, Social Work, History, Political Science & Economics.

UNIT III

Social groups: Meaning and Type of social groups; Primary and Secondary Groups, Reference Group.

UNIT IV:

Socilogical Concepts: Community, Association, Institutions, Society, Social Norms and Values

Suggestive Practicum:

- Article on constitutional provisions for socially disadvantaged communities.
- Case study on Social Institutions.
- Report on Welfare programmes for socially disadvantaged groups.
- Article on Social Diversity in Uttarakhand.
- Field visit

Suggestive Mode of Transaction:

- Planned lecture format for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communication to understand students' perspectives.
- Hands-on learning through internships or field work
- Group discussion and interaction

Suggestive Mode of Assessment:

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials:

- Giddens, A, "Sociology", Oxford University Press, London,2006
- MacIverand Page,"Society",McMillan,London, 1949
- Inkeles,A,"WhatisSociology",PrenticeHallofIndia,NewDelhi,1987
- Harton,P.BandhuntC.L,"Sociology"McGraw Hill,NewYork,1985
- गुप्ताएम0एल0औरडी0डी0(2020),समाजशास्त्र,साहित्यभवनपब्लिकेशन
- Rawat, H.K. Sociology, Basic Concepts, Rawat Publication, New Delhi

SOC102: MAN AND SOCIETY

Credits: 03+01=04

Maximum Marks: 70+30= 100

Learning Outcome:

- After the completion of this course, students will be able to understand the relationship between individual and society.
- Students will be able to develop their understanding about social processes and socialization.
- Students will be able to understand the concepts of culture and civilization and distinguish between the two.
- It will help the learners to develop their ability to investigate and understand social behaviour of people within groups, organizations and societies.
- It will be helpful to develop student's competency in skills of Sociological analysis and critical thinking.

UNIT I:

Individual, Society and Interaction, Relationship between Individual and Society: Social Contract Theory and Organism Theory, Individual behavior and social interaction

UNIT II:

Socialization: Meaning, Type, Stages of Socialization, Process and Theories, Agencies of Socialization

UNIT III:

Social Processes: Associative- Co-operation: Accommodation, Assimilation, Dissociative-Conflict, Competition and Contravention, Acculturation

UNIT IV:

Culture& Civilization: Meaning, Characteristics, Relationship and Differences between Culture & Civilizati

Suggestive Practicum:

- Power point presentation on culture of Uttarakhand
- Case study on Social groups.
- Report on problems of socially deprived groups in special reference of Uttarakhand.
- Field visit and Survey

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.

- Hands-on learning through internships or field work

Suggestive Mode of Assessment:

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Readings:

- MacIverandPage,Society:AnIntroductoryanalysis,McMillan1974
- N.Jayram, IntroductorySociology,McMillanIndia,Madras,1988
- HarryM.Johnson,Sociology:ASystematicIntroduction,Allied,1995
- KingsleyDavis,Human Society,SurjeetPublication,Delhi,1995
- K.L.Sharma,Social StratificationandMobility,2007
- Inkeles, A, "What is Sociology" Prientice Hall of India, New Delhi, 1987

SOC 201: INDIAN SOCIAL SYSTEM

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The goal of this course is to increase students' knowledge of Indian society. Pupils will become familiar with the characteristics of Indian society and gain a grasp of its social and cultural facets. Their understanding of India's social structure and its significance in the current context would be enhanced by this course.This paper describes the nature and scope of industrial sociology. This paper elaborates on the changing structure of modern industrial enterprises and the principles of organisation (formal and informal). It will enrich the learners understanding about the nature of work and working conditions of industrial area.

Learning Outcomes:

- Students will be able to develop in-depth understanding and get detailed insight into the past and contemporary Indian Society.
- Students will be familiarized about the Traditional Social Institutions of Indian Society in context of continuity and change.
- The programme seeks to build among students the sociological knowledge and analytical skills that would enable them to think critically about Indian society and emerging social issues.
- The ability to formulate effective and convincing written and oral arguments about issues and challenges within Indian Society

UNIT I:

Features of Indian Society: Unity in Diversity, Diversities in Indian society and culture, Causes and Consequences of diversities.

India as a Pluralistic Society: Concept, Evolution of India as Plural society, Present bases of Plural society in India, Problems of Plural society in India.

UNIT II:

Dharma, Varna ashram vyavastha: Meaning, Characteristics, Types and Sociological Importance of Varna Vyavastha.

UNIT III:

Purushartha: Meaning, Forms, Sociological Importance of Purushartha; Sanskar: Meaning, Objectives, Major Sanskar of Hindu Life, Sociological Importance of Sanskar; Doctrine of Karma.

UNIT IV:

Marriage: Concept, Objectives, Marriage among Hindus and Muslims: Meaning, Traditional Forms.

Family: Definitions, Types of Family, Functions of Family.

Suggestive Practicum:

- Presentation on Marriage laws in India
- Survey in Rural Society
- Presentation on various Sanskar of Indian Society.
- Case study on Social groups

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work.

Suggestive Mode of Assessment:

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials:

- Ghurye,G.S,"CasteclassandOccupation",Popularpublishers Bombay,1961
- Goode,WilliamJ,"TheFamily",PrenticHall,NewDelhi,1965
- Kapadia,K.M, "MarriageandFamilyinIndia",OxfordUniversityPress,1996
- टाहूजाराम, समाजिक व्यवस्था, रावत पब्लिकेशन्स, जयपुर।

SOC 202: SOCIETY IN INDIA

Credit: 03+01=04

Learning Outcome

- Students will be familiarised with the traditional social institutions of Indian society in the context of continuity and change.
- Students will be able to understand the caste system and theories related to it.
- Students will have a deep understanding of kinship and the Jajmani system of India.
- Students will have knowledge of constitutional provisions related to Dalits, tribes, and other disadvantaged groups.

UNIT I:

- Caste: Meaning, Characteristics and Theories of origin: Traditional Theory, Racial
- Theory, Occupational Theory, Brahminic Theory, Religious Theory, Merits and Demerits of Caste System.

UNIT II:

- Kinship: Definitions, Types, Kinship Terms, Kinship Usages and Social Significance of Kinship, Jajmani System: Meaning, Structure and Functioning, Importance, Change in Jajmani System.

UNIT III:

Weaker sections of Indian Society: Women, Schedule Caste, Schedule Tribe and other Backward Classes, Women and Children.

UNIT IV:

Social Legislations: Constitutional provisions in favour of Dalits, Tribes and other Backward Classes, Women and Children.

Suggestive Practicum:

- Practicum on Gender Sensitization
- Report on Domestic violence in India
- Constitutional provisions for women in India.
- Presentation on Tribes of Uttarakhand

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work.

Suggestive Mode of Assessment:

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials:

- Srivasatava,A.K,"ClassandFamilyinIndia",ChungPublication,Allhabad,1986
- Prabhu,P.H,"HinduSocialOrganization",SagePublicationsIndiaPrivateLtd,2016
- Wiser,W,"TheHinduJajmaniSystem",MunshiramManoharlalPublishers",1998
- Srinivas,M.N,"CasteinModernIndia",AsiaPublishingHouse,London,1970
- Karve, Irawati. 1961. Hindu Society: An Interpretation, Poona: Deccan College
- Dube, S. C. 1995. Society in India, New Delhi: National Book Trust

MINOR/ELECTIVE

SOC 203: INDUSTRIAL SOCIOLOGY

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

- Students will be able to understand the concept of industrial sociology.
- Students will be able to develop their understanding of industrial organization.
- Students will be familiar with industrial management and labour participation.
- It will introduce the learners with various types of workers and labour welfare programme.

UNIT I:

Industrial Sociology: Meaning, Definition, Nature and Scope, Development of Industrial Sociology.

UNIT II:

Industrial Organization: Formal and Informal Organization. Structure and Features of Industrial Organization, Prerequisites of Industrial Organization.

UNIT III:

Industrial Management and Worker's Participation. The Management Structure-Line and Staff Organization, White collar Workers, Blue Collar Workers and Specialist.

UNIT IV:

Labour Welfare: Concept and Measures, Trade Union: Growth, functions and role in industrial organization.

Suggestive Practicum:

- PowerPoint presentation about Uttarakhand's industrial development
- Report on the living circumstances of those residing in industrial zones.
- Article on labour welfare programmes in India.
- Field visit and industrial area survey.

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work

Suggestive Mode of Assessment

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials:

- Charles, A. Myersand Subbiah Kannappan, Industrial Relationsin India, Asia Publishing House, Bombay.
- Giri,V.V. Labour Problemsin Indian Industry,Asia Publishing House, Bombay.
- Gisbert, P. Fundamental of Industrial Sociology, Tata McGraw-Hill Publishing Co., New Delhi.
- Karnik,V.B.IndianLabour:Problemsand Prospects,Minerva Associates Pvt.Ltd.,Calcutta.
- Kohli, A. S., S. K. Sharma, Labour Welfare and Social Security, Anmol Publications Pvt. Ltd., NewDelhi.
- Mamoria, C.B.and S. Mamoria, Dynamics of Industrial Relations, Himalaya Publishig House, New Delhi.
- Mathur, A. S. and J. S. Mathur, Trade Union Movement in India, Chaitanya Publishing House, Allahabad.
- Mehrotra, S. N., Labour Problemsin India, S. Chandand Co., New Delhi.
- Miller, C. Delbertand William H. Form, Industrial Sociology, Harper and Row Publishers, New Deli.
- Ramanujan, G., Indian Labour Movement, Sterling Publishers, New Delhi.
- Reddy, Ram, Industrial Relationsin India, Mittal Publications, New Delhi.
- Sanjivaygya, D., Labour Problems and Industrial Development inIndia, Oxford and IBH, New Delhi.
- Schneider, E., Industrial Sociology, TataMcGraw-Hill Publishing Co., New Delhi.
- Vaid, K.N., Labour Welfarein India, S.R.C., New Delhi.
- Prashad, J .2012."Industrial Sociology"Vayu Education.
- Singh, N., 2012."Industrial sociology"Rawat publication.

SOC 301: SOCIAL PROBLEMS AND DISORGANIZATION

Credits: 03+01=04
Maximum marks: 70+30= 100
About the Course:
The course is designed to incorporate all the key concepts of social problems and social disorganization which would enable the learners to develop a scientific attitude towards social organization. It introduces the learners with fundamental concepts of social problems such as poverty, unemployment, cause and effect of these social problems in a social organization. These Concepts will enhance the conceptual learning and understanding of the basic concepts used in Sociology. After completing the course, the students will be able to understand and develop scientific attitude towards social issues.

Learning Outcomes:

- Students will be able to identify major social issues of our society that consequence to social disorganization.
- Students will be able to understand the various social issues such as poverty, unemployment and other social problems and develop their insights about solutions of different problems.
- This paper will contribute in enriching the vocabulary and scientific temperament of the students.
- This course will enrich the understanding of the learners and make them aware about social problems and social disorganization.

UNIT- I
Social Problems: Concept, Characteristics, Types, Causes
UNIT -II
Poverty: Concept and Definition, Types, Causes and Effects
UNIT -III
Unemployment: Concept and Definition, Types, Causes and Effects
UNIT -IV
Terrorism: Concept, Characteristics, Origin and Development

Suggestive Practicum:

- Community Assessment Project
- Social Policy Analysis
- Case study on the implementation of various poverty alleviation programmes.
- Advocacy Campaign
- Field visit

Suggestive Mode of Transaction:

- Planned lecture format for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Hands-on learning through internships or field work
- Group discussion and interaction

Suggestive Mode of Assessment:
The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggested Reading:

- Ahuja, R, "Social Problems in India", Rawat Publication, Jaipur, 2020
- Chandru, B, "Communalism in Modern India", Vikas Publication, New Delhi, 1974
- Merton, R. and Nisbet R, "Contemporary Social Problems", Saunders college

Publishing USA1976
- Gupta K. and Tomar N, "Indian Woman: Problems and Prospects", Kala Publication, India, 2013
- Cloward, R, Delinquency and Opportunity, 1960
- Charles, L. C., Michael, W. F., Crime and Deviance: Essays and Innovations of Edwin MLemert, 2000
- Cohen, Albert, K., Delinquent Boys: The Culture of the gang, 1955
- H, Travis, Causes of delinquency, 1969
- E, Sutherland, D. Cressey, D. F., Luckenbill, Principles of Sociology, 1934
- Betellie, Andre, "Social Inequalities, "oxford university Press, New Delhi, 1974
- Gill, S. S., The Pathology of Corruption, 1988
- Lewis, Oscar, Culture of Poverty, Scientific American, Vol. II & V, 1966
- Gadgil, Madhav and Gupta, Ramchandra, Ecology and Equality: The Use and Abuse of Nature inContemporary India, 1996
- Berreman, G.D, Caste and other Inequalities: Essays in Inequality, 1979

SOC 302: SOCIAL PROBLEMS IN INDIA

Credits: 03+01=04
Maximum Marks: 70+30= 100
Learning Outcomes:

- After the completion of this course, students will be able to understand the complexity of social issues.
- Students will be able to analyze how various social structures such as family religion and economic systems contribute to the persistence of social problems in India.
- Students will be able to evaluate the effectiveness of existing policies and programs aimed at addressing social problems in India.
- Students will be able to develop a commitment to social justice and the ability to advocate for policy change that addresses social disorganization and inequality.

UNIT- I

Family Problems: Domestic Violence, Dowry, Divorce, Problems of Elderly People

UNIT- II

Structural Problems: Caste Inequality, Communalism, Regionalism, and Corruption in Public Life.

UNIT- III

Deviance: Concept and Meaning, Crime and Juvenile Delinquency

UNIT- IV

White CollarCrime, Cyber Crime, Crime against Women

Suggestive Practicum:

- Community engagement program
- Women empowerment initiatives
- Environmental conservation efforts: projects focusing on issues like pollution control and waste management in rural and urban settings.
- Report on problems of socially deprived groups in special reference of Uttarakhand.
- Field visit and Survey.

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work

Suggestive Mode of Assessment

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials:

- Ahuja, R, "Social Problems in India", Rawat Publication, Jaipur, 2020
- Chandru, B, "Communalism in Modern India", Vikas Publication, New Delhi, 1974
- Merton, R. and Nisbet R, "Contemporary Social Problems", Saunders college Publishing USA1976
- Gupta K. and Tomar N, "Indian Woman: Problems and Prospects", Kala Publication, India, 2013
- Cloward, R, Delinquency and Opportunity, 1960
- Cohen, Albert, K., Delinquent Boys: The Culture of the gang, 1955
- H, Travis, Causes of delinquency, 1969
- E, Sutherland, D. Cressey, D. F., Luckenbill, Principles of Sociology, 1934
- Betellie, Andre, "Social Inequalities, "oxford university Press, New Delhi, 1974

MINOR/ELECTIVE
SOC 303: APPLIED SOCIOLOGY

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcome

- After the completion of this course, students will be able to understand social structures.
- Students will be able to utilize sociological theories to analyse real-world issues and propose solutions.
- It will help the learners identify social problems and develop innovative solutions.
- It will help the learners understand social policies and social welfare programmes.
- Students will be aware of NGOs and their importance and functioning.

UNIT- I

Applied Sociology: Concept, Nature and Scope of Applied Sociology, Importance of Applied Sociology.

UNIT- I

Social Policy: Concept, Characteristics and Formulation of Social Policy. Formulation of Social Policy

UNIT- III

Social Planning: Meaning and Objectives-Social Welfare (Child welfare, WomenWelfare, Labour Welfare and Welfare of SC, ST and OBC), Social Reconstruction of Effective Planning, Limitations of Social Planning

UNIT- IV

NGO: Meaning, Importance and Role of NGOs in Social Development.

Suggestive Practicum:

- Power point presentation
- Project on the effectiveness of social policies
- Report on problems of socially deprived groups in special reference of Uttarakhand.
- Field visit and Survey

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work

Suggestive Mode of Assessment:
The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials:

- Gillian and Ditter, "Social Problems", Generic, 1928
- Ford, J, "Social Problems and Social Policy", Ginn, Boston London, 1930
- Lewis, D, "Non-Governmental Organization: Management and Development", Routledge, USA, 2014,3rd edition
- Walsh and Furfey, "Social Problems and Social Action", Prentice-Hall, New Jersey, 1958

SOC 401: SOCIAL CONTROL

Credits: 03+01=04
Maximum Marks: 70+30= 100
About the Course:

The goal of this course is to increase students' knowledge of social control. After completing this course on social control, students would be able to understand the concept of social control. Students would learn about both formal and informal mechanisms of social control and how they are applied in various contexts. They would be familiar with key theories of social control. This course enables the learners to understand the role of family, education and law in exercising social control. The course would equip students with a comprehensive understanding of dynamics of social control and its significance in shaping societal interactions and structures.

Learning Outcomes

- Students will be able to explain social control and comprehend its significance and purposes.
- The interaction between numerous social institutions and social control will be critically studied by students.
- Students will be able to assess social control systems that are both organised and unorganised.
- Students can gain understanding of the theoretical underpinnings of social control through theories of social control.

UNIT- I
Social Control: Meaning, Definition, Characteristics, Importance and Functions.
UNIT- II
Social Control, Self Control, Socialization and Maladjustment
UNIT- III
Types of Social Control: Conscious and Unconscious, Direct and Indirect; Positive and Negative; Organized andUnorganized,
UNIT- IV
Theories of Social Control: Karl Mannheim, C. H. Cooley and Kimball Young

Suggestive Practicum:

- Presentation on the role of education in social control.
- Survey in Rural Society.
- Interviews with individuals to understand their perspectives on social control.
- Case studies on social institutions that contribute to social control.

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work.

Suggestive Mode of Assessment:
The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials

- Lowie, Robert, H; Social Organisation, Landon Routledge and Kegan Paul.
- Roneck, Joseph,S; Social Control, Nostr and Company.
- Malinowski, B.: Magic, Science and Religion and Other Essays, Glencoe.
- Ross, E.A.: Social Control: The MacMillan Co., New York.
- Rajendra K. Sharma, Social Change & Social Control, Atlantic Publisher.
- HichelleInderbitzin, Kristin A Bate Deviance & Social Control : A Sociological Perspective , SagePublication
- Jones J. Chriss Social Control: An Introduction, Polity Publishers

SOC 402: MEANS AND AGENCIES OF SOCIAL CONTROL

Credits: 03+01=04
Maximum Marks: 70+30= 100
Learning Outcomes:

- Students will be able to develop in-depth understanding of means and agencies of social control.
- Students will be familiarized about the traditional social institutions of Indian Society in context of social control.
- The programme seeks to build among students the sociological knowledge and analytical skills that would enable them to think critically about the role of social institutions in social control.
- Students will be able to evaluate the role of education as a means of social control.

UNIT- I
Informal means of Social Control: Customs, Norms, Values, Folkways and Religion.
UNIT -II
Formal means of Social Control: Education and Law.
UNIT- III
Agencies of Social Control: Family, Religion, State, PublicOpinion.
UNIT- IV
Education and Society: Education as a means of Social Control
Suggestive Practicum:

- Group discussion on best strategies to make students socially responsible.
- Power point presentation on agencies of social control.
- Survey on education institutions.
- Interviews to collect public opinion**.**

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work.

Suggestive Mode of Assessment:
The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials:

- Lowie, Robert, H; Social Organisation, Landon Routledge and Kegan Paul.

- Roneck, Joseph,S; Social Control, Nostr and Company.
- Malinowski, B.: Magic, Science and Religion and Other Essays, Glencoe.
- Ross, E.A.: Social Control: The MacMillan Co., New York.
- Rajendra K. Sharma, Social Change & Social Control, Atlantic Publisher.
- HichelleInderbitzin, Kristin A Bate Deviance & Social Control: A Sociological Perspective , SagePublication
- Jones J. Chriss Social Control : An Introduction , Polity Publishers
- भरत अग्रवाल, सामाजिक नियंत्रण एवं परिवर्तन एस0बी0पी0डी0 पब्लिकेशन।
- रामनाथ शर्मा सामाजिक परिवर्तन और सामाजिक नियंत्रण , अटलंटिक पब्लिकेशन

MINOR/ELECTIVE
SOC 403: DATA PRESENTATION IN SOCIAL RESEARCH

Credits: 03+01=04

Maximum Marks: 70+30= 100

Learning Outcomes:

- Students will be able to understand the concept of primary and secondary data.
- Students will be able to develop scientific attitudes towards sociology.
- Students will be familiar with techniques of social research.
- Students will be able to present the information in scientific manner.

UNIT- I

Data Collection: Primary and Secondary Source of Data, Data Distribution,Tabulation, Analysis and Interpretation of Data.

UNIT- II

Presentation of Data-

Diagrammatic Presentation of Data:

1- Objectives of Diagram
2- Utility and limitations of Diagrams
3- Types of Diagrams

a) Line Diagram
b) Simple Bar Diagram
c) Multiple Bar Diagram

UNIT- III

Graphic Presentation of Data: Rules for the Constructions of Graphs, Types of Graphs

a) Histogram
b) Frequency Polygon

UNIT- IV

Statistical Analysis of Data: frequency distribution, Measures of central tendency-Mean Median and Mode.

Suggestive Practicum

- PowerPoint presentation on types of data.
- Survey and graphical representation of data
- Data collection and calculation of central tendencies.

Suggestive Mode of Transaction

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work

Suggestive Mode of Assessment

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies and interviews will be part of their practicum to deepen their learning.

Suggestive Reading Materials

- P.V. Young, 1988 Scientific Social Survey and Research, Prentice Hall, N. Delhi.
- C.R. Kothari, 1989 Research Methodology: Methods and Techniques, Wile Eastern, Bangalore.
- Ram Ahuja, 2006 Research Methods, Rawat Publications.
- Wilkinson and Bhandarkar,2010 Methods and Techniques of Social Research, HimalayanPublishing House, New Delhi.
- Jaspal Singh. 2011: Instruments of Social Research Jaipur: Rawat Publications.
- S.P. Gupta. 1969: Statistical Methods: New Delhi: Sultan Chand & Sons
- Levin Jack, 1983 Elementary Statistics in Social Research, Harper and Row Publishers, NewYork.
- Raj H. 2005, Theory and Practice in Social Research, Surjeet Publication, Delhi.
- Goode & Hat, 1952 Methods in Social Research, McGraw Hill, New York.

SOC 501: DEVELOPMENT OF SOCIOLOGICAL THOUGHT

Credits: 03+01= 04

Maximum Marks: 70+30= 100

About the Course:

The goal of this course is to make aware the learners about the sociological thoughts. Pupils will become familiar with major sociologist and their sociological theories. Their understanding of sociological theories and concept and their significance in the current context would be enhanced by this course. Students will be able to critically analyze the theories and explain its implication in current scenario. It gives a global perspective to the learners, enabling them to understand international issues and cultural exchange.

Learning Outcomes:

- Students will be able to develop scientific attitude towards social phenomena.
- Students will be able to analyze the work of classical thinkers and their contribution in the field of Sociology.
- The knowledge of the thinkers (A. Comte, K.Marx, M.Weber& E. Durkheim) would equip the students withtheoretical insights to social scenario around them & would familiarize them with different perspectives and theories.
- Students can distinguish between macro level sociological perspectives, can specify the theoretical componentsof each perspective, and connect each perspective to their historical and contemporary theorists.
- Students will be able to understand the emergence of intellectual traditions and also its effects upon the society.

UNIT- I

Development of Sociological Thought: French Revolution and Industrial Revolution, August Comte: Positivism, Law of three Stages, Hierarchy of Sciences.

UNIT- II

Emile Durkheim: Social Fact, Division of Labour Society, Religion, Suicide.

UNIT-III

Karl Marx: Historical Materialism, Dialectical Materialism, Class and Class, Conflict, Alienation.

UNIT- IV

Max Weber: Ideal Type, Social Action. Sociology of Religion, Bureaucracy and Authority.

Suggestive Practicum

- Presentation on the contribution of sociologist
- Comparative study of sociologist.

Suggestive Mode of Transaction

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work.

Suggestive Mode of Assessment

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials

- Max Karl, Communist Manifesto, Progress Publishers, Moscow 1967.
- Rawat H.K, Sociological Thinkers and Theorists, Rawat Publication, Jaipur 2001.
- Ross. E.A, The foundation of Sociology, The Macmillan Co, New York 1956.
- Weber. M, The Protestant Ethic and the spirit of Capitalism, Unwin Univ. Books1965.
- Steven. L, Durkheim life and works: A critical study 1973.
- Morrison Ken, Marx, Durkheim. Weber, Formation of modern social thought, Sage Publication NewDelhi 1995.
- Durkheim. E, The Elementary forms of religious life, The Free Press 1860.
- Giddens. A, Sociology, Polity Press Cambridge 1989.
- Comte August, A General view of Positivism, Turner and co. 1865(Reissued by Cambridge University Press,2009)
- Lewis A Coser, Master of Sociological Thought Harcourt Brace Jovanovich 1977.
- Aron, Raymond.Main Currents in Sociological Thought, Penguin Books 1967.
- H. Haralambos.Sociology - Themes and Perspectives. Oxford University Press.1980
- Abraham Francis Sociological Thought, Macmillan Publishers India1985.

SOC 502: SOCIAL CHANGE

Credits: 03+01=04

Maximum Marks: 70+30= 100

Learning Outcomes:

- This Paper is designed in a manner, so that students are introduced to the concepts related to Social change and Social Movement.
- This course will introduce students to the dynamic aspect and dissension tendencies of society.
- The critical evaluation would enable students to come out with better suggestions, contributing incohesion of society.
- This paper will help the learners to gain insight about various theoretical orientations and their perspective of social change.

Unit- I

Social Change: Concept and Characteristics, Patterns of Social Change: Linear andCyclical, Social Change and Cultural Change.

Unit- II

Modes of Social Change: Evolution, Progress, Development and Revolution.

Unit- III

Factors of Social Change: Biological, Demographic, Economic, Technological andCultural.

Unit- IV

Theories of Social Change: Vilfredo Pareto, Oswald Spengler, P.A. Sorokin, A.J.Toynbee.

Suggestive Practicum:

- Presentation on the concept of social change.
- Critical analysis of the various factors that contribute in social change.
- Comparison on Evolution, Progress, Development and Revolution.

Suggestive Mode of Transaction

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work.

Suggestive Mode of Assessment

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials

- Gillin and Gillin; Cultural Sociology, The Macmillan Co.; New York.
- Hobhouse, L.T.; Social Development, New York, Henry Holt & Co.
- Ogburn, W.F.; Social Change, Calverton, B.V. edit, New York.
- Moore, Wilbert E., Social Change, Prentice-Hall, Englewood Cliffs.
- Sorokin, P.A., Social and Cultural Dynamics (4 Vols.), American Book Company, New York.
- Spengler, Oswald J., Decline of the West (trans. C.F. Atkinson), Alfred A. Knoff, New York.
- Singh, Yogendra, Social Stratification and Change in India, Manohar Publishers and Distributors, NewDelhi.
- Srinivas, M. N., Social Change in Modern India, Orient Longman, New Delhi.
- Singh, Yogendra, Modernization of Indian Tradition, Thomson Press, Delhi.
- Gore, M. S., Urbanization and Family Change, Popular Prakashan, Bombay.

MINOR/ELECTIVE
SOC 503: SOCIAL CHANGE IN INDIA

Credits: 03+01=04

Maximum Marks: 70+30= 100

Learning Outcomes

- After the completion of this course, students will be able to understand the relationship between individual and society.
- Students will be able to recognize the profound impact of colonial rule on Indian society and how it has shaped the contemporary social structure and progress.
- Students will learn about key social processes like Sanskritisation, Modernization and Globalization and their role in deriving social change in India.
- Students will gain insights into cultural diversities of Indian society and dynamics of social change including influence of industrialization and urbanization.
- It will help to cultivate awareness of the various factors that contribute social cohesion and conflict within Indian Society.

UNIT- I

Social Change: Meaning, concept and features, Process of social Change, Evolution, Progress and Development

UNIT- II

Factors of Social Change: Biological, Demographic, Economic, Technological andCultural

UNIT- III

Industrialization and Urbanization in special reference to India

UNIT- IV

Sanskritization, Westernization, Modernization and Globalization

Suggestive Practicum:

- Practicum on social movement in India and their implication.
- Presentation on Modernization, Sanskritization
- Comparative study of various social Groups.

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work

Suggestive Mode of Assessment:

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials:

• Gillin and Gillin; Cultural Sociology, The Macmillan Co.; New York.

• Hobhouse, L.T.; Social Development, New York, Henry Holt & Co.

• Ogburn, W.F.; Social Change, Calverton, B.V. edit, New York.

• Moore, Wilbert E., Social Change, Prentice-Hall, Englewood Cliffs.

• Singh, Yogendra, Social Stratification and Change in India, Manohar Publishers and Distributors, NewDelhi.

• Srinivas, M. N., Social Change in Modern India, Orient Longman, New Delhi.

• Singh, Yogendra, Modernization of Indian Tradition, Thomson Press, Delhi.

• Gore, M. S., Urbanization and Family Change, Popular Prakashan, Bombay.

• Singer, Milton (Ed.), Traditional India: Structure and Change, Rawat Publications, Jaipur.

SOC 601: INDIAN SOCIOLOGICAL THOUGHT

Credits: 03+01= 04

Maximum Marks: 70+30= 100

About the Course:

This course is designed to give a comprehensive overview of the development of Sociology in India. The course on Indian Sociological thoughts typically provides a comprehensive overview of the various theoretical and methodological perspectives used to understand Indian Society. It covers a range of topics including historical overview of Sociology in India, major sociological perspectives as well as contemporary debates and emerging perspectives. It is valuable to get deep understanding of the theoretical concepts given by Indian social thinkers and their relevance in current scenario.

Learning Outcomes:

- Students will be able to understand the emergence and development of sociology as a discipline in India.
- Students will be able to apply theoretical concepts for understanding the process of social change and development within Indian context.
- Students will be able to develop a critical outlook towards the theoretical perspectives to understand their relevance in the current scenario.
- Students will be able to apply the sociological concepts and principles to her/his own life.

UNIT-I

Development of Sociology in India: Sociology in Pre-Independence India,Sociology in Post-Independence India.

UNIT- II

G.S. Ghurye: Biographical Sketch, Caste, Rural-Urban Community.

UNIT- III

Radhakamal Mukherjee: Biographical Sketch, Social Structure of values, SocialEcology.

UNIT- IV

M.N. Srinivas: Biographical Sketch, Sanskritization, Westernization, Secularization

Suggestive Practicum:

- Presentation on development of Sociology in India.
- Comparative study of Indian sociologists.
- Presentation on contribution of Indian Social thinkers.

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work.

Suggestive Mode of Assessment:

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials

- Ghurye G.S, Caste, Class and Occupation, Popular Book Depot 1961.
- Ghurye G.S, The Indian Sadhus, Popular Book Depot 1964.
- Mukherjee RadhaKamal, The Social structure of value, Macmillan London 1949.
- Mukherjee RadhaKamal, Social Ecology, Oxford University Press 1945.
- Mukherjee D.P, Problems of Indian Youth, Hind Kitab 1946.
- Mukherjee D.P, Modern Indian Culture, Indian Publishers 1942.
- Srinivas M.N; Caste in modern India and other essays, Bombay Asia Publishing House 1962.
- Srinivas M.N, Social change in modern India, Orient Blackswan 1966.
- Desai A.R, Social Background of Indian Nationalism, Bombay Oxford University Press 1949.
- Nagla B.K, Indian Sociological thought, Rawat Publication Jaipur, 2008.
- Dhanagare D.N, Themes and Perspectives in Indian Sociology, Rawat Publication Jaipur, 1993.
- Sharma Surendra, Sociology in India : A Perspective from Sociology of Knowledge, Jaipur; RawatPublication1985.
- देसाई ए0आर0, भारतीय ग्रामीण–समाजशास्त्र, रावत पब्लिकेशन्स जयपुर 1997.
- नागला बी0के0, भारतीय समाजशास्त्रीय हचन्तन, रावत पब्लिके शन्स जयपुर 2015.
- दोषी एस0 एल0, भारतीय सामाजिक विचारक, रावत पब्लिकेशन जयपुर 2010

SOC 602: RESEARCH METHODOLOGY IN SOCIOLOGY

Credits: 03+01=04
Maximum Marks: 70+30= 100
Learning Outcomes:

- Students will be able to develop scientific attitude towards social phenomena.
- It will help the students to develop analytical skills.
- Students will be able to understand various research designs that are applicable in sociology.
- Students will be able to evaluate critically the research findings and methodologies and understand their strengths and limitations.
- It will help to develop problem solving ability among the students.

UNIT- I

Social Research: Concept, Importance and Characteristics. Major Steps of Social Research, Formulation of research problem and problem of objectivity in social Research.

UNIT- II

Approaches of Social Research: Historical, Comparative, Experimental, Case Study.

UNIT- III

Hypothesis: Concept, Characteristics and Types of Hypothesis. Formulation of Hypothesis, Variables: Meaning and Types.

UNIT- IV

Sampling: Meaning, Characteristics and Significance; Types of Sampling: Probability and Non probability Sampling; Merits and Demerits of Sampling.

Suggestive Practicum:

- Interview with students to identify their problems and interpretation.
- Case study on education institution/social groups.
- Research project and report writing.
- Presentation on sampling techniques.

Suggestive Mode of Transaction:

- Planned lecture method for subject matter expertise.
- PowerPoint presentation to facilitate understanding.
- Using communicative approach to understand students' perspectives.
- Hands-on learning through internships or field work.

Suggestive Mode of Assessment:

The learners' knowledge will be evaluated through assignments, assessments, and internal and external exams. Writing reports and conducting case studies will be part of their practicum to deepen their learning.

Suggestive Reading Materials:

- P.V. Young, 1988 Scientific Social Survey and Research, Prentice Hall, N. Delhi.
- C.R. Kothari, 1989 Research Methodology: Methods and Techniques, Wile Eastern, Bangalore.
- Ram Ahuja, 2006 Research Methods, Rawat Publications.
- Goode & Hat, 1952 Methods in Social Research, McGraw Hill, New York.
- Wilkinson and Bhandarkar,2010 Methods and Techniques of Social Research, Himalaya PublishingHouse, New Delhi.
- Jaspal Singh. 2011: Instruments of Social Research Jaipur: Rawat Publications.
- Giddens Anthony, 1976: New Rules of Sociological Research
- Black and Champion. (1976) Methods and Issues in Social Research.
- Raj H. 2005, Theory and Practice in Social Research, Surjeet Publication, Delhi.
- S.P. Gupta. 1969: Statistical Methods: New Delhi: Sultan Chand & Sons
- Levin Jack, 1983 Elementary Statistics in Social Research, Harper and Row Publishers, New York.

HISTORY

HISTORY

HIS 101: HISTORY OF INDIA

(Earliest time to 600 BC)

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

History is the study of change over time. It covers all aspect of human society. History deals with allaspects of human past e.g. political, social, economic, scientific, technological, medical, culture, intellectual, religious, military etc. History involves the analysis and interpretation of the human past thereby enabling us to study continuity and changes that are taking place over a time. It is an act ofboth investigation and imagination that seeks to explain how people changed over time. Historians useall forms of evidence to examine, interpret, revisit and reinterpret the past. These include not justwritten documents, but also oral communication and objects such as buildings, artifacts, photographsand paintings. Historians are trained in the method of discovering and evaluating these sources and thechallenging task of making historical sense out of them. Historical discourse gives an understanding ofthe past which enables us to appreciate our present and shape our future. Besides, history providesbackground information for other disciplines of social science and humanities.

Learning outcomes:

- The Students will be able to identify the forces and factors that shaped the course of early Indian history.
- The students will develop a critical awareness of various categories of course sources for the study of ancient Indian history.
- They will learn the analytical skills to explore the development of India's religious systems and cultural accomplishment in historical perspective.

UNIT-I

Meaning of History, scope and sources.

UNIT-II

A broad survey of Paleolithic, Mesolithic and Neolithic cultures.

UNIT-III

Harappan civilization: Origin, extent, main features and decline, chalcolithic age.

UNIT-IV

The Rigvedic and later vedic period: Polity, Society, economy and religion, Iron age with reference to PGW and megaliths.

Suggestive Practicum:

- Power point presentation on historical aspects of India
- Case study
- Report on historical structures.
- Field visit and Survey

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicum, sessional and terminal semester examinations.

Suggestive Readings:

- Agrawal, D.P. The Archaeology of India
- Allchin, F.R. and B Origins of a Civilization: The Prehistory and Early
- Archaeology of South Asia
- Basham, A.L. The Wonder That was India
- Basham, A.L. The Wonder That was India
- Beginning of archaeology. 2005
- Chakrabarti, D.K. Archaeology of Ancient Indian Cities
- Jaywalk, Suvira Caste: Origin, Function and Dimensions
- Jha, D.N. Ancient India in Historical Outline (1998 edn.)
- Katsambis, D.D. Culture and Civilization of Ancient India
- R.S Sharma, India's Ancient Past
- Ray, H.P. Monastery and Guild India in Historical Outline
- Ray, Niharranjan Maurya and Post Maurya Art
- Sastri, K.A.N. A History of South India
- Sharma, R.S. Aspects of Political Ideas and Institutions in Ancient India
- Singh, Upinder 2009 A History of Ancient and Early Medieval India) Pearson
- Singh, Upinder. Ancient India: From the stone age to the 12th Century. 2009
- Singh, Upinder. Discovery of Ancient India: Early archaeologist and the
- Subramanian, N. Sangam Polity
- Thapar, Romila Ashoka and the Decline of the Mauryas (1997 end
- Thapar, Romila History of Early India
- Yazdani, G. Early History of Deccan
- "शर्मा, राम शरण. भारत में आर्यो का आगमन, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- शर्मा, रामशरण. प्रारम्भिक भारत का आर्थिक और सामाजिक इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- झा, द्विजेन्द्र नारायण एवं श्री माली, कृष्ण मोहन. प्राचीन भारत का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- ठाकरान, आर0सी0., दत्त, शिव., संजय कुमार.., भारतीय उपमहाद्वीप की संस्कृतियां,भाग 1, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- ठाकरान, आर0सी0., दत्त, शिव., संजय कुमार.., भारतीय उपमहाद्वीप की संस्कृतियां, भाग 2, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- थापर, रोमिला. पूर्व कालीन भारत (प्रारम्भ से 1300 ई0 तक),, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- थापर, रोमिला. आर्य संरचना का पुनर्गठन, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली
- सिंह, आनन्द. प्राचीन भारतीय धर्मः उद्भव एवं स्वरूप, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- प्रसाद, ओमप्रकाश. संघाधिपति अशोक, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली
- सरमार्टिमरव्हीलर, पृथ्वी से पुरातत्व, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चानना, देवराज. प्राचीन भारत में दास प्रथा, हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- गार्डनचाइल्ड, वी0 एच0. प्राचीन तमप्राच्य सभ्यता परनया प्रकाश, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- गार्डन, डी0 एच0. भारतीय संस्कृति की प्रागैतिहासिक पृष्ठभूमि, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- गोपाल शरण, प्रागितिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.

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HIS 102: HISTORY OF INDIA
(600 BC to 300 AD)

Credit: 03+01=04
Maximum Marks: 70+30=100
Learning outcomes:

- They will learn the analytical skills to explore the development of India's social systems and cultural accomplishment in historical perspective.
- They will be able to explore the connections between multiple causative factors and access their relative historical significance.
- They will understand the process of rise and decline of imperial states in early India.

UNIT I:
Territorial states and the rise of Magadha, conditions for the rise of mahajanpadas and the causes of Magadha success
Jainism and Buddhism: Causes, doctrines, spread, Decline and contributions
UNIT II:
Emergence and growth of Mauryan empire: State, administration, economy, Ashoka's dhamma
UNIT III:
The Satvahana phase: Aspects of political history, material culture and administration
The sangam Age: Sangam literature, The three early kingdoms, society and Tamil language
UNIT IV:
The age of Shakas, Parthians and Kushanas, Aspects of polity, Society, religion, arts and crafts
Suggestive Practicum:

- Power point presentation on historical aspects of India
- Case study
- Report on historical structures.
- Field visit and Survey

Suggestive Mode of Transaction:
Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.
Suggestive Mode of Assessment:
Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.
Suggestive Readings:

- Agrawal, D.P. The Archaeology of India
- Allchin, F.R. and B Origins of a Civilization: The Prehistory and Early
- Archaeology of South Asia
- Basham, A.L. The Wonder That was India

- Basham, A.L. The Wonder That was India
- Beginning of archaeology. 2005
- Chakrabarti, D.K. Archaeology of Ancient Indian Cities
- Jaywalk, Suvira Caste: Origin, Function and Dimensions
- Jha, D.N. Ancient India in Historical Outline (1998 edn.)
- Katsambis, D.D. Culture and Civilization of Ancient India
- R.S Sharma, India's Ancient Past
- Ray, H.P. Monastery and Guild India in Historical Outline
- Ray, Niharranjan Maurya and Post Maurya Art
- Sastri, K.A.N. A History of South India
- Sharma, R.S. Aspects of Political Ideas and Institutions in Ancient India
- Singh, Upinder 2009 A History of Ancient and Early Medieval India) Pearson
- Singh, Upinder. Ancient India: From the stone age to the 12th Century. 2009
- Singh, Upinder. Discovery of Ancient India: Early archaeologist and the
- Subramanian, N. Sangam Polity
- Thapar, Romila Ashoka and the Decline of the Mauryas (1997 end
- Thapar, Romila History of Early India
- Yazdani, G. Early History of Deccan
- "शर्मा, रामशरण. भारत में आर्यो का आगमन, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- शर्मा, रामशरण. प्रारम्भिक भारत का आर्थिक और सामाजिक इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- झा, द्विजेन्द्र नारायण एवं श्री माली, कृष्ण मोहन. प्राचीन भारत का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- ठाकरान, आर0सी0., दत्त, शिव., संजय कुमार.., भारतीय उपमहाद्वीप की संस्कृतियां, भाग 1, हिन्दी माध्यम
- कार्यान्वयन निदेशालय, दिल्ली.
- ठाकरान, आर0सी0., दत्त, शिव., संजय कुमार.., भारतीय उपमहाद्वीप की संस्कृतियां, भाग 2, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- थापर, रोमिला. पूर्वकालीन भारत (प्रारम्भ से 1300 ई0 तक),, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- थापर, रोमिला. आर्य संरचना का पुनर्गठन, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली
- सिंह, आनन्द. प्राचीन भारतीय धर्मः उद्भव एवं स्वरूप, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- प्रसाद, ओमप्रकाश. संघाधिपति अशोक, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली
- सरमार्टिमरव्हीलर, पृथ्वी से पुरातत्व, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चानना, देवराज. प्राचीन भारत में दास प्रथा, हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- गार्डनचाइल्ड, वी0 एच0. प्राचीन तमप्राच्य सभ्यता परनया प्रकाश, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- गार्डन, डी0 एच0. भारतीय संस्कृति की प्रागैतिहासिक पृष्ठ भूमि, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- गोपाल शरण, प्रागितिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.

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HIS 201: HISTORY OF INDIA
(300AD to 800AD)

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The course is designed to develop basic understanding about earlier historical aspects of Indian history. It will be useful in providing a comprehensive picture to the history students for the evaluation of early Indian society. This paper will develop the understanding of the process of transition from ancient period to the early medieval period and figure out the key determinations that made this transition possible

Learning outcomes:

- It will develop an understanding of the growing culture and political and economic linkages between North and South Indian.
- The student will also get familiarized with the development of historical processes in Deccan and far south.
- Students will have the ability to apply historical methods to evaluate critically the past and how historians and others have interpreted it.
- Students will be able to acquire basic historical research skills, including the effective use of Library, Archives and data bases.
- Students will be able to organize and express their thoughts clearly and coherently both orally and in writing.

UNIT I:

The Rise & Growth of the Guptas: Administration, Society, Economy, Religion, Art, Literature, Science &Technology.

UNIT II:

Guptas: Religion, Art, Literature, Science &Technology; Vakataks: Polity and Society

UNIT III:

South India: Polity, Society, Economy & Culture

UNIT IV:

Towards the Early Medieval: Changes in Society, Polity Economy and Culture withreference to the Pallavas, Chalukayas and Vardhanas.

Suggestive Practicum:

- Power point presentation on historical aspects of India
- Case study
- Report on historical structures.
- Field visit and Survey

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggestive Readings:

- B. D. Chattopadhaya: Making of Early Medieval India
- Derry l N. Maclean: Religion and Society in Arab Sindh History of India, Vol.I
- K. M. Ashraf: Life and Conditions of the People of Hindustan
- M. Habib and K.A. Nizami: A Comprehensive History of India Vol.V
- Percy Brown, : Islamic Architecture
- Peter Jackson: Delhi Sultanate: A Political and Military History
- R. S. Sharma: Indian Feudalism-India's Ancient Past
- Satish Chandra: A History of Medieval India, 2 Volumes
- Tapan Ray Chaudhary and Irfan Habib (ed.): The Cambridge Economic
- Tara Chand: Influence of Islam on Indian Culture
- शर्मा, रामशरण, पूर्व मध्यकालीन भारत का सामंती समाज और संस्कृति, राजकमल प्रकाशन दिल्ली.
- झा, द्विजेन्द्रनारायण एवं श्री माली, कृष्णमोहन. प्राचीन भारत का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- मुखर्जी, राधाकुमुद., प्राचीन भारत, प्रकाशन, राजकमल नई दिल्ली.
- मिश्र, जयशंकर., ग्यारहवीं सदी का भारत, हिन्दी ग्रन्थ अकादमी, पटना.
- थापर, रोमिला. पुर्व कालीन भारत (प्रारम्भ से 1300 ई0 तक), हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- सिंह, ओकारनाथ., गुप्तोरत्तर कालीन उत्तर भारतीय मुद्रायें (600–1200 ई0), विश्वविद्यालय प्रकाशन, वाराणसी.
- पाण्डेय, अवध बिहारी., पूर्व मध्यकालीन भारत, भाग1, प्रकाशन हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- पाठक, विशुद्वानन्द. उत्तर भारत का राजनीतिक इतिहास, उत्तर प्रदेश हिन्दी संस्थान, लखनऊ.
- पाण्डेय, राजबली., गोरखपुर जनपद और उनकी क्षत्रिय जातियों का इतिहास, ठाकुर महातमराव पब्लिशर, गोरखपुर.
- सोनकर, अशोक कुमार, गाहड़वालों का राजनीतिक और सामाजिक इतिहास, आस्था दिल्ली.

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HIS 202: HISTORY OF INDIA (800AD to 1200AD)

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning outcomes:

- Students will be able to demonstrate broad knowledge of historical events and historical periods and theirsignificance.
- Students will be able to recognize how different individuals, groups, organizations, societies, cultures, countries and nations have affected history. History gave the students wisdom and foresight for the future.
- They can develop capabilities to start earning by using their skill in the field of historical and traditional knowledge system, Tourism, Archives and Museums.

UNIT I:

Evolution of Political structures of Rashtrakutas, Pala &Pratiharas, Cholas

UNIT II:

Emergence of Rajput States in Northern India: Polity

UNIT III:

Economy, Social life, Education and Religious beliefs

UNIT IV:

Struggle for power in Northern India & establishment of Sultanate.

Suggestive Practicum:

- Power point presentation on historical aspects of India
- Case study
- Report on historical structures.
- Field visit and Survey

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggestive Readings:

- B. D. Chattopadhaya: Making of Early Medieval India
- Derry l N. Maclean: Religion and Society in Arab Sindh History of India, Vol.I
- K. M. Ashraf: Life and Conditions of the People of Hindustan
- M. Habib and K.A. Nizami: A Comprehensive History of India Vol.V
- Percy Brown, : Islamic Architecture
- Peter Jackson: Delhi Sultanate: A Political and Military History
- R. S. Sharma: Indian Feudalism-India's Ancient Past
- Satish Chandra: A History of Medieval India, 2 Volumes
- Tapan Ray Chaudhary and Irfan Habib (ed.): The Cambridge Economic
- Tara Chand: Influence of Islam on Indian Culture
- शर्मा, रामशरण, पूर्व मध्यकालीन भारत का सामंती समाज और संस्कृति, राजकमल प्रकाशन दिल्ली.
- झा, द्विजेन्द्रनारायण एवं श्री माली, कृष्णमोहन. प्राचीन भारत का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- मुखर्जी, राधाकुमुद., प्राचीन भारत, प्रकाशन, राजकमल नई दिल्ली.
- मिश्र, जयशंकर., ग्यारहवीं सदी का भारत, हिन्दी ग्रन्थ अकादमी, पटना.
- थापर, रोमिला. पुर्व कालीन भारत (प्रारम्भ से 1300 ई0 तक), हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- सिंह, ओकारनाथ., गुप्तोरत्तर कालीन उत्तर भारतीय मुद्रायें (600–1200 ई0), विश्वविद्यालय प्रकाशन, वाराणसी.
- पाण्डेय, अवध बिहारी., पूर्व मध्यकालीन भारत, भाग1, प्रकाशन हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- पाठक, विशुद्वानन्द. उत्तर भारत का राजनीतिक इतिहास, उत्तर प्रदेश हिन्दी संस्थान, लखनऊ.
- पाण्डेय, राजबली., गोरखपुर जनपद और उनकी क्षत्रिय जातियों का इतिहास, ठाकुर महातमराव पब्लिशर, गोरखपुर.
- सोनकर, अशोक कुमार, गाहड़वालों का राजनीतिक और सामाजिक इतिहास, आस्था दिल्ली.

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MINOR/ELECTIVE

HIS 203: INDIAN SOCIETY AND CULTURE THROUGH THE AGES

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning outcomes:

- This paper is designed to develop the understanding of historical processes in India during the period under study.
- This paper covers the development in the field of art, language, culture and religious through the ages.
- Thestudent will be able to understand the major aspects of Indian Society and Culture.

UNIT I:

Harappan and Vedic culture, Jainism and Buddhism

UNIT II:

Ashoka's Dhamm, Mauryan Art and Architecture, Social and culture Developments in Post Mauryan Period

UNIT III:

Gupta Age Age: Society and Culture, Sangam Age, Post Gupta Period: Society and Culture

UNIT IV:

Medieval Society: Art, Architecture and literature

UNIT V:

Bhakti and Sufi movement, Status of Women

UNIT VI:

Social Change: Impact of Western Civilization, Status of Women

UNIT VII:

Indian Renaissance: Brahmo Samaj, Prarthna Samaj, Ramakrishna Mission, Vivekanand, Arya Samaj, Aligarh Movement, Theosophical Society

Suggestive Practicum:

- Power point presentation on historical aspects of India
- Case study
- Report on historical structures.
- Field visit and Survey

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Basham, A.L. The Wonder That was India
- Jha, D.N. Ancient India in Historical Outline (1998 eds.)
- Katsambis, D.D. Culture and Civilization of Ancient India
- R.S Sharma, India's Ancient Past
- Ray, Niharranjan Maurya and Post Maurya Art
- Sastri, K.A.N. A History of South India
- Singh, Upinder 2009 A History of Ancient and Early Medieval India) Pearson
- Thapar, Romila Ashoka and the Decline of the Mauryas (1997 end
- Thapar, Romila History of Early India

- B. D. Chattopadhaya: Making of Early Medieval India
- M. Habib and K.A. Nizami: A Comprehensive History of India Vol.V
- Percy Brown, : Islamic Architecture
- R. S. Sharma: Indian Feudalism-India's Ancient Past
- Satish Chandra: A History of Medieval India, 2 Volumes
- Chattopadhaya, B.D., The making of early Medieval India. Oxford University press, New Delhi. 2003
- Chopra, P.N., Purl, B.N., Das, M.N., A social, cultural and economic history of India vol. II.
- Irfan Habib (ed.): Madhya Kaleen Bharat, (in Hindi), 8Volumes,
- Prasad, Ishwari: (1940), Medieval India (English or Hindi Version) Delhi, Indian Press
- Tara Chanda., Influence of Islamon on Indian Culture.
- Bipan Chandra: Nationalism and Colonialism.
- R.L. Shukla; Adunik Bharat (ed). Delhi University Hindi Madhyam Kriyanwanyan Nideshalaya. 2012.
- R.P. Dutt, India Today.
- Sekhar Bandyopadhyay: From Plassey to Partition
- Sumit Sarkar Modern India 1885 1947, Macmillan, 1983

Hindi books

- शर्मा, रामशरण. भारत में आर्यो का आगमन, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- शर्मा, रामशरण. प्रारम्भिक भारत का आर्थिक और सामाजिक इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- झा, द्विजेन्द्र नारायण एवं श्रीमाली, कृष्णमोहन. प्राचीन भारत का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- थापर, रोमिला. पूर्व कालीन भारत (प्रारम्भ से 1300 ई0 तक),, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- सिंह, आनन्द. प्राचीन भारतीय धर्मः उद्भव एवं स्वरूप, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- प्रसाद, ओमप्रकाश. संघाधिपति अशोक, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- शर्मा, रामशरण, पुर्व मध्यकाली नभारत का सामंती समाज और संस्कृति, राजकमल प्रकाशन, नई दिल्ली.
- मुखर्जी, राधाकुमुद., प्राचीन भारत, प्रकाशन, राजकमल नई दिल्ली
- मिश्र, जयशंकर., ग्यारहवी सदी का भारत, हिन्दी ग्रन्थ अकादमी, पटना.
- थापर, रोमिला. पुर्व कालीन भारत (प्रारम्भ से 1300 ई0 तक), हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- भारद्वाज, दिनेश., मध्यकालीन भारतीय सभ्यता एवं संस्कृति, कैलाश प्रकाशन, भोपाल.
- पाण्डेय, अवध बिहारी., उत्तर मध्यकालीन भारत, भाग1, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- वर्मा, हरिश्चन्द्र., मध्यकालीन भारत भाग 2(1540–1761 ई0), हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चन्द्र, सतीश., उत्तर मुगल कालीन भारत, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली
- शुक्ल, राम लखन., आधुनिक भारत का इतिहास., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- मोईनुद्दीनहसन खॉ, अनुवादक अब्दुलहक., गदर– 1857(ऑखों देखा विवरण) हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चन्द्र, बिपिन., मुखर्जी, मृदुला., मुखर्जी, आदित्य., क0न0 पनिकर., महाजन, सुचेता., भारत का स्वतंत्रता संघर्ष., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- ग्रोवर, बी0एल0, यशपाल., आधुनिक भारत का इतिहास, एस चन्द्र एण्ड कम्पनी लि0, नई दिल्लीच्हम

Suggested Online Link:

https://ndl.iitkgp.ac.in
https://epustakalay.com
https://archive.org
https://ignou.ac.in
www.cec.nic.in

HISTORY

HIS 301: HISTORY OF INDIA FROM 1200AD TO 1526AD

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

This paper is designed to develop the understanding of historical processes in India during the period under study. This paper covers the development in the field of art, language, culture and religious during medieval period. The student will be able to understand the territorial expansion of various Indian kings and impact of Medievalism on Indian Society and Culture

Unit I

Survey of Sources of Medieval Indian history

Unit II

Foundation, Expansion & consolidation of the Delhi Sultanate. Causes of the success of the Turks: Foundation and consolidation of the Delhi Sultanate: Aibek, Iltutmish, Razia, Balban.

Unit III

Allauddin Khalji- conquests, economic administrative and economic reforms.

Unit IV

Tughlaq dynasty: Mohammad-bin-Tughlaq's Experiments; Feroz Shah Tughlaqs reforms and administration, Timur's invasion

Unit V

Saiyyads, Lodhis, Provincial kingdoms: Vijaynagara & Bahamanis.

Unit VI

Religious Moments of Bhakti & Sufism and its impact on Indian society, Art & Architecture

Unit VII

Disintegration of Delhi Sultanate: Causes and its Effects on Indian Society & Polity

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Chandra, Satish., Essays on Medieval Indian History, Oxford university, New Delhi. 2003
- Chattopadhaya, B.D., The making of early Medieval India. Oxford University press, New Delhi. 2003
- Chopra, P.N., Purl, B.N., Das, M.N., A social, cultural and economic history of India vol. II.
- Development of Suffism in India, Bhakti Movemenl and Re-strengthening in North India.
- H. Siddiqui: Some Aspects of Afghan Despotism
- Irfan Habib (ed.): Madhya Kaleen Bharat, (in Hindi), 8Volumes,
- Irfan Habib: The Agrarian System of Mughal India 1556-1707,
- Kesvan Veluthat: Political Structure of Early Medieval South India
- Kulke, Herman (cd.) (1995), The State in India (1000-1700), New York and Delhi. Oxford University Press.
- Nigan, S.B.P.: (1968), Nobility under the Sultans of Dellhi, Delhi, Munsiram Manoharlal

- Prasad, Ishwari: (1940), Medieval India (English or Hindi Version) Delhi, Indian Press
- Roy, S.C.: (1935), Dynastic History of Northern India, Calcutta, Calculla University Press
- S.A.A. Rizvi: Muslim Revivalist Movements in Northern India during 16th and 17th Centuries
- Sharma, S.R.: (2005), Crescent in India (English or Hindi Version) Delhi, Bhartiya Kala Prakashan
- Singh, Dilbag: Structure of Rural Society in Medieval India
- Srivastava, A.L: (2017), The Delhi Sultanate (English or Hindli Version) India, Shivlal Agarwal & Co
- Tara Chanda., Influence of Islam on Indian Culture.
- Yaday, B.N.S.: (2012), Society and Culture in North India in the 12" C'entury. India. Radha Prakashan.

HIS 302: WORLD HISTORY FROM MID 15TH CENTURY TO 1648 A.D.

Credit: 03+01=04

Maximum Marks: 70+30=100

Unit I

Feudalism- Different Aspects and causes of decline: Advent of modernAge-Renaissance and Reformation.

Unit II.

Growth of the absolute State: France, Spain and Britain.

Unit. III

Mercantilism and commercialism.

Unit IV

Age of Revolutions- Scientific Agrarian and Industrial

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Arvind Sinha, Europe in Transition, Delhi, 2010 (also in Hindi)
- Bailey C.A.: The Birth of Modern World
- Basil Davidson, Modern Africa: A Social and Political History,3d edn. London /New Jersey: Addison ñ Wesley, 1995
- Benns, F. Lee: Europe since 1914 *
- Bronoski Jacob & Buce Mazlish: Western Intellectual tradition
- Car, E.H. (1948), International Relations between two world war (1919-1939). Delhi. Maehinam and Co.
- Christopher Hill, From Reformation to Industrial Revolution
- Fisher HA.L.: History of Europe
- J.H Perry, The Establishment of the European Hegemony 1415-1715, Trade & Exploration in the Age of the Renaissance, Harper Torch books, 1959
- K.R.G. Nair & Romey Borges, Discovering French Canada, Allied Publishers,2002

- Ketelbey, C.D.M. A History of Modern Times (English or Hindi)
- Lowe, Nornmon: (1982), Mastering Modern World History, Macimillan and Co.
- Macntill W.H: History of the World
- Palmer. R.R.: A History of Modern World
- Panikkar K.M: Asia and Western Dominance –
- Ralph Davis, The Rise of the Atlantic Economies,
- Ralph Davis, The Rise of the Atlantic Economies, New York, 1973,
- Roberiz. J.M: Pelican history of the World
- Stavaranos. A.J.: History of the Modern World Since 1500
- Wallerstine Emmanuel: Modern World System

MINOR/ELECTIVE

HIS 303: RESEARCH METHODOLOGY IN HISTORY

Credit: 03+01=04

Maximum Marks: 70+30=100

Unit I

Historical Research: Meaning and Types, Choice of subject.

Unit II

Research -Hypothesis collection of data sources classification of sources. Sources in context: written, oral, visual and archaeological

Unit III

Historical Facts & Interpretation

Unit IV

Authenticity of Sources and Evaluation of evidence

Unit V

Objectivity and Subjectivity in Writing History

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Arthur Marwick, New Nature of History: Knowledge, Evidence and Language (Chapter V: The Historian at Work: Forget 'Facts', Foreground Sources), Lyceum Books Incorporated, 2001.
- Arthur Marwick, The Nature of History (Chapter IV: History, Science and Social Science), London: Macmillan, 1989.
- E. Sreedharan, A Text book of Historiography 500 BC to AD 2000, Orient Longman, 2004(also in hindi)
- E.H Carr: What is History, Penguin,2008
- Marc Bloch, The Historian's Craft (Introduction and Chapter I: History, Men and Time), Manchester University Press, 1992

- Shiek Ali, S; History its Theory and Method Macmillan India Publication Madras 1978
- Thomson, D. Renier, G.J: The Aims of History (London: James and Hudson, 1969); History: Its Purpose and Methods (London: George Allen & Unwin, 195

HIS 401: HISTORY OF INDIA 1526AD TO 1756AD

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

This paper is designed to provide the students with a firm basis for the understanding of the period 1526-1707. By discussing the nature of the social, political and religious foundations of Mughal India as a dynamic process, the student will acquire multifaceted understanding of the factor that shaped state and society in the Mughal period and that were carried into the later colonial state.

Unit I

Survey of Sources of Mughal Indian history

Unit II

Emergence and consolidation of Mughal State, Babur's conquest, Humayaun: difficulties and failure.

Unit III

Shershah Suri with special reference to Administration and Land revenue system.

Unit IV

Akbar to Shahjahan: administrative structure, Mansabdari, Relation with Rajpoot and Maharana Pratap, Religious Policy.

Unit V

Aurangzeb: administrative structure-Mansabs & Jagirs; Aurangzeb religious policy, Rajput, Religious and Deccan policy, Decline and disintegration of Mughals

Unit VI

Cultural in the Medieval Period, Art& Architecture.

Unit VII

Peninsular India–Marathas: Shivaji and his administration, Tamil Kingdoms- Polity and Administration

Unit VIII

Later Mughals: Disintegration of the empire; invasion of NadirShah; 3rd Battle of Panipat.

Unit IX

Establishment, Expansion & consolidation of Colonial Power upto 1757.

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Chandra, Satish., Essays on Medieval Indian History, Oxford university, New Delhi. 2003
- Chattopadhaya, B.D., The making of early Medieval India. Oxford University press, New Delhi. 2003
- Chopra, P.N., Purl, B.N., Das, M.N., A social, cultural and economic history of India vol. II.
- Irfan Habib (ed.): Madhya Kaleen Bharat, (in Hindi), 8Volumes,

- Kulke, Herman (cd.) (1995), The State in India (1000-1700), New York and Delhi. Oxford University Press.
- M. Athar Ali: Mughal Nobility under Aurangzeb
- Prasad, Ishwari: (1940), Medieval India (English or Hindi Version) Delhi, Indian Press
- R.P. Tripathi: The Rise and Fall of the Mughal Empire, 2 vol
- Roy, S.C.: (1935), Dynastic History of Northern India, Calcutta, Calculla University Press
- S.A.A. Rizvi: Muslim Revivalist Movements in Northern India during 16th and 17th Centuries
- Sharma, S.R.: (2005), Crescent in India (English or Hindi Version) Delhi, Bhartiya Kala Prakashan
- Shireen Moosvi: The Economy of the Mughal Empire
- Singh, Dilbag: Structure of Rural Society in Medieval India
- Stewart Gordon: The Marathas 1600-1818
- Tara Chanda., Influence of Islam on Indian Culture.
- Yaday, B.N.S.: (2012), Society and Culture in North India in the 12" Century. India. Raka Prakashan
- Sugadh Bose & Aysha Jalal: Modern South Asia history culture and political economy.

HIS 402: WORLD HISTORY (1648 AD -1815 AD

Credit: 03+01=04
Maximum Marks: 70+30=100

UNIT I

Glorious Revolution (1688) Background, events and Consequences.

UNIT II

American War of Independence – Causes and Consequences Declaration of the Rights of Men Revolution (1776)

UNIT III

French Revolution (1789) - Causes: Political, Social, Economic, Role of philosophers, short- and long-term ramifications.

UNIT IV

Nepolean Bonaparte – initial years, conquests, achievements as first consul, continental system, causes for downfall.

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Arvind Sinha, Europe in Transition, Delhi, 2010 (also in Hindi)
- Bailey C.A.: The Birth of Modern World
- Basil Davidson, Modern Africa: A Social and Political History,3d edn. London /New Jersey: Addison ñ Wesley, 1995
- Benns, F. Lee: Europe since 1914 *
- Bronoski Jacob & Buce Mazlish: Western Intellectual tradition
- Car, E.H. (1948), International Relations between two world war (1919-1939). Delhi. Maehinam and Co.
- Christopher Hill, From Reformation to Industrial Revolution
- Fisher HA.L.: History of Europe
- J.H Perry, The Establishment of the European Hegemony 1415-1715, Trade & Exploration in the Age of the Renaissance, Harper Torch books, 1959
- K.R.G. Nair & Romey Borges, Discovering French Canada, Allied Publishers,2002
- Ketelbey, C.D.M. A History of Modern Times (English or Hindi)
- Lowe, Nornmon: (1982), Mastering Modern World History, Macimillan and Co.
- Macntill W.H: History of the World
- Palmer. R.R.: A History of Modern World
- Panikkar K.M: Asia and Western Dominance –
- Ralph Davis, The Rise of the Atlantic Economies,
- Ralph Davis, The Rise of the Atlantic Economies, New York, 1973,

- Roberiz. J.M: Pelican history of the World
- Stavaranos. A.J. History of the Modern World Since 1500
- Wallerstine Emmanuel: Modern World System

MINOR/ELECTIVE
HIS 403: HISTORY OF NATIONALISM IN MODERN INDIA (1857-1947 AD)

Credit: 03+01=04
Maximum Marks: 70+30=100.

Unit I

First War of Indian Independence, emergence of nationalistic fervor-initial stages; Birth of Indian National Congress Moderates versus Extremists-Surat Split

Unit II

Advent of Gandhi his Perspective & method; Impact of World War-I on Independence Movement, Rowlett Satyagrah & Jallianwala Bagh Massacre NonCooperation and Khilafat Movements, Swaraj Party.

Unit III

Simon Commission; Civil Disobedience Movement, Nehru Report, Gandhi Irwin Pact; Communal Award; Round Table Conferences

Unit IV

Rise of revolutionary extremism- Kakori Case, Lahore Conspiracy; Role of expatriates– Gadar Party

Unit V

Peasants, Tribal and Depressed Classes Movements

Unit VI

Quit India Movement, Subhas Chandra Bose and INA

Unit VII

Rise of communal strife-Muslim League; Cripps Mission Cabinet Mission, Wavell Plan; India's independence and partition

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Ayodhya Singh; 26 Bharat Ka Mukti Sangram
- B.L. Grover; A New Look on Modern Indian History, S Chand.
- Barbara D Metcalf and T.R. Metcalf; A Concise History of India, Cambridge, 2002
- Bipan Chandra, Aditya Mukherjee, India After Independence, Viking, 1999.
- Bipan Chandra: Nationalism and Colonialism.
- C.A. Bayley: An Illustrated History of Modern India 1600 - 1947, London 1990
- Francine Frankel; India's Political Economy 1947- 1977.
- Gail Omvedt; Dalits and Democratic Revolution.

- K.G. Subramanian; The Living Tradition: Perspectives on Modern Indian Art.
- Lloyd and Susan Rudolph in Pursuit of Laxmi: the Political Economy of the Indian State, Chicago, 1987 • Mushirul Hasan; From Company to the Republic: A story of Modern India
- Parul Brass; The Politics of India since Independence.
- R. Jeffery; J Masseloss, From Rebellion to the Republic.
- R.L. Shukla; Adunik Bharat (ed). Delhi University Hindi Madhyam Kriyanwanyan Nideshalaya. 2012.
- R.P. Dutt, India Today.
- Ramachandra Guha The Fissured Land.
- Sekhar Bandyopadhyay: From Plassey to Partition
- Shekher Bandopadhyya: Plassy to Partation Orient Black Swan (Hindi & English)
- Sumit Sarkar Modern India 1885 1947, Macmillan, 1983
- Sunder Lal; Bharat mein Angreji Raj 2 vol. (National Book Trust of India)
- Thomas Metcalf; Ideologies of the Raj.
- Urvashi Butalia; The Other side of Silence.

HIS 501: HISTORY OF INDIA FROM 1757AD TO 1857AD

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

The students will be able to trace the British Colonial expansion in the political contexts of mid eighteenth to mid nineteenth century India. They will learn about the changes in society, politics, religious and economy during this period. They will also acquire knowledge about the transition of India into a colonized society and economy.

Unit I

Ascendancy of British East India Company: Plassey and Buxar and its Impact.

Unit II

Struggle for supremacy – War and diplomacy-East India Company and other Indian power-Marathas, Mysore, Rohillas, Gorkhas and Sikh, Subsidiary Alliance

Unit III

Economic Changes under colonial rule-Permanent settlement, Raytwari and Mahalwari, Commercialization of agriculture &indebtedness Forest policy.

Unit IV

Decline of Handicrafts, Development of Irrigation, Introduction of Railways & Growth of Modern Industry, Economic Drain.

Unit V

Popular Resistance of company's rule-Peasant and tribal Movements,

Unit VI

Socio Religious Reform Movements: Raja Ram Mohan Rai, Ishwar Chandra Vidya Sagar, Abolition of Slavery, Young India Movement

Unit VII

Revolt of Indian Sepoys; Risein Imperialistic Designs-Doctrine of Lapse, Revolt of 1857: causes and consequences.

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- A.R. Desai, Peasant Struggles in India.
- Amiya Bagchi, Private Investment in India.
- Bipan Chandra, K.N. Panikkar, Mridula Mukherjee, Sucheta Mahajan and Aditya Mukherjee, India's Struggles for Independence.
- Bipan Chandra, Rise and Growth of Economic Nationalism in India.
- C. A. Bayly, Indian Society and the Making of the British Empire, New Cambridge History of India.
- Dadabhai Naroji, Poverty and Un-British Rule in India.
- David Arnold and Ramchandra Guha, eds, Nature, Culture and Imperialism.
- Dharma Kumar and Tapan Raychaudhuri, eds., The Cambridge Economic History of India, Vol. II.
- Eric Stokes, English Utilitarians and India.
- J. Krishnamurti, Women in Colonial India.
- J.S. Grewal, The Sikhs of the Punjab, New Cambridge History of India
- M.J. Fisher, ed., Politics of Annexation (Oxford in India Readings).
- P.C. Joshi, Rebellion 1857: A Symposium.
- P.J. Marshall, Bengal: The British Bridgehead, New Cambridge History of India.
- R.C. Majumdar, ed., History and Culture of Indian People, Vols. IX and X. British Paramountcy and Indian Renaissance.
- R.P. Dutt, India today.
- Rajat K. Ray, ed., Entrepreneurship and Industry in India, 1800- 1947, Oxford in India Readings.
- Ram Lakhan Shukla, ed., Adhunik Bharat ka Itihas.
- Ranajit Guha, ed., A Subaltern Studies Reader.
- Ranajit Guha, Elementary Aspects of Peasant Insurgency in Colonial India (1983).
- Shekher Bandopadhyya: Plassy to Partation Orient Black Swan (Hindi & English)
- Suhash Chakravarty, The Raj Syndrome: A Study in Imperial Perceptions, 1989.

HIS 502: WORLD HISTORY 1815-1914 AD

Credit: 03+01=04

Maximum Marks: 70+30=100

Unit I

Age of Conservatism: Vienna Congress Metternich, Concept of Europe, French Revolution 1830, 1848

Unit II

Liberalism in England- Reform Act of 1832 and the Chartiest Movement, American civil war. Opium war in China

Unit III

Rise of Nationalism in Europe- Unification of Itlay and Germany.

Unit IV

Growth of Imperialism. Causes of First World War

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Antbony Wood, History of Europe, 1815 0 1960 (1983)
- Arvind Sinha, Europe in Transition, Delhi, 2010 (also in Hindi)
- Bailey C.A.: The Birth of Modern World
- Basil Davidson, Modern Africa: A Social and Political History,3d edn. London /New Jersey: Addison Wesley, 1995
- Benns, F. Lee: Europe since 1914
- C.M. Cipolla: Fontana Economic History of Europe, Volume II the Present (1981)
- Christopher Hill, From Reformation to Industrial Revolution
- E.J. Hobsbawn: The Age of Revolution
- Hartly, G M.S. (1950), Short History of international Affairs 1920-1939. New Yurk. Oklura University Press
- Hayes, C.J.H. A Political and Cultural History of Europe. 1830-1839
- J. Evans: The Foundations of a Modern State in 19th Century Europe.
- J.H Perry, The Establishment of the European Hegemony 1415-1715,
- James Joll, Europe Since 1870.
- K.R.G. Nair & Romey Borges, Discovering French Canada, Allied Publishers, 2002
- Langasm. W.C. World Since 1919, Surjeet Publication
- Parker, R.A.C.: (1969). Europe (1919-1945) London, Weidenliekl and Nicolson
- Ralph Davis, The Rise of the Atlantic Economies,
- T.S. Hamerow: Restoration, Revolution and Reaction: Economics and Politics in Germany [1815-1871]
- Taylor, A.J.P. (1961), Origin of the Second World War. Simunanl Seluster

MINOR/ELECTIVE
HIS 503: HISTORY OF JOURNALISM IN INDIA (UPTO 1947)

Credit: 03+01=04

Maximum Marks: 70+30=100

Unit I

Genesis and growth of press in India

Unit II

Newspaper in India from the beginning to 1857, Main features of Indian press from beginning to 1857

Unit III

Newspapers in India from 1857 to 1947, Main feature of Indian press from 1857 to 1947

Unit IV

Press: Rules, regulation and Prohibitions

Unit V

News Agencies and News Editors

Unit Vi

Press and the Indian National Movement

Unit VII

Press in Uttarakhand from Beginning to 1947

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Readings:

- Natrajan.J, History of Indian Journalism, Vol. -ii of Press Commission Report, New Delhi, 1954 Bombay, 1962
- Natrajan. J, A history of the Press in India, Asian Publishing House, Ghosh, Hamendra Prasad, Newspapers in India, University ofCalcutta, 1952
- Ananda. Prakash, A History of the Tribune, A Centenary Publication by the Tribune Trust, 1986

HIS 601: HISTORY OF INDIA FROM 1858AD TO 1950AD

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

This paper is designed to develop an understanding of historical developments in India during the colonial rule. Understanding of the process of domination and resistance in this phase of colonial era shall enhance the student's awareness about modern India. By studying various strands of freedom movement student will be able to appreciate this phase of Indian past.

Unit I

The Acts of 1858 and 1861, Change in the guard Queen Victoria's proclamation and emergence of nationalistic fervor- initial stages; Birth of Indian National Congress Moderates versus Extremists-Surat Split,

Unit II

Reform And Revival: Brahmo samaj, Prarthna Samaj, Ramakrishna Mission, Vivekanand, Arya Samaj, Aligarh Movement

Unit III

Advent of Gandhi his Perspective & method; Act of 1919; Impact of World War-I on Independence Movement, Rowlatt Satyagrah & Jallianwala bagh Massacre Non Cooperation and Khilafat Movements, Swaraj Party.

Unit IV

Simon Commission; Civil Disobedience Movement, Nehru Report, Gandhi Irwin Pact; Communal Award; Round Table Conferences

Unit V

Rise of revolutionary extremism-Kakori Case, Lahore Conspiracy; Role of expatriates– Gadar Party, Silk letter Conspiracy; Komagatamaru episode;

Unit VI

Peasants, Tribal and Depressed Classes Movements

Unit VII

Act of1935-responsible government in provinces Quit India Movement, Subhas Chandra Bose and INA

Unit VIII

Rise of communal strife-Muslim League; Cripps Mission Cabinet Mission, Wavell Plan; India's independence and partition; Birth of Constitution

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Ayodhya Singh; 26 Bharat Ka Mukti Sangram
- B.L. Grover; A New Look on Modern Indian History, S Chand.
- Barbara D Metcalf and T.R. Metcalf; A Concise History of India, Cambridge, 2002
- Bipan Chandra, Aditya Mukherjee, India After Independence, Viking, 1999.
- Bipan Chandra: Nationalism and Colonialism.
- C.A. Bayly: An Illustrated History of Modern India 1600 - 1947, London 1990
- Francine Frankel; India's Political Economy 1947- 1977.
- Gail Omvedt; Dalits and Democratic Revolution.
- K.G. Subramanian; The Living Tradition: Perspectives on Modern Indian Art.
- Lloyd and Susan Rudolph in Pursuit of Laxmi: the Political Economy of the Indian State, Chicago, 1987
- Mushirul Hasan; From Company to the Republic: A story of Modern India
- Parul Brass; The Politics of India since Independence.
- R. Jeffery; J Masseloss, From Rebellion to the Republic.
- R.L. Shukla; Adunik Bharat (ed). Delhi University Hindi Madhyam Kriyanwanyan Nideshalaya. 2012.
- R.P. Dutt, India Today.
- Ramachandra Guha The Fissured Land.
- Sekhar Bandyopadhyay: From Plassey to Partition
- Shekher Bandopadhyya: Plassy to Partation Orient Black Swan (Hindi & English)
- Sumit Sarkar Modern India 1885 1947, Macmillan, 1983
- Sunder Lal; Bharat mein Angreji Raj 2 vol. (National Book Trust of India)
- Thomas Metcalf; Ideologies of the Raj. • Urvashi Butalia; The Other side of Silence.of India

HIS 602: WORLD HISTORY (1914-1945)

Credit: 03+01=04

Maximum Marks: 70+30=100

Unit I

World War One- Major events and Peace settlement, Bolshevik Revolution (1917)

Unit II

Economic and Social crisis between the two World War, the great depression and the new deal

Unit III

Awakening of China- Mao's Long March and rise of communism, Emergence of USA and Japan as major powers.

Unit IV

Emergence of New Ideologies – Fascism and Nazism, factors leading to World War II, the Holocaust, Victory of allide powers and shaping of new world order.

Suggestive Mode of Transaction:

Lecture cum discussion, demonstration, hands-on activities, experiential learning, inquiry, Group work, Presentations, multimedia.

Suggestive Mode of Assessment:

Written tests, classroom presentations, workshops, seminars, assignments, practicums, sessional and terminal semester examinations.

Suggested Reading:

- Antbony Wood, History of Europe, 1815 0 1960 (1983)
- Arvind Sinha, Europe in Transition, Delhi, 2010 (also in Hindi)
- Bailey C.A.: The Birth of Modern World
- Basil Davidson, Modern Africa: A Social and Political History,3d edn. London /New Jersey: Addison ñ Wesley, 1995
- Benns, F. Lee: Europe since 1914
- C.M. Cipolla: Fontana Economic History of Europe, Volume II the Present (1981)
- Christopher Hill, From Reformation to Industrial Revolution
- E.J. Hobsbawn: The Age of Revolution
- Hartly, G M.S. (1950), Short History of international Affairs 1920-1939. New Yurk. Oklura University Press
- Hayes, C.J.H. A Political and Cultural History of Europe. 1830-1839
- J. Evans: The Foundations of a Modern State in 19th Century Europe.
- J.H Perry, The Establishment of the European Hegemony 1415-1715,
- James Joll, Europe Since 1870.
- K.R.G. Nair & Romey Borges, Discovering French Canada, Allied Publishers, 2002
- Langasm. W.C. World Since 1919, Surjeet Publication
- Parker, R.A.C.: (1969). Europe (1919-1945) London, Weidenliekl and Nicolson
- Ralph Davis, The Rise of the Atlantic Economies,

POLITICAL SCIENCE

COURSE STRUCTURE OF ITEP, B.A.-B.Ed. IN THE SUBJECT OF POLITICAL SCIENCE

SEM.	PAPER CODE	TITLE	CREDITS
I	POL 101	BASIC CONCEPTS OF POLITICAL SCIENCE (PART: I)	03+01=04
	POL 102	BASIC CONCEPTS OF POLITICAL SCIENCE (PART: II)	03+01=04
II	POL 201	COMPARATIVE POLITICS	03+01=04
	POL 202	MAJOR CONSTITUTIONS OF THE WORLD	03+01=04
	POL 203	AWARENESS WITH CIVIC RIGHTS	03+01=04
III	POL 301	INTRODUCTION TO POLITICAL THEORY	03+01=04
	POL 302	FOUNDATIONS OF WESTERN POLITICAL THOUGHT	03+01=04
	POL 303	ISSUES OF WOMEN'S EMPOWERMENT	03+01=04
IV	POL 401	FOUNDATIONS OF INDIAN POLITICAL THOUGHT	03+01=04
	POL 402	INDIAN POLITICAL SYSTEM	03+01=04
	POL 403	HUMAN RIGHTS	03+01=04
V	POL 501	MAJOR THEORIES OF INTERNATIONAL POLITICS	03+01=04
	POL 502	INTRODUCTION TO MAJOR POLITICAL IDEOLOGIES	03+01=04
	POL 503	LOCAL SELF-GOVERNMENT	03+01=04
VI	POL 601	CONTEMPORARY ISSUES IN INTERNATIONAL POLITICS	03+01=04
	POL 602	STATE POLITICS IN INDIA WITH SPECIAL REFERENCE TO UTTARAKHAND	03+01=04

POLITICAL SCIENCE

POL 101: BASIC CONCEPTS OF POLITICALS CIENCE PART-I

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

Understanding Politics is integral and indispensable for a comprehensive and critical study of political science. The course is designed to train a student in the foundational issues of political science, which is relevant for any indepth study and research.

Learning Outcomes:

- Through the study of important philosophical, theoretical and ideological foundations in the study of political science, students are expected to develop critical thinking and arguments.
- Study of political systems around the world will not only give knowledge but will also train students towards comparative approaches and methods.
- Students will have an understanding on the international political system as it is and as it ought to be.
- Learning the fundamentals of Indian government and politics is important for Indian students and has a job-prospect particularly in civil services and other competitive examinations.
- By studying organizational and administrative behaviour in public administration, students are expected to acquire leadership and management skills.

UNIT I:

Concepts: Politics, Political Thought, Political TheoryandPoliticalScience

UNIT II:

State, Nation, CivilSociety: Definitions, Elements

UNIT III:

TheoriesoftheOriginof the State: Divine, Social Contract, Evolutionary.

UNIT IV:

Sovereignty; Austin's Theory, Pluralist Theory

UNIT V:

Power, Authority, Legitimacy

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggestive Reading Materials:

1. A.C. Kapoor-An Inroduction to Political Science (HindiandEnglish)
2. Andrew Heywood-PoliticalTheory

3. Bhargav Rajeev Acharya Ashok Political Theory an Introduction to Political science, Pearson Education India, 2008, (1st edition)
4. E. Ashirvadam-Political Theory (Hindi and English)
5. H. J. Laski-Grammar of Politics (Hindi and English)
6. Madan Gandhi-Modern Political Theory
7. O. P. Gauba - An Introduction to Political Theory (Hindi and English)
8. Roskin, Michael G., Robert L. Cord, James A. Medeiros and Walter S. Jones" Political Science: An Introduction" Pearson Education uk, 2019, (14thedition)
9. Sushila Ramaswamy-Political Theory
10. वीरकेश्वर प्रसाद :राजनीतिक शास्त्र के मूलसि्द्धान्त
11. Khosla, Madhav, et al. 2016. The Oxford Handbook of the Indianconstitution.Newdelhi
12. Benegal, Shyam. 2014. Samvidhan. RajyaSabha TV

POL 102: BASIC CONCEPTS OF POLITICAL SCIENCEPART: II

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning Outcome:

After studying the following unit, the students will be able to:

- Recognize, articulate, and apply an understanding of different perspectives to problem solving and decision making.
- Communicate and listen effectively to people with different perspectives. Listen actively and engage in inclusive dialog.
- Demonstrate intercultural communication skills, reciprocity, and responsiveness.
- Apply creative thinking and problem solving to community issues.

UNIT I:

Liberty, Equality, Justice, Law

UNIT II:

Rights, Duties, Political Obligation

UNIT III:

Democracy: Types, Representation and Participation

UNIT IV:

Political Parties, Pressure Groupsand Publicopinion

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint in Political Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggestive Reading Materials:

1. A.C. Kapoor-An Inroduction to Political Science (HindiandEnglish)
2. Andrew Heywood-PoliticalTheory
3. Bhargav Rajeev Acharya Ashok Political Theory an Introduction to Political science, Pearson Education India, 2008, (1st edition)
4. E. Ashirvadam-Political Theory (Hindi and English)
5. H. J. Laski-Grammar of Politics (Hindi and English)
6. Madan Gandhi-Modern Political Theory
7. O. P. Gauba - An Introduction to Political Theory (Hindi and English)
8. Roskin, Michael G., Robert L. Cord, James A. Medeiros and Walter S. Jones" Political Science: An Introduction" Pearson Education uk, 2019, (14thedition)
9. Sushila Ramaswamy-Political Theory
10. वीरकेश्वर प्रसाद :राजनीतिक शास्त्र के मूलसि्द्धान्त
11. Khosla, Madhav, et al. 2016. The Oxford Handbook of the Indianconstitution.Newdelhi
12. Benegal, Shyam. 2014. Samvidhan. RajyaSabha TV

POL 201: COMPARATIVE POLITICS

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

Understanding Politics is integral and indispensable for acomprehensive and critical study of political science. The course is designed to train a student in the foundational issues of political science, which is relevant for any indepth study and research.

Learning Outcomes:

After completing the course, the learner will:

- be familiarized with the debates around the origin, and evolution of the Indianconstitution.
- become aware of the manner in which government functions through its various organs.
- understand the division of power between various organs of the government at different levels.
- Understand the dimensions of shared living through these political values and concepts.
- Appreciate how these values and concepts enrich the discourses of political life, sharpening their analytical skills in the process.

UNIT I: Comparative Politics:

- Meaning and Nature
- Approaches to the study of political system, structural functional approach, system approach
- Unitary and federal form of government
- Parliamentary and presidential form of government.

UNIT II: Electoral system:

- Political culture
- Public opinion
- Political socialization and modernization

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.

- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggestive Readings:

1. A.C. Kapoor and K.K. Mishra-Select Constitution (English and Hindi)
2. B. Shiva Rao-SelectconstitutionsoftheWorld
3. B.C. Rai-The World Constitution: A ComparativeStudy
4. D.D. Basu-SelectConstitutionsoftheWorld
5. G. Almond-Comparative Politics Today: AWorld View
6. J.C. Johari-Select World Constitutions (English and Hindi)
7. M.Y. Pylee-Constitutions of theworld, 2nd Volume
8. R. Hague & M. Harrop-Comparative Government and Politics: An Introduction
9. Robert Maddex-Constitution of the World
10. S.N. Dubey-NarainsWorldConstitutions
11. VidyaBhusan-World Constitutions: AComparative Study
12. VishnooBhagwan–WorldConstitutions

POL 202: MAJOR CONSTITUTIONS OF THE WORLD

Credit 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

Upon successful completion, students will have the knowledge and skills to:

- Develop a global understanding of the key concepts within the course: political regimes, economic regimes, economic development, institutional change, rent-seeking, varieties of capitalisms (and non-capitalisms), sanctions regimes, value chain risk-management.
- Understand the linkage between economic and political institutional change.
- Develop a solid understanding of the post-Soviet space.
- understand the sources of these concepts and their historical development;
- Use these concepts in order to critically research, analyse, and evaluate major issues in political institutions; anddevelop skills for research, argument, and analysis in order to effectively communicate their own perspectives on key concepts and issues in political institutions.

UNIT I: Constitution of Britain:

Historical Background, Main Features, The crown, Executive legislature, party system.

UNITII: USA:

Historical Background, Main Features, Executive (President), Legislature (Congress), Judiciary and judicial review, Separation of power and theory of check and balance.

UNIT III: Constitution ofSwitzerland:

Historical Background, Main Features, Executive, Legislature

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggestive Readings:

1. A.C. Kapoor and K.K. Mishra-Select Constitution (English and Hindi)
2. B. Shiva Rao-SelectconstitutionsoftheWorld
3. B. C. Rai-The World Constitution: A Comparative Study
4. D.D. Basu-Select Constitutions of the World
5. G. Almond-Comparative Politics Today: A World View
6. J.C. Johari-Select World Constitutions (English and Hindi)
7. M.Y. Pylee-Constitutions of the world, 2nd Volume
8. R. Hague & M. Harrop-Comparative Government and Politics: An Introduction
9. RobertMaddex-ConstitutionoftheWorld
10. S.N. Dubey-Narains World Constitutions
11. Vidya Bhusan-World Constitutions: A Comparative Study
12. VishnooBhagwan–WorldConstitutions

MINOR/ELECTIVE
POL 203: AWARENESS WITH CIVIC RIGHTS

Credit 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

After completing the course, the learner will:

- Recognize, articulate, and apply an understanding of different perspectives to problem solving and decision making.
- Communicate and listen effectively to people with different perspectives. Listen actively and engage in inclusive dialog.
- Demonstrate intercultural communication skills, reciprocity, and responsiveness.
- Apply creative thinking and problem solving to community issues.
- Translate ideas, concerns, and findings into appropriate and responsible individual or collaborative actions to improve conditions.

UNIT I:

Right: Concept, Definitions

UNIT II:

Preamble of Indian constitution, Fundamental Rights, HumanRights

UNIT III:

RighttoInformationandRighttoEducation

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Reading:

1. Khosla, Madhav, etal. 2016. The Oxford Handbook of the Indian constitution. Newdelhi
2. Benegal, Shyam. 2014. Samvidhan. Rajya Sabha TV

Suggested Online Link:

1. https://www.digitalindia.gov.in/services
2. https://rtionline.gov.in/
3. https://www.india.gov.in/topics/law-justice

POL 301: INTRODUCTION TO POLITICAL THEORY

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

The Introduction to Political Theory course offers an exploration of foundational concepts and theories that underpin political thought and action. Students develop into the works of key political theorists, examining ideologies such as liberalism, conservatism, socialism, and feminism. Through critical analysis and discussion, learners gain insights into the nature of power, authority, justice, and the relationship between individuals and the state. By the course's end, students develop a nuanced understanding of political theory's relevance in contemporary society.

UNIT- I

Traditional and Modern Political Theory: Basic Features and Distinctions

UNIT- II

Behaviouralism and post-Behaviouralism

UNIT- III

Theories of the Functions of the State: Liberal, Welfare, Socialist

UNIT- IV

Theories of Democracy: Traditional, Elitist, Modern

UNIT- V

Theories of Justice: Procedural Justice, Social Justice, Distributive Justice

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.

- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Readings:

1. Andrew Heywood- Political Theory
2. Bhargav Rajeev, Acharya Ashok: Political Theory | An Introduction to Political science, Pearson Education India, 2008, (1st edition)
3. E. Ashirvadam- Political Theory (Hindi and English)
4. H. J. Laski- Grammar of Politics (Hindi and English)
5. Madan Gandhi- Modern Political Theory
6. O P Gauba- An Introduction to Political Theory (Hindi and English)
7. Roskin, Michael G., Robert L. Cord, James A. Medeiros and Walter S. Jones: "Political Science: An Introduction", Pearson Education uk, 2019, (14th edition)
8. Sushila Ramaswamy- Political Theory

Suggested online link:

www.ignou

www.swayam

www.inflibnet

POL 302: FOUNDATIONS OF WESTERN POLITICAL THOUGHT

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

After completion of the course, students will be able to:

- Understand the Main Features of Classical Greek Philosophy in general and Political Philosophy from Plato to Marx in particular.
- Comprehend the ideas on state, people, Justice, communism, education, constitution, Liberty, Rights, etc.
- Analyse and justify the relevance of the Ideas of those thinkers in the modern era.

UNIT- I

Greek Thought: Plato, Aristotle

UNIT- II

Initiation of Modern Thought: Machiavelli

UNIT-III

Concept of Social Contract: Hobbes, Locke, Rousseau

UNIT- IV

Utilitarian Thought: Bentham

UNIT- V

Foundations of Liberal Thought: J.S. Mill, T.H. Green

UNIT- VI

Foundations of Marxism: Karl Marx

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Readings:

1. Brian R. Nelson- Western Political Thoughts
2. C.C. Wayper- Political Thought
3. George H. Sabine- A History of Political Theory
4. J. S. McClellan- A History of Western Political Thought
5. O. P. Gauba- Western Political Thought
6. Shefali Jha- Western Political Thought
7. Subratra Mukherjee and Sushila Ramaswamy- A History of Political Thought: Plato to Marx
8. Sukhbeer Singh – A History of Political Thought (Vol. 1and Vol. 2)
9. W.H. Spellman- A Short History of Western Political Thought
10. चंद्रदेव प्रसाद- महान राजनीतिक विचारक, श्रृंखला (कुल आठ पुस्तकें)
11. ब्रजकिशोर झा- प्रमुख राजनीतिक विचारक

Suggested Online Link:

- https://ndl.iitkgp.ac.in/
- http://epgp.inflibnet.ac.in/
- http://egyankosh.ac.in/
- https://www.ncertbooks.guru/english-skills/
- https://epathshala.nic.in/
  https://www.digitalindia.gov.in/servi

MINOR/ELECTIVE
POL 303: ISSUES OF WOMEN'S EMPOWERMENT

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

Women's empowerment in India is required to overcome situations of such types and to provide them with an independent role in Indian society. Empowering women is a necessary right of women. They should have proportional rights to contribute to society, economics, education, and politics.

UNIT: I

Historical Analysis of Women's Movements- Suffrage, Working Women's Issues, and Strategies for Women's Empowerment

UNIT: II

Women and Development, Organization and Development, Legal Rights for Women

UNIT- III

Women and Society, Women's Health and Local Issues

UNIT- IV

Importance of Education in Women's Empowerment, Role of Government in the Development of Women

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Reading:

1. Women in Indian Society by Neera Desai
2. Women and Empowerment in Contemporary India by Barati Baswas
3. Bargad, Adena, and Janet Shibley Hyde. "Women's studies: A study of feminist identity development in women." Psychology of Women Quarterly 15.2 (1991): 181-201.
4. Blau, Francine D., and Lawrence M. Kahn. "Understanding international differences in the gender pay gap." Journal of Labor Economics 21.1 (2003): 106-144.
5. Blossfeld, Hans-Peter, and Kathleen Kiernan. The new role of women: Family formation in modern societies. Routledge, 2019.
6. Cranny-Francis, Anne, et al. Gender studies: Terms and debates. Bloomsbury Publishing, 2017.
7. Davis, Kathy, Judith Lorber, and Mary S. Evans. "Handbook of gender and women's studies." Handbook of Gender and Women's Studies (2006): 1-512.

Suggested equivalent online courses:

- **https://ndl.iitkgp.ac.in/**
- **http://epgp.inflibnet.ac.in/**
- **http://egyankosh.ac.in/**
- **https://www.ncertbooks.guru/english-skills/**
- **https://epathshala.nic.in/**
- **https://www.digitalindia.gov.in/services**
- **https://rtionline.gov.in/**
- **https://www.india.gov.in/topics/law-justice**

POL 401: FOUNDATIONS OF INDIAN POLITICAL THOUGHT

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

This course is to familiarize the students with the larger political and social thinking and ideas in Ancient, medieval and Modern India. Designed in a way to help students engage with various ideological dispensations that came to shape the normative thinking on India.

UNIT- I

Ancient Indian Political Thought Tradition: Manu and Kautilya

UNIT- II

Indian Renaissance: Raja Ram Mohan Roy

UNIT- III

Theory of Non-Violence: Mohandas Karamchand Gandhi

UNIT- IV

Theory of Social Change: Dr. Bhimrao Ambedkar

UNIT-V

Builder of modern India: Pt. J.L. Nehru

UNIT VI

Indian Humanism: M.N. Roy

UNIT- VII

The Socialist Tradition: R.M. Lohia and J.P. Narayan

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Reading:

1. Ramchandra Guha: The Makers of Modern India
2. Raghwar Iyer, Collected works of Gandhi
3. Raghwar Iyer, the Moral and Political Thought of Mahatma Gandhi
4. Kalyan sen Gupta, the Philosophy of Rabindranath Tagore
5. V R Mehta, Political Ideas in Modern India
6. V R Mehta, Indian Political Thought
7. Raghuram Raju, Debating Gandhi
8. Deutsch Kenneth, Political Thought in Modern India
9. Sunil Khilnani, The Idea India
10. M K Gandhi, Hind Swaraj
11. Verma V. P. "Modern Indian Political Thought", Lakshmi Narain Agarwal Educational Publishers, 2017 (Hindi English both)

Suggested Online Link:

- https://ndl.iitkgp.ac.in/
- http://epgp.inflibnet.ac.in/
- http://egyankosh.ac.in/
- https://www.ncertbooks.guru/english-skills/
- https://epathshala.nic.in/
- https://www.digitalindia.gov.in/services
- https://rtionline.gov.in/
- https://www.india.gov.in/topics/law-justice
-

POL 402: INDIAN POLITICAL SYSTEM

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

Acquaintance to Indian National Movement & Constitution is indispensable for a student to make a sense of Indian Political System. The course is designed to provide an overview of Indian freedom Struggle and key concepts of the Indian constitution to the student, which would evolve him into a conscientious citizen.

UNIT- I

Basic Features of Indian Constitution: Preamble, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy

UNIT- II

The Indian Parliament; Lok Sabha and Rajya Sabha

UNIT- III

The Executive; The President, The Prime Minister and The Cabinet

UNIT- IV

Indian Judicial System: Judicial Review and Judicial Activism.

UNIT- V

Dynamics of State Politics: Centre-State Relations

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Reading:

1. J.C. Johari- Indian Government and Politics (English and Hindi)

2. Bidyut Chakrabarti and Rajendra Kumar Pandey- Indian Government and Politics (English and Hindi)

3. Niraja Gopala Jayal and Pratap Bhanu Mehta- The Oxford Companion to politics in India

4. Rajni Kothari - Politics in India (English and Hindi)
5. B. K. Sharma- Politics and The State in India
6. R. Sudarshan, Zoya Hasan and Eswaran Sridharan- India's Living Constitution, Ideas, Practices, Controversies
7. Balveer Arora, Fancis Frankel and Rajeev Bhargava – Transforming India Social and Political Dynamics of Democracy

Suggested Online Link:

- https://ndl.iitkgp.ac.in/
- http://epgp.inflibnet.ac.in/
- http://egyankosh.ac.in/
- https://www.ncertbooks.guru/english-skills/
- https://epathshala.nic.in/
- https://www.digitalindia.gov.in/services
- https://rtionline.gov.in/
- https://www.india.gov.in/topics/law-justice

MINOR/ELECTIVE
POL 403: HUMAN RIGHTS

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

The Introduction to Human Rights course provides a foundational understanding of the principles, history, and contemporary debates surrounding human rights. Students explore the philosophical underpinnings, legal frameworks, and practical applications of human rights in diverse contexts. Through case studies and critical analysis, learners examine challenges such as discrimination, inequality, and conflict resolution. By course completion, students develop a deep appreciation for the importance of human rights in promoting justice, dignity, and equality for all individuals globally.

UNIT- I

Human Rights- Meaning and Definition, Ideological background of Human Rights

UNIT- II

Three Generation Theory of Human Rights

UNIT-III

Feminists Perspective of Human Rights

UNIT-IV

Marxist Perspective of Human Rights

UNIT- V

Human Rights machinery at the International Level

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Readings

1. Antonio Cassese, Human Right in a Changing world
2. Baxi Upendra, Future of Human Right
3. Guna Roy, Jai Tilak, Human rights for the 20th century
4. Biswal Tapan, Human Right gender and Environment
5. Baxi Upendra, The Right to be human
6. Iyer V. R. Krishna, Human rights and Human Wrongs
7. Jack Donnelly, The Concept of Human Right
8. M. J Antonio M J, Women's Rights
9. Winton, Horton, The Philosophy of Human rights
10. Michael Freeman, Human Right05
11. Sayed M H, Human Rights the New Era
12. Freeman A, Human Rights: A Disciplinary Approach

Suggested online link:

- www.ignou
- www.swayam
- www.inflibnet

POL 501: MAJOR THEORIES OF INTERNATIONAL POLITICS

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

This course seeks to equip students with the basic tools for understanding international relations. It also introduces major events and developments that have shaped the contemporary international system. It aims to capture the changing dynamics of global politics by taking up burning and relevant issues that potentially alter its contours.

UNIT- I

International Politics: Definition, Scope, and Relevance

UNIT- II

Theories of International Politics: Idealism, System Theory, Realism, Neo-Realism, Game theory and Decision-making theory

UNIT- III

National Interest: Definitions and Elements

UNIT- IV

National Power: Definitions and Elements

UNIT- V

Foreign Policy: Determinants of Foreign Policy

UNIT- VI

United Nations: Objectives, Structure, and Working of UNO, Relevance

UNIT- VII

Regional Organizations: SAARC, ASEAN, and European Union

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Reading:

1. John Baylis – The Globalisation of World Politics
2. Piu Ghosh- International Relations, 2017
3. Jim George and Anthony D. Burke – An Introduction to International Relations 2017
4. Timuthy Dunne, Milla Karki, Steve Smith – Intenational Relations Theories 2017
5. Robert Jackson- Introduction to International Relations Theories
6. Jenny Edkins and Maja Zehtuss –Global Politics: A New Introduction, 2009
7. Tapan Biswal – International Relations (English and Hindi)
8. Pushpesh Pant – International Relations in the 21st Century
9. कल्पना अग्रहरि- अन्तर्राष्ट्रीय संबंध
10. Hans Morganthau- Politics among Nations
11. A.C. Roy- International Relations since 1919
12. S. Mukherjee – International Relations
13. Rumki Basu- International Politics

Suggested online link:

- www.ignou
- www.swayam
- www.inflibnet

POL 502: INTRODUCTION TO MAJOR POLITICAL IDEOLOGIES

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

Students engage with diverse ideological perspectives shaping political discourse in the Introduction to Political Ideology course. Through historical and contemporary analysis, learners explore ideologies including liberalism, conservatism, socialism, and anarchism. Emphasizing critical thinking, the course delves into the principles, values, and implications of each ideology. By course completion, students develop a nuanced understanding of ideological diversity, enabling them to critically assess political rhetoric, policies, and movements in a global context.

UNIT-I

Liberalism and Neo-liberalism

UNIT-II

Conservatism and Neo-conservatism

UNIT-III

Socialism

UNIT-IV

Marxism

UNIT-V

Fascism

UNIT- VI

Environmentalism

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Readings:

1. Charvet J., Feminism, Dent, London, 1982.
2. Collins P., Ideology after fall of communism, London, Bower dean, 1933.
3. Butler C., Post Modernism: A very short introduction, Oxford University Press, Oxford 2020.
4. Bryson V., Feminist Political Theory: An Introduction (2nd Ed), MacMillan, 2002.
5. Hayward T. Political Theory and Ecological Values, Polity Press, 1998.
6. Honderich T., Conservatism, Penguin, 1991.
7. Lane D., Rise and Fall State Socialism, Oxford Polity Press,1996
8. Lyotard J F., The post-modern Conditions: The Power of Knowledge, Minneapolis, University of Minnesota Press, 1984.
9. Mclellan D., Marxism after Marx, MacMillan, 1980.
10. Mclellan D., The thought of Karl Marx, Mclellan, 1980.

11. O' Sullivan N., Rethinking Multiculturalism Mclellan, 2000
12. Smith A. D., Nationalism, Theory, Ideology, History, Polity Press, 2001.
13. Smart B., Post Modernity Routledge, 1993.
14. Vincent A, Modern Political Ideologies, 2nd Ed, Oxford Blackwell, 1996.
15. Ward B and R Dubos, only one Earth, Penguin, 1972.
16. Grey J., Two faces of Liberalism, Polity Press, 2000.
17. Gray J., Post Liberalism studies in Political Thought, Routledge, 1996.
18. Goodin R.E., Green Political Theory, Oxford Political Press,1992
19. Gellner E. Nation and Nationalism, Oxford Polity Blackwell, 1982.
20. Freedman J., Feminism, Open University Press, Buckingham, 2001.
21. Eckersley R., Environmentalism and Political Theory: Towards an Ecocentric Approach, UCL Press, London, 1992.
22. Eccleshall Retal, Political Ideologies: An Introduction, Routledge, 2003.
23. Eatwell, R. and A Wright (Ed), Contemporary Political Ideologies 2nd Ed, Printer, London, 1999.
24. Eagleton, T., Ideology: An Introduction, London, Verso, 1991.
25. Dobson, A., Green Political Thought, Harper Collins, London, 2000.
26. Adams, I., Political Ideologies Today, 2nd Ed, Manchester University Press, Manchester, 2001.
27. Bahro R., Socialism and Survival, London, Heretic Books, 1962.
28. Heywood A., Political Ideologies: An Introduction, Palgrave, MacMillan, 2003.

Suggested Online Link:

- https://ndl.iitkgp.ac.in/
- http://epgp.inflibnet.ac.in/
- http://egyankosh.ac.in/
- https://www.ncertbooks.guru/english-skills/
- https://epathshala.nic.in/
- https://www.digitalindia.gov.in/services
- https://rtionline.gov.in/
- https://www.india.gov.in/topics/law-justice

MINOR/ELECTIVE

POL 503: LOCAL SELF-GOVERNMENT

Credits: 03+01= 04
Maximum Marks: 70+30= 100

Learning Outcomes:

The course on local self-governance aims to deepen understanding of principles, roles, and challenges in community governance. Students will analyze local government structures, assess their impact on community development, and explore strategies for citizen engagement. Through case studies, they'll apply theoretical knowledge to practical scenarios, developing critical thinking and problem-solving skills. By course end, participants will formulate recommendations for enhancing local governance practices, fostering effective community participation and decision-making.

UNIT- I

Local Self Government: Constitutional Provision and Amendments (73 &74 Amendment)

UNIT- II

Caste, Class, and Gender in Local Politics

UNIT- III

The role of Non-Governmental Organizations (NGOs) at the grassroots level.

UNIT- IV

Decentralization and Development.

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Readings:

1. Neeraja Gopal Jayal Amrit Prakash, Pradeep K Sharma (Ed), local government in India, Decentralization and beyond, Oxford University.
2. T. N Chaturvedi (Ed), Local Government, IIPA, New Delhi, 1984.
3. S.H. Jha and P.C Mathur, Decentralization and local politics, Sag
4. R.B Jain, Panchayati Raj, IIPA New Delhi, 1984 Publication, New Delhi, 1999.
5. A. Bajpai, Panchayati Raj, and Rural Development, Sathiya Prakashan, New Delhi, 1997.
6.George Mathew, Panchayati Raj, from Legislation to Movement, Concept, New Delhi,1984.
7. G. Ram Reddy, Pattern Panchayati Raj, in India, MacMillan, Delhi, 1997.
8. N. Rajagopal Rao, Panchayati Raj: A study of Rural Local Government in India, Uppal, New Delhi, 1992.

POL 601: CONTEMPORARY ISSUES IN INTERNATIONAL POLITICS

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

This course seeks to equip students with the basic tools for understanding International Relations. It also introduces major events and developments that have shaped the contemporary international system. It aims to capture the changing dynamics of global politics by taking up burning and relevant issues that potentially alter its contours.

UNIT- I

Cold War, Detente, and New Cold War.

UNIT- II

Non-Aligned Movement

UNIT- III

Nuclear Disarmament: Role of UN and Super Powers

UNIT- IV

Globalization, Bretton Woods System GATT and WTO

UNIT- V

International Environmental Concerns: Major Treaties and Role of UNO

UNIT- VI

International Terrorism. and Emerging Power Axis

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Reading:

1. Andrew Heyood- Global Politics
2. Globalisation of World Politics: An Introduction to International Relations by John Baylis, Smith and Owen
3. Vinod Sharma- Human Rights violation – A Global Phenomenon
4. M.S. Agwani- Détente: Perspectives and Repercussions
5. Paul Kennedy- Preparing for the Twenty-First Century
6. S. Mukherjee – International Relations
7. Pushpesh Pant- International Relations in 21st Century

Suggested Online Link:

- https://ndl.iitkgp.ac.in/
- http://epgp.inflibnet.ac.in/
- http://egyankosh.ac.in/
- https://www.ncertbooks.guru/english-skills/

- https://epathshala.nic.in/
- https://www.digitalindia.gov.in/services
- https://rtionline.gov.in/
- https://www.india.gov.in/topics/law-justice

POL 602: STATE POLITICS IN INDIA WITH SPECIAL REFERENCE TO UTTARAKHAND

Credits: 03+01= 04

Maximum Marks: 70+30= 100

Learning Outcomes:

The State Politics in India course, with a focus on Uttarakhand, examines the political dynamics, institutions, and processes at the state level. Through case studies and comparative analysis, students explore Uttarakhand's political history, party systems, and governance structures. Special emphasis is placed on understanding regional factors, identities, and socio-economic issues shaping politics in the state. By course completion, students gain insights into the unique challenges and opportunities in state-level politics within the Indian federal system.

UNIT-I

State Politics, scope, and role in the Indian Political System

UNIT-II

Regional Politics and the Demand for Autonomy (Uttarakhand Movement)

UNIT-III

Social Base of State Politics of Uttarakhand

UNIT-IV

Political Leadership and Elite at State and Local Level

UNIT-V

Election at State and Local Levels

UNIT-VI

Panchayati Raj Institutions and Van Panchayats in Uttarakhand

Suggestive Practicum:

- Prepare a case study on students with learning difficulties.
- Prepare a report on challenges of organizing guidance and counselling programmes in school.
- Explore development of multidisciplinary projects and present using PowerPoint inPolitical Science.
- Make a presentation on the role of Political Science in sustainable development of society.
- Prepare a plan for action research. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

Lecture method, Discussion method, Question-Answer method etc.

Suggestive Mode of Assessment:

Test, Examination, viva.

Suggested Readings:

1. Parth Chatterjee, State and Politics in India, Oxford University
2. Zoya Hasan, Politics and States in India, sage Publication
3. Nirja Joyal, Democratic Governance

4. Asuthosh Varshney, democracy Development and countryside: Urban-Rural Struggle in India
5. Atul Kohli: Democracy and Discontent
6. Myron Winner: Electoral Process in states
7. Iqbal Narayan: State Politics in India, Manohar Publication
8. Paul Brass Functional Politics in Punjab
9. Zoya Hassan: The State Political Processes and Identity, Sage Publication New Delhi

Suggested online link:

- www.ignou
- www.swayam
- www.inflibnet

ECONOMICS

COURSE STRUCTURE OF ITEP, B.A.-B.Ed. IN THE SUBJECT OF ECONOMICS

SEM.	PAPER CODE	TITLE	CREDITS
I	ECO 101	BASICS OF MICRO-ECONOMICS PART-I	03+01=04
	ECO 102	BASICS OF MICRO-ECONOMICS PART-II	03+01=04
II	ECO 201	BASICS OF MACRO-ECONOMICS	03+01=04
	ECO 202	ECONOMY OF UTTARAKHAND	03+01=04
	ECO 203	FUNDAMENTALS OF ECONOMICS	03+01=04
III	ECO 301	BASICS OF PUBLIC FINANCE-I	03+01=04
	ECO 302	MONEY & BANKING-I	03+01=04
	ECO 303	FUNDAMENTAL OF ECONOMIC SYSTEM	03+01=04
IV	ECO 401	BASICS OF PUBLIC FINANCE-II	03+01=04
	ECO 402	MONEY & BANKING-II	03+01=04
	ECO 403	INDIAN ECONOMY & ECONOMY OF UTTARAKHAND	03+01=04
V	ECO 501	INTERNATIONAL ECONOMIC -I	03+01=04
	ECO 502	STRUCTURE AND PROBLEMS OF INDIAN ECONOMY-I	03+01=04
	ECO 503	VITAL STATISTICS	03+01=04
VI	ECO 601	INTERNATIONAL ECONOMIC-II	03+01=04
	ECO 602	STRUCTURE AND PROBLEMS OF INDIAN ECONOMY-II	03+01=04

ECONOMICS

ECO 101: BASICS OF MICRO-ECONOMICS PART-I

Credit 03+01=04

Maximum Marks: 70+30=100

About the course:

The Course is designed for the students to pursue graduation with Economics in regular mode. The programme aims to inculcate economic thinking in students and help them in economic decision making. It aims to develop analytical view point in the students about the economic behavior of the people. The objective is to nurture the students as socially responsible and ethically aware citizens. The under graduate programme will have 10 courses in 6 Semesters in 3 years. Beside these the student will choose Skill Development Course in each of the first 4 semesters. Keeping in the spirit of the New Education Policy 2020 to introduce research at the graduation level Field Survey in Fifth Semester & Research Project in Sixth Semester is introduced in this course. The focus of the National Education Policy (NEP) 2020 is on the holistic development of students. To achieve the objectives, interventions from quality teachers are vital. Teacher education programme strongly emphasizes pedagogy, its principles, and the practices of teaching and learning.

Learning Outcomes:

After the completion of the course the students will be able to:

- Study of micro economics enables the students to have an understanding of theoretical aspects of the subject.
- Students are able to understand and define the basic concepts like consumer behavior, production, demand and supply etc.
- Students will learn about the elasticity of demand and theory of production

UNIT-I

A. Definition, Nature, Scope and Methods of Micro Economics.
B. Equilibrium: Partial and General, Static and Dynamic.

UNIT-II

A. Theory of Demand& Supply: Concept of Demand, Law of Demand & Determinants of demand. Supply: Concept of Supply, Law of Supply & Determinants of Supply.
B. Utility Analysis (Cardinal and Ordinal Approach) Indifference Curve Analysis. Consumer's Equilibrium.

UNIT-III

A. Concept and Calculation of Elasticity of Demand & Consumers' Surplus.
B. Theory of Production: Production Possibility Curve, Law of Variable Proportions & Law of Return to Scale.

Suggestive Practicum (Any Three):

1. Prepare a case study on students with learning difficulties.
2. Prepare a report on challenges of organizing guidance and counselling programmes in school.
3. Explore development of multidisciplinary projects and present using PowerPoint in Economics.
4. Make a presentation on the role of Economics in sustainable development of society.
5. Prepare a plan for action research.
6. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Ahuja, H.L., Advanced Economic Theory, S. Chand & Co., New Delhi.
- Koutsoyiannis, A., Modern Microeconomics, Macmillan, London.
- Roy Choudhary, K., Modern Micro Economics, Theory and Application, Vols. I, II & III, Dominant Publishers and Distributors, New Delhi.
- Lipsey, R.G., Introduction to Positive Economics, ELBS, London.
- Baumol, W., Economic Theory and Operations Analysis, Prentice Hall of India, New Delhi.
- Weintraub, E.R., General Equilibrium Theory, Macmillan, London.
- Da Costa, G.C., Production, Prices and Distribution, Tata McGraw Hill, New Delhi.
- Henderson, J.M.andR.E.Quandt, Microeconomic Theory: A Mathematical Analysis, McGraw Hill, Singapore.
- Mishan, E.J., Welfare Economics: An Assessment, North Holland, Amsterdam.
- एम0 एल0 झिंगन, उच्च आर्थिक सिद्धान्त, वृन्दा पब्लिकेषन, नईदिल्ली।
- आहूजा,एच0 एल0, उच्चतर आर्थिक सिद्धान्त, एस0 चाँद, नईदिल्ली

ECO 102: BASICS OF MICRO-ECONOMICS PART-II

Credit 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- Study of micro economics enables the students to have an understanding of theoretical aspects of the subject.
- Students will able to understand and define the basic concepts like cost, revenue.
- Students will learn about the price and output determination of the firm and industry under different market forms & facto pricing.

UNIT-I

A. Concept and Calculation of Total, Average and Marginal cost.
B. Concept and Calculation of Revenue Curve- Total, Average and Marginal.

UNIT-II

A. Market Structure & Types.
B. Equilibrium of the firm. Perfect Competition & Monopoly.

UNIT-III

A. Theory of Factors Pricing: Marginal productivity theory of Distribution.
B. Modern Theories of Wage, Rent, Interest & Profit.

Suggestive Practicum (Any Three):

1. Prepare a case study on students with learning difficulties.
2. Prepare a report on challenges of organizing guidance and counselling programmes in school.
3. Explore development of multidisciplinary projects and present using PowerPoint in Economics.
4. Make a presentation on the role of Economics in sustainable development of society.
5. Prepare a plan for action research.
6. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve

in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Ahuja, H.L., Advanced Economic Theory, S. Chand & Co., New Delhi.
- Koutsoyiannis, A., Modern Microeconomics, Macmillan, London.
- Roy Choudhary, K., Modern Micro Economics, Theory and Application, Vols. I, II & III, Dominant Publishers and Distributors, New Delhi.
- Lipsey, R.G., Introduction to Positive Economics, ELBS, London.
- Baumol, W., Economic Theory and Operations Analysis, Prentice Hall of India, New Delhi.
- Weintraub, E.R., General Equilibrium Theory, Macmillan, London.
- Da Costa, G.C., Production, Prices and Distribution, Tata McGraw Hill, New Delhi.
- Henderson, J.M.and R.E. Quandt, Microeconomic Theory: A Mathematical Analysis, McGraw Hill, Singapore.
- Mishan, E.J., Welfare Economics: An Assessment, North Holland, Amsterdam.
- एम0 एल0 झिंगन, उच्च आर्थिक सिद्धान्त, वृन्दा पब्लिकेषन, नई दिल्ली।
- आहूजा,एच0 एल0, उच्चतर आर्थिक सिद्धान्त, एस0 चाँद, नई दिल्ली

ECONOMICS
ECO 201: BASICS OF MACRO-ECONOMICS

Credit:03+01=04

Maximum Marks: 70+30= 100

About the Course:

The focus of the National Education Policy (NEP) 2020 is on the holistic development of students. To achieve the objectives, interventions from quality teachers are vital. Teacher education programme strongly emphasizes pedagogy, its principles, and the practices of teaching and learning.

Learning Outcomes:

After the completion of the course the students will be able to:

1. Students will learn about macroeconomics and different concepts of national income.
2. Students will learn about the consumption, saving and investment functions.
3. Students will learn about Keynesian economics and Unemployment etc.

UNIT-I

A. Macro-economics: Meaning, Nature, Scope, Importance and Limitations.
B. Types of Macro Economics – Macro-Staticsand Macro - Dynamics.

UNIT-II

A. National Income Concept: Gross Domestic Product (GDP),Net Domestic Product (NDP),Gross National Product (GNP) ,Net National Product (NNP),Personal Income (PI),Disposable Income (DI).
B. Measures of National Income: Brief introduction to Product Method, Income Method Expenditure Method.

UNIT-III

A. Classical Theory of employment, Unemployment-Types, Cause& Remedies.
B. Keynesian Economics: Theory of Employment, Aggrefate Demand and Aggregate Supply.
C. Conepts: Consumption, Saving and Investment Function.

Suggestive Practicum (Any Three):

1. Prepare a case study on students with learning difficulties.

2. Prepare a report on challenges of organizing guidance and counselling programmes in school.
3. Explore development of multidisciplinary projects and present using PowerPoint in Economics.
4. Make a presentation on the role of Economics in sustainable development of society.
5. Prepare a plan for action research.
6. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Ackley, G., Macroeconomics: Theory and Policy, Macmillan, New Y
- Dornbusch, R. and F. Stanley, Macroeconomics, Mc Graw Hill, New York.
- Jha, R., Contemporary Macroeconomic Theory and Policy, Wiley Eastern, New Delhi.
- Vaish, M.C., Macroeconomic Theory, Vikas, New Delhi.
- Romer, D.L., Advanced Macroeconomics, Mc Graw Hill, New York.
- Gupta, S.B., Monetary Planning in India, OUP, New Delhi.
- Reddy, Y.V., A Review of Monetary and Financial Sector Reforms in India, UBSPD, New Delhi.
- Frisch, H., Theories of Inflation, Cambridge University Press.
- Rakshit, M., Studies in the Macroeconomics of Developing Countries, OUP, New Delhi.
- Vasudevan, A., Central Banking for Emerging Market Economies, Academic Foundation, New Delhi.
- Rana K.C. and K.N. Verma, Macro Economic Analysis, Vishal Publishing Co., Jalandhar.
- एम0 एल0 झिंगन, समष्टिअर्थशास्त्र, वृन्दापब्लिकेशन, नईदिल्ली।
- एच0 एल0 आहूजा, उच्चतरसमष्टिअर्थशास्त्र,एस0 चाँद, नईदिल्ली।

ECO 202: ECONOMY OF UTTARAKHAND

Credit:03+01=04
Maximum Marks: 70+30= 100
Learning Outcomes:
After the completion of the course the students will be able to:

- The student will come to know about the fundamentals of Uttarakhand Economy
- The students will get familiar to the tourism, Migration & Role of women in Uttarakhand economy

UNIT-I
The economy of Uttarakhand: Introduction and Characteristics, Demographic Profile, Natural Resources
UNIT-II
Agriculture and Industry in Uttarakhand and its problems.
UNIT-III
Tourism secor in Uttarakhand, Problems of migration in Uttarakhand, Rle of women in Uttarakhand's economy.
Suggestive Practicum (Any Three):

1. Prepare a case study on students with learning difficulties.
2. Prepare a report on challenges of organizing guidance and counselling programmes in school.
3. Explore development of multidisciplinary projects and present using PowerPoint in Economics.
4. Make a presentation on the role of Economics in sustainable development of society.
5. Prepare a plan for action research.
6. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:
The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:
The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.
Suggestive Reading Materials:

- Ackley, G., Macroeconomics: Theory and Policy, Macmillan, New Y

- Dornbusch, R. and F. Stanley, Macroeconomics, Mc Graw Hill, New York.
- Jha, R., Contemporary Macroeconomic Theory and Policy, Wiley Eastern, New Delhi.
- Vaish, M.C., Macroeconomic Theory, Vikas, New Delhi.
- Romer, D.L., Advanced Macroeconomics, Mc Graw Hill, New York.
- Gupta, S.B., Monetary Planning in India, OUP, New Delhi.
- Reddy, Y.V., A Review of Monetary and Financial Sector Reforms in India, UBSPD, New Delhi.
- Frisch, H., Theories of Inflation, Cambridge University Press.
- Rakshit, M., Studies in the Macroeconomics of Developing Countries, OUP, New Delhi.
- Vasudevan, A., Central Banking for Emerging Market Economies, Academic Foundation, New Delhi.
- Rana K.C. and K.N. Verma, Macro Economic Analysis, Vishal Publishing Co., Jalandhar.
- एम0 एल0 झिंगन, समष्टि अर्थशास्त्र, वृन्दा पब्लिकेशन, नईदिल्ली।
- एच0 एल0 आहूजा, उच्चतर समष्टि अर्थशास्त्र,एस0 चाँद, नईदिल्ली।
- तेज प्रकाश जोशी एवं डॉ0 सीता मेहता, उत्तराखण्ड आर्थिक विचार एवं विश्लेषण, विद्या प्रकाशन, सी, कानपुर

MINOR/ELECTIVE

ECO 203: FUNDAMENTALS OF ECONOMICS

Credit: 3+1=04

Maximum Marks: 70+30

About the Course

The focus of the National Education Policy (NEP) 2020 is on the holistic development of students. To achieve the objectives, interventions from quality teachers are vital. Study of micro economics enables the students to have an understanding of theoretical aspects of the subject. And learn about the price and output determination of the firm and industry under different market forms.

UNIT-I

- Meaning, nature & Scope of Micro Economics.
- Concept of Cardinal & Ordinal approach of Utility.
- Indifference Curve Analysis.
- Consumer Equilibrium.
- Concept of Demand.

UNIT-II

- Meaning, Nature & Scope of Macro Economics.
- Type of Macro Economics.
- Circular flow of Income.
- Concept of Inflation and Employment.
- Capitalist, Socialist & Mixed Economy.
- Problems of Resource Allocation.

UNIT-III

- Types & Classification of Money.
- Central Bank - RBI.
- International & Inter -regional Trade.
- Meaning & Scope of Public Finance.
- Concept of Direct & Indirect Tax

Suggestive Practicum (Any Three)

1. Prepare a case study on students with learning difficulties.

2. Prepare a report on challenges of organizing guidance and counselling programmes in school.
3. Explore development of multidisciplinary projects and present using PowerPoint in Economics.
4. Make a presentation on the role of Economics in sustainable development of society.
5. Prepare a plan for action research.
6. Organize an exhibition/ seminar and prepare a report.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggested Readings:

- Chaturvedi, D.D. & Anand Mittal; Principals of Macro Economics; Kitab Mahal, Delhi
- Mithani, D.M.: Macro Economics.
- Ackley, G.: Macroeconomics: Theory and Policy.
- तेज प्रकाश जोशी,, डाम0 सीता मेहता, उत्तराखण्ड आर्थिक विचार एवं विश्लेषण, विद्याप्रकाशनसी, 449,गुजैनी, कानपुर

ECO 301: BASICS OF PUBLIC FINANCE-I

Credit: 03+01= 04

Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- The students will become familiar with Public Finance and Maximum Social Advantage Theory.
- The students will be able to know about Public Expenditure and Public Revenue.

UNIT-I

- Public Finance: Meaning, Nature, Scope and Importance.
- Principle of Maximum Social Advantage. Functional and Activating Finance.

UNIT-II

- Public Expenditure: Meaning, Scope, Canons, Classification and Importance.
- Effects of Public Expenditure. Causes for an increasing in Public Expenditure.

UNIT-III

- Public Revenue: Meaning & Sources. Taxation: Meaning, Effects.
- Characteristics, Objectives and Canons of taxation. Direct and Indirect Taxes.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Dewett, K. K.: Modern Economic Theory.
- Mithani, D.M.: Modern Public Finance.
- Chaturvedi, D.D.& Anand Mittal; Principals of Macro Economics; Kitab Mahal, Delhi
- Chaturvedi, D.D. et.al.; Introductory Macro Economics; Kitab Mahal, Delhi
- Musgrave, R.A. and Musgrave P.B., Public Finance in Theory and Practice, McGraw Hill, New York.
- Prest, A.R. and Barr, N.A., Public Finance in Theory and Practice, ELBS, London.
- Buchanan, J.M., Public Finance, Irwin, New York.
- Prest, A. R., Public Finance in Under-developed Countries, Vikas, New Delhi4S.
- Buchanan, J.M., Public Principles of Public Debt, Irwin, Homewood. Ill., USA.
- Singh, S. K., Public Finance in Theory and Practice, S. Chand, New Delhi.
- Bhatia, H.L., Public Finance, Vikas Publishing House, New Del
- Herber, B.P., Modern Public Finance, AITBS, New Delhi.
- Andley, K.K. and Sundharam, K.M.P.: Public Finance and Public Economics

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ECO 302: MONEY & BANKING-I

Credits: 03+01= 04

Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- Students will understand the concept of money and banking.
- Students will learn about inflation, deflation, money, capital and financial market.

UNIT-I

- Barter system of exchange and its problems. Money: evolution, meaning and functions of money, classification of money. Monetary standard, metallic and paper standard.

UNIT-II

- Demand and Supply for Money. Role of Money in Capitalist, Socialist and Mixed Economies. Inflation and Deflation – Definition, Types, Causes and Effects.

UNIT-III

- Role, Structure and Importance of Money market and Capital market. Indian Money market and Indian Capital market. Financial Market.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.

- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Ackley, G.: Macroeconomics: Theory and Policy.
- K.M.P. Sundharam: Money, Banking and International Trade, Sultan Chand, New Delhi.
- Sethi, T. T., Money, Banking & International Trade, S Chand, New Delhi.
- Jalal, R. S., N. S. Bisht, Emerging Dimensions of Global Trade: Discussions on Trade Related Policies, Sarup& Sons, New Delhi
- Jalal, R. S., Trade Policy and Global Participation: Indian Experience, Sarup& Sons, New Delhi.
- टी.टी., मुद्राबैंकिंग एवं अन्तर्राष्ट्रीय व्यापार, लक्ष्मी नारायण अग्रवाल, आगरा
- सिंघई, जी.सी. एव ं जे. पी. मिश्रा, मुद्राबैंकिंग एव ं अन्तर्राष्ट्रीय व्यापार, साहित्य भवनपब्लिकेशनस, आगरा

MINOR/ELECTIVE
ECO 303: FUNDAMENTAL OF ECONOMIC SYSTEM

Credits: 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- The student will be able to understand the different types of economic system.
- The students will come to know about the working of mixed economy in India and Panchayati Raj.

UNIT-I

- Economic System – Definition, Nature, Scope and Importance. Types, Features of various economic systems. Causes of evolution of various economic systems. Functions and Efficiency of Economic Systems.

UNIT-II

- Capitalist System: Meaning and Characteristics, Advantages and Disadvantages. Dynamism in Capitalist system. Challenges to Capitalist Systems. Communist System: Concept and Features, Challenges to Communist Systems.

UNIT-III

- Concept of Mixed Economy: Planning under mixed economy, Working of Mixed Economy in India, Role of Public and Private Sectors in India. Gandhian Economic System and Panchayati Raj.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses

of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- S.K. Mishra, Economic Systems & Micro Economics, D.K. Publishers, New Delhi.
- S.S.M Desai: Economic Systems, Himalaya Publishing House, New Delhi.
- George Halm, Economic Systems.
- Vinod Mehta; The Solvent & Chinese Economy: A Comparative Study; D.K. Publishers
- Pillai & Sarangsharan; Economic Systems, Himalaya Publishing House, Bombay.
- Amritananda; Foundations of Gandhian Economics, D.K. Publishers, New Delhi.
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ECO 401: BASICS OF PUBLIC FINANCE-II

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- The students will become familiar with Public Debt and Deficit Financing.
- The students will be able to know about Fiscal Policy.

UNIT-I

- Public Debt: Meaning, Objectives and Sources. Effects and Burden of Public Debt.
- Types of Public Debt. Methods of Debt Redemption.

UNIT-II

- Deficit Financing, Types of Deficit Financing: Revenue Deficit, Primary Deficit, Budgetary Deficit and Fiscal Deficit.

UNIT-III

- Fiscal Policy: Meaning, Objectives of Fiscal Policy in Developing Economy. Full employment and Fiscal Policy.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Dewett, K. K.: Modern Economic Theory.
- Mithani, D. M.: Modern Public Finance.
- Chaturvedi, D.D.& Anand Mittal; Principals of Macro Economics; Kitab Mahal, Delhi
- Musgrave, R.A. and Musgrave P.B., Public Finance in Theory and Practice, McGraw Hill, New York.
- Prest, A.R. and Barr, N.A., Public Finance in Theory and Practice, ELBS, London.
- Buchanan, J.M., Public Finance, Irwin, New York.
- Prest, A. R., Public Finance in Under-developed Countries, Vikas, New Delhi4S.
- Buchanan, J.M., Public Principles of Public Debt, Irwin, Homewood. Ill., USA.
- Singh, S. K., Public Finance in Theory and Practice, S. Chand, New Delhi.
- Bhatia, H.L., Public Finance, Vikas Publishing House, New Del
- Herber, B.P., Modern Public Finance, AITBS, New Delhi.
- Andley, K.K. and Sundharam, K.M.P.: Public Finance and Public Economics.
- एस0 के0 सिंह, लोकवित्त, साहित्य भवनआगरा।

ECO 402: MONEY & BANKING-II

Credits: 03+01= 04

Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- Students will understand the concept of banks and Indian Banking System.
- Students will learn about monetary policy, objectives and Indian monetary policy.

UNIT-I

- Banking: Meaning, Functions & Types, Commercial Banking: Meaning, Functions & types of commercial banks. Process of Credit Creation.

UNIT-II

- Central Banking: Meaning and Functions. Qualitative and Quantitative methods of credit control. Reserve Bank of India: Role and Functions.

UNIT-III

- Monetary Policy: Meaning and Objectives. Monetary Policy in India. Recent Trends in Indian Banking.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.

- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Ackley, G.: Macroeconomics: Theory and Policy.
- K.M.P. Sundharam: Money, Banking and International Trade, Sultan Chand, New Delhi.
- Sethi, T. T., Money, Banking & International Trade, S Chand, New Delhi.
- Jalal, R. S., N. S. Bisht, Emerging Dimensions of Global Trade: Discussions on Trade Related Policies, Sarup& Sons, New Delhi
- Jalal, R. S., Trade Policy and Global Participation: Indian Experience, Sarup& Sons, New Delhi
- टी.टी., मुद्राबैंकिंग एवं अन्तर्राष्ट्रीय व्यापार, लक्ष्मी नारायण अग्रवाल, आगरा
- सिंघई, जी.सी. एव ं जे. पी. मिश्रा, मुद्राबैंकिंग एव ं अन्तर्राष्ट्रीय व्यापार, साहित्य भवनपब्लिकेशनस, आगरा

MINOR/ELECTIVE
ECO 403: INDIAN ECONOMY & ECONOMY OF UTTARAKHAND

Credits: 03+01= 04

Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- The student will come to know about the fundamentals of Indian Economic planning.
- The student will get familiar to the Economy of Uttarakhand.

UNIT-I

- Structure and Features of Indian Economy. Demographic profile of India. Introduction to Agriculture in India- nature, importance, Agricultural holdings and land reforms. Green revolution.

UNIT-II

Industrial Sectors in Indian, Industrial policies in India; Micro, small and medium enterprises (MSMEs), Role of service sector in Indian economy.

UNIT-III

- Features of economy of Uttarakhand. Agriculture and industrial Profile of uttarakhand. Migration and Reverse Migration in Uttarakhand. Role of Tourism and Women in economic development of Uttarakhand.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:
The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Agrawal, A.N.: Indian Economy, WishwaPrakashan, New age International (P) Limited,New Delhi.
- Misra, S. K. & V. K. Puri: Indian Economy.
- Ruddar Datt& K. M.P. Sundharam: Indian Economy, S. Chand, New Delhi.
- Lohani, Jitendra Kumar & Padam S. Bisht: Uttarakhand Ki Arthvyavastha, Kunal Books,New Delhi.

ECO 501: INTERNATIONAL ECONOMIC -I

Credit 03+01= 04
Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- Students will be able to learn about inter-regional and international trade and its theories
- Students will be able to learn the concepts of Gains from Trade, Terms of Trade, Tariff and Import Quota.

UNIT-I

- International Trade.: Nature, Scope and Importance. Inter-regional and International Trade. International Trade and Globalization.

UNIT-II

- Theories of International Trade: Theory of Absolute Advantage, Theory of Comparative Advantage. Modern Theory of Trade: Heckscher Ohlin Theory.

UNIT-III

- Gains from Trade and Terms of Trade, their Uses and Limitations. Free Trade vs. Protection. Tariffs, Import Quota.

Suggestive Mode of Transaction:
The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:
The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Sodersten, Bo., International Economics, MacMillan, London.
- Salvatore, D., International Economics, John Wiley, NewYork.
- Krugman, P.R., International Economics, Add Wesley Longman, Delhi.
- Mannur, H.G., International Economics, Vikas Publishing House, New Delhi.
- Bhatia, H.L., International Economics, Vikas Publishing House, New Delhi.
- Meier G. M., Leading Issues in Economic Development, OUP, Mumbai.
- Caves, R.E., et.al., World Trade and Payments, Harper Collins, U.
- Chacholiades, M., International Trade Theory and Policy, McGraw Hill, New York.
- Pearce, I.J., International Trade, Vols. I & II, Macmillan, London.
- Bhagwati, J. and T.N. Srinivasan, Hours on International Trade, MIT Press, Cambr
- Bhagwati, J., ed., International Economics, OUP, New D.
- Rana K.C. and K.N. Verma, International Economics, Vishal Publishing Co., Jalandhar.
- एम0 एल0 झिंगन, अन्तर्राष्ट्रीय अर्थाास्त्र, व$_{c}$न्दापब्लिकेशन, नईदिल्ली।
- Jajal R.S. & Bisht, N.S., Emerging Dimensions of Global Trade.
- Jalal R.S., Trade Policy and Global Participation: Indian Experience, Swaroop & Sons, New Delhi.

ECO 502: STRUCTURE AND PROBLEMS OF INDIAN ECONOMY-I

Credits: 03+01= 04
Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- The students will be able to learn about Indian Economy, Demographic Profile of India and Unemployment and Poverty.

UNIT-I

- Indian Economy – Nature, structure and Features. Natural Resources – Land, water, Forest and Minerals. Infrastructure – Importance and its development in India.

UNIT-II

- Demographic Profile of Indian Economy – Size and Growth rate of Population in India, Population composition and leading features, Problems of Population and Population Policy in India.

UNIT-III

- Unemployment: Meaning, Nature and Types, Estimation of Unemployment in India, Causes of Unemployment. Concept of Poverty, Various Employment Generation and Poverty Alleviation Programmes in India.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Agrawal, A.N.: Indian Economy, Wishwa Prakashan, New age International (P) Limited, New Delhi.
- Misra, S. K. & V. K. Puri: Indian Economy.
- Ruddar Datt & K. M. P. Sundharam: Indian Economy, S. Chand, New Delhi.
- Bimal Jalan: Problems of Indian Economy.
- R.S. Jalal, "RURAL DEVELOPMENT IN INDIA: ISSUES AND POLICY" (Vol. I & II), Anmol
- Publication, New Delhi
- Parekh, K.S.: India Development Report.
- Dutt, R. (ed.): Second Generation Economic Reforms in India.
- रूददत्त एवं के0 एम0 पी0 सुन्दरम, भारतीय अर्थव्यवस्था, एस0 चाँद, नई दिल्ली।
- मिश्रा एवं पुरी, भारतीय भारतीय अर्थव्यवस्था, हिमालया पब्लिकेषन, दिल्ली।

MINOR/ELECTIVE
ECO 503: VITAL STATISTICS

Credit: 03+01= 04
Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- The students will study about the basic concepts of vital statistics.
- The students will learn about fertility and mortality rates.

UNIT-I

- Vital Statistics-Meaning, Scope, Importance and Types. Uses of Vital Statistics. Statistical Institutions-CSO, NSSO.

UNIT-II

- Fertility-Crude Birth Rate, General Fertility Rate, Total Fertility Rate, Reproduction Rate-Gross and Net. Life Expectancy Index.

UNIT-III

- Mortality- Crude Death Rate, Age Specific Death Rate, Cause Specific Death Rate, Infant Mortality Rate, Maternal Mortality Rate. Methods of Population Projection.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.
- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

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Suggestive Reading Materials:

- Agarwal, U.D.: Population Projections and Their Accuracy, B.R. Publishing Corporation, New Delhi.
- Bhende, A.A. and T.R. Kanitkar: Principles of Population Studies, Himalaya Publishing House, Bombay.
- Bogue, D.J.: Principles of Demography, John Wiley, New York.
- Bose, A. India's Basic Demographic Statistics, B.R. Publishing Corporation, New Delhi.
- Census of India: Various Reports.
- Choubey, P. K.: Population Policy in India, Kanishka Publications, New Delhi.
- Misra, B.D.: An Introduction to the Study of Population, South Asia Publishers, New Delhi.
- Sriniwasan, K.: Basic Demographic Techniques and Applications, Sage Publications, New Delhi.
- Krishnaji, M. R.M. Sudrashan and A. Shariff: Gender Population and Development, OUP, New Delhi.
- Jay PrakshMisra: Demography, Sahitya Bhawan Publication, Agra
- M.L., B.K. Bhatt and J.N. Desai: Demography, Vrinda Publication, Delhi
- R. S. Jain and S.K. Jain: Population Studies, Research Publication, Jaipur 2

ECO 601: INTERNATIONAL ECONOMIC -II

Credits: 03+01= 04
Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- Students will be able to learn the concepts of Balance of Trade, Balance of Payment and Rate of Exchange
- Students will also be able to learn about some international organization and Foreign Trade of India.

UNIT-I

- Balance of Payment and Balance of Trade. Disequilibrium in the Balance of Payment: Types, Causes and Correction. Rate of Exchange: Fixed vs. Flexible Exchange Rates. Exchange Control.

UNIT-II

- International Monetary Fund, World Bank, Asian Development Bank, World Trade Organisation (WTO), BRICS.

UNIT-III

- Recent change in the Direction and Composition of Foreign Trade of India.Instruments of Export Promotion. Problems of India's Foreign Debt.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Sodersten, Bo., International Economics, MacMillan, London.
- Salvatore, D., International Economics, John Wiley, NewYork.
- Krugman, P.R., International Economics, Add Wesley Longman, Delhi.
- Mannur, H.G., International Economics, Vikas Publishing House, New Delhi.
- Bhatia, H.L., International Economics, Vikas PublishinStg House, New Delhi.
- Meier G. M., Leading Issues in Economic Development, OUP, Mumbai.
- Caves, R.E., et.al., World Trade and Payments, Harper Collins, U.
- Chacholiades, M., International Trade Theory and Policy, McGraw Hill, New York.
- Pearce, I.J., International Trade, Vols. I & II, Macmillan, London.
- Bhagwati, J. and T.N. Srinivasan, Hours on International Trade, MIT Press, Cambr
- Bhagwati, J., ed., International Economics, OUP, New D.
- Rana K.C. and K.N. Verma, International Economics, Vishal Publishing Co., Jalandhar.
- Jajal R.S. & Bisht, N.S., Emerging Dimensions of Global Trade.
- Jalal R.S., Trade Policy and Global Participation: Indian Experience, Swaroop & Sons, New Delhi.

ECO 602: STRUCTURE AND PROBLEMS OF INDIAN ECONOMY-II

Credits: 03+01= 04

Maximum Marks: 70+30=100

Learning Outcomes:

After the completion of the course the students will be able to:

- The students will be able to learn about the agriculture, Industrial and Service Sectors in India.

UNIT-I

- Agricultural structure in India – Importance, Nature, Agricultural Holdings and Land Reforms. Green Revolution. Agricultural Finance and Marketing.

UNIT-II

- Industry- Industrial development during the Planning period. Review of Pre and Post Globalization Industrial Policies. Small and Cottage Industries. Industrial Finance. Industrial Sickness in India.

UNIT-III

- Growth and contribution of Service Sector in India. Make in India and SKILL Development Programme, Digital India, Jan Dhan Yojna.

Suggestive Mode of Transaction:

The course content transaction will include the following:

- Planned lectures infused with multimedia /power-point presentations.
- Small group discussion, panel interactions, small theme-based seminars, group discussions, cooperative teaching and team teaching, selections from theoretical readings, case studies, analyses of educational statistics and personal field engagement with educationally marginalized communities and groups, through focus group discussion, surveys, short term project work etc.

- Lectures cum discussion, observation, project approach, field based, inquiry approach, experimentation, problem-solving, concept mapping, collaborative & co-operative approach, experiential learning.
- Hands on experience of engaging with field trip.

Suggestive Mode of Assessment:

The assessment will be based on the written tests, classroom presentations assignments workshops, seminars, practicums, sessional and terminal semester examinations and observation. Making drawings form the temporary preparations as practical record books. We may ponder over making students involve in highlighting the salient features of the genera/ groups through digital media such as PPT and animations.

Suggestive Reading Materials:

- Agrawal, A.N.: Indian Economy, Wishwa Prakashan, New age International (P) Limited, New Delhi.
- Misra, S. K. & V. K. Puri: Indian Economy.
- Ruddar Datt & K. M. P. Sundharam: Indian Economy, S. Chand, New Delhi.
- Bimal Jalan: Problems of Indian Economy.
- R.S. Jalal, "RURAL DEVELOPMENT IN INDIA: ISSUES AND POLICY" (Vol. I & II), Anmol
- Publication, New Delhi
- Parekh, K.S.: India Development Report.
- Dutt, R. (ed.): Second Generation Economic Reforms in India.
- रूदृदत्त एवं के0 एम0 पी0 सुन्दरम, भारतीय अर्थव्यवस्था, एस0 चाँद, नई दिल्ली।
- मिश्रा एवं पुरी, भारतीय भारतीय अर्थव्यवस्था, हिमालया पब्लिकेषन, दिल्ली।

COMMERCE

COURSE STRUCTURE OF ITEP, B.COM. -B.Ed. IN THE SUBJECT OF COMMERCE

SEM.	PAPER CODE	TITLE	CREDITS
I	COM 101	FINANCIAL ACCOUNTING	03+01=04
	COM 102	BUSINESS REGULATORY FRAMEWORK	03+01=04
II	COM 201	BUSINESS STATISTICS	03+01=04
	COM 202	BUSINESS ENVIRONMENT	03+01=04
	COM 203	BUSINESS ORGANIZATION & MANAGEMENT	03+01=04
III	COM 301	COST ACCOUNTING	03+01=04
	COM 302	BUSINESS ECONOMICS	03+01=04
	COM 303	AUDITING	03+01=04
IV	COM 401	MANAGENT ACCOUNTING	03+01=04
	COM 402	BASIC BUSINESS FINANCE	03+01=04
	COM 403	CORPORATE LEGAL FRAMEWORK	03+01=04
V	COM 501	INCOME TAX LAW AND ACCOUNTS	03+01=04
	COM 502	FUNDAMENTALS OF MARKETING	03+01=04
	COM 503	FINANCIAL INSTITUTIONS & MARKETS	03+01=04
VI	COM 601	ADVANCE ACCOUNTING	03+01=04
	COM 602	MONEY AND BANKING	03+01=04

COMMERCE

COM 101: FINANCIAL ACCOUNTING

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

The objective of this paper is to help students to acquire conceptualknowledge of fundamentals of accounting and to impart skills for recording various kinds of business transactions.

UNIT- I

Nature and scope of Accounting, Generally Accepted Accounting Principles: Concepts and Conventions, Indian and International Accounting Standards. Accounting Mechanics: Double Entry System, Preparation of Journal, Ledger and Trial Balance, Profit and Loss A/c, Balance Sheet

UNIT- II

Royalty Accounts - Accounting Records for Royalty in the books of Landlords and Lessee, Recoupment of Short working, Sub - lease, short working Reserve Account, Nazarana.

UNIT- III

Insolvency Accounts- Meaning, Circumstances of Insolvency, Procedure of Declaring Insolvency, Preparation of Statement of Affairs and Deficiency Account.

UNIT- IV

Hire Purchase Account - Accounting Records in the Books of Hire Purchaser and Vendor, Different Methods of Calculation of Interest and Cash Price, Default in Payment and Partial Returns of Goods.

Instalment Payment System - Difference between Hire Purchase and Installment Payment System. Accounting Records in the book of Purchaser &Vendor

UNIT- V

Branch Accounts - Meaning and Objectives of Branch Account, Importance and Advantages, Classification of Branches, Accounting of Branch Accounts under various Methods.

Suggested Transaction mode:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Jain & Naranag, "Advanced Accounts", 18th Edition, Reprint(2014)
2. Gupta, R. L. & Radhaswamy, M., Financial Accounting: Sultan Chand and sons.
3. Shukla, M.C., Grewal T.S. & Gupta, S.C., Advanced Accounts: S. Chand &Co.
4. Maheshwari S.N. & Maheshwari S. K, "A text book of Accounting forManagement", Vikas Publication, 10th Edition (2013)
5. Shukla, S.M., Financial Accounting, Edition: 55th, Sahitya Bhawan Publications,2021
6. Gupta. R.L and Shukla, M.C., "Principles of Accountancy", S. Chand& CompanyLtd., (2011)
7. Arulanandam, M.A. & Raman, K.S., "Advanced Accounting", Vikas Publishers,(2010).

Note- **Latest edition of the text books should be used.**

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 102: BUSINESS REGULATORY FRAMEWORK

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

The objective of this course is to provide a brief idea about the framework of Indian Contract Act,1872, Negotiable Instrument Act, Competition Act, 2002 and Sale of Goods Act,1930.

UNIT- I

Indian Contract Act, 1872: Definition & Nature of Contract, Classification; Offer & Acceptance; Capacity of Parties; Free Consent; Consideration; Legality of Objects

UNIT- II

Void Agreements; Performance of Contracts; Discharge of Contract; Contingent Contracts; Quasi Contracts; Remedies for Breach of Contract, Special Contracts: Indemnity & Guarantee; Bailment & Pledge; Contract of Agency.

UNIT- III

Sale of Goods Act, 1930: Contract of Sale of Goods, Conditions & Warranties; Transfer of Ownership; Performance of the Contract: Remedial Measures; Auction able Claims.

UNIT- IV

Negotiable Instrument Act: Cheque, Promissory Note, Bill of Exchange, Crossing of Cheque, Dishonor of Cheque, Payment in due Course.

UNIT- V

Competition Act, 2002: History and Development of Competition Law, Salient features of the Competition Act 2002, Basic Concepts, Powers of Central Government under the Competition Act, Role and Working of Competition Commission of India.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Kuchal M.C: Business Law; Vikas Publishing House, New Delhi.
2. Chandha P.R: Business Law; Galgotia, New Delhi.
3. Kapoor N.D: Business Law; Sultan Chand & Sons, New Delhi. (Hindi and English)
4. Desai T.R.: Indian Contract Act, Sale of Goods Act and Partnership Act; S.C.Sarkar & Sons Pvt. Ltd., Kolkata.
5. Tulsian, P.C., Business Law, New Delhi, Tata McGraw Hill.
6. Dr .S.M .Shukla :***Business Regulatory Framework***; Sahitya Bhawan Publications, Agr) Hindi & English)

Note:-Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM-201: BUSINESS STATISTICS

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

The purpose of this paper is to inculcate and analytical ability among the students.

UNIT- I

Introduction to Statistics: Meaning, Scope, Importance and Limitation, Statistical Investigation- Planning and organization, Statistical units, Methods of Investigation, Census and Sampling. Collection of Data- Primary and Secondary Data, Editing of Data Classification of data, Frequency Distribution and Statistical Series, Tabulation of Data Diagrammatical and Graphical Presentation of Data.

UNIT- II

Measures of Central Tendency – Mean, Median, Mode, Geometric and Harmonic Mean; Dispersion – Range, Quartile, Percentile, Quartile Deviation,

UNIT- III

Mean Deviation, Standard Deviation and its Co- efficient, Co-efficient of Variation and Variance, Test of Skewness and Dispersion, Its Importance, Co-efficient of Skewness.

UNIT- IV

Correlation- Meaning, application, types and degree of correlation, Methods- Scatter Diagram, Karl Pearson's Coefficient of Correlation, Spearman's Rank Coefficient of Correlation.

UNIT-V

Index Number: - Meaning, Types and Uses, Methods of constructing Price Index Number, Fixed – Base Method, Chain-Base Method, Base conversion, Base shifting deflating and splicing. Consumer Price Index Number, Fisher's Ideal Index Number, Reversibility

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Heinz, Kohler: Statistics for Business & Economics, HarperCollins;
2. Gupta, S.C. Fundamental of Statistics, Himalaya Publication.
3. Sharma J.K., Business Statistics, Pearson Education.
4. Gupta S.P. & Gupta Archana, Elementary Statistics, (English and Hindi) Sultan Chand & Sons, New Delhi.
5. Dr .S.M .Shukla & Dr .S.P .Sahai :***Business Statistics***; Sahitya Bhawan Publications, Agra (Hindi & English)

Note: Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 202: BUSINESS ENVIRONMENT

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

The objective of this paper is to introduce students with broad range of economic concepts, theories and analytical techniques which help the management in decision making.

UNIT- I

Business Environment: Meaning, Nature and Dimensions of Business Environment, Analysis of Business Environment- Framework of Analysis, Scanning, Monitoring, Forecasting & Assessment of Business Environment.

UNIT- II

Economic Environment with Reference to India's Economy: Growth Strategy, Economic Planning, Analysis of Economic Environment- Scanning, Monitoring, Forecasting and Assessing Economic Environment; Economic Markets, Economic Reforms & their Consequences.

UNIT- III

Technological Environment: Nature of Technology, Interface Between Technology and Business, Management of Technology Transfers; Analysis, Forecasting and Assessment of Technological Environment.

UNIT- IV

Global Environment: Why Firms go Global, Routes of Globalization, Active Players in Global Business. FDI- India's Experience, WTO– Benefits and Problems for India. Analysis of Global Environment- Scanning, Monitoring, Forecasting and Assessing Global Environment.

UNIT- V

Political and Legal Environment of Business: Monopoly and Restrictive Trade Practices (MRTP) Act, Foreign Exchange Management Act (FEMA).

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Sinha, V.C. and Sinha Ritika, Business Environment, Sahitya Bhawan Agra
2. Cherunilam, Francis, Business Environment, Himalaya Publishing House, New Delhi
3. Aswathappa, K.Essentials of Business Environment, Himalaya Publishing House, New Delhi
4. Aswathappa, K.Business Environment for Strategic Management, HPH.
5. Dr. Amit Kumar: ***Business Environment***; Sahitya Bhawan Publications, Agra.
6. सिन्हा, वी.सी. एवं सिंह, पुष्पा,व्यावसायिक पर्यावरण, साहित्य भवन आगरा।
7. जे पी मिश्रा, व्यावसायिक पर्यावरण, साहित्य भवन आगरा।

Note- **Latest edition of the text books should be used.**

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

MINOR/ELECTIVE

COM 203: BUSINESS ORGANIZATION & MANAGEMENT

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

After completing this course, a student will have:

Ability to understand the concept of Business Organization along with the basic laws and norms of Business Organization. Ability to understand the terminologies associated with the field of Business Organization along with their relevance. Ability to identify the appropriate types and functioning of Business Organization for solving different problems. Ability to apply basic Business Organization principles to solve business and industry related problems. Ability to understand the concept of Sole Proprietorship, Partnership and Joint Stock Company etc.

UNIT- I

Introduction: Business Concept & Objects, Social Responsibility of Business Establishment of New Business Meaning, Objectives Meaning, Objectives & Principles of Organization, Size of Business Unit, Factors determining Size, Measurement of Size, Concept of Optimum Size.

UNIT- II

Forms of Business Organization: Sole Tradership, Partnership Firm, Business (Public and Private), Formation & Choice of Business Organization, Definition of Management, Its nature of purpose, Fayol's Principles & Elements of Management, Recent Developments of Management Thought.

UNIT- III

Planning & Organising: Its nature & purpose, types of plans, Planning steps & process, Management by objectives (MBO), Decision-Making, Forecasting, Organisational Design & Organisational Structure, Power & Distribution of Authority.

UNIT- IV

Motivation, Leadership & Direction: Maslow's Need Hierarchy Theory, Herzberg's Two Factor Theory, Job Enlargement, Special Motivation Techniques, Definition & Approaches to Leadership, The Principal Tasks of Leadership Role & Principles of Direction.

UNIT- V

Controlling: meaning, definition & techniques of control, Principle of Controlling, Process of Control & Types of Controls, Human Aspect of Controls.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Gupta, C.B., "Business Organisation", Mayur Publiction, (2014).
2. Singh, B.P., Chhabra, T.N., "An Introduction to Business Organisation&Management", Kitab Mahal, (2014).
3. Bhusan Y. K., "Business Organization", Sultan Chand & Sons.
4. Dr .S.C .Saksena ***Business Organisation and Management***; Sahitya Bhawan Publications, Agra)Hindi & English
5. Koontz and Weirich, Essentials of Management, Tata McGraw Hill, New Delhi.
6. Drucker, P F, Management Challenges for the 21st Century, Butterworth, Oxford.
7. Stoner and Freeman, Management, PHI, New Delhi

Note: **Latest edition of the text books should be used.**

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 301: COST ACCOUNTING

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

This course exposes the students to the basic concepts and the tools used in cost accounting.

UNIT- I

Introduction: Nature, Scope and Advantages of Cost Accounting, Installation of Costing System, Difference between Cost and Financial Accounting, Classification of Costs. Material: Labour: Overheads

UNIT- II

Unit Output Costing: Concept of and Need for Unit Output Costing; Preparation of Cost Sheet and Tender Price; Preparation of Reconciliation Statement.

UNIT- III

Process Costing: Preparation of Process Accounts; Treatment of Normal and Abnormal Wastage; Treatment of Joint Product and By-product

UNIT- IV

Contract Costing: Preparation of Contract Account,

Determination of Profit on Completed and Uncompleted Contracts

UNIT-V

Operating Costing: Transport; Hotels; etc.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Jain S.P. and Narang K.L: Cost Accounting; Kalyani New Delhi.
2. Maheshwari S.N: Advanced Problems and Solutions in Cost Accounting; SultanChand, New Delhi. (Hindi and English)
3. Garg A. K.; Cost Accounting: An Analytical Study, Swati Publication, Meerut.
4. Horngren, Charles, Foster and Datar: Cost Accounting - A Managerial Emphasis;Prentice-Hall of India, New Delhi.
5. M.L. Agarwal, Sahity bhawan publications Agra (Hindi & English)

Note- **Latest edition of the text books should be used.**

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 302: BUSINESS ECONOMICS

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

The objective of this paper is to introduce students with broad range of economic concepts, theories and analytical techniques which help the management in decision making.

UNIT- I

Introduction: Definition and nature of economics, Scope and methodology of economics, Micro and macro economics

UNIT- II

Consumption: Measurements of Utility, Law of Diminishing Marginal Utility, Law of Equi-marginal Utility.

UNIT- III

Law of Demand: Demand Schedules and Curves, Elasticity of Demand, methods of measurement of elasticity of demand, measurement of cross elasticity, Law of Supply, Measurement of Elasticity of Supply

UNIT- IV

Consumer's surplus, Study of Consumer Behaviour through indifference curve technique.

UNIT- V

Production: The Factors of Production and their characteristics, Factors affecting productivity of labour and capital, Theories of Population.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. D.N. Dwivedi, Managerial Economics, 7th Edition, Vikas Publishing House.
2. D. Salvatore, Managerial Economics in a Global Economy, 6th Edition, Oxford University Press.
3. L. Peterson and Jain Managerial Eco., 4th Edition, Pearson Education.
4. Kontsoyianis, Modern Micro-Economics.
5. M. Adhikary, Business Economics.
6. Dr. J.P. Mishra: ***Business Economics***; Sahitya Bhawan Publications, Agra (Hindi & English).

Note- Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

MINOR/ELECTIVE

COM 303: AUDITING

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

This course aims at imparting knowledge about the principles and methods of auditing and their application.

UNIT- I

Methodology of Accounting, Auditing and Fraud risk management in Kautilya's Arthshastra.

Audit and Audit Process: Meaning, Nature, Objectives and Various Classes of Auditing, Standard of Auditing, Pronouncements on accepted Auditing practices, Internal Control and the need for its evaluation by the Auditor.

UNIT- II

Audit Procedures: Verification programme-selective verification, Audit in depth, test checking, Auditor's Approach to statistical sampling, Routine checking, vouchers, verification and valuation of assets and liabilities, Auditor's Report on Profit and Loss Account and Balance Sheet.

UNIT-III

Audit of Limited Companies: Qualifications and Appointment of Company Auditors, their powers, duties and liabilities as per Company Act 1956, Enquiries under Section 227 (IA), Audit of share capital, share transfer and managerial remuneration, Additional matters in the Auditor's Report (Manufacturing and other companies), Auditor's

Report Order 1988.

UNIT- IV

Audit of Public Sector Undertaking and Banks: Special features concerning Audit of departmental undertakings, Statutory Corporations and Government Companies, Procedure of appointment of Auditors, Special features relating to the audit of Banks, Audit of Insurance Companies and audit of non-profit companies. Cost Audit: Importance of cost audit, Provisions regarding cost audit, Cost Audit report, Tax and Social Audit. Internal Audit: Objective and scope of Internal Audit, Responsibilities and Authority of Internal Auditors, Relationship between internal auditor and statutory auditor.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Gupta Kamal: Contemporary Auditing, TATA Mc Graw, New Delhi.
2. Tandon, B.N.: Principles of Auditing, S. Chand & Company, New Delhi.
3. Pargare Dinkar: Principles and practices of Auditing, Sultan Chand, New Delhi.
4. Sharma, T.R.: Auditing Principles and Problems, Sahitya Bhawan, Agra. (Hindi andEnglish)
5. Yadav, Pankaj, Auditing, Neel Kamal Prakashan, Delhi (Hindi and English)

COM 401: MANAGEMENT ACCOUNTING

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

After completing this course a student will have:

Ability to understand the concept of Managerial Accounting along with the basic forms and norms of Managerial Accounting. Ability to understand the terminologies associated with the field of Managerial Accounting and control along with their relevance. Ability to identify the appropriate method and techniques of Managerial Accounting for solving different problems. Ability to apply basic Managerial Accounting principles to solve business and industry related issues and problems.

UNIT- I

Management Accounting- Concept, Meaning, Characteristics, Difference between Financial Accounting Management Accounting, Difference between Cost Accounting and Management Accounting, Techniques, Objectives and Importance.

UNIT- II

Ratio Analysis: meaning, Utility, Classification of Ratios - Profitability Ratio, Activity Ratio and Financial Position Ratios.

UNIT- III

Marginal Costing: Meaning, Determination of Profit under Marginal Costing, Pricing of Product, make or by Decision, Selection of most profitable channel. Break Even Analysis: Concept and Practical Applications of Break even Analysis.

UNIT- IV

Standard Costing and Variance Analysis: Meaning and Objectives of Standard Costing Setting of Standard, Variance Analysis: Material and Labour Variance.

UNIT- V

Reporting to Management: Meaning, Objectives, Principles of Reporting, Importance of Reports, Classification of Reports, Reporting at different Levels of Management.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Homgren, C.T., Gary L. Sundem and William O. Stratton: Introduction toManagement Accounting, Prentice Hall of India, Delhi.
2. Dr .K.L .Gupta: ***Accounting for Managerial Decisions***; Sahitya Bhawan Publications, Agra)Hindi and English.(
3. Lall, B.M. and I.C. Jain: Cost Accounting: Principles and Practice, Prentice Hallof India, Delhi.
4. Welsch Glenn A., Ronald W. Hilton and Paul N. Gordon Budgeting, ProfitPlanning and Control, Prentice hall of India, Delhi.
5. Baig Nafees: Cost Accounting, Rajat Publications, New Delhi. Baig Nafees:Management Accounting & Control, Ashish Publishing Home, New Delhi.
6. Lal Jawahar; Managerial Accounting, Himalya Publishing House, New Delhi.
7. Misra, A.K., Management Accounting, (Hindi and English) Navneet Prakashan,Nazibabad.

Note- Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 402: BASIC BUSINESS FINANCE

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

This course is to help students understand the conceptual framework of Business Finance.

UNIT- I

Business Finance: Meaning, Nature and Scope, Finance Function, Investment Function, Financing and Dividend Decisions, Financial Planning

UNIT- II

Capitalization- Meaning, Over capitalization & Under Capitalization, Theories of Capitalization.

Capital Structure: Concept and Planning, Theories and Determinants, Capitalization VS Capital Structure

UNIT- III

Cost Of Capital: Meaning, Importance, Calculation of Cost of Debt, Preference Shares, Equity Shares and Retained Earnings, Combined (Weighted) Cost of Capital

UNIT-IV

Capital Budgeting: Meaning Nature and Importance of Investment Decisions, Evaluation Criteria.

UNIT- V

Dividend Policies: Issues In Dividend Policies, Dividend Models, Sources of Funds: Long Term Funds, Short Term Funds, Nature Significance And Determinants Of Working Capital.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Avadhani V A Financial System
2. Bhalla VK Modern Working Capital Management
3. Chandra Prasanna Financial Management Theory And Practices
4. Khan NY And Jain PK Financial Management Tax And Problems
5. Pandey I M Financial Management
6. Dr .S.P .Gupta :***Basic Business Finance***; Sahitya Bhawan Publications, Agra (Hindi & English)

Note- Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

MINOR/ELECTIVE

COM 403: CORPORATE LEGAL FRAMEWORK

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

The objective of this course is to provide basic knowledge of the provisions of the Companies Act 2013 along with relevant cases.

UNIT- I

Indian Companies Act 2513: Nature and Types of Companies, Conversion of Public Companies into Private Company's And Vice Versa. Formation, Promotion and Incorporation of Companies, Memorandum of Association; Article of Association; Prospectus.

UNIT- II

Shares: Types, Share Capital-Kinds; Allotment of Shares; Members – Categories, Modes of Acquiring Membership, Rights and Liabilities; Transfer and Transmission- Difference

UNIT-III

Management: Directors, Types and Number of Directors, Managing Director, Whole Time Director – Appointment, Qualifications and Disqualification, Duties, Vacation, Resignation and Removal

UNIT-IV

Majority Powers and Minority Rights: Protection of Minority Rights; Prevention of Oppression and Management. Mismanagement.

UNIT-V

Company Meetings- Kinds, Quorum, Voting, Resolution, Minutes. Winding Up-Kinds and Conduct-Petition for Winding Up, Appointment Of Official Liquidator and Duties.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Kapoor GK A Dhamija Sanjay Company Law Comprehensive Textbook on Companies Act 2013 Taxmann Publication
2. Singh Avtar Company Law Delhi India Eastern Book Company Bharat LawHouse
3. Gupta Company Adhiniyam Sahitya Bhawan Publication (Hindi andEnglish)
4. Maheshwari SN And SK Maheshwari A Manual of Business Law 2nd Edition Himalaya Publishing House
5. Dr .S.M .Shukla & K .Jain :***Company Law***; Sahitya Bhawan Publications, Agra (English)
6. Dr .S.M .Shukla & Dr .I.M .Sahai: कंपनी अधिनियम Sahitya Bhawan Publications, Agra.

Note- **Latest edition of the text books should be used.**

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 501: INCOME TAX LAW AND ACCOUNTS

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

It enables the students to know the basics of Income Tax Act and its implications.

UNIT- I

Introduction, Important Definitions: Assessee, Person, Income, Total Income, Assessment Year & Previous Year. Agricultural Income & its assessment. Residence & Tax Liability (Basis of Charge). Capital & Revenue. Exempted Incomes

UNIT- II

Income from Salaries, Income from House Property.

UNIT- III

Profits and Gains of Business and Profession

UNIT- IV

Capital gains, Income from Other Sources

UNIT- V

Set off and carry forward of losses and Clubbing of Income Deductions from Gross Total Income, Computation of Tax Liability of an Individual.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Singhanai V.K: Students' Guide to Income Tax; Taxmann, Delhi.
2. Girish Ahuja and Ravi Gupta: Systematic approach to income tax; Sahitya BhawanPublications, New Delhi. (Hindi and English)
3. H C Mehrotra; C S Joshi, Income Tax Law and Accounts (Hindi/English), Sahitya Bhawan publications Agra
4. Jain, R.K., Income Tax Law and Accounts (Hindi and English), SBPD Publications,Agra

Note- Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 502: FUNDAMENTALS OF MARKETING

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

The objective of this course is to provide basic knowledge of concepts, principles, tools and techniques of marketing.

UNIT-I

Introduction: Nature, scope and importance of marketing; Evolution of marketing concepts; Marketing mix; Marketing environment. Micro and Macro environmental factors.

UNIT-II

Consumer Behaviour– An Overview: Consumer buying process; Factors influencing consumer buying decisions.

UNIT-III

Market Selection: Market segmentation – concept, importance and bases; Target market selection; Positioning concept, importance and bases; Product differentiation vs. market segmentation.

UNIT-IV

Distribution: Channels of distribution - meaning and importance; Types of distribution channels; Wholesaling and retailing; Factors affecting choice of distribution channel; Distribution Logistics; Meaning, importance and decisions.

UNIT-V

Recent developments in marketing: Social Marketing, Online Marketing, Direct Marketing, Services Marketing, Green Marketing, Relationship Marketing, Rural marketing.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Kotler, Philip; Keller, Kevin Lane; Koshy, Abraham, and Mithileshwar Jha,Marketing Management: A South Asian Perspective, Pearson Education.
2. Palmer, Adrian, Introduction to Marketing, Oxford University Press, UK
3. Lamb, Charles W.; Hair, Joseph F., and Carl McDaniel, Principles of Marketing,South Western Publishing, Ohio
4. Chhabra, T.N., Principles of Marketing, Sun India Publication.
5. Pride, William M., and D.C. Ferell, Marketing: Planning, Implementation &Control, Cengage Learning.
6. Majaro, Simon, The Essence of Marketing, Prentice Hall, New Delhi.
7. Zikmund, William G. and Michael D'Amico, Marketing: Creating and KeepingCustomers in an E-Commerce World, Thomson Learning.
8. Dr .Amit Kumar :***Fundamental of Marketing***; Sahitya Bhawan Publications, Agra
9. Dr .S.C .Jain :***Principles of Marketing***; Sahitya Bhawan Publications, Agra) Hindi

Note- Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

MINOR/ELECTIVE

COM 503: FINANCIAL INSTITUTIONS & MARKETS

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

After completing this course a student will have:
Ability to understand the concept of Financial Market along with the basic formand norms of Financial Market. Ability to understand the terminologies associated with the field of Financial and control along with their relevance. Ability to identify the appropriate method and techniques of Financial Market for solving different problems. Ability to apply basic Financial Market principles to solve business and industryrelated problems. Ability to understand the concept of Primary and Secondary Market, StockExchange, SEBI etc.

UNIT- I

Financial Markets an Overview: Meaning of Financial Market and its Significance in the Financial System. Financial Markets in the Organized Sector - Industrial Securities Market, Government Securities Market, Long-term Loans Market, Mortgages Market, Financial Guarantee Market, Meaning and Structure of Money Market in India, Characteristics of a Developed Money Market, Significance and Defects of Indian

UNIT- II

Capital Market: New issue market - Meaning and Functions of New Issue Market, Instruments of New Issues, Players and their role in the New Issue Market, issue-pricing and marketing. Defects and Remedies of New Issue Market.

UNIT-III

Secondary market: Functions and role of stock exchange; Listing procedure and legal requirements; Public Stock Exchanges-NSE, BSE and OTCEI. Functionaries on Stock Exchanges: Brokers, Sub brokers, market makers, jobbers, portfolio consultants, institutional investors.

UNIT- IV

Investor Protection: Grievances concerning stock exchange dealings and their removal, Demat Trading. SEBI Guidelines - Primary Market, Secondary Market and the Protection of investor's interest, NCLT & NCLAT.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Machiraju, 'Indian Financial System' – Vikas Publishing House.
2. Varshney P.N., & Mittal D.K., 'Indian Financial System', Sultan Chand & SonsNew Delhi.
3. Avadhani V.A Capital Market, Himalaya Publishing House, New Delhi
4. Mulay, M. A., "New Issues Capital Market in India"
5. Gordon & Natarajan, "Indian Financial System" Himalaya Publishing House.
6. Avdhani, V. A., "Investment Management" Himalaya Publishing House.
7. Dr .Bimal Jaiswal, Bhuvana Venkantraman and Richa Banerjee: ***Financial Markets, Institutions and Financial Services***; Sahitya Bhawan Publications, Agra.

Note- Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 601: ADVANCE ACCOUNTING

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

This course enables the student to develop awareness about corporate accounting in conformity with the provisions of company act.

UNIT- I

Issue, Forfeiture and Re-Issue of Shares, Redemption of Preference shares. Issue and Redemption of debentures.

UNIT-II

Accounts relating to Liquidation of Companies.

UNIT-III

Final Accounts relating to Banking Companies and Life & General Insurance Companies.

UNIT-IV

Investment Accounts, Voyage Accounts

UNIT- V

Computation of Insurance claims for loss of stock and loss of profit

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Gupta R L Radhaswami M, Company Accounts Sultan Chand and Company
2. Maheshwari SN And Maheshwari SK Corporate Accounting Vikas Publishing
3. Shukla SM And Gupta SP Corporate Accounting, Sahitya Bhawan Publication Agra, (Hindi and English)
4. Jaiswal K S Corporate Accounting Both English and Hindi Shukla MC Grewal
5. PS And Gupta SC Advanced Accounts S Chand and Company

Note- Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 602: MONEY AND BANKING

Credits: 03+01= 04

Maximum marks: 70+30= 100

Learning Outcomes:

The Objective of this paper is to expose the students to the working for money and financial system prevailing in India.

UNIT- I

Money: Functions, Alternative Measures to Money Supply in India and Their Different Components, Meaning and Changing Relative Importance of Each Component, High Powered Money- Meaning and Uses, Sources of Changes in High Powered Money. Financial System: Components, Financial Intermediaries.

UNIT-II

Indian Banking System: Definition Of Bank, Commercial Banks, Importance and Functions, Structure of Commercial Banking System in India. Regional Rural Banks, Cooperative Bank in India. Process Of Credit Creation by Banks; Determination of Money Supply and Total Bank Credit.

UNIT-III

Development Banks and Other Non-Banking Financial Institution: Main Features, Problems and Policies for Allocation of Institutional Credit, Problem Between the Government and The Commercial Sector, Inter-Sectoral and Inter-Regional Problems, Problem Between Large and Small Borrowers.

UNIT-IV

The Reserve Bank of India: Functions, Instruments of Monetary and Credit Control; Main Features of Monetary Policy since Independence, Interest Rates; Various Rates in India (As Bond Rate, Bill Rate, Deposit Rate, etc.) Impact of Inflation and Inflationary Expectations.

Suggested mode of Transaction:

In addition to the theoretical inputs the course will be delivered through Assignments, Presentation, Group Discussions. Criteria for continuous evaluation may be Assignment or/and Presentation or/and unit test or/and Attendance etc.

Suggested Readings:

1. Saha SK Indian Banking System SBPD Publication (Hindi and English)
2. Deshmukh And Indian Banking System Chandralok Prakashan (Hindi and English)
3. Gupta SB Monetary Planning of India
4. Khan M Y Indian Financial System Theory and Practice
5. Sengupta A K & Agarwal K Money Market Operations in India

Note- Latest edition of the text books should be used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

STRUCTURE OF ITEP, B.Sc./B.A./B.COM. -B.Ed. IN THE SUBJECT OF ABILITY ENHANCEMENT & VALUE ADDED COURSES

SEM.	PAPER CODE	TITLE	CREDITS
I	AEVA 101	LANGUAGE-I	03+01=04
	AEVA 102	ART EDUCATION (PERFORMING AND VISUAL)	01+01=02
	AEVA 103	UNDERSTANDING INDIA (INDIAN ETHOS AND KNOWLEDGE SYSTEM)	01+01=02
II	AEVA-201	LANGUAGE-II	03+01=04
	AEVA-202	UNDERSTANDING INDIA (INDIAN ETHOS AND KNOWLEDGE SYSTEM)	01+01=02
	AEVA-203	TEACHER AND SOCIETY	01+01=02
V	AEVA-501	ICT IN EDUCATION	01+01=02
VI	AEVA-601	MATHEMATICAL & QUANTITATIVE REASONING	01+01=02
VII	AEVA-701	ART EDUCATION (PERFORMING AND VISUAL)	01+01=02
	AEVA-702	SPORTS, NUTRITION AND FITNESS	01+01=02
VIII	AEVA-801	YOGA AND UNDERSTANDING SELF	01+01=02
	AEVA-802	CITIZENSHIP EDUCATION, SUSTAINABILITY AND ENVIRONMENTAL EDUCATION	01+01=02

AEVA-101: LANGUAGE 1
(As per the 8th Schedule of the Constitution of India)

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course

Language has undeniable links with all kinds of learning. Language enables an individual to understand new concepts, exchange ideas and communicate thoughts with fellow beings. To appreciate fully the role of language in education, one must begin to develop a holistic perspective on language. Language needs to be examined in a multi-dimensional space, giving due importance to its structural, literary, sociological, cultural, psychological, and aesthetic aspects. The National Education Policy 2020 envisages imparting language skills as part of holistic education. It lays thrust on the need to enhance linguistic skills for better cognitive development and the development of a rounded personality of the learners. This course aims at enabling student teachers to enhance their ability to listen, speak, read, write and demonstrate linguistic skills in an effective manner. Linguistic skills - listening, speaking, reading, writing, speaking effectively - are fundamental to constructing knowledge in all academic disciplines, and. participating effectively in the world of work and creating sense in the everyday life. Through this course, the students will be able to enhance proficiency in reading with comprehension, understanding, thinking, and conceptualizing. The course seeks to enhance critical thinking abilities and effective communication skills of student teachers. The course involves hands-on activities and practical sessions that help student teachers develop and use linguistic skills in a variety of situations.

Learning Outcomes:

After completing the course, the student teachers will be able to:

• Demonstrate knowledge and capacity for effective listening, speaking, reading, writing and critical thinking.

• recognize the link between language and cognition and using linguistic knowledge and skills for effective communication of ideas and thoughts.

• build inter-personal relationships and enhance social skills.

UNIT - I Understanding Language, Communication and Cognition

A. Language, communication, and cognition; Definitions and functions of language. Types of communication, Language, culture and society, Bi-/Multilingualism in India, Language learning, translation, formal and informal communication, verbal and nonverbal communication, gestures language skills (listening, speaking, reading, & writing) and the new-age technologies. Language as a means of communication and language as a medium of cognition.

B. Nature and process of communication: principles, Definition, and types; Language: Definition, characteristics, functions; Language and society: language variation, language and dialect, language policy and language planning, language standardization; Multilingualism in Indian context, Language as a means of communication and language as a medium of cognition. **C.** The process of communication, barriers to communication, written and oral 164 communication, the story of human communication from early times to new age; Language variation, Multilingualism.

D. Context of communication, the role of decoder, face to face interaction, turn taking, conversation, politeness principles, opening and closing, regional variation, social variation, the standard language.

UNIT - II Understanding Grammar

A. Classification of speech sounds and letters, stress, pitch, tone, intonation and juncture, parts of speech, identification of morphemes, word formation processes, sentencessimple, complex, and compound, semantics and pragmatics, lexical semantics, speech acts.

B. Production of speech sounds in languages; Suprasegmentals: stress, pitch, tone, intonation; Word formation processes; Sentence formation, semantics, and pragmatics.

C. Identification of morphemes, word formation processes; Sentence formation, vocabulary formation; Pragmatics and speech acts.

D. Sound production in the language; Coining new words, Speech acts.

UNIT - III Reading Skills

A. Reading comprehension, types of reading, text, meaning and context, reading as an interactive process; strategies for making students active readers and developing critical reading skills; Understanding denotative and connotative aspects of a text, Vocabulary development through reading.

B. Features that make texts complex, reading as an interactive process; Strategies for making students active readers and developing critical reading skills; Understanding denotative and connotative aspects of a text, Vocabulary development through reading.

C. Reading discipline-based texts; vocabulary development

UNIT - IV Writing Skills

A. Speech versus writing; Types of writing; writing for specific purposes (essays, letters, and reports).

B. Language and style of Writing; Dealing with New Words (Academic Vocabulary Building)

C. Summarizing and Paraphrasing techniques.

UNIT - V Speaking skills

A. Speaking to learn and learning to speak; situational conversations and role plays; tasks/activities for developing speaking (speech, elocution, discussion, debate, storytelling, illustrations).

B. Activities for developing speaking, role play; The impact of culture on speaking.

C. Presentation and speaking skills; Practicing narrative skills; Body language, voice, and pronunciation; Creating interest and establishing a relationship with the audience.

UNIT - VI Listening Skills

A. Why listening is important; kinds of listening; Listening strategies.

B. Need for modelling good listening behaviour; Listening across the curriculum, note taking.

C. Listening Comprehensions and Recorded speeches/texts; Understanding of various accents.

UNIT - VII Academic writing

A. Academic writing components; development of academic language; Activities to develop academic writing skills.

B. Developing Critical, analytical, and interpretive thinking skills.

C. Learning to analyze.

UNIT - VIII Critical thinking

A. Enhancing Critical thinking abilities; Critical Interpretation, Questioning and Challenging your Beliefs and Values; developing ideas and evaluating an argument.

B. Observing a problem, describing the problem, framing the problem, comparing, and evaluating a problem.

Suggestive Practicum:

1. How do you interpret every day and reflect what you read? Prepare a report.

2. Analyze a recorded video from the perspective of voice and pronunciation and write a report. **3.** Observing, describing and frame a problem and evaluating it.

Suggestive Mode of Transaction:

Teaching this course will involve a mix of interactive lectures, tutorials, and practical involves such as discussion, role plays, projects, simulations, workshops, and language-awareness activities. The teaching intends deeper approaches to learning involving in- class room discussion, developing the critical thinking/ problem solving abilities among the students and will also focus on situations where in our daily lives the one would be performing tasks that involve a natural integration of language skills. The students are expected to read assigned chapters/ articles before the session and the course requires active participation from the students.

Suggestive Mode of Assessment:

The assessment of the learner will be primarily based on the assessment of both linguistic and communicative skills using a battery of tests and test types, group work and projects.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

AEVA-102: ART EDUCATION
(Performing and Visual) and Creative Expressions

Arts - Approach

1. Every student has to complete two courses in the Arts of 2 credits each across the Visual and Performing Arts.

2. There are many art forms within both the Visual and Performing Arts.

3. All these forms require teacher expertise as well as time and resources for the student to learn. **4.** We have described **three exemplar arts courses** based on different forms of Visual and Performing Arts.

5. Institutions could choose to offer any specific art form based on the availability of faculty and resources. Institutions could then design their courses based on these three exemplars.

ART EDUCATION (PERFORMING AND VISUAL) AND CREATIVE EXPRESSIONS
EXEMPLAR 1 - PUPPETRY

Credits 01+01=02

Maximum Marks: 35+15=50

About the Course:

Engagement with various forms of art as self-expression and need to develop sensibility to appreciate them has been an important concern in educational theory and practice. This concern is premised on the claim that forms of self-expression contribute immensely to the development of cognitive, affective, and psycho-motor dimensions among children, as well as that through one or another art form, children come to explore ways of expressing themselves. Further, it is also the case that critical appreciation of art enables children to form judgments of a very special kind, namely, aesthetic judgment. This enables students as they grow into adults to have focused attention on making sense of and appreciating cultural productions.

Children enjoy artwork a lot. They explore and find meaning in artwork. Their psycho-motor skills get developed through art. The huge element of socialization is acquired through different forms of art. They get to know each other and understand each other and make friends through art. They develop their peer group through getting involved in art forms. Learning to work with others is also achieved through art. It gives them space to think independently, create and reflect. It is one space where all the three are involved- hand, head, and heart.

Therefore, educational practitioners that the students of MA Education aim to be, will need to bring an element of art in practices that they engage in. To be able to do this, they need an appreciation of art in general, familiarity with one art form, and basic skills and capabilities to be creative and artful. Additionally, they should be familiar with some critical debates in art education, even if their work is in other subject areas.

To this end in the first semester students will do one course that aims to help them recognize and appreciate the importance of aesthetic judgment, develop familiarity with an art form and basic skills to be creative and artful in their expressions. Skills develop from practice, therefore handson training in doing art will be emphasized in this course. This course aims to help students develop a habit of performing skillful activities that are essentially aesthetic and artful which is expected to contribute to other educational practices that they develop in other courses in the programme. Therefore, this course will explicitly relate this skill to activities that practitioners of education engage in, like teaching, development of teaching-learning material, and content of other subject areas wherever possible.

Puppetry is an integrated art form, which takes into its fold everything from fine arts to performance. Puppetry is one of the oldest forms of performing art. Puppetry has evolved over the years into a sophisticated form of art. The journey was very interesting with a lot of ups and downs. There are thousands of forms of puppetry from simple finger puppets to highly complex puppets played by more than 3 people. Each country has a puppet form, why country, each area in a country has a puppet form. Hence, in India you will find many, many forms of puppetry.

In puppetry there are two main aspects. One the designing and creating of puppets and the other playing or performing puppetry. These two skills are different. Designing will need a lot of thinking, visualization, and technical skills while performance will need high level communication skills. Hence, together they make a consolidated a high range of skills. In this course, students are exposed to different forms of puppets and puppetry. There will be a discussion around the forms and the aesthetic sense of puppetry. Later the students are encouraged to prepare, design and create puppets. They then prepare script and play the puppets. This creation of the puppets together in small groups with a lot of discussions and give and take helps the students develop working together skills and conceptual understanding.

Learning Outcomes:

After completion of this course, student teachers will be able to:

• articulate the importance of aesthetics and art in elementary education,
• demonstrate their familiarity with and appreciation of puppetry,
• design puppets,
• practice and create a short puppetry show.

UNIT - I Importance of Aesthetics and Art education (2 Sessions)

In this unit the basic idea of aesthetics and art, and ways in which the aesthetic dimension manifests itself in human life will be discussed. Using various examples of art, students will engage in identifying aesthetic aspects of daily life, develop aesthetic judgment, and gain familiarity with the role of art in education. Students will also be introduced to three aspects of art in education: The value of art itself and its use as an instrument in education; moral dimensions of works of art and the controversial distinction between the value of Popular art and High art.

UNIT - II Designing Puppets (6 Sessions)

In this unit, students will learn about puppetry, its history and specifically about how puppets work. This unit will also discuss the imagination required to design puppets, visualize how puppets will be used and the technicalities of designing puppets. These will be learnt by designing puppets. Students will start with constructing finger puppets and move towards small shapes through papers, like Fish, birds, rat - then they will design masks, flat masks, and masks with dimensions. At the end they will design puppets with old newspaper. The puppets are designed with old newspapers and colour papers. They decorate it and design it in such a way that it can be played, performed. They prepare costumes and all other accessories.

UNIT - III Performing the puppets (4 Sessions)

This unit will engage in performance of puppetry and the level of communication skills required to create a good engaging story and perform it with the help of puppets they have created. The performance will be expected to relate to some activity in the educational context. Students will perform the puppets they have designed. Initially each member will play their own puppets. Later they will play in pairs, later they will be formed into a small group and asked to prepare their own skits with the puppets. They conclude by performing in small groups. Their learning is consolidated and reflected.

Discussion is held on how different aspects of puppet making can be incorporated in class room processes of young children. Adapting the individual and group exercises done during the puppetry course will be discussed to be used in the classroom situation.

Pedagogy

The Pedagogy is basically hand-on training. More emphasis is given to experiential learning. They do things and through doing learn about art and its connection to education. The process takes you through different forms of art- fine arts, playing with colours, costume designing, facial make -up, script writing, music, and performance.

Suggestive Mode of Assessment:
Details to be determined by the faculty member as per applicable UGC norms.

Week wise break up of sessions		
Sl.No.	**Topic**	**Session flow**
1	Aesthetics and art, art in everyday life.	Based on their experience
2	Importance of art. Appreciation of art.	Discussion
3	Art for art's sake. Art with social responsibility. art for social change	Debate
4	The world of puppetry. Different forms of puppetry.	Presentations
5	History of puppetry	Lecture
6	Preparation- finger puppets	Hands on
7	Preparation of masks	Hands on
8	Preparing puppets	Hands on
9	Performing individually	Practice
10	Performing in pairs	Practice
11	Performing in groups – 3, 4, 5.	Practice
12	Assignments	Written

Suggestive Reading Materials:
Teachers may suggest books/readings as per the need of the learners and learning content.

102: ARTS (PERFORMING AND VISUAL) AND CREATIVE EXPRESSIONS EXEMPLAR 2 - THEATRE

Credits 01+01=02
Maximum Marks: 35+15=50
About the Course:

The engagement with various forms of art as self-expression and the need to develop a sensibility to appreciate them has been an important concern in educational theory and practice. This concern is premised on the claim that forms of self-expression contribute immensely to the development of cognitive, affective, and psycho-motor dimensions among children, as well as that through one or another art form that children come to explore ways of expressing themselves. Further, it is also the case that critical appreciation of art enables children to form judgments of a very special kind, namely, an aesthetic judgment. This enables students as they grow into adults to have focused attention on making meaning of what surrounds them and in appreciating cultural productions.

Children are naturally tuned to appreciate art, as it activates their senses. Further, their psychomotor skills get developed through art. It gives them space to think independently, create and reflect, while working with others. It is a unique space where all the three are involved- hand, head and heart.

Therefore, students who aim to be educational practitioners, will need to bring an element of art in educational practices that they engage in. To be able to do this, they need an appreciation of art in general, familiarity with one art form, and basic skills and capabilities to be creative and artful.

To this end in the first semester students will attend one course that aims to help them recognize and appreciate the importance of aesthetic judgment, develop familiarity with an art form and basic skills to be creative in their expressions. Skills develop from practice, therefore hands on training in doing art will be emphasised in this course. This course aims to help students develop a habit of improvising on theatrical performances that include following aesthetic judgement at all stages, which will contribute to other educational practices that they develop in the larger programme. Therefore, this course will

explicitly relate this skill to activities that practitioners of education engage in, like teaching, development of teaching-learning material, and also producing content of other subject areas wherever possible.

Theatre:

Theatre is a collaborative art form, and it is inherently interdisciplinary in its nature. It comprises many facets and skills like acting, directing, writing, designing the sets and costumes, make-up, production, lights, sounds and music. All these elements and skill sets come together and are stitched in the form of a 'play' which is performed live, in front of an audience. In the Indian context, theatre has a deep-rooted history with its classical, folk, and other cultural forms until other contemporary forms of theatre evolved in recent times.

Theatre education for children can play a vital role in their individual, social, and emotional development. It teaches them the values of trust and interdependence, makes them confident to express themselves and helps them learn to work in a collaborative environment. It develops their ability to contextualize critique and discuss certain questions and thoughts they encounter in everyday life. It further helps them imagine, explore, and create their own narratives.

In this course, we will briefly talk about the aesthetics of theatre and how theatre exists in different forms. The students will learn some basic theatre tools that will help them create and perform a narrative they collaboratively arrive at.

In simple terms one can say theatre has two major aspects i.e., creating the script and then performing it. Body is the primary instrument in any theatrical performance accompanied by text, material, visual and sound. This course will introduce students to these aspects of any theatre performance, in the form of direct experience by doing this themselves.

Learning Outcomes

After completion of this course, students will be able to: • articulate the importance of aesthetics and art in elementary education, • demonstrate their familiarity with and appreciation of theatre, • learn basic theatre tools of improvisation, ideation, and creation of a script, • create a short performance with educational possibilities.

UNIT - I Importance of Aesthetics and Art education (2 Sessions)

In this unit the basic idea of aesthetics and art, and ways in which the aesthetic dimension manifests itself in human life will be discussed. Using various examples of art, students will engage in identifying aesthetic aspects of daily life, develop aesthetic judgment, and gain familiarity with the role of art in education. Students will also be introduced to three aspects of art in education: The value of art itself and its use as an instrument in education; moral dimensions of works of art and the controversial distinction between the value of Popular art and High art.

UNIT - II Introduction to Theatre, and Beginning with the body (3 Sessions)

We will discuss some core essentials in the aesthetics of theatre like the performance, the makers, the audience, and the context and how we relate this to the world around us, in everyday lives. In this unit, we will discuss examples of how theatre was used in social movements that have contributed to educating the larger population about important social issues. Additionally, we will also learn from practices and approaches of theatre groups like Budhan Theatre who work with denotified tribes, and Manalmagudi who work closely with physical nonverbal theatre. Exposing students to these approaches will lead to rich discussions on the role of theatre in pedagogy and practice.

In this unit, students will learn certain principles and awareness on how to use their body and voice in a given space and time, with respect to other bodies. There will be several games, exercises that will familiarise them with certain basics of movement, voice, acting and thereby create improvisations and images in a given context. The activities and tasks will be both in individuals and groups.

UNIT - III Arriving at a script (3 Sessions)

We will engage in some theatre making processes to arrive at a script by the end of this unit. How to adapt or devise a script with actors? How can we borrow from everyday experiences of memory, sound and visuals, without a written text or spoken word? Plays, stories, poems, newspapers articles, will be shared to read, reflect, analyse, and re-create like "Why, why Girl" by Mahashweta Devi, "Ratna Pakshi"

by K Ramaiah, "Beyond the land of Hattamala and Scandal in Fairyland" by Baadal Sircar, and songs of Kabir etc. The texts chosen will have a direct relation with topics from social studies, moral and political education.

Students will use their skills of improvisation they learned in Unit 2 to explore, ideate, create, and finally arrive at a script. What kind of stories, narratives, and characters they choose to perform will lead back to the discussion of aesthetics. Students will mostly work in groups to choose or create a text, concept, or an idea which they want to perform. Students will be encouraged to use their perspectives on the education system, in converting the text into a script.

UNIT - IV Performing the script

This unit will engage in the actual making of the final piece they choose to make. Students will have to visualise the final text on stage and start rehearsing in their groups. Apart from using their bodies to play characters, the students will also have to think about design and other aesthetic elements like sets, props, costumes, lights, music and sounds they want to use in the performance.

Students will have to practice beyond the six classes as the class time will be utilised to discuss and provide feedback as the work progresses. The last two classes in this unit will be utilised for the final rehearsals and assessments. The final performance will take place in front of a small audience followed by a brief post-performance discussion. Students will engage in discussing and reflecting on the views, questions and comments shared by the audience.

Pedagogy

The pedagogy is basically hands-on training. More emphasis is given to experiential learning. They do things and through doing, they learn about art and its connection to education. The process takes you through different forms of art- fine arts, playing with colours, costume designing, facial make -up, script writing, music, and performance.

Suggestive Mode of Assessment:

Details to be determined by the faculty member as per applicable UGC norms.

Week wise break up of sessions		
Week	**Topics**	**Session flow**
1	UNIT - I: Aesthetics and art, art in everyday life. Importance of art. Appreciation of art.	Based on their experience
2	Art for art's sake. Art with social responsibility. Art for social change	Discussion
3	UNIT 2: Aesthetics of Theatre	Discussion
4	Body work - Individual and group	Hands on
5	Body work – Improvisation	Hands on
6	UNIT - III: Adaptation of texts. Aesthetic choices.	Hands on, discussion
7	Story making and devising	Hands on
8	Arriving at a text	Hands on
9	UNIT - IV: Visualising the final piece. Thinking about design and aesthetic elements.	Hands on, Discussion
10	Rehearsals and feedback	Hands on
11	Rehearsals and feedback	Hands on
12	Final rehearsals and assessment	
13	Finals rehearsals and assessment	
14	Performance and audience discussion	

Suggestive Reading Materials

Teachers may suggest books/readings as per the need of the learners and learning content.

ARTS (PERFORMING AND VISUAL) AND CREATIVE EXPRESSIONS
EXEMPLAR 3 - COLLAGE-MAKING

Credits 01+01=02
Maximum Marks: 35+15=50
About the Course:

Engagement with various forms of art as self-expression and the need to develop sensibility to appreciate them has been an important concern in educational theory and practice. This concern is premised on the claim that forms of self-expression contribute immensely to the development of cognitive, affective and psycho-motor dimensions among children, as well as that through one or another art form, children come to explore ways of expressing themselves. Further, it is also the case that critical appreciation of art enables children to form judgments of a very special kind, namely, aesthetic judgment. This enables students as they grow into adults to have focused attention on making sense of and appreciating cultural productions.

Children enjoy artwork a lot. They explore and find meaning in artwork. Their psycho-motor skills get developed through art. The huge element of socialization is acquired through different forms of art. They get to know each other and understand each other and make friends through art. They develop their peer group through getting involved in art forms. Learning to work with others is also achieved through art. It gives them space to think independently, create and reflect. It is one space where all the three are involved- hand, head, and heart.

Therefore, educational practitioners that the students aim to be, will need to bring an element of art in practices that they engage in. To be able to do this, they need an appreciation of art in general, familiarity with one art form, and basic skills and capabilities to be creative and artful. Additionally, they should be familiar with some critical debates in art education, even if their work is in other subject areas.

To this end, students will do one course that aims to help them recognize and appreciate the *importance of aesthetic judgment, develop familiarity with an art form* and basic skills to be *creative and artful in their expressions*. Skills develop from practice, therefore hands-on training in doing art will be emphasized in this course. This course aims to help students develop a habit of performing skillful activities that are essentially aesthetic and artful which is expected to contribute to other educational practices that they develop in other courses in the programme.

Therefore, this course will explicitly relate this skill to activities that practitioners of education engage in, like teaching, development of teaching-learning material, and content of other subject areas wherever possible.

Collage as visual art medium

A major aspect of college, and one that is sometimes overlooked, is the incredibly diverse array of materials and objects that can be used. Collecting interesting materials is an ongoing activity for artists and for those who teach college. But it is just as important for young people to hunt for and make decisions about materials they would like to incorporate into their work. All materials, and the alterations that artists make to them, are suggestive of ideas and concepts based on their surfaces, forms, textures, degree of transparency and opacity, color, and other visual characteristics. Materials also connect us, through association and reference, to social and cultural worlds and places. What ideas might a scrap of newspaper, as a collage material, express? How might these meanings differ from those of, say, feathers? Or twigs? Or a thin piece of plastic cut out from a plastic bag?

Working with and creating artwork in Collage involves various aspects: selecting materials, manipulating materials, investigating materiality, closely observing materials, discovering possibilities, composing, designing the artwork, planning, finding solutions, applying solutions, thinking flexibility, decision-making, research, using imagination, expressing, taking creative risks, develop perseverance, and much more. Students will also be introduced to various aspects of art in education: The value of art and artmaking by itself, art's use as an instrument in education, social and moral dimensions of art, and the controversial perceptions around good art and bad art.

This course aims for students to understand the importance of aesthetics and art in education, the role art can play in education, and mainly to appreciate, understand and gain skills with the medium of collage and its techniques.

Learning Outcomes:

After completion of this course, students will be able to:

• articulate the importance and the role of aesthetics and art in education.
• understand the medium of collage and its versatility.
• design, plan, and create an expressive self-portrait collage by applying a variety of collage techniques.
• design and set up an interactive visual art exhibition to display their artworks.
• understand and appreciate art-based learning experiences.
• develop the ability to reflect and challenge their assumptions and beliefs around art and develop new understandings.

UNIT – IUnderstand the importance of Aesthetics and Art in Education (2 Sessions)

Students will be introduced to Aesthetics and Arts by engaging in experiences, discussions, and dialogues. Students will experience a session of 'Visual thinking strategy' (VTS) activity in which students will collectively view and engage in a series of artworks closely, share their observations, critically analyze their observations, listen to multiple perspectives from peers, suspend judgments, and draw their own understanding of the artwork. Students will recognize aesthetic and un-aesthetic experiences through compare and contrast. Through this activity and unpacking of the experience, students will start making connections and develop understandings around what aesthetics mean, aesthetic aspects of daily life, develop aesthetic judgment, and how arts evoke emotion and awaken.

UNIT - II Exploring paper collage and its techniques (4 Sessions)

Students will be introduced to the medium of collage and open their minds to the possibilities within this medium. Students will view and discuss examples of collage artworks, artist process and artist interview videos. Students will get a chance to compare and contrast various ways collage as a medium is used. Students will reflect upon their own past art educational experiences and observations and engage in dialogue and discussions. Students will analyze effective and ineffective ways of using the medium of collage in educational and other settings.

Through inquiry-based participatory demonstrations, students will investigate and discover a variety of ways to manipulate paper and create individual and unique two-dimensional compositions in the medium of paper Collage. They will understand and learn the techniques, artistic terminologies of the collage medium. Students will reflect on their experience and engage in facilitated discussions to deepen their understanding on the role of art medium exploration and how it can foster various learning skills.

Students then use their knowledge and experience from the previous sessions and explore collage as a medium further. Students will investigate, discover, and learn to create visual textures, physical textures, and create their own unique patterns. They will understand the difference between textures and patterns. Students will use a variety of techniques to create unique textures and patterns, analyze their findings, give each other feedback, work in groups to problem solve, etc. They will understand how art medium explorations can be used as a pedagogical tool in learning environments.

Students will bring in various materials found around them like different kinds of paper, paperbased materials, natural materials, fabric, and explore these materials and use them as materials to create collage compositions. Students will explore a wide range of techniques and discover their own ways to manipulate these found materials to create interesting textures and patterns. Students will work in groups, problem solve, investigate, develop solutions on their own, and share their findings with each other. Through discussions, students will reflect upon this exploration experience and understand how art making processes can develop skills and abilities in a learner.

Resource Videos

1. Works of Deborah Roberts, William Kentridge, Wangechi Mutu, etc
2. Marc, Cut paper collage artist - https://www.youtube.com/watch?v=WgRZlWl-Oh0
3. G. Subramanian: Collage art - https://www.youtube.com/watch?v=ioRRi9R46a0

4. Amber Fletschock, Collage artist - https://www.youtube.com/watch?v=aa7p1vYqUc4
5. Arturo Herrera, artist - https://www.youtube.com/watch?v=Oagx3_NZ5HU

UNIT - III Ideating for an Expressive Self-Portrait (2 Sessions)

In this session students will further explore and discover possibilities in Collage as a medium. Students will learn a variety of ways to make paper stands and create interesting paper sculpture compositions using 3D techniques. Students will draw from their previous experiences of using paper for 2D explorations and add more interest to their unique 3D explorations. Students will share their findings with peers and widen their understanding about the possibilities. Students will reflect on all the material exploration sessions thus far and participate in a facilitated dialogue around art making and education.

Students will engage in a close observation sketching and drawing activity. Through a guided process, students will create a well observed self-portrait drawing. Students will engage in discussions and dialogue to unpack the self-portrait drawing experience, the learnings, discoveries, challenges and more. Through this activity students will also be able to challenge assumptions around talent and art-making.

Resources: Handouts out on Collage techniques and artist examples

Resources: JR's Face to face project (videos and readings) https://www.youtube.com/watch?v=4u_G0G6Jog4

UNIT - IV Creation of an Expressive Self-Portrait Collage (3 Sessions)

Students will engage in a step-by-step process involving sketching, ideating, planning, applying their discoveries of using paper as a collage material, and finally create a large expressive self-portrait using the medium of paper collage. Throughout the process students will problem-solve, critically think, push their imagination, find multiple solutions, make independent decisions, receive and give peer feedback, use resources effectively, draw from their own experiences, apply their learning into creating this unique and expressive self-portrait piece.

UNIT - V Designing and setting up an Exhibition (2 Sessions and Exhibition Day)

Students will collectively start designing and planning for the exhibition to put up their artworks for a general audience to view and engage with. Students will be planning the various aspects of a visual art exhibition: ways to display artworks, designing the layout of the exhibition space and how the audience will move within the space, design invitations, ways that the audience can engage with the artworks, various ways the artists can talk about their art-making, and more. Students will divide the tasks among themselves, take on the various roles required, and set up the exhibition space.

Resources: Planning templates

Pedagogy

- Students will engage in hands-on art making activities.
- Students will engage in discussions and dialogues with peers.
- Students will engage in giving and receiving peer feedback.
- Students will continually reflect on their learning through journaling.
- Students will work independently and collaboratively throughout the course.
- Students will receive reference materials and resources to broaden and deepen their understanding.

Suggestive Assessment

Details to be determined by the faculty member as per applicable UGC norms.

Suggestive Reading Materials

Teachers may suggest books/readings as per the need of the learners and learning content

AEVA-103: UNDERSTANDING INDIA
(INDIAN ETHOS AND KNOWLEDGE SYSTEMS)

Credits 01+01=02
Maximum Marks: 35+15=50
About the Course:

At a time when the world finds itself deep in dynamism, led by technological innovations and environmental changes, there is a need for an inward-looking approach to building the young minds of a country. By looking inwards, one not only finds a sociological belongingness but also a spiritual and intellectual rooting in these changing times. The course provides an overview of India's heritage and knowledge traditions across key themes of economy, society, polity, law, environment, culture, ethics, science & technology, and philosophy. It places special emphasis on the application of these knowledge traditions, helping students to noy only know and appreciate India's heritage and knowledge traditions but also to independently evaluate them through a multidisciplinary lens. This evaluation would produce valuable lessons for obtaining transferable and 21st-century skills. The course requires no pre-requisite knowledge or understanding. Spread over two years, the course will establish foundational knowledge and build upon it. It will allow students to have a basic understanding of the traditions of India and how it has evolved over the years. The course is designed to enable student teachers to outline and interpret the processes and events of the formation & evolution of knowledge of India through a multidisciplinary lens; to evaluate the diverse traditions of India to distinguish its achievements and limitations, and to develop and articulate an ethics-based education rooted in Indian thought to their students in the classroom context.

Learning Outcomes:

After the completion of the course, students will be able to:

• recognize the vast corpus of knowledge traditions of India, while developing an appreciation for it,
• apply their acquired research and critical thinking skills in multidisciplinary themes,
• summarize and pass on their learnings to their students of different Indian traditions in an easily digestible manner.

UNIT - I Introduction to the Knowledge of India

A. Definition & scope; Relevance of this knowledge.
B. Need to revisit our ancient knowledge, traditions, and culture.

UNIT - II Culture - Art and Literature

A. Fine arts (traditional art forms, contemporary arts, arts & spirituality, arts and Identity, and art and globalization);
B. Performing Arts (Indian dance systems, traditional Indian pieces of music, visual arts, folk arts, etc.,).
C. Literature (Sanskrit literature, religious literature, Indian poetry, folk literature, Indian fiction, Sangam literature, Kannada, Malayalam literature, Bengali literature, etc.

UNIT - III Polity and Law

A. Kingship & types of government (oligarchies, republics); Local administration (village administration);
B. Basis of Law: Dharma & its sources; Criminal Justice: police, jails, and punishments; Lessons from Chanakyaniti; Lessons for modern-day India: Towards a tradition-driven equitable and just polity and law system.

UNIT - IV Economy

A. Overview of the Indian Economy from the Stone Age to the Guptas: The new culture of Urbanization (including castes, guilds, and other economic institutions; Harappan civilization economy; growth of agriculture and proliferation of new occupations; growth of writing);
B. Internal & external trade and commerce, including trade routes, Indo-roman contacts, and maritime trade of South India; Temple economy.
C. Land ownership - land grants & property rights, land revenue systems.

D. Understanding Artha shastra: Ideas & Criticism; Locating relevance of ancient Indian economic thought in modern-day Indian Economy.

UNIT - V Environment & Health

A. Understanding Equilibrium between Society & Environment: Society's perceptions of natural resources like forests, land, water, and animals.

B. Sustainable architecture & urban planning; Solving today's environmental challenges (best practices from indigenous knowledge, community-led efforts, etc.).

C. India's Health Tradition: Ayurveda, Siddha, Ashtavaidya, Unani, and other schools of thought; Lessons from Sushruta Samhita and Charaka Samhita;

D. Mental health in ancient India: towards time-tested concepts of mental wellness (concept of mind, dhyana, mind-body relationship, Ayurveda, yoga darshan, atman, etc.)

Suggestive Practicum:

The modes of curriculum transaction will include lectures, Tutorials, and Practicum.

• Practicum will include organization of day trips that help student teachers watch events relating to visual and performing art; activities that enable student teachers to identify and record through photos, videos, etc. the elements of ancient architecture still existing in the city around them; organization of Individual and group presentations based on themes such as Polity, Law and Economy etc., organization of a 'Knowledge of India' day in the institution to celebrate the culture (food, clothes, etc.) that they would have been explored in lectures and tutorials; interactions with family members, elders, neighbors, and other members of society about the evolution of local systems and economy etc.

Suggestive Mode of Transaction:

• Lectures will include learner-driven participatory sessions, and Guest lectures through experts and practitioners, such as fine arts and performing arts practitioners along with contemporary poets & writers of Indian literature.

• Tutorials will include Screening of documentaries and films followed by a discussion; Learner-driven discussions in the form of focus group discussions (FGDs), Socratic Discussions, etc.; Debate/discussion can be organized to explain India's Vaad tradition; discuss on how some of the ancient methods of teaching are relevant in today's time; discussions that help Identify ethical dilemmas in daily lives and understanding the importance of ancient ethics and values to resolve them.

Suggestive Mode of Assessment:

The approaches to learning assessment will include, for example:

• Supporting the curiosity and interest of student teachers in the selected themes through a multi-modal approach, including regular assessments and actionable feedback that enable learners to outline and interpret the processes and events of the formation & evolution of knowledge of India through a multidisciplinary lens.

• Enabling the student teachers to demonstrate critical analysis and independent thinking of the processes and events in the formulation & evolution of different traditions that help student teachers evaluate the diverse traditions of India to distinguish its achievements and limitations.

• Use of first-hand or second-hand experiences that enable student-teachers to develop and articulate an ethics-based education rooted in Indian thought to their students in the classroom context.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

AEVA-201: LANGUAGE 2
(Other than Language 1)

Credit:3+1=04

Maximum Marks: 70+30=100

About the Course:

The course aims to prepare the students to teach language at the school level. It focuses on training the students to the sounds systems of languages, word formation processes, sentence formation, semantic and pragmatic aspects of languages. The course intends to enable the learners to integrate all the four language skills using different genres. The major aim of this course is to empower the learners to contribute to the discourses on various issues and themes. The course also orients the students to the use of different technology and digital media for developing their own communicative skills as well as the school students they would teach in the future. The course helps improve basic communication skills such as listening, speaking, reading, and writing skills among L2 language learners. The course is designed to enhance knowledge of grammar of L2 and enable the students to formulate grammatically correct and contextually appropriate sentences and words and empower the students with summarizing skills, oral presentations skills effectively. The course also seeks to enhance students' critical thinking capacities and demonstrate effective communication skills and provide hands-on activities to student teachers to develop their linguistic skills through practical sessions.

Learning Outcomes:

After completing the course, student teachers will be able to:

• demonstrate reading, writing, listening, speaking, and thinking abilities in L2,

• recognize the link between language and mental skills and demonstrate their knowledge and skills effectively for all purposes, • build inter-personal relationships and enhance social skills.

UNIT - I Language, Society, and learning

A. Bi-/Multilingualism and scholastic achievements; need to promote multilingualism; Language variation and social variation; languages, dialects and varieties, cultural transmission of language, language, and gender; language and identity; language and power; constitutional provisions and National Education Policy 2020.

B. Language acquisition and Language learning; language learning from mother tongues to other tongues; advantages of learning other languages; language and education; notion of first language, second language and others.

UNIT - II Speech and Writing

A. Writing Systems: Speech and writing; arbitrariness in language; types of writing systems.

B. Classification sessions of speech sounds: vowels, consonants, and others; supra-segmental: stress, pitch, tone, intonation, and juncture; Acoustic phonetics.

UNIT - III Understanding Grammar

A. Word and meaning; parts of speech, grammatical categories; word formation: affixation, compounding, reduplication, vocabulary building.

B. Sentence and its constituents: simple, complex, and compound sentences; Semantics and pragmatics: lexical meaning- synonymy, antonymy, meronymy, grammatical meaning, speech acts.

UNIT - IV Basic Communication Skills in L2

A. Pronunciation and listening comprehension skills.

B. Reading and reading comprehension skills.

C. Effective writing skills; effective presentation and speaking skills; summarizing and paraphrasing skills.

UNIT - V Critical Reading and Thinking Skills

Components of critical thinking and reading; high order cognitive development; critical thinking and problem solving; rational inquiry.

Suggestive Practicum

1. Listen to a recorded speech and classify it based on sounds: vowels, consonants, and others; suprasegmental: stress, pitch, tone, intonation, and juncture; Acoustic phonetics.
2. Analyze sentences and their constituents as simple, complex, and compound sentences from written work.

Suggestive Mode of Transaction:

Teaching this course will involve a mix of interactive lectures, tutorials, and practical involves such as discussion, role plays, projects, simulations, workshops and language-awareness activities. The teaching intends deeper approaches to learning involving in- class room discussion, developing the critical thinking/ problem solving abilities among the students and will also focus on situations where in our daily lives the one would be performing tasks that involve a natural integration of language skills. The students are expected to read assigned chapters/ articles before the session and the course requires active participation from the students.

Suggestive Mode of Assessment

The assessment of the learner will be primarily based on the assessment of both linguistic and communicative skills using a battery of tests and test types, group work and projects.

Suggestive Reading Materials

Teachers may suggest books/readings as per the need of the learners and learning content.

AEVA-202: UNDERSTANDING INDIA
(Indian Ethos and Knowledge Systems)

Credits 1+1=02

Maximum Marks: 35+15=50

About the Course:

At a time when the world finds itself deep in dynamism, led by technological innovations and environmental changes, there is a need for an inward-looking approach to building the young minds of a country. By looking inwards, one not only finds a sociological belongingness but also a spiritual and intellectual rooting in these changing times. The course provides an overview of India's heritage and knowledge traditions across key themes of economy, society, polity, law, environment, culture, ethics, science & technology, and philosophy. It places special emphasis on the application of these knowledge traditions, helping students to not only know and appreciate India's heritage and knowledge traditions but also to independently evaluate them through a multidisciplinary lens. This evaluation would produce valuable lessons for obtaining transferable and 21st-century skills. The course requires no pre-requisite knowledge or understanding. Spread over two years, the course will establish foundational knowledge and build upon it. It will allow students to have a basic understanding of the traditions of India and how it has evolved over the years. The course is designed to enable student teachers to outline and interpret the processes and events of the formation & evolution of knowledge of India through a multidisciplinary lens; to evaluate the diverse traditions of India to distinguish its achievements and limitations, and to develop and articulate an ethics-based education rooted in Indian thought to their students in the classroom context.

Learning Outcomes:

After the completion of the course, students will be able to:

• recognize the vast corpus of knowledge traditions of India, while developing an appreciation for it,
• apply their acquired research and critical thinking skills in multidisciplinary themes,
• summarize and pass on their learnings to their students of different Indian traditions in an easily digestible manner.

UNIT - I Introduction of Knowledge of India

A. Recap of the previous semester's definition and introduction.
B. Recap of previous knowledge.

UNIT - II Philosophy, Ethics & Values: Schools of Philosophy

A. Vaishesika, Nyaya, Samkhya, Yoga, Purva Mimansa and Vedanta or Uttara Mimansa (theory and the major thinkers) – and Jain, Buddhist, and Charvak traditions.

B. Vedanta: philosophical systems (Advaita, Vishishtadvaita, Dvaita).

C. Ethics, morality, and social dilemma (including self-leadership) and their relevance in today's time.

D. How do Indians value spirituality? Spirituality and Social Responsibility; Importance of Spirituality in current times.

E. Using ethics in a technologically volatile world: leading an ethical and modern life. F. Practical Vedanta for well-being (mindfulness, inter-connectedness, society-self relationship, etc.).

UNIT - III Culture- Lifestyle

A. Food (regional cuisines, ayurvedic diet, food and festival, vegetarianism, Jainism in food, food and hospitality, and globalization).

B. Clothes (traditional Indian clothing, textile arts, religious costumes, clothing status, clothing, gender, globalization in clothing).

C. Sports (traditional Indian sports, martial arts, sports, and gender, sports & globalization).

D. The lifestyle of Yoga; adapting ancient lifestyle – A path towards longevity.

UNIT - IV Science & Technology

A. Arithmetic and logic.

B. Natural sciences: math, physics, metallurgy, and chemistry.

C. Astronomy: India's contributions to the world.

D. Indian notions of time and space.

E. Technology in the economy: agriculture, transportation, etc.

UNIT - V Linguistic Traditions

A. History of linguistics in India (conceptualizing ancient Indian linguistics, oral traditions, etc.). B. Language as Culture: Evolution of Languages over the years & language as building blocks to different cultures and society

C. Language: Identity, culture, and History.

Suggestive Practicum:

The modes of curriculum transaction will include lectures, Tutorials, and Practicum.

• Practicum will include organization of day trips that help student teachers watch events relating to visual and performing art; activities that enable student teachers to identify and record through photos, videos, etc. the elements of ancient architecture still existing in the city around them; organization of Individual and group presentations based on themes such as Polity, Law and Economy etc., organization of a 'Knowledge of India' day in the institution to celebrate the culture (food, clothes, etc.) that they would have been explored in lectures and tutorials; interactions with family members, elders, neighbors, and other members of society about the evolution of local systems and economy etc.

Suggestive Mode of Transaction:

• Lectures will include learner-driven participatory sessions, and Guest lectures through experts and practitioners, such as fine arts and performing arts practitioners along with contemporary poets & writers of Indian literature.

• Tutorials will include Screening of documentaries and films followed by a discussion; Learner-driven discussions in the form of focus group discussions (FGDs), Socratic Discussions, etc.; Debate/discussion can be organized to explain India's Vaad tradition; discuss on how some of the ancient methods of teaching are relevant in today's time; discussions that help Identify ethical dilemmas in daily lives and understanding the importance of ancient ethics and values to resolve them.

Suggestive Mode of Assessment:

The approaches to learning assessment will include, for example:

• Supporting the curiosity and interest of student teachers in the selected themes through a multi-modal approach, including regular assessments and actionable feedback that enable learners to outline and

interpret the processes and events of the formation & evolution of knowledge of India through a multidisciplinary lens.

• Enabling the student teachers to demonstrate critical analysis and independent thinking of the processes and events in the formulation & evolution of different traditions that help student teachers evaluate the diverse traditions of India to distinguish its achievements and limitations.

• Use of first-hand or second-hand experiences that enable student teachers to develop and articulate an ethics-based education rooted in Indian thought to their students in the classroom context.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content

AEVA-203: TEACHER AND SOCIETY

Credit: 01+01=02

Maximum Marks: 35+15=50

About the Course

Teachers unarguably have the key role in nurturing young lives and shaping positive and inspired future generations. Emphasizing on the crucial role of teachers NEP 2020 states "teachers truly shape the future of our children - and, therefore, the future of our nation.". "The high respect for teachers and the high status of the teaching profession must be restored to inspire the best to enter the teaching profession. The motivation and empowerment of teachers is required to ensure the best possible future for our children and our nation." (NEP Para 5.1). The NEP in its introductory section states, "the teacher must be at the centre of the fundamental reforms in the education system" and highlights the need to "help re-establish teachers, at all levels, as the most respected and essential members of our society, because they truly shape our next generation of citizens". (NEP 2020, Introduction). The policy also stresses the need to "do everything to empower teachers and help them to do their job as effectively as possible." It is recognized that teachers are second to mothers in having the opportunity to work with children during the most impressionable years in their life and shape opinions, form ideas about personal and social goals and about society and life, contributing so much to the development of both individuals and society.

The focus of the course on 'Teacher & Society' is on developing an understanding among student teachers of the roles of teachers in the emerging Indian society, including the changing roles of teachers in the context of the global flows of people, culture and resources that are shaping society, and the application of technologies that are constantly redefining not only the educational landscape but also the human relationships and social norms which are continuously undergoing change which entails a recalibration of the teacher roles aligned to the current and future realities and preparing teachers for the volatile, uncertain, complex and ambiguous world. The course enables the students to understand the roles and obligations of teachers as an architect of the society based upon the cultural ethos, traditions, and diversity. The student teachers shall be equipped with the knowledge, capacities and value system that enables them to act as an agent for fostering national integration, a feeling of pride in the cultural heritage and achievements of India. This course also aims to ensure that student teachers understand their responsibility for producing a future generation that undertakes its responsibility as an awakened citizen who avoids wastage of national resources and takes up a proactive role for the emergence of India as a strong and disciplined nation.

In addition to these, the course also seeks to enable each of the student teachers to respond to the needs of students from diverse cultural, linguistic, social and economic backgrounds; to be sensitive to gender issues, promote tolerance and social cohesion, provide special attention to students with learning disabilities, learn and apply new pedagogies and technologies, keep pace with current educational developments and initiatives; and keep oneself professionally engaged to update/upgrade knowledge and practice. Student teachers will be encouraged to comprehend how societal structures, context and historical patterns shape teacher identities on one hand and how teacher identities, beliefs, values, convictions and commitment shape the ethics, culture, norms and values on the other; thus, impacting the larger societal thoughts and actions. The course also explores the relationship of the teacher with

education development, community and society through different course units that talk of the teacher as a person and as a professional, the socio-cultural and technological contexts of the teacher and how they impact the teaching learning process, the multiple roles, identities and expectations of a teacher. It invites the student teachers to be reflexive of one's thoughts, beliefs and actions and continuously take a gaze inside out so as to un-biasedly engage children in a reflective dialogue.

The course explores the agentic role of a teacher, how it gets influenced and how it influences the education system. It concludes with the re-calibrating of roles of teacher and teaching beyond the curricular boundaries as an architect of an inclusive, harmonious, and developing India.

Learning Outcomes

After completion of the course, student teachers will be able to:

• examine the relationship between teacher beliefs, values, character, life history, social and cultural context and teaching critically,

• explain the teacher roles and characteristics; the personal and professional self; the teacher as a communicator, the charismatic influencer, the reflective practitioner, competent, learner and much more and their significant role in nurturing the posterity.

• differentiate between the narrow curricular aims of education and the broader educational aims and their role in shaping self, school, and society,

• demonstrate an ability to develop positive classrooms through engaging in the ethic of care,

• demonstrate an ability to critically reflect on personal and collective practice so as to improve learning and teaching,

• conceptualize teacher agency, its individual, contextual, and structural dimensions and how it gets impacted and in turn shapes education.

UNIT - I Understanding the Teacher: Exploring the Personal and Professional Teacher

A. Exploring the wider Personal and General Social Context of Teacher: Life History, Teacher Beliefs, Values and Aspirations, Diverse Identities, Social Contexts and Commitment to Learning and Education.

B. Exploring the Professional Teacher: Qualifications, Education in teaching, Attitude, Aptitude, Experience and Exposure.

C. The Charismatic Teacher, the Communicator Teacher, The Missionary Teacher, The Competent Practitioner, The Reflective Practitioner, The Learning Teacher.

D. Reflexive Practice: Nurturing the Professional Capital through collaborative and/or collective engagement with self, others, the social context.

UNIT - II Nurturing the Teacher: A Dialogue beyond the curricular goals, for Life and Posterity

A. Teaching: One profession, many roles

B. Teaching Character: Nurturing Teachers for Human Flourishing.

C. Holistic Teacher Development: Nurturing the Pancha koshas.

D. Teacher Values, Beliefs, and current Philosophy of Teaching: A Reflective Dialogue.

E. Developing an Ethic of Care in Teacher Education: Nurturing Teachers towards a pedagogy of care.

UNIT - III Understanding and Fostering Teacher Agency: Role in shaping Education Systems of Tomorrow

A. Teacher Agency: What is it and why does it matter?

B. Individual, Cultural and Structural Dimensions of Teacher Agency.

C. Teacher discourses, Philosophy, Relationships, Networks and Professional Development: Shaping teacher agency and Creative insubordination.

D. Challenges and Issues inf fostering Teacher Agency: Performativity, Non-academic engagements, Systemic apathy, Policy and Practice gaps and others.

E. Role of Teacher in shaping the educational policy, practice, and reforms

UNIT - IV Teacher as an Architect of the New India: Shaping the Society of Tomorrow

A. Engaging in Critical Education: Dialogues on power relations associated with Gender, Ethnicity, Culture, Disability, Class, Poverty, the reproduction of disadvantage and realizing the true human potential.

B. Being a Critical Teacher: Raising debates around rapid technological advancement and impact on individual, family and social life; the growing isolation and impact on mental and social health and well-being, changing relationships between the 'state' and the 'market' and their impact on formal education; the conceptualization of teacher, teaching and teacher roles, 'globalization' and the reconstructed nationalism shaping the socio-political milieu and impact on social psyche, growing materialistic urge, sensory drives and the gradual deterioration of the individual and societal character.

Suggestive Practicum:

1. Take up a case study of any one teacher education Institution.
2. Write a biography of any one of your favourite teachers/ Educationists.

Suggestive Mode of Transaction:

Teacher and Society is a reformatory course that invites teachers to re-think teachers and teaching. It awakens and inspires teachers to realize broader educational aims through an action and reflection cycle. The approach therefore would include a blend of lectures, in-class seminars, thinking exercises, critical reflections, group-work, case-based approaches, and enquiry-based learning.

▪ Learners would also be exposed to case studies featuring teachers from a representative cross-section of Schools in India and critically analyse their exercise of agentic force in school improvement and the improvement of teaching practice.

▪ Situating themselves in the geo-political context, the learners will get to critically engage in some of the policy dialogues.

▪ Learners would reflect on their practice as pre-service interns, knowledge, skills, and understandings—and identify opportunities to apply course learnings to their school context.

Suggestive Mode of Assessment:

Being a very thought-provoking course, the assessment would largely include critical thinking kind of assignments. The following are some exemplars.

1. Write your current teaching philosophy based on your beliefs and values.
2. Choose any one area of immediate societal concern like environmental degradation, increasing crime against women, cybercrimes, bullying or any other and draw an action plan that you as a teacher would undertake to mobilize self, school and society towards betterment.
3. Critical Reflections on popular debates around power relations associated with Gender, Ethnicity, Culture, Disability, Class, Poverty, and such others These are just prototypes and institutes may choose either of these or think of other innovative assignments that would inculcate in the future teachers a sense of belonging for society.

Suggestive Reading Materials:

Teachers may suggest books/readings as per the need of the learners and learning content.

501: Information & Communication Technology (ICT) in Education

Credit **2**
Semester **S-5**

About the Course

The present course focuses on moving beyond computer literacy and ICT-aided learning, to help student teachers interpret and adapt ICTs in line with educational aims and principles. The paper will orient the learners about the need for and importance of ICT in education. It will describe the importance of opensource software in education. Students will be given exposure to the various approaches and stages towards the use of ICT in education. Students are expected to develop reasonably good ICT skills in terms of the use of various computer software and ICT tools.

Learning Outcomes

On completion of this course, student teachers will be able to:

- explain the concept, nature, and scope of ICT in education,
- describe the importance of open-source software in education,
- list and explain various approaches to the adoption and use of ICT in education,
- describe the importance of various emerging technologies in education,
- See relationship between the social, economic, and ethical issues associated with the use of ICT,
- list out the challenges of educational technology in India,
- use various technological tools for improving teaching-learning- assessment processes.

UNIT - I

Introduction to (ICT) in Education

A. Meaning, Nature, importance of Information Technology, Communication Technology & Information and Communication Technology (ICT) and Instructional Technology,
B. Educational Technology and ICT in Education (Difference, Scope of ICT-Teaching, learning, Research & Publication Educational Administration and Assessment),
C. Technology & Engagement: Internet, Collaborative learning through Online Discussion Forums, group assignments & Peer reviews,
D. Meaning and Uses of Systems Approach in instructional design,
E. Models of Development of Instructional Design (ADDIE, ASSURE, Dick and Carey Model Mason's),
F. Flanders' Interaction Analysis Category System (FIACS),
G. Challenges relating to Educational Technology.

UNIT - II

Emerging Technologies in Education

A. E-learning Concept, methods, and media (LMS, Virtual Universities, Massive Open Online Course (MOOCs), Indian MOOCs, Types of MOOCs: MOOCs, MOOCs & LMOOCs).
B. Open Education Resources (Creative Commons, Concept, and application).

C. Augmented reality, Virtual reality, Artificial intelligence, Mixed Reality & Gamification in education (Meaning, history, importance, tools and uses).
D. Cloud Computing & Internet of Things - Meaning, importance and uses.
E. Ethical issues & safety in ICT- (Teaching, Learning and Research, Cyber bullying, Cyber security literacy & data protection, Online identity and privacy).

UNIT - III

ICT in Teaching-Learning & Assessment

A. Concept, Approaches to integrating ICT in teaching and learning: Technological Pedagogical Content Knowledge (TPCK), Technology Integration Matrix (TIM).
B. Implication of Learning Theories in ICT in Education: Behaviourism, Cognitivism & Constructivism.
C. Developing functional skills to use discipline specific ICT tools (Geogebra, PhET, Stellarium, Open Street Map, Marble, Turtle Art, Technological tools for Mind mapping etc.).
D. ICT and Assessment- Electronic assessment portfolio – Concept and types; e-portfolio tools.
E. Online and offline assessment tools – Rubrics, survey tools, puzzle makers, test generators, reflective journal, question bank.
F. ICT applications for Continuous and Comprehensive Evaluation (CCE).

Suggestive Practicum

1. Prepare an assessment tool on any one chapter of the textbook.
2. Explore any one online platform for MOOCs and prepare a report highlighting its structure and courses.

Suggestive Mode of Transaction

The pedagogy for the course ICT in Education should be designed to ensure that students have a good understanding of how to use technology for improving teaching-learning-assessment processes. It should provide a balance between theoretical knowledge and practical skills. The approaches to curriculum transaction may include the following:

- Active learning encourages student teachers to participate in discussions, brainstorming sessions, and problem-solving activities that help them develop critical thinking and problem-solving skills.
- Collaborative learning involves group projects and tasks that encourage student teachers to work collaboratively and learn from each other.
- Experiential learning involving Hands-on activities, field trips, and real-life scenarios that will give student teachers the opportunity to apply their knowledge and skills in a practical setting.
- Use of multimedia tools such as videos, interactive simulations, and animations that help enhance learning and make it more engaging.
- Self-directed and self-managed learning activities that encourage students to take charge of their learning process through independent research, self-reflection, and self-assessment which can promote lifelong learning.

Suggestive Mode of Assessment

The assessment for the course ICT in Education should evaluate students' knowledge, capacities, and attitudes towards the use of technology in education. The assessment methods will include the following:

- Project-based assessments involving projects that require student teachers to create an instructional/learning resource that incorporates ICT tools and then assess the quality of the resource.
- Peer assessment helps students develop their critical thinking and evaluative capacities through group tasks requiring assessment by a group of the work of another group.
- Reflective journals requiring student teachers to maintain a reflective journal and to reflect on their learning experience involving the use of ICT tools in education.
- Online quizzes and tests involving online quizzes and tests that can assess students' knowledge of the theoretical aspects of ICT in education.
- Observation and feedback involving observation of performance of student teachers during classroom activities and providing feedback that help assess their practical skills in using ICT tools for improving teaching-learning-assessment processes.

Suggested Reading Materials

Teachers may suggest books/readings as per the need of the learners and learning content.

601: Mathematical and Quantitative Reasoning

Credits 2
Semester S-6

About the Course

This course introduces the student teachers to study the basic mathematical & quantitative reasoning for their practical usage. This course is designed to provide student teachers with the knowledge and capacities required to analyze, interpret, and communicate quantitative data. Student teachers will learn to think critically about data and use quantitative reasoning to solve real-life problems.

Learning Outcomes

After completion of this course, student teachers will be able to:

- adapt mathematical reasoning to solve problems in the real world and explain some fundamental ideas and tenets in this field,
- analyze and interpret quantitative data,
- interpret & deduce the right conclusions from numerical representations like formulas, graphs, or tables,
- demonstrate critical thinking and problem-solving skills using mathematical and quantitative reasoning methods,
- evaluate operational matrix,
- analyze educational data and create educational model & use them in decision making,
- analyze and evaluate mathematical and quantitative reasoning problems and solutions.

UNIT - I

Introduction to mathematical and quantitative reasoning

A. Meaning, nature and scope of mathematical and quantitative reasoning.
B. Importance of mathematical and quantitative reasoning in various fields.
C. Types of quantitative reasoning.
D. Usage of mathematical and quantitative reasoning.
E. Concept of mathematization.

UNIT - II

Introduction to data in Education

A. Data requirement, different sources of data
B. School enrolment: gross enrolment ratios, net enrolment ratios, educational progression: dropout rate, literacy: measures of literacy
C. Indian censuses, details of different items on which Indian censuses collect data.
D. Nationwide sample surveys, National family health survey, District level household survey, UDISE

UNIT - III

Data Analysis & Interpretation

A. Concept of data interpretation (equation, diagram, graph, tables)
B. Statistical analysis of data in educational context and its applications (measures of central tendency, measures of variability, percentile)
C. Visual and numerical representation of data and its application (bar diagram, histogram, pie charts)
D. Learning analytics: concept, significance, types, levels, and its applications in educational context.

Suggestive Practicum

1. Take last 5 years UDISE data and analyze various indicators related to schools, teachers, and students.

Suggestive Mode of Transaction

The approaches to curriculum transaction will focus on developing the analytical and critical thinking skills of students, as well as their ability to apply mathematical and quantitative reasoning in real-life situations. Some of the approaches to curriculum transaction will include the following:

- Active Learning which involves active participation of student teachers in problem-solving situations, group discussions, and hands-on activities that help student teachers engage with the material and apply mathematical thinking and reasoning to solve problems.
- Real-World Applications involving the use of real-world examples to demonstrate the practical applications of mathematical concepts that help student teachers see the relevance of what they are learning and how it can be applied in various fields.
- Collaborative learning encourages student teachers to work together in small groups, where they can share ideas and help each other learn. This fosters a sense of community in the classroom and helps students develop teamwork and communication skills.
- Technology Integration involves the incorporation of technology tools such as calculators, spreadsheets, and interactive software to help student teachers visualize and solve mathematical problems more easily.
- Overall, a pedagogy that combines active learning, real-world applications, collaborative learning, technology integration, and effective assessment strategies that help student teachers develop a strong foundation in mathematical and quantitative reasoning.

Suggestive Mode of Assessment

Use of a variety of assessment methods such as quizzes, exams, group projects, and presentations to evaluate student learning. Providing timely feedback and offering opportunities for students to revise their work and improve their understanding.

Suggested Reading Materials

Teachers may suggest books/readings as per the need of the learners and learning content.

702: Sports, Nutrition and Fitness

Credits **2**
Semester **S-7**

About the Course

This course aims at enabling student teachers to recognize the importance of good health, fitness, and the right nutrition to live a healthy life. It also provides students with the experience of organizing and participating in sports and games.

Learning Outcomes

After completion of the course, student teachers will be able to:

- explain the importance of sports, and the need and impact of sport for maintaining,
- discuss physical fitness, and the methods of teaching and organization of different types of sports,
- explain the importance of physical fitness, describe different components of physical fitness, and identify activities that help maintain physical fitness,
- Recognize the importance of basic health and nutrition and healthy lifestyles and identify food items that help maintain basic health and nutrition among children of different age groups.

UNIT - I

Sports

A. Meaning of sports, importance of sports, types of sports.
B. Different stages of sports (primary and secondary).
C. Psychology of sports, methods of teaching different sports (indoor, outdoor, team and individual), different sports activities (individual and team games).
D. Sports for children with disabilities and inclusion.

UNIT - II

Physical Fitness

A. Meaning and importance of Physical fitness, components of physical fitness, Muscular Strength, Endurance, Flexibility, Body Composition, Cardiovascular Endurance, importance of healthy lifestyle.
B. Coordination of Health and Fitness.

UNIT - III

Nutrition

A. Meaning of nutrition, types of nutrition, importance of nutrition, need of nutrition, methods for teaching nutrition,
B. Nutrition for different age group, nutritious food for sports personalities and common individuals, nutrition and health, nutrition and fitness, nutritious food in schools (midday meals), hostels.

Suggestive Practicum

Reflective Reading of different Sports Personalities. Collections of different types of games (Indoor, Outdoor, Individual, Team); Organizing different games (Play) for different age-groups,

Organizing Group Games for cooperation, Organizing fitness programmes, Exercises at various levels. Collection of different nutritious items food. (Charts, Things, Objects, Models). Programmes organized to promote the use of nutritious food.

Suggestive Mode of Transaction

The mode of transaction should be designed to ensure that should provide a balance between theoretical knowledge and practical skills. The approaches to curriculum transaction may include the following:

- Active learning encourages student teachers to participate in discussions, brainstorming sessions, and problem-solving activities that help them develop critical thinking and problem-solving skills.
- Collaborative learning involves group projects and tasks that encourage student teachers to work collaboratively and learn from each other.

Suggestive Mode of Assessment

Assessment of theoretical aspects and Practicum.

Suggestive Reading Materials

Teachers may suggest books/readings as per the need of the learners and learning content.

801: Yoga and Understanding Self

Credits **2**
Semester **S-8**

About the Course

This course focuses on the benefits of Yoga for healthy living and the importance of the practice of yoga for promoting the optimal state of physical, emotional, intellectual, social, and spiritual wellbeing of a person. Yoga as a way of life is characterized by peace and tranquillity, harmony and health, love and happiness, precision, and efficiency. The course seeks to engage student teachers with these ideas. The focus of the course is on being mindful of self (body, mind, emotions, thoughts, and actions). Course components will include brief history of yoga, principles and different types and streams of yoga, practices (Kriyas, Āsana, Prāṇāyāma, Bandha & mudra, Dhāraṇa & Dhyāna, etc), meditation and reflective practices, and the importance of these aspects in becoming an effective teacher. It lays equal weightage to the theory and practicum.

Learning Outcomes

After completion of the course, the student teachers will be able to

- explain the importance of Yoga and how it helps an individual in understanding Self,
- describe the importance of practicing Yoga Asana,
- practice basic Yoga Asanas/ Kriyas.

UNIT - I

Philosophy and Historical Perspective of Yoga

A. Concept and Meaning of Yoga, Philosophy of Yoga,
B. Brief history and development of Yoga (Classical Yoga, Post Classical Yoga and Modern Period)
C. Importance of Yoga for healthy living, Yoga and its relevance in the modern times, Traditions in Yoga.

UNIT - II

Schools of Yoga

A. Different streams \schools of Yoga (Gnana, Bhakthi, Karma).
B. Construction of Yoga Practice for all round development.
C. Principals of Yoga: - Ahimsa, Satya, Asteya, Brachmacharya, Aparigraha, Shoucha, Santhosha, Tapas, swadyaya and Isvara Paridhana.

UNIT - III

Modern Principles of Yoga and Meditation

A. Modern Principles: Human Body is a holistic entity, Individuals and their need are Dhāraṇa & Dhyāna, etc, meditation and reflective practices, and the importance of these aspects in becoming an effective teacher, unique Self-empowering, the quality and state of an individual mind is crucial to healing.

B. Meditation: - its Importance, Types, and Process, Pranayama: its importance, types and process, Yoga as a Way of life for Peace, Harmony, Health love and happiness. Yoga in Indian philosophy for understanding Self.

Suggestive Practicum

1. Practice of Basic Yoga Asanas/ Kriyas.

Suggestive Mode of Transaction

Reflective reading of different Yoga practicing Personalities, Learning by doing, Relaxation Techniques for imparting concentration**,** Understanding Self and personality development.

Suggestive Mode of Assessment

Assessment of practicum; Assessment of practice of basic Yoga Asanas/ Kriyas; Assessment of Reflective level Readings.

Suggested Reading Materials

Teachers may suggest books/readings as per the need of the learners and learning content.

802: Citizenship Education, Sustainability, and Environmental Education

Credits 2
Semester S-8

About the Course

This course seeks to orient student teachers to the Constitution of India with a particular emphasis on Fundamental Rights and Fundamental Duties, and to prepare them for their roles and responsibilities as responsible, productive, and effective citizens of India. The course also seeks to enable student teachers to understand the interconnected and interdependent world, India's rich heritage and philosophical foundation of "Vasudaiva Kutumbakam" (Whole world is one family), acquire the knowledge, capacities, values, and dispositions needed to understand global issues and become active promoters of more peaceful, harmonious and sustainable societies. The course also seeks to create among student teachers an awareness of responsible global citizenship required for responding to contemporary global challenges.

The sustainability aspect of the course seeks to develop among student teachers an understanding of the idea of 'Sustainability' in all fields of human activities, including achieving sustainable development in its three dimensions – economic, social, and environmental – in a balanced manner. The environmental education component of the course aims at creating an awareness among student teachers of environmental issues, including actions required for mitigating the effects of climate change, environmental degradation and pollution, and initiatives required for effective waste management, conservation of biological diversity, management of biological/natural resources, forest and wildlife conservation, and sustainable development and living. The course will also deepen the knowledge and understanding of India's environment in its totality, their interactive processes, and effects on the future quality of people's lives.

Learning Outcomes

After completion of the course, student teachers will be able to:

- explain the concept of citizenship and citizenship education,
- describe the aims of and approaches to citizenship education,
- explain the concept and aims of Global Citizenship and Global Citizenship Education,
- describe the aims of and approaches to global citizenship education,
- explain the concept of 'Sustainability' in all fields of human activities, and approaches to achieving sustainable development in its three dimensions – economic, social and environmental – in a balanced manner,
- demonstrate an awareness of environmental issues, and actions required for mitigating the effects of climate change, environmental degradation and pollution, and initiatives required for effective waste management, conservation of biological diversity, management of biological/natural resources, forest and wildlife conservation, and sustainable development and living.

UNIT - I

Citizenship Education

A. Concept of citizenship and citizenship education.
B. Aims of and approaches to citizenship education.
C. Concept of Global Citizenship and Global Citizenship Educati

Aims of and approaches to global citizenship education.

D. Concept of *Vasudhaiva Kutumbakam*, its importance in development of a holistic perspective towards local and global communities.

UNIT - II

Sustainability

A. Concept of 'Sustainability' in all fields of human activities.
B. Approaches to achieving sustainable development in its three dimensions – economic, social, and environmental.
C. Sustainable development goals.
D. Sustainable management of natural resources.
E. School- and community-based activities.
F. Education for sustainable development

UNIT - III

Environmental Education

A. Environmental issues.
B. Actions required for mitigating the effects of climate change, reducing environmental degradation, pollution etc.
C. Initiatives required for effective waste management, conservation of biological diversity, management of biological/natural resources, forest and wildlife conservation, and sustainable development and living.
D. Approaches to delivering Environmental Education
E. Role of Mass Media and Technology in delivering environmental education.
F. Roles Governmental and Non-Governmental Organizations in promoting Environmental Education.
G. School and community-based environmental education activities.

Suggestive Practicum

1. Write a report on the roles of governmental and non-governmental organizations in promoting Environmental Education.

Suggestive Mode of Transaction

Lecture-cum- discussion, Focus Group discussions, in-class seminars, Library Work, Assignments, Project Work, Lesson Plan Development, Interaction with different stakeholders, ICT based educational materials, Group Work, critical reflections, group-work, case-based approaches, and enquiry-based learning.

Suggestive Mode of Assessment

Assessment of practicum and assessment of reflective level readings.

Suggestive Reading Materials

Teachers may suggest books/readings as per the need of the learners and learning content.

STRUCTURE OF ITEP, B.Sc./B.A./B.COM.-B.Ed. IN THE SUBJECT OF STAGE SPECIFIC CONTENT

SEM.	PAPER CODE	TITLE	CREDITS
III	SSCPC-301	GENERAL PEDAGOGY: BASIC OF PEDAGOGY AT PREPARATORY STAGE	03+01=04
IV	SSCPC-401	CONTENT CUM PEDAGOGY OF L1 AT PREPARATORY STAGE – COURSE (I)	01+01=02
	SSCPC-402	CONTENT CUM PEDAGOGY OF L2 AT PREPARATORY STAGE – COURSE (I)	01+01=02
	SSCPC-403	CONTENT CUM PEDAGOGY OF MATHEMATICS AT PREPARATORY STAGE – COURSE (I)	01+01=02
	SSCPC-404	CONTENT CUM PEDAGOGY OF WORLD AROUND US AT PREPARATORY STAGE - COURSE (I)	01+01=02
	SSCPC-405	CONTENT CUM PEDAGOGY OF ARTS AT PREPARATORY STAGE - COURSE (I)	01+01=02
	SSCPC-406	CONTENT CUM PEDAGOGY OF PHYSICAL EDUCATION AND YOGA-COURSE (I)	01+01=02
V	SSCPC-501	CONTENT CUM PEDAGOGY OF L1 AT PREPARATORY STAGE – COURSE (II)	01+01=02
	SSCPC-502	CONTENT CUM PEDAGOGY OF L2 AT PREPARATORY STAGE – COURSE (II)	01+01=02
	SSCPC-503	CONTENT CUM PEDAGOGY OF MATHEMATICS AT PREPARATORY STAGE - COURSE (II)	01+01=02
	SSCPC-504	CONTENT CUM PEDAGOGY OF WORLD AROUND US AT PREPARATORY STAGE - COURSE (II)	01+01=02
	SSCPC-505	CONTENT CUM PEDAGOGY OF ARTS AT PREPARATORY STAGE - COURSE (II)	01+01=02
	SSCPC-506	CONTENT CUM PEDAGOGY OF PHYSICAL EDUCATION AND YOGA AT PREPARATORY STAGE - COURSE (II)	01+01=02
VI	SSCPC-601	CONTENT CUM PEDAGOGY OF L1 AT PREPARATORY STAGE – COURSE (III)	01+01=02
	SSCPC-602	CONTENT CUM PEDAGOGY OF L2 AT PREPARATORY STAGE – COURSE (III)	01+01=02
	SSCPC-603	CONTENT CUM PEDAGOGY OF MATHEMATICS AT PREPARATORY STAGE – COURSE (III)	01+01=02

SSCPC 301: Basics of Pedagogy at Preparatory Stage

Credit: 4

Semester: S-3

About the Course

The preparatory stage is for 3 years that includes grade 3, 4 and 5. The preparatory stage curriculum is divided into various curricular areas like Languages, Mathematics, Arts, Physical Education and Environmental Studies. Learners develop communication skills, language abilities, mathematical concepts, and understanding of our surroundings and their values in life. For such a transition, the teacher needs to be well versed with the learner's psychology, their environment and learning needs along with the ways to make concepts clear and develop skills related to the subject. For this, the teaching-learning process needs to be joyful, interactive, flexible, learner-centric, and goal-centric. It is necessary to understand the pedagogies and imbibing the skills of teaching-learning using various tools, resources, strategies, techniques, and methods. This course guides about the understanding of preparatory stage learner, content, pedagogies and how do they learn.

Learning Outcomes

After completion of this course, student teachers will be able to:

- familiarize themselves with the characteristics and development of preparatory stage learners to cultivate the skills of self-analysis, self- knowledge, and self-realization,
- identify personal characteristics of learner with respect to age and gender and use them in the process of communication in social and professional spheres,
- adopt and practice different teaching methods based on the learning needs of preparatory-stage learners,
- design and deliver engaging lessons effectively that cater to diverse learning styles,
- convert classrooms into inclusive learning spaces for joyful and engaged learning,
- apply different pedagogical approaches to enhance the skills and competencies among learners at the preparatory stage,
- develop their own professional skills as a life-long learner,
- take the initiative to participate and conduct seminars, conferences, orientation programmes, workshops, etc.

UNIT - I

Understanding Preparatory Stage Learners

A. Understanding the Learners and Learner background:
   i. The physical, mental, social, and emotional growth of learners.
   ii. Thought processes and cognitive skills of learners.
   iii. Psychological and social orientations of learners.
   iv. Characteristics, conflicts, and challenges of preparatory stage learners.
   v. Emotions, thoughts, and mindsets of preparatory stage learners.
   vi. Social and academic lives of preparatory stage learners.
   vii. Observing unique capabilities of learners.

B. Promoting Guiding Values:
   i. Learners' well-being and holistic development.
   ii. Helping learners develop constitutional values.

C. Promoting 21st Century Skills
   i. Promoting Critical thinking, Creativity, Collaboration, Communication, and Problem-solving skills among learners.

UNIT - II

Pedagogical Approaches

A. Pedagogical approaches: the constructivist approach; the collaborative approach; the reflective approach; the integrative approach; the inquiry- based approach; other contemporary approaches
B. Types of pedagogy: social pedagogy; critical pedagogy; culturally responsive pedagogy; Socratic pedagogy.
C. Role of pedagogy in effective learning: how does pedagogy impact the learner?

UNIT - III

Strategies of Teaching-Learning

A. Understanding Teaching-learning Strategies:
   i. Concept, characteristics, and functions of teaching.
   ii. Making abstract concepts enjoyable by relating them to real-life situations.
   iii. Multidisciplinary learning through integration of different disciplines.
   iv. Learner participation and engagement in learning.
   v. Building concepts through art integrated activities (such as storytelling, theatre, puppetry) toys, games, community engagement etc.
   vi. Promoting health and social sensitivities.
   vii. Developing respect toward cultural heritage.
   viii. Making classrooms inclusive and joyful learning spaces.
B. Relationship between aims and values of education, curriculum, and pedagogy.

UNIT - IV

Continuous Professional Development of Teacher

A. Meaning and need, professional and ethical competencies of a teacher, need for updating content and pedagogical competencies for teaching learning of language, in-service courses available for language teachers for professional competencies.
B. Professional development activities for teachers: seminars, conferences, orientation programmes, workshops, online and offline courses, teacher exchange programmes, competitions, publications, development of teaching portfolio, capacity building programmes.
C. Developing professional competencies in dealing with gender issues, equity and inclusion, ethical issues, classroom issues in relation to emotional, mental, physical issues related to pandemic (for example COVID-19).

Suggestive Practicum

1. Conduct case studies of selected students to study physical/ social growth and write a detailed report.
2. Identify suitable topics and develop teaching strategies based on story telling/ drama/ role-playing/ theatre/ game/ toy/ activity approach.

3. Study the culture/ cultural practices of learners and develop Culturally Responsive Pedagogy by selecting suitable topics from Language/ Mathematics/ WAU.
4. Develop strategies to make classrooms inclusive.
5. Develop strategies to integrate Yoga/ Physical Education/Games/Toys/ Art forms in learning topics of language/ mathematics/ WAU, for instance, different shapes while playing cricket, shape & measurement of playgrounds, Board games based on different concepts etc.
6. Organize in-service course to enhance professional/ ethical competencies of teachers teaching of Language/ Mathematics/ WAU.
7. Visit places of historical importance and prepare a detailed report of learning different concepts of Language/ Mathematics/ WAU.
8. Prepare a detailed plan to convert school building into learning resource to learn concepts of language/ mathematics/ WAU.

Suggestive Mode of Transaction

The course will be transacted through activity based, discovery based, role playing, dramatization, small group work, pair work, interactive methods such as group discussions, peer tutoring, workshops, observations, and presentations.

Suggestive Mode of Assessment

Observation of student teachers' activity, correcting their worksheets, short formal written tests, periodical summative assessment, Seminars, demo lessons, practical tasks, and hands-on activities will be appropriately used to assess the learning outcomes. Student- teachers will also be encouraged to prepare an e-portfolio to showcase their learning and skills.

Suggestive Reading Materials

- IGNOU. (n.d.). *Unit 2- unit and lesson planning*. https://egyankosh.ac.in/bitstream/123456789/7185/1/Unit-2.pdf
- NCERT. (2018). Handbook on Understanding Science through Activities, Games and Toys (Upper Primary Stage)
- NCERT. (2020). Handbook on Understanding Science through Activities, Games, Toys and Art Forms (Secondary Stage)
- NCERT. (2023). Draft National Curriculum Framework for School Education.

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 401&402: Content cum Pedagogy of Language 1 & Language 2 at Preparatory Stage – Course (I)

Credits: 2

Semester: S-4

About the Course

Research clearly shows that the children of the age group of 2 to 8 years pick up language very quickly. The children get exposure to their mother tongue through communication at their home and locality, which directly develops their language skills in the mother tongue. It is also a well-known fact that they learn and grasp abstract concepts more quickly through their mother tongue or local language. Therefore, for teaching -learning of any language, maximum exposure of the language needs to be given to the children. For this reason, various aspects of language are exposed to the children through the rich content of the textbooks. But for effective use of these content and preparation of contexts to give exposure to the children is in the hands of the teacher. Therefore, it is very important to give proper input to the student teachers so that they can do proper transaction of the content to develop language skills of the children. For developing the language teaching skills of the student teachers, they need to understand the nature, scope, meaning, importance, and functions of a language. They also need to understand historical/policy perspectives and principles of the language along with the approaches, methods, learning resources of teaching the language for development of language skills among the children. The course will give exposure to all such aspects to the student teachers so that they will understand the children and their social, psychological aspects of language learning.

Learning Outcomes

After completion of this course, student teachers will be able to:

- explain the nature, scope, meaning and functions of language,
- identify general concepts about principles and characteristics of language,
- demonstrate an understanding of the theoretical historical/policy perspectives and the present scenario of the language,
- discuss the aims and objectives of teaching language,
- demonstrate an understanding of the need for and importance of instructional planning,
- identify different children and their learning needs for the language learning,
- identify different skills of language and demonstrate them,
- demonstrate an understanding of different roles of language in communications,
- know the use of language in context such as grammar and vocabulary through story, poetry etc.,
- learn about the methods, approaches and materials used for teaching language.

UNIT - I

Nature and Scope of the Language

A. Nature of a language and its varieties.
B. Meaning, characteristics, principles, and functions of a language.
C. Need for and importance of the teaching a language (language as a medium for exchange of ideas, transmission of knowledge from generation to generation - knowledge sharing, language as a medium of preservation of culture and values)
D. Theories of language development during this stage.
A. Language as system of systems; language and identity; language and power; language and gender; language: culture and society, home language and school language, language as a set of skills.
B. Language policy in school education.
C. Right to education act-provisions and implications for language teaching.
D. Language acquisition and language learning; first language (L1) and second language (L2) and practices for the promotion of multilingualism. challenges in language learning due to multilingualism.
E. Linguistic variability; pronunciation- linguistic diversity, its impact on pedagogical implication; speech and writing.
F. Linguistic system- the organization of sounds; the structure of sentences; the concept of universal grammar; nature and structure of meaning; phonetics, syntax, semantics, pragmatics, grammar, phonetics, etc.

UNIT – II

Historical Perspective of the Language

A. History of language evolution.
B. Policy perspectives of the language historically.
C. Present scenario of the policy perspectives.
D. Language education in NCFs.
E. Learner factors in language acquisition.

Principles of language teaching: linguistic, sociological, and psychologica

UNIT - III

Pedagogical Concerns of the Language

A. Aims and objectives of teaching language.

B. Development of language skills - listening, speaking, reading, writing, grammar, vocabulary, and dictionary skills.

C. Discuss various strategies, activities, methods and approaches appropriate for developing and integrating the above skills.

D. Planning and developing learning objectives and outcomes on the content of textbook.

E. Development of vocabulary of the children through short stories and poetry.

F. Development of social, cultural, national, traditional, and indigenous values through content.

G. Teaching of values through Indian fictions, non-fictions, stories, poetry – meaning, message/sentiments.

H. Development of concerns about nature, animals, and environment through content.

I. Developing tasks, activities, and materials for lessons.

J. Developing communication skills higher order skills: creative thinking-writing; questioning and critical writing.

K. Phonological Activities-I — sub skills of listening: tasks; materials and resources for developing the listening and speaking skills: storytelling, dialogues, situational conversations, role plays, simulations, speech, games and contexts, language laboratories, pictures, authentic materials, and multi-media resources.

L. Phonological Activities-II: listening: concept, importance, objectives; Role of listening in oral expression, types of listening: passive, active; factors affecting listening and speaking skills; identification of sounds, tone, syntactic patterns, information and responding; phonemic drills, organizing listening and speaking activities; pronunciation, rhythm and rhyme, intonation and modulation; punctuation (full stop, comma and question mark); oral expression: concept, importance, objectives and types; modes of oral expression-rhymes, poems, songs, storytelling, role play, imitation, dramatization, talk about an object, character play, chorus/collective responses, personal experiences; using simple instructions: dictation, drill, pair-work and group-work, introduction to self-correction, oral language games.

M. Reading- science of reading, mechanics of reading, sub skills of reading; importance of understanding the development of reading skills; reading aloud and silent reading; extensive and intensive reading; study skills including using thesauruses, dictionary, encyclopedia etc.

A. Writing- stages of writing; process of writing; formal and informal writing such as poetry, short story, letter, diary, articles, dialogues, speech, etc.
B. Pedagogical concerns of the language.

Suggestive Practicum

1. Prepare a report on the status of languages given in the constitution of India and language policies given in NEP 2020.
2. Make a list of Vocabulary that is used normally in daily routine work.
3. Develop four lesson plans for teaching language skills.
4. Select four stories from children's literature and identify teaching points from each story used for developing oral expression at this level and submit a detailed report.
5. Organize a lecture and prepare a report on the lecture.
6. Observe your surroundings, environment, people, and animals and prepare activities to teach vocabulary from them.

Suggestive Mode of Transaction

Activity-based, Lecture Method, Recitation, Demonstration, Language laboratory based, Experiential Learning

Suggestive Mode of Assessment

Group activity and presentation, assignments, classroom presentation, assembly activity, competitions, public speaking, writing test, preparation of lesson plans using different pedagogies, lesson plans for teaching vocabulary/grammar/functions, sessional and terminal examination.

Suggestive Reading Materials

- National Curriculum of school Education NCF-2005
- National Education Policies -1968, 1986, 1992, 2020
- Position Paper – National Focus Group on Teaching of Teaching of Indian Languages
- UNDPA. 2004. Human Development Report. New Delhi. Oxford: Oxford University Press.
- UNESCO. 1953. The Use of Vernacular Language in Education. Paris
- UNESCO. 2003. Education in a Multilingual World.
- UNESCO Education Position Paper. Paris.
- UNESCO. 2004. Education for All: The Quality Imperative. EFA Global Monitoring Report. Paris.

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 501& 502: Content cum Pedagogy of Language 1 & Language 2 at Preparatory Stage - Course (II)

Credits: 2

Semester: S-5

About the Course

This course is designed to make student –teachers aware of the teaching –learning aids and other resources available as well as created for making language learning joyful. It will also help them to know the effectiveness of such resources and the impact they have on the children's learning. This course will also help them to know the content of the textbook-the vocabulary, structure, sound, forms and elements used and to analyze the content for preparing the lesson plan accordingly. The course also focuses on the assessment aspect which will help them to develop activities, strategies for continuous assessment of the language skills as student teachers should be equipped with formal, informal, formative, summative, 360-degree Assessment.

Learning Outcomes

After completion of this course, student teachers will be able to:

- demonstrate an understanding of the importance of learning resources and teaching aids,
- develop activities and tasks for learners using various teaching-learning materials,
- analyze the textbooks of preparatory stage and understand the structures grammar, vocabulary used in them,
- develop lesson plan through various learning resources and teaching aids for making teaching –learning a fun,
- identify and implement tools and techniques used in the process of assessment language learning.

UNIT - I

Teaching Learning Aids and Resources

A. Types of teaching learning materials: flash cards, games, images, audio recordings audio-video presentation, exposure to the speeches of the kids and great speakers, exposure to the television channels, e-resources, language laboratory, pictorial presentation of sounds.
B. Use of language laboratory- exposure to different sounds and their practice, recording of children's own pronunciations and feedback, virtual presentation of Indian as well as regional stories
C. Use of resources for effective language teachers: children's literature, literature, films etc., age-appropriate language games, story books, newspaper, magazines, art and craft work, community radio, MHRD/NCERT initiatives: NROER, e-pathshala.

UNIT - II

Textbook Analysis and Planning for Teaching Language

A. Understanding the textbook.
B. Content analysis and lesson planning.
C. Analysis of the skills focused in the subject matter as well as the sound, vocabulary, structure etc.
D. Planning strategies, approaches, and method as per the skills in the subject matter.
E. Development of various types of lesson plans for developing language skills.

UNIT - III

Assessment and Evaluation

A. Assessment of language learning based on learning outcomes, strategies for continuous assessment, school-based assessment, qualitative assessment; formative and summative assessment, formal, informal, and 360-degree assessment, self and peer assessment.
B. Assessment of the language skills (LSRW), grammar, communication, expressions (language proficiency) reasoning, presentations, group activities.
C. Test based on Table of Specification (TOS) and its importance; basic steps of question paper setting, types of test items and preparing answer key and criteria for school, assessment, and feedback mechanism in teaching learning.

Suggestive Practicum:

1. Identify and enlist the different structures used in the language textbook of preparatory stage.
2. Collect /Prepare different activities to teach different functions of language.
3. Make a list of vocabulary that is used normally in daily routine work.
4. Develop activity-based tests for assessing children's language skills.
5. Identify and prepare different teaching aids for children with special needs.
6. Analysis of the language used in subjects like Mathematics, Science and Environment Studies.

Suggestive Mode of Transaction

Activity-based, lecture cum discussion method, project approach, demonstration, language laboratory based, experiential learning, group discussion.

Suggestive Mode of Assessment

Classroom presentation, assignments, workshop, practicum, written test, sessional and terminal examination.

Suggestive Reading Materials

- National Curriculum Framework 2005; NCERT, December 2005.
- National Curriculum Framework 2005; Position Paper, National Focus Group on Teaching of English: NCERT, 2006. 3. National Curriculum Framework 2005, Position Paper, National Focus Group on Teaching of Indian languages, NCERT, 2006.

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 601& 602: Content cum Pedagogy of Language 1 & Language 2 at Preparatory Stage – Course (III)

Credits: 2

Semester: S-6

About the Course

This course is designed to develop research aptitude among the student –teachers, especially in teaching –learning of language. It will help them to develop analytical ability to understand the common problems faced by the children at this stage in learning the language. This course will also help them to understand the scope of innovations in teaching –learning of a language and adopt various pedagogical practices. The student –teacher will also understand the importance of life learning and strive for the same through participation in seminars, conferences, public speaking, Creative writing competitions, Orientation Programmes, SWAYAM courses, etc.

Learning Outcomes:

After completion of this course, student teachers will be able to:

- demonstrate an understanding about the need and scope of research in teaching-learning of language,
- plan and conduct action research in teaching-learning of language,
- describe the meaning, need and scopes for innovations in teaching-learning of language,
- develop and use innovative activities in teaching-learning of language,
- integrate ICT in teaching-learning of language,
- develop and understanding about the role of a teacher as a facilitator of learning.

UNIT - I

Research and Innovative Practices

A. Scope and need of research in teaching-learning of language.
B. Action research, reflection, and evidence-based practice in school
C. Meaning, need and scopes for innovations in teaching-learning of language.
D. Types of innovative practices (online/offline): language games, role of theatre and media, quizzes, buzz groups, brainstorming, discussion and group learning, recitations and storytelling, presentations, role play, training games for learners, case study, asking and framing questions including higher order thinking questions.

UNIT - II

ICT Integration

A. Meaning, need and scopes of ICT in teaching –learning of language.
B. Use of ICT tools for teaching – learning process, benefits, limitations and precautions.
C. Use and Importance of Online/E-resources for skill development.
D. Major issues for using Online /E-resources in teaching –learning of language.

UNIT - III

Learning About How to Learn

A. Meaning, nature, need and scope of how to learn.
B. Psychological, sociological, and philosophical perspective of teaching and learning a subject.
C. Role of a teacher in facilitating learning the concepts of the subject.

Suggestive Practicum:

1. Analysis of advertisements aired on Radio/Television based on language.
2. Identify and list Language (English) related errors common among students.
3. Prepare an outline for action research based on your experience of the difficulties faced during school experience.
4. Develop Computer Assisted Instruction package for any Unit/subject of this stage.

Suggestive Mode of Transaction

Activity-based, lecture cum discussion method, project approach, demonstration, language laboratory based, experiential learning, group discussion, collaborative approach.

Suggestive Mode of Assessment:

Classroom presentation, Assignments, Workshop, Practicum, Written Test, Sessional and Terminal examination.

Suggestive Reading Materials

- National Curriculum Framework 2005; NCERT, December 2005.
- National Curriculum Framework 2005; Position Paper, National Focus Group on Teaching of English: NCERT, 2006. 3. National Curriculum Framework 2005, Position Paper, National Focus Group on Teaching of Indian languages, NCERT, 2006.

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 403: Content cum Pedagogy of Mathematics at Preparatory Stage - Course (I)

Credits: 2

Semester: S-4

About the Course

Mathematics involves learning creatively and thinking logically through fundamental concepts of numbers, geometry, algebra, probability, and statistics. It also aims to nurture the fundamental faculties related to discerning patterns, making conjectures, providing explanations through logical reasoning, problem-solving and problem-posing, computational thinking, and logical communication that involves argumentation, assertion, and validation. This course has been designed for student teachers to understand the nuances of development of Mathematics as a disciple. It introduces the theoretical perspectives related to the nature of Mathematics. It will help the student teachers appreciate Mathematics from a disciplinary perspective. It will also help them to amalgamate Mathematics with other subjects to form a multidisciplinary approach.

Learning Outcomes

After completion of this course, student teachers will be able to:

- appreciate Mathematics as the study of creating, discerning and generalizing patterns,
- discuss the development of various concepts of Mathematics so that they may help their learners construct the concepts by themselves,
- recognize the evolution of mathematical concepts in India to help their learners make connections with their roots,
- nurture the values embedded in Indian Mathematics,
- apply different pedagogical approaches of teaching Mathematics at preparatory stage.

UNIT - I

Nature and Scope of Mathematics

A. Nature of Mathematics, Mathematics as a study of pattern of shapes, numbers, motion, variation. Logico-deductive nature of Mathematics, inductive, deductive, and analytical nature of Mathematics.
B. Procedural, conceptual, and relational understanding.
C. Processes of doing Mathematics: problem solving, problem-posing, patterning, reasoning, abstraction, generalization; proofs and proving, validation, argumentation, and logical justification.
D. Mathematics as a language and language of Mathematics.
E. Importance and linkages of Mathematics with other subjects such as art, music, sculpture, dance, etc.

UNIT - II

Historical Perspective of Mathematics

A. Development of Mathematics in different civilizations such as Roman Civilization, Egyptian Civilization, Mayan Civilization, Indus Valley Civilization.
B. Contribution of Indian Mathematics: Zero as a number, Ancient Indian numeral system
C. Mathematics in ancient Indian architecture.
D. Contribution of Indian Mathematician: Aryabhata, Bhāskarāchārya, Baudhayana,

Madhavan, Parmeshvaran, Ramanujan.

E. Recommendations/Suggestions of various committees, commissions, and Policies.

UNIT - III

Pedagogical Concerns of Mathematics

A. Approaches of teaching Mathematics: inductive-deductive, analytical-synthetical, constructivist, socio-cultural perspective.

B. Critical and creative pedagogical concerns in teaching Mathematics with special reference to higher-order thinking.

C. Developmental aspects in the learning of mathematical concepts with reference to conceptual development, relational understanding, zone of proximal development, Intuitive thinking.

D. Methods of teaching Mathematics: learner-centric and group-centric, lecture cum demonstration, activity based, discussion, problem-solving, STEM and STEAM, project based, scientific inquiry, hands on activity, discovery, inquiry, experimentation, concept-mapping, blended learning.

Suggestive Practicum

1. Observe the children around you doing everyday math. Make a journal of the procedures adopted by them while doing Mathematics.
2. Meet the people of the community around you. Speak to the people to understand how they use Mathematics in their local folk games, numerical practices that the community uses in everyday tasks.
3. Visit a historical building and make a note of all the mathematics that has been used in making the building.
4. Make a mathematical game using basic principles of Mathematics.
5. Review the historiography of a mathematical concept/ mathematician.

Suggestive Mode of Transaction

Activity-based, lecture cum demonstration, constructive, laboratory approach, experimental-based.

Suggestive Mode of Assessment

Classroom presentation, workshop, assignments, practicum, sessional and terminal semester examination.

Suggestive Reading Material

- NCERT (2006). Math-Magic Book 3 Textbook in Mathematics for Class III.
- NCERT (2007). Math-Magic Book 4 Textbook in Mathematics for Class IV.
- NCERT (2008). Math-Magic Book 5 Textbook in Mathematics for Class V.
- NCERT (2012). Pedagogy of Mathematics: Textbook for two-year B.Ed. course.

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 503: Content and Pedagogy of Mathematics at Preparatory Stage - Course (II)

Credits: 2

Semester: S-5

About the Course

This course has been designed to promote a culture of Mathematics learning in classrooms. The course envisions creating dynamic classroom environments wherein ideas can be created and shared. The student teachers must be encouraged for imbibing diverse and innovative procedures in Mathematics classrooms. Using multiple teaching resources, integrating ICT, creating Mathematics Laboratory are some of the ways that have been taken in this course. This course will also help student teachers in understanding the making of Mathematics textbooks, analyzing the subject and pedagogical perspective, selecting the content, and choosing appropriate learning strategies for their learners. For decades, the assessment of Mathematics has been limited to mindless practice and rote -learning. The assessment is usually done based on written tests that are based on rudimentary recall of facts. Such assessments approaches limit the scope of thinking creatively. Assessment and evaluation of Mathematics should also be creative. Assessment in Mathematics is an extremely crucial step. The course also helps in building strategies for continuous assessment in Mathematics. The student teachers should be equipped with formal, informal, formative, summative, 360-degree Assessment.

Learning Outcomes

After completion of this course, student teachers will be able to:

- identify, list, and use different resources that help in making Mathematics joyful,
- discern the role of Mathematics laboratory in providing an experiential approach to teaching Mathematics,
- construct mathematical ideas by the means of exploration, excursions, use of technology and other useful resources,
- conduct textbook analysis of all the grades of preparatory stage,
- effectively plans their lessons and classes by understanding the fundamental tenets of planning units and lessons,
- explore diverse methods and tools of assessing an array of learning/performance outcomes of diverse learners.

UNIT - I

Teaching-Learning Aids and Resources

A. Types of teaching learning materials: non-print and digital media for offline/online classroom teaching learning (reflective journals, charts, 2-D and 3-D models, games, toys, flash cards, worksheets, multimedia etc.).
B. Role of Mathematics laboratory – types of Mathematics laboratory, designing resources and managing classrooms; virtual mathematical museums.
C. Teaching-learning kits, Mathematics clubs, fairs, exhibitions, mathematical excursion to historical buildings.
D. Math talks. building community of mathematicians in classrooms.
E. Constructing mathematical ideas by providing scope for exploration, explanation, and evaluation of children's work.

F. Use of resources, activities, storytelling, and technology in initiating mathematical thinking.

UNIT - II

Textbook Analysis and Planning for Teaching Mathematics

A. Understanding the textbook, analyzing subject matter from the Pedagogical Content Knowledge (PCK) perspective, selecting the content, identifying facts, concepts, analyzing, organizing, and planning appropriate learning strategies and learning experiences.
B. Developing unit plans and lesson plans based on learning outcomes and experiential learning.
C. Developing ICT integrated lesson plans for classrooms for online teaching using digital resources and multimedia.

UNIT - III

Assessment and Evaluation

A. Assessment of Mathematics based on learning outcomes, strategies for continuous assessment, school-based assessment, qualitative assessment; formative and summative assessment, formal, informal, and 360-degree assessment, self and peer assessment.
B. Assessing reasoning, argumentation, and logical thinking in Mathematics - performance based assessment performance assessment: assessment of group activities, field observations, recording and reporting, creating platform and portfolio management, assessment of lab skills, assignments, projects, and presentations.
C. Unit Test Based on Table of Specification (TOS) and its importance; basic steps of question paper setting, types of test items and preparing answer key and criteria for school, assessment, and feedback mechanism in teaching learning.

Suggestive Practicum

1. Study a School Report Card and do critical analysis of the existing system of assessment in Mathematics. Make suggesting ways for creating a continuum between assessment and learning.
2. Make a mathematical game and puzzles.
3. Make a floor plan to convert a Classroom to a Mathematical Laboratory.
4. Make a diary of all the assessment strategies that are commonly used in a classroom.
5. Design a field-based project for Preparatory Stage children.
6. Analyze the National Education Policy 2020 with reference to pedagogical issues of Mathematics.
7. Create two investigatory models in Mathematics.
8. Use some historical anecdotes to hold mathematical debates in the classroom.

Suggestive Mode of Transaction

Activity-based, demonstration, constructive, laboratory approach, experimental-based, lecture methods.

Suggestive Mode of Assessment

Classroom presentation, workshop, assignments, practicum, sessional and terminal semester examination

Suggestive Reading Material

- KVS. Source Book on Assessment in Mathematics. https://zietmysoredigtallibrary.files.wordpress.com/2016/06/source-book-maths.pdf
- NCERT (1991): Elementary Teacher Education Curriculum, Guidelines and Syllabi, New Delhi.
- NCERT (2005) National Curriculum Framework 2005, New Delhi
- NCERT (2006). Math-Magic Book 3 Textbook in Mathematics for Class III.
- NCERT (2007). Math-Magic Book 4 Textbook in Mathematics for Class IV.
- NCERT (2008). Math-Magic Book 5 Textbook in Mathematics for Class V.
- NCERT (2012). Pedagogy of Mathematics: Textbook for two-year B.Ed. course.
- NCERT (2017). Learning Outcomes at Elementary stage.

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 603: Content and Pedagogy of Mathematics at Preparatory Stage - Course (III)

Credits: 2

Semester: S-6

About the Course

The teaching-learning of Mathematics is a complex activity, and many factors determine the success of this activity. Since decades Mathematics educators have been conducting research to contribute to the effective learning of the subject. Efforts have been made to connect theory to praxis by conducting action research and using innovative practices. This course contributes to orienting student teachers in understanding the purpose and scope of doing research in Mathematics education. The teachers will be familiarized with contemporary and emergent issues in Mathematics education at a global level. Along with enhancing the leaning level of their children, the teachers are expected to progress themselves towards their own growth as well. The student teachers must develop their own professional competencies on a regular basis. This course will also help the student teachers in developing their professional competencies in dealing with issues related to gender, equity, inclusion, ethical and other classroom related aspects.

Learning Outcomes

After completion of the course, student teachers will be able to:

- Outline the purpose and scope of doing research in Mathematics education at the preparatory stage,
- make connections with the innovative practices that can be used for creating effective Mathematics classrooms,
- use ICT in making their classrooms updated and effectively,
- create meaningful experiences by harnessing the potential of artificial intelligence, machine learning and other similar resources,
- conduct action research in their classrooms to resolve the issues in a scientific process by linking theory with praxis,
- develop and understanding about the role of a teacher as a facilitator of learning.

UNIT - I

Research and Innovative Practices

A. Purpose and scope of research in Mathematics education in India.
B. Contemporary and emergent issues in Mathematics education.
C. Research in policy making and teaching learning in Mathematics.
D. Aims and objectives of using activities in classroom, psychological, sociological, and philosophical perspective of activity-oriented classrooms in subject.
E. Types of Activities (Online/Offline): quizzes, buzz groups, snowballing, brainstorming, discussion and group learning, debates, recitations, and storytelling, clay modelling and toy making, presentations, role play, training Games for Learners, Case Study, Asking and Framing Questions including Higher Order Thinking Questions.
F. Action Research, Reflection and Evidence-Based Practice in school.

UNIT - II

ICT Integration

A. Meaning and scope of using ICT in learning Mathematics.
B. Use of ICT in the Mathematics classroom: artificial intelligence, machine learning, smart boards, handheld computing devices, adaptive computer testing for student development. limitations of using these ICTs in classrooms.
C. Specific functions and limitations of integration of ICT in Mathematics.

UNIT - III

Learning About How to Learn

A. Meaning, nature, need and scope of how to learn.
B. Psychological, Sociological and Philosophical perspective of teaching and learning a subject.
C. Role of a teacher in facilitating learning the concepts of the subject.

Suggestive Practicum

1. Develop an e-content in any area of Mathematics: Numbers, Number operations, Shapes, Measurement.
2. Analyze the content of any National Teacher's Portal such as DIKSHA, SWAYAM. Create a feedback note on the contents mentioned in it.
3. Explore some ICT tools to create e-quizzes, e-polls, e-assessment in Mathematics.
4. Identify two good journals of Mathematics. Study two articles and make a summary of the reach paper. Compare the content and make a presentation on it.
5. Undertake a performance-based assessment among your peer group. Make a rubric of their learning patterns.
6. Identify an issue that commonly exists in Mathematics classroom. Make a plan for conducting a small action research on children's conceptions related to mathematical concepts such as numbers, shapes, measurement, and visualization.

Suggestive Mode of Transaction

Activity-based, demonstration, constructive, laboratory approach, experimental-based, lecture methods.

Suggestive Mode of Assessment

Classroom presentation, workshop, assignments, practicum, sessional and terminal semester examination

Suggestive Reading Material

- KVS. Source Book on Assessment in Mathematics. https://zietmysoredigtallibrary.files.wordpress.com/2016/06/source-book-maths.pdf
- NCERT (1991): Elementary Teacher Education Curriculum, Guidelines and Syllabi, New Delhi.
- NCERT (2005) National Curriculum Framework 2005, New Delhi
- NCERT (2006). Math-Magic Book 3 Textbook in Mathematics for Class III.
- NCERT (2007). Math-Magic Book 4 Textbook in Mathematics for Class IV.
- NCERT (2008). Math-Magic Book 5 Textbook in Mathematics for Class V.
- NCERT (2012). Pedagogy of Mathematics: Textbook for two-year B.Ed. course.
- NCERT (2017). Learning Outcomes at Elementary stage.

*Teachers may also suggest books/readings as per the need of the learners and learning content

SSCPC 404: Content cum Pedagogy World Around Us at Preparatory Stage - Course (I)

Credit: 2

Semester: S-4

About the Course

World Around Us (WAU) is concerned with the exploration, investigation, and development of an understanding of the natural, human, social and cultural dimensions of local and wider environments. It provides opportunities to engage in active learning, to use a wide range of skills, and to acquire open, critical, and responsible attitudes. This course aims to develop understanding about the nature, scope, and importance of the World Around Us as a composite discipline and its synergies with Science, Social Sciences and Environmental Education. This will help student teachers to appreciate the historical development of the World Around Us and its place in the school curriculum. The objective of the course is to prepare student teachers for the current challenges and to equip them with theoretical and practical understanding of the nature and content of the subject. The course emphasizes varied approaches, different methods, and techniques for effective teaching learning of WAU to develop various skills among students.

Learning Outcomes

After completion of the course, student teachers will be able to:

- explain the nature and scope of World Around Us,
- describe the objectives and values of teaching-learning of World Around Us,
- identify and reflect upon linkages between World Around Us and other disciplines,
- analyze the place of World Around Us in school curriculum in the light of various Committees, Commissions & Policies,
- adopt and adapt various methods/strategies of pedagogical process while teaching-learning World Around Us appropriately,
- create awareness about practices to conserve the environment.

UNIT - I

Nature and Scope of World Around Us

A. Definition, Nature, Scope and Importance of the World Around Us.
B. Aims, Objectives and Values of teaching-learning World Around Us
C. Linkages of World Around Us with other disciplines.

UNIT - II

Historical Perspective of the World Around Us

A. Historical development of the World Around Us.
B. Place of the World Around Us in school curriculum.
C. Recommendations/Suggestions of various Committees, Commissions and Policies and their analysis.

UNIT - III

Pedagogical Concerns of World Around Us

A. Approaches of teaching-learning World Around Us such as inductive-deductive, constructivist, experiential learning, art-integrated learning, games, toys and sports-integrated learning, interdisciplinary and multidisciplinary approaches.
B. Critical, creative and analytical pedagogical concerns in teaching-learning World Around Us with special reference to higher-order thinking.
C. Methods of teaching-learning World Around Us such as lecture cum demonstration, activity based, discussion, problem-solving, STEM and STEAM, project based, scientific inquiry, hands on activity, discovery, inquiry, concept-mapping, collaborative and cooperative learning, blended learning.

Suggestive Practicum

1. Organize essay/ poster making competition to bring about awareness about our surrounding environment and sensitize community at large about environmental concerns.
2. Develop e-Content on selected topics such as food, clothes, honeybees, flowers, market, animals and plants, forests etc.
3. Organize workshops to evolve art-integrated/ games, toys and sports-integrated learning strategies for topics such as rain, making pots, market, etc.
4. Develop strategies to teach plants, animals, forests, numbers, shapes, making house by following STEM/ STEAM approach.
5. Develop a project on practices to conserve environment with special focus on ancient Indian practices.

Suggestive Mode of Transaction

The course will be transacted through activity based, discovery based, role playing, dramatization, small group work, pair work, interactive methods such as group discussions, peer tutoring, workshops, observations, presentations, and seminars.

Suggestive Mode of Assessment

Observation of students' activity, correcting their worksheets, short formal written tests, periodical summative assessment, Seminars, demo lessons, practical tasks, and hands-on activities will be appropriately used to assess the learning outcomes. Student teachers will also be encouraged to prepare an e-portfolio to showcase their learning and skills.

Suggestive Reading Materials

Teachers may suggest books/readings as per the need of the learners and learning content.

- CEE. (2007). Environmental Education in the Indian school system: Status Report.
- CEE. (2007). Joy of Learning: Handbook of Environmental Education Activities; CEE for NCERT.
- CEE; (2007). Tbilisi to Ahmedabad: The journey of Environmental Education –A Source Book; CEE; Ahmedabad.
- NCERT. (2005). National Curriculum Framework-2005
- NCERT. (2009). Project Books on Environmental Education for classes VI, VII, VIII, IX and X.

- NIOS Learning Environmental Studies at Primary Level, Diploma in Elementary Education (D.El.Ed.), Block -2, Curriculum and Pedagogy of EVS. https://www.nios.ac.in/media/documents/dled/Block2_505.pdf
- NIOS. Learning Environmental Studies at Primary Level, Diploma in Elementary Education (D.El.Ed.), Block -1, Importance of Teaching-Learning of EVS at Primary Level. https://nios.ac.in/media/documents/dled/Block1_505.pdf

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 504: Content cum Pedagogy World Around Us at Preparatory Stage - Course (II)

Credit: 2

Semester: S-5

About the Course

The course would help student teachers to gain a deeper understanding of the ways in which learners make sense of their world. The main aim of this course is to develop and assess pedagogical strategies in view of pedagogical content analysis. This will ensure that learners develop a holistic view of the world, with an understanding of relationships and independence. The pedagogy at this stage will lend itself to the development of pre-vocational capacities, for example, maintaining flowerpots/ kitchen garden, clay modelling dialogue with shopkeepers during visits to the local markets. This course will enable student teachers to organize and assess learning opportunities to help learners in developing the necessary skills and concerns for social and critical issues. This will ultimately develop critical thinking, attitudes, and values among learners.

Learning Outcomes

After completion of the course, student teachers will be able to:

- describe the role and importance of teaching-learning material in World Around Us,
- integrate various teaching-learning resources in teaching-learning of World Around Us,
- design teaching-learning aids for World Around Us,
- manage various resources used in teaching-learning of World Around Us,
- analyze the content of World Around Us textbooks from Pedagogical Content Knowledge perspective,
- Organize and plan appropriate learning strategies for teaching-learning of World Around Us,
- prepare a plan to develop resource/ activity room for World Around Us,
- design lesson plans for various content in World Around Us,
- create appropriate learning experiences with reference to outcome based experiential learning,
- reflect upon various methods of assessment in World Around Us,
- use varied assessment strategies to map the learning progress in the light of learning outcomes in the World Around Us.

UNIT - I

Teaching-Learning Aids and Resources

A. Concept, definition, role and importance of teaching-learning aids and resources in the World Around Us.

B. Types, identification and integration of teaching-learning materials such as environment, print material (such as reflective journals, charts, 2-D and 3-D models, games, toys, flash cards, worksheets, textbook, teachers' manual/ handbook, laboratory manual and digital material such as e-books, e-documents, presentations) and non-print material (multimedia, radio, TV, websites, animations, audios, videos, images, simulations, digital repository, AR, VR and AI based digital resources and OERs).

C. Types, design, management and practices of resource/activity room, virtual laboratories, World Around Us clubs, fairs, exhibitions, educational parks, excursions, community resources and pooling of resources, teaching-learning kits.

UNIT - II

Textbook Analysis and Planning for Teaching-Learning World Around Us

A. Understanding the textbook, analyzing World Around Us content such as food, cloth, flowers, rivers, forests from the Pedagogical Content Knowledge (PCK) perspective, selecting the content, identifying facts, concepts, and generalizations.
B. Analyzing, organizing, and planning appropriate learning strategies (such as ICT integrated, art integrated, games, toys, sports integrated) and learning experiences for unit planning and lesson planning with special reference to outcome based experiential learning.

UNIT - III

Assessment and Evaluation

A. Assessment based on learning outcomes of World Around Us, strategies for continuous assessment, school-based assessment, formative and summative assessment, formal, informal, and 360-degree assessment, self and peer assessment.
B. Performance assessment: assessment of group activities, field observations, creating platform and portfolio management, assessment of skills, assignments, projects, and presentations.
C. Test based on Table of Specification (TOS) and its importance; basic steps of question paper setting, types of test items and preparing answer key and criteria for school, assessment and feedback mechanism in teaching-learning.

Suggestive Practicum

1. Develop 2-D/3-D models, charts, flash cards to teach topics such as Foods We Eat, Garden, The Valley of Flowers etc.
2. Visit different websites to identify activities/ games/toys to teach topics such as seeds, fruits, earthquakes, web of life, eating together, and prepare digital repositories.
3. Develop strategies to teach topics like rivers, mountains, forests, earthquakes with the help of VR device.
4. Prepare a plan to develop Resource Room/ Activity Room for EVS in your Institution.
5. Analyze the textbooks of Grades III, IV and V to identify facts, concepts, and generalizations.
6. Develop innovative lesson plans by following art-Integrated/ toy and game-Integrated pedagogy to teach various topics.
7. Develop rubrics to assess the progress of learners.
8. Prepare an Achievement Test based on TOS, administer on a group of learners, analyze their achievement, identify learning difficulties, and conduct remedial sessions for learners with learning difficulties.
9. Prepare and manage portfolio.

Suggestive Mode of Transaction

The course will be transacted through activity based, discovery based, role playing, dramatization, small group work, pair work, interactive methods such as group discussions, peer tutoring, workshops, observations, and presentations.

Suggestive Mode of Assessment

Observation of student teachers' activity, correcting their worksheets, short formal written tests, periodical summative assessment, Seminars, demo lessons, practical tasks, and hands-on activities will be appropriately used to assess the learning outcomes. Student teachers will also be encouraged to prepare an e-portfolio to showcase their learning and skills.

Suggestive Reading Material

- KVS. Source Book on Assessment in VS.https://zietmysoredigtallibrary.files.wordpress.com/2016/06/source-book-evs.pdf
- NCERT (1991): Elementary Teacher Education Curriculum, Guidelines and Syllabi, New Delhi.
- NCERT (2005) National Curriculum Framework 2005, New Delhi
- NCERT (2006). Environmental Studies Looking Around Textbook for class III.
- NCERT (2007). Environmental Studies Looking Around Textbook for class IV.
- NCERT (2008). Environmental Studies Looking Around Textbook for class V.
- NCERT (2017). Learning Outcomes at Elementary stage.
- NIOS Learning Environmental Studies at Primary Level, Diploma in Elementary Education (D.El.Ed.), Block -2, Curriculum and Pedagogy of EVS. https://nios.ac.in/media/documents/dled/Block2_505.pdf
- NIOS Learning Environmental Studies at Primary Level, Diploma in Elementary Education (D.El.Ed.), Block -3, Assessment, Reporting and Remediation in EVS. https://nios.ac.in/media/documents/dled/Block3_505.pdf

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 604: Content cum Pedagogy World Around Us at Preparatory Stage - Course (III)

Credit: 2

Semester: S-6

About the Course

The objective of the course is to provide student teachers with an understanding about innovative and research practices in the World Around Us so that they can build an ability to deal concepts in an innovative and effective manner. The world around us demands engagement of learner with social and natural environment for developing various competencies, sensitivity, and appreciation to explore and engage with the environment. They develop a basic understanding of actions they can take to help themselves and others. The use of different innovative practices and action research will equip them to develop the necessary skills among learners to deal with concerns for social and critical issues. ICT integration provides an opportunity to engage learners in interactive and virtual experiences of unreachable environments and related issues. Developing professional competencies among student teachers imparts expertise in making them as World Around Us facilitators and provides them with a variety of high-quality experiences.

Learning Outcomes

After completion of the course, student teachers will be able to:

- describe the meaning, need, importance and scope of innovative pedagogical practices and integration of ICT in World Around Us,
- adopt various innovative practices and integrate ICT in the teaching-learning of World Around Us,
- plan and conduct action research in World Around Us,
- reflect upon various issues such as gender, equity, inclusion and integrate them in teaching-learning of World Around Us,
- develop and understanding about the role of a teacher as a facilitator of learning.

UNIT - I

Innovative and Research Practices

A. Meaning, need, importance and scope of innovative practices.
B. Types of innovative practices (online/offline): quizzes, buzz groups, snowballing, brainstorming, discussion and group learning, debates, recitations and storytelling, clay modelling and toy making, presentations, role play, games and toys for learners, case study, asking and framing questions including higher order thinking questions.
C. Action research, reflection, and research-based practice in school.

UNIT - II

ICT Integration

A. Meaning and scope of using ICT in teaching-learning process.
B. Use of ICT in the classroom: artificial intelligence, machine learning, block chains, smart boards, handheld computing devices, adaptive computer testing for student development.
C. Specific features, functions and limitations of use and integration ICT.

UNIT - III

Learning About How to Learn

A. Meaning, nature, need and scope of how to learn.
B. Psychological, Sociological and Philosophical Perspective of teaching and learning a subject.
C. Role of a teacher in facilitating learning the concepts of the subject.

Suggestive Practicum

1. Make toys and clay models as a part of development of activity/ resource room.
2. Using Story-telling pedagogy, prepare innovative ICT integrated lesson plan.
3. Make a case study of learners with distinct characteristics.
4. Identify problems and conduct action research.

Suggestive Mode of Transaction

The course will be transacted through activity based, discovery based, role playing, dramatization, small group work, pair work, interactive methods such as group discussions, peer tutoring, workshops, observations, and presentations.

Suggestive Mode of Assessment

Observation of student teachers' activity, correcting their worksheets, short formal written tests, periodical summative assessment, Seminars, demo lessons, practical tasks, and hands-on activities will be appropriately used to assess the learning outcomes. Student teachers will also be encouraged to prepare an e-portfolio to showcase their learning and skills.

Suggestive Reading Material

- NCERT (1991): Elementary Teacher Education Curriculum, Guidelines and Syllabi, New Delhi.
- NCERT (2005) National Curriculum Framework 2005, New Delhi
- NCERT (2006). World Around Us Looking Around Textbook for class III.
- NCERT (2007). World Around Us Looking Around Textbook for class IV.
- NCERT (2008). World Around Us Looking Around Textbook for class V.
- NCERT (2017). Learning Outcomes at Elementary stage.
- NIOS. Learning World Around Us at Primary Level, Diploma in Elementary Education (D.El.Ed.), Block -2, Curriculum and Pedagogy of EVS. https://nios.ac.in/media/documents/dled/Block2_505.pdf
- NIOS. Learning World Around Us at Primary Level, Diploma in Elementary Education (D.El.Ed.), Block -3, Assessment, Reporting and remediation in EVS. https://nios.ac.in/media/documents/dled/Block3_505.pdf

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 405: Content cum Pedagogy of Arts at Preparatory Stage - Course (I)

Credit: 2

Semester: S-4

About the Course

This course is primarily to develop conceptual understanding and application skills to practice teaching-learning of Arts and Art Integrated Learning at Preparatory stage. It includes knowledge, understanding and practice of visual as well as performing arts which are important components of the content and pedagogy of the ITEP programme for this stage. The well-being and fulfillment of an individual's potential is the common thread in all art forms as they have a natural potential to connect with the learners and help in their learning and development. Art is considered as the basis of learning at this stage, may it be the language, EVS or Mathematics, as it involves all faculties and senses of the learner and engages him/her in play and make without fear. Arts are natural to the children of this age and help them make meaning of the new learning through the known and concrete means. Learning through the arts is a joyful and experiential approach to engage children in; observation, imagination, exploration, making things, playing with material, narrating their experience, finding links and meaning to the new subjects and concepts. Making mistakes and learning from the mistakes is common to all the learners, and art integrated learning provides the natural platform for it. Art experience in art as pedagogy is a process of learning and not the final product of art, hence they can explore, experiment, and express without fear of failing. Arts by nature add to the mental wellness of each learner and learn at his/her own pace. This part of the course is to prepare facilitators of the Preparatory stage to understand and learn techniques of visual and performing arts on one hand, and practice pedagogy of learning Art joyfully on the other.

Learning Outcomes

After completion of this course, the student teachers:

- understands and analyses the need for Arts in Education for holistic development of the learner,
- defines meaning of Visual and Performing Arts with clear understanding of the art forms under these two categories,
- explains the importance of Arts in learning and development of children at Preparatory Stage
- creates and presents different art work (visual and performing) aesthetically using appropriate techniques and skills,
- designs age and stage appropriate activities in visual as well as performing arts skillfully,
- discovers their own artistic preferences through exposure to various Indian Art traditions, practices in visual and performing art forms and enjoys creative expression (verbal and non-verbal)
- finds relevant links of Indigenous Knowledge, Traditions and Practices with the content and concepts of the subjects.

UNIT – I :

Art Education

Art Education: Brief introduction of the meaning, concept, nature, and purpose of art education specific to the ***Preparatory Stage.*** Types of art forms suitable for the ***Preparatory*** stage; 'Visual arts & crafts'; Knowledge of; drawing & painting, hand and thumb painting and printing, experimentation with thread and blot painting, block printing using simple blocks of shapes, paper collage, tearing & pasting, paper folding and paper crafts, folk paintings on walls, clay modeling (folk traditions of the region specific), simple poster making, sand painting, *rangoli* making with used flowers and fallen leaves, soft toy making, weaving, Mask and puppet making paper mache etc. In 'Performing arts'; basic knowledge of *'Sur' and 'Taal',* seven notes *(sargam)* playing regional instruments and singing prayers, action songs, folk compositions related to festivals and celebrations etc. Basic knowledge of Dance and Movement; warm up exercises of dance and theatre, body balance, body movement, stretching and bending, action dance based on subject content of Language, EVS and Mathematics. Bask knowledge of Drama and puppetry; role play, mime, fancy dress, use of props, playing with finger puppets, stick puppets, puppets with music and action on poems/ stories/ social messages etc. Importance of Art Education at ***Preparatory*** Stage; Cognitive, Psycho-motor and Socio-emotional. Role of folk and traditional arts and crafts in learning and development of young children.

UNIT - II

Pedagogy of Arts

Art experience has an extensive range of visual modes that can be utilized for engaging children in aesthetic exploration, for verbal and non-verbal communication, for mediating their thinking, and expressing freely using basic skills. Art is known to be shaped by cultural and social values of the learners which help in building deep connection with one's roots. Therefore, it's important for a teacher/facilitator to understand and explore pedagogy of arts and art as pedagogy for experiential learning.

Visual Arts: Focus should be on strategies such as known to unknown and concrete to abstract content and concepts. Process over product – more weightage to the process of creating art than the final product. Focus on exploration and experimentation as method. Knowledge of local specific material and techniques. Guided observation of the visuals, objects, activities, and situations in the immediate surroundings. Guided tour of the objects and people from different professions in action and create art based on that giving basic details. Creating narratives based on art work. Knowledge and use of art display to motivate learners. Genuine appreciation of art for practicing the elements of visual arts and aesthetics. Strategies for promoting active participation of every learner. Involvement of community in management of art resources and promotion of traditional art and culture at preparatory stage of education. Use of educational visits to places of art and heritage such as doll museum, art and craft museums, musical garden, nature parks, zoo etc. Understanding of artistic development among children of 8 to 10 years of age to appreciate their creations without judging through adult standards.

Performing arts: Use performing arts as exercise to enhance sensory awareness and efficiency. Exercises in observation, communication, associative thinking; building situations with imaginary objects and people. Participatory learning, using action songs, dances, role play, hot seating, improvisations, mime, creating stories, songs etc. Strategies such as encouraging listening and identifying different sounds. Opportunities to explore tools for creating varied

sounds. Singing folk songs/prayers/patriotic songs with actions in solo and in group. In dance and movement- encourage observation and copying of, moving objects, birds & animals, people and machines. Promote experimentation with movement and dance, based on beats and rhythm (*laya and tala)*. *G*ames and exercises to understand the body and its balance. Use of non-verbal expressions of basic moods such as happiness, love, anger, compassion, like and/dislike, kind and caring etc. Knowledge and use of signs, symbols, and hand gestures *(mudras*) to express feelings. Knowledge of face make up and skill to use make – up for painting subject and theme- based faces. Making and using props for engaging attention of the learners. Exposure visits to the places of performance and planning follow up activities to check and reinforce learning.

Suggestive Practicum:

1. Art appreciation project report of; a Heritage walk, visit to a monument, a public event, an Art exhibition, play, concert etc.
2. Portfolio of visual artwork.
3. Audio/Visual records/presentation of performing art assignments.

Suggestive Mode of Transaction

Demonstration, Field-based experience, Storytelling/success stories, Classroom discussions, Self-study, Field observations, and preparation of study reports. Classroom presentations, discussion forums, observation, research report, engaging in dialogue.

Suggestive Mode of Assessment:

Written test, classroom presentation, workshop, assignments, practicum, sessional and terminal semester examination.

Suggestive Reading Material

Teachers may suggest books/readings as per the need of the learners and learning content.

- MHRD. (2020). *National Education Policy 2020*. Ministry of Human Resource Development. Government of India. New Delhi.
- MHRD. (2020). *National Education Policy 2020*. Ministry of Human Resource Development. Government of India. New Delhi.
- NCERT (2006). *Position Paper National Focus Group on Arts, Music, Dance and Theatre*, New Delhi: NCERT.
- NCERT (2019), Art Integrated Learning—Guidelines
- NCERT (2019). *Art Integrated Learning—Guidelines*. Retrieved from https://ncert.nic.in/pdf/notice/AIL-Guidelines-English.pdf
- NCERT (2023) Handbooks on Art Integrated Learning for Teachers Teaching Classes I-V
- NCERT (2023). *Handbook on Art Integrated Learning for teachers teaching classes VI-VIII*. Retrieved from https://ncert.nic.in/deaa/pdf/ArtIntegratedLearning-Handbook-Classes%20VI-VIII.pdf
- NCERT. (2005). *National Curriculum Framework 2005*. National Council of Educational Research and Training, New Delhi.
- NCERT. (2015), Training Package on Art Education for Primary Teachers, Volume I. Retrieved from https://ncert.nic.in/deaa/pdf/tpaev101.pdf

- NCERT. (2015), Training Package on Art Education for Primary Teachers, Volume II. Retrieved from https://ncert.nic.in/deaa/pdf/tpaev201.pdf
- NCERT. (2023). *National Curriculum Framework 2023 (draft)*. National Council of Educational Research and Training, New Delhi.
- NCERT. (2023). *National Curriculum Framework 2023 (draft)*. National Council of Educational Research and Training, New Delhi.
- UNESCO. (2006). *Road map for Arts Education. The world conference on Art education: Building creative capacities for the 21st century*. Portugal: Lisbon
- UNESCO. (2010). *The Seoul Agenda: Goals for the development of arts education. The second world conference on Arts Education*. Ministry of culture, sports and Tourism. Republic of Korea.

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 505: Content cum Pedagogy of Arts at Preparatory Stage - Course (II)

Credits: 2

Semester: S-5

About the Course

This course is primarily to develop conceptual understanding and application skills to practice teaching-learning of Arts and Art Integrated Learning at Preparatory stage. It includes knowledge, understanding and practice of visual as well as performing arts which are important components of the content and pedagogy of the ITEP programme for this stage. The well-being and fulfillment of an individual's potential is the common thread in all art forms as they have a natural potential to connect with the learners and help in their learning and development. Art is considered as the basis of learning at this stage, may it be the language, EVS or Mathematics, as it involves all faculties and senses of the learner and engages him/her in play and make without fear. Arts are natural to the children of this age and help them make meaning of the new learning through the known and concrete means. Learning through the arts is a joyful and experiential approach to engage children in; observation, imagination, exploration, making things, playing with material, narrating their experience, finding links, and meaning to the new subjects and concepts. Making mistakes and learning from the mistakes is common to all the learners, and art integrated learning provides the natural platform for it. Art experience in art as pedagogy is a process of learning and not the final product of art, hence they can explore, experiment, and express without fear of failing. Arts by nature add to the mental wellness of each learner and learn at his/her own pace. This part of the course is to; prepare facilitators of the Preparatory stage understand the importance of arts as pedagogy on one hand and practice the skills of art integrated learning to make learning in Language, EVS and Mathematics joyful and holistic, on the other.

Learning Outcomes

After completion of this course, student teachers will be able to:

- understands and analyses the need for arts in education for holistic development of the learner,
- defines meaning of Visual and Performing arts with clear understanding of the art forms under these two categories,
- creates and presents different artwork (visual and performing) aesthetically using appropriate techniques and skills,
- differentiates between Art as 'a Subject' and Art as 'Pedagogy',
- designs Art Integrated Learning (AIL) experience in Language and Mathematics, skillfully for making learning holistic and joyful for each child,
- discovers their own artistic preferences through exposure to various Indian Art traditions, practices in visual and performing art forms and enjoys creative expression (verbal and non-verbal),
- finds relevant links of Indigenous Knowledge, Traditions and Practices with the content and concepts of the subjects.

UNIT - I

Art as Pedagogy (Art Integrated Learning)

Art as Pedagogy (Art Integrated Learning): brief introduction of the meaning and concept, nature and its scope (developmental, nurturing, organic, holistic, creative, therapeutic, inclusive, cultural, value based) at Preparatory stages, Art as pedagogy for the holistic learning (cognitive, psycho-motor and affective domains) and development of each learner, AIL and multiple intelligence, AIL and socio-emotional development, AIL and inclusiveness, with available research evidence.

UNIT - II

Planning and Implementation of Art as Pedagogy

Understanding of arts as a tool in learning, planning of Art Integrated Learning (AIL) sessions in languages, Mathematics and EVS. AIL based mock sessions before school experience programme (SEP). SEP on AIL based lessons. Conceptual understanding of AIL for Assessment of `*As*' `*Of*' and `*For*' Learning. Implementation of AIL in actual situation (classroom management, organizing and managing materials, seating arrangements, organizing skills of group and cooperative learning, display of student's work, organizing field trips and excursions, organizing resources for presentations and performances etc.). Designing and managing records and portfolios of each learner. Preparing worksheets and workbooks. Use of audios, videos, paintings/visuals, and crafts available in classroom learning. Knowledge of Indian traditional art and craft forms and their linkages with languages, EVS and Mathematics skills.

Suggestive Practicum

1. Art appreciation project report of; a Heritage walk, visit to a monument, a public event, an Art exhibition, play, concert etc.
2. Portfolio of visual artwork.
3. Audio/Visual records/presentation of performing art assignments.
4. Art Integrated Learning Project for Preparatory Stage: one theme to integrate concept and skills of different subjects.

Suggestive Mode of Transaction

Demonstration, Field-based experience, Storytelling/success stories, Classroom discussions, Self-study, Field observations, and preparation of study reports. Classroom presentations, discussion forums, observation, research report, engaging in dialogue.

Suggestive Mode of Assessment

Written test, classroom presentation, workshop, assignments, practicum, sessional and terminal semester examination.

Suggestive Reading Materials

- MHRD. (2020). *National Education Policy 2020*. Ministry of Human Resource Development. Government of India. New Delhi.
- MHRD. (2020). *National Education Policy 2020*. Ministry of Human Resource Development. Government of India. New Delhi.
- NCERT (2006). *Position Paper National Focus Group on Arts, Music, Dance and Theatre*, New Delhi: NCERT.

- NCERT (2019), Art Integrated Learning—Guidelines
- NCERT (2019). *Art Integrated Learning—Guidelines*. Retrieved from https://ncert.nic.in/pdf/notice/AIL-Guidelines-English.pdf
- NCERT (2023) Handbooks on Art Integrated Learning for Teachers Teaching Classes I-V
- NCERT (2023). *Handbook on Art Integrated Learning for teachers teaching classes VI-VIII*. Retrieved from https://ncert.nic.in/deaa/pdf/ArtIntegratedLearning-Handbook-Classes%20VI-VIII.pdf
- NCERT. (2005). *National Curriculum Framework 2005*. National Council of Educational Research and Training, New Delhi.
- NCERT. (2015), Training Package on Art Education for Primary Teachers, Volume I. Retrieved from https://ncert.nic.in/deaa/pdf/tpaev101.pdf
- NCERT. (2015), Training Package on Art Education for Primary Teachers, Volume II. Retrieved from https://ncert.nic.in/deaa/pdf/tpaev201.pdf
- NCERT. (2023). *National Curriculum Framework 2023 (draft)*. National Council of Educational Research and Training, New Delhi.
- NCERT. (2023). *National Curriculum Framework 2023 (draft)*. National Council of Educational Research and Training, New Delhi.
- UNESCO. (2006). *Road map for Arts Education. The world conference on Art education: Building creative capacities for the 21st century*. Portugal: Lisbon
- UNESCO. (2010). *The Seoul Agenda: Goals for the development of arts education. The second world conference on Arts Education*. Ministry of culture, sports and Tourism. Republic of Korea.

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 605: Content cum Pedagogy of Arts at Preparatory Stage - Course (III)

Credits: 2

Semester: S-6

About the Course

This course is primarily to develop conceptual understanding and application skills to practice teaching-learning of Arts and Art Integrated Learning at Preparatory stage. It includes knowledge, understanding and practice of visual as well as performing arts which are important components of the content and pedagogy of the ITEP programme for this stage. The well-being and fulfillment of an individual's potential is the common thread in all art forms as they have a natural potential to connect with the learners and help in their learning and development. Art is considered as the basis of learning at this stage, may it be the language, EVS or Mathematics, as it involves all faculties and senses of the learner and engages him/her in play and make without fear. Arts are natural to the children of this age and help them make meaning of the new learning through the known and concrete means. Learning through the arts is a joyful and experiential approach to engage children in; observation, imagination, exploration, making things, playing with material, narrating their experience, finding links and meaning to the new subjects and concepts. Making mistakes and learning from the mistakes is common to all the learners, and art integrated learning provides the natural platform for it. Art experience in art as pedagogy is a process of learning and not the final product of art, hence they can explore, experiment, and express without fear of failing. Arts by nature add to the mental wellness of each learner and learn at his/her own pace. This part of the course is to; prepare facilitators of the Preparatory stage understand the importance of art as subject and art as pedagogy, provide opportunity to plan and practice skill of Visual and Performing arts, to develop age specific worksheets and workbooks for reinforcing learning of art methods and skills, designing and practicing the skill of art integrated learning for making teaching-learning in subjects seamless and joyful.

Learning Outcomes

After completion of this course, student teachers will be able to:

- explain the importance of arts in learning and development of children at Preparatory Stage,
- create and presents different artwork (visual and performing) aesthetically using appropriate techniques and skills,
- design age and stage appropriate activities in visual as well as performing arts skillfully,
- design Art Integrated Learning (AIL) experience in Languages, Sciences and Mathematics, skillfully for making learning experiential and joyful for each child,
- discover their own artistic preferences through exposure to various Indian Art traditions, practices in visual and performing art forms and enjoys creative expression (verbal and non-verbal),
- apply Art as an assessment tool.

UNIT - I

Content Planning and Development

Selection of content/theme/topics for creating arts at this stage should preferably be from: the immediate surroundings, known objects of daily use and variety of toys, people related to children at home and in the community, folk traditions and festivals, local games, day to day situations etc. Subject content from the preparatory curriculum, folktales, folk stories, epics, comic characters, cartoons etc. Designing Activities, worksheets, workbooks for the experience of different art methods and techniques. Develop art-based icebreakers and warmups, body exercises, art integrated learning of new concepts. Exploration of traditional sources of arts and its linking with new learning in subjects.

UNIT - II

Practicum – Arts and Art Integrated Learning

Visual Arts: Drawing & painting, printing, making blocks with available material, tearing & pasting, quelling and other paper crafts, wall painting (folk traditions of the region specific), clay modeling (slab, coil and pinching methods, relief work), poster making, *rangoli* making, mask and puppet making, soft toy making, weaving etc. Creating art through experimentation with different mediums and techniques. Conscious display of lines, forms, compositions, colours, texture etc. Developing narratives in visuals, composition of an imagined situation, illustrated story, comic strips.

Performing Arts: listening and identifying different sounds, making, and playing one folk musical instrument, Learning, and singing folk songs, prayers, patriotic songs (three compositions each). Warm up exercises (body stretching, bending, hopping, jumping, balancing etc.) dance and movement, bird & animal dance, learning and performing any one folk dance of the region, performing nine emotions *(Rasa)* through non-verbal modes, learning use of hand gestures *(mudras*), creating props for dance and drama performances, periodic performances in college/institution functions. Writing a drama script, composing an action song, composing a dance drama.

Lesson plans on integration of visual and performing arts with language, EVS and Mathematics. Prepare a plan using Art for assessment 'As' learning, 'For' learning and 'Of' learning.

Suggestive Practicum

1. Design an Art Appreciation project on; a Heritage walk, visit to a Monument, a public event, an Art exhibition, Play, Concert etc.
2. Portfolio of visual artwork.
3. Audio/Visual records/presentation of performing art assignments.
4. Records of School Experience work on Art Education.
5. Records of School Experience work of children on use of Art as Pedagogy.
6. *PS. Two best artwork from each art form should be maintained as portfolio samples.*

Suggestive Mode of Transaction

Demonstration, Field-based experience, Storytelling/success stories, Classroom discussions, Self-study, Field observations, and preparation of study reports. Classroom presentations, discussion forums, observation, research report, engaging in dialogue.

Suggestive Mode of Assessment

Written test, classroom presentation, workshop, assignments, practicum, sessional and terminal semester examination.

Suggestive Reading Materials

- MHRD. (2020). *National Education Policy 2020*. Ministry of Human Resource Development. Government of India. New Delhi.
- MHRD. (2020). *National Education Policy 2020*. Ministry of Human Resource Development. Government of India. New Delhi.
- NBT. McCaslin, Nellie (1987). Creative Drama in the Primary Grades. Vol. I and In the NCERT (2019), Art Integrated Learning—Guidelines
- NCERT (2006). *Position Paper National Focus Group on Arts, Music, Dance and Theatre*, New Delhi: NCERT.
- NCERT (2019), Art Integrated Learning—Guidelines
- NCERT (2019). *Art Integrated Learning—Guidelines*. Retrieved from https://ncert.nic.in/pdf/notice/AIL-Guidelines-English.pdf
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- NCERT (2023). *Handbook on Art Integrated Learning for teachers teaching classes VI-VIII*. Retrieved from https://ncert.nic.in/deaa/pdf/ArtIntegratedLearning-Handbook-Classes%20VI-VIII.pdf
- NCERT. (2005). *National Curriculum Framework 2005*. National Council of Educational Research and Training, New Delhi.
- NCERT. (2015), Training Package on Art Education for Primary Teachers, Volume I. Retrieved from https://ncert.nic.in/deaa/pdf/tpaev101.pdf
- NCERT. (2015), Training Package on Art Education for Primary Teachers, Volume II. Retrieved from https://ncert.nic.in/deaa/pdf/tpaev201.pdf
- NCERT. (2023). *National Curriculum Framework 2023 (draft)*. National Council of Educational Research and Training, New Delhi.
- NCERT. (2023). *National Curriculum Framework 2023 (draft)*. National Council of Educational Research and Training, New Delhi.
- UNESCO. (2006). *Road map for Arts Education. The world conference on Art education: Building creative capacities for the 21st century*. Portugal: Lisbon
- UNESCO. (2010). *The Seoul Agenda: Goals for the development of arts education. The second world conference on Arts Education*. Ministry of culture, sports and Tourism. Republic of Korea.

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 406: Content cum Pedagogy of Physical Education and Yoga at Preparatory Stage - Course (I)

Credit: 2

Semester: S-4

About the Course

Physical Education is a vital component of school curricula, determining an individual's well-being throughout life. It involves developing basic movements, motor skills, awareness of rules, and participation in activities/games. Physical Education is essential for mental, emotional, intellectual, and social development, and plays a critical role in a child's overall wellness. It helps develop strength, speed, endurance, and coordination of abilities. Age-specific methods should be used to prevent exhaustion and injuries, and children with impairments should not be excluded from physical education. Play, action, and doing are the best teaching methods for children at this stage. Physical education should revolve around active participation in fun games and simple group games, gradually transitioning to more formal games in higher classes. Moderate to vigorous physical activity is desirable, as it strengthens muscles and bones. Yoga, combined with physical education, has a synergistic effect on improving fitness and performance. The Preparatory Stage focuses on refining skills and combining them into movement forms, such as rolling, throwing, catching, dribbling, kicking, and striking. The focus should be on basic skills, the joy of playing, and appropriate behaviors and attitudes during activities. Local games should be preferred and encouraged during this stage. This course covers the basics of Physical Education and Yoga and its importance at the Preparatory Stage. It discusses the origin, aim, scope, and current benefits of sports and games. It also explores ancient sports and Yoga as a means of living and wellness. The course also discusses the various facets of Physical Education and its interconnectedness with other disciplines.

Learning Outcomes

After completion of the course, student teachers will be able to:

- develop an understanding of the concept of Physical Education and Yoga and their deep rootedness in Indian culture,
- describe the scope, importance and potential of Physical Education and Yoga at the school level,
- realize the importance of Physical Education as an integral component and essential part of the school curriculum at all stages,
- establish linkages between Physical Education, Yoga, and other school subjects,
- explain the aims and objectives of Physical Education and Yoga at the preparatory stage,
- write objectives and competencies for teaching Physical Education and Yoga.

UNIT - I

Meaning, Nature, Scope, and Importance of Physical Education

A. Meaning, scope, and principles of Physical Education.
B. Misconceptions about Physical Education. Importance of Physical Education for fitness and holistic development.
C. Physical Education and its relevance in multidisciplinary context and its relationship with other school subjects.

D. History of Physical Education in Pre-Independence and Post-Independence in India as a school subject. Contribution of Akhadas and Vyayamshalas towards promoting Health and Physical Education in India.

UNIT - II

Yoga: Relevance, Scope, Aims and Objectives

A. Concept, origin, scope of Yoga. Different types of Yoga and their importance. International Yoga Day.
B. Philosophy and constituents of Ashtang Yoga.
C. Aims and objectives of teaching Yoga at middle stage.
D. Benefits of Yoga in Schools – improves concentration and memory; respect for peers and others; self-regulation; self-confidence; feeling of wellbeing; physical fitness.

UNIT - III

Aims, Objectives of Teaching Physical Education and Pedagogical Analysis of Content

A. Aims of teaching health and physical education at Preparatory Stage.
B. Objectives of teaching health and physical education at Preparatory Stage.
C. Blooms taxonomy of objectives. Writing of objectives in Physical Education and Yoga.
D. Curriculum of health and physical education and yoga. Evaluation of contents of health and physical education textbooks. Pedagogical analysis of content for identification of minor and major concepts for physical education and yoga, listing learning outcomes, planning activities, experiments, observation, and evaluation procedure in an inclusive setup of contents - **"**Physical Education, Physical Fitness and its Importance, Concept of personal health and hygiene, Yoga and Personality Development, Yogic Practices for Personality Development, Anuloma-viloma Pranayama (Alternate Nostril Breathing) Bhastrika Pranayama, Meditation".

Suggestive Practicum:

1. Conduct pedagogical analysis of the content for any two topics of physical education and yoga and prepare a report.
2. Critical evaluation of the book of health and physical education for yoga contents and prepare a report.
3. Write learning outcomes and competencies for two topics of physical education and yoga.
4. Prepare a chart on the benefits of yoga.
5. Survey of local and traditional Indian games and sports – *pachisi, pallanguzhi, ashta chamma, snakes and ladders, chowpar, chowka bara, gulli danda, goli,* and local games.
6. Review of NEP 2020; NCF for School Education, 2023; preparing a report on role and status of Physical Education and Yoga.

Suggested Mode of Transaction

Short Lecture cum discussion/demonstration, group work and presentation, observation, seminar, experiential learning, skill development, report writing, report writing, organizing demonstrations and activities in simulated situations.

Suggestive Mode of Assessment:

Written test, classroom presentation, workshop, assignments, practicum, sessional and terminal semester examination.

Suggestive Reading Material

- NCERT (2023). Health and Physical Education. Physical Education: Relationship with other Subjects. Textbook for Xth class. New Delhi.
- NCERT (2023). Health and Physical Education. Effects of Physical Activities on Human Body. Textbook for Xth class. New Delhi.
- National Health Mission. Ministry of Health and Family Welfare: https://nhm.gov.in/
- Recommended dietary intakes for Indian sports men and women, 1985 National Institute of Nutrition. Dietary guidelines for Indians – A Manual, 1998
- Administration Manual. (2020). Khelo India: https://schoolfitness.kheloindia.gov.in /UploadedFiles/SampleData/ AdminManual.pdf

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 506: Content cum Pedagogy of Physical Education and Yoga at Preparatory Stage - Course (II)

Credit: 2

Semester: S-5

About the Course

Play is an instinctual and intuitive aspect of children's development, allowing them to actively participate in social interactions and learn from their experiences. This course provides student teachers with opportunities to deepen their understanding of children, their development, and the mechanisms behind cognition, emotions, and skill acquisition. By introducing philosophically sound aims and objectives, student teachers can develop additional educational concepts. Physical education is a subject that requires practical activities to build skills, and the use of methods, techniques, charts, and equipment in the learning process enhances learning. The aim of physical education is to help students lead a physically active, vigorous, and healthy life, promoting mind-body wellness through movements, drills, exercises, yoga, games, and sports. Physical education should provide a wide range of age- and level-appropriate physical activities that develop knowledge of the body, games, and sports, along with an attitude of perseverance, teamwork, and sportsmanship. The National Education Policy (NEP) 2020 also emphasizes introducing physical education at school level as it is important for physical and mental health of the children. It improves a child's muscular and cardiovascular strength, flexibility, endurance, motor skills, and mind-body connection. Playing sports also helps students develop qualities such as teamwork, cooperation, problem-solving, discipline, perseverance, and responsibility. Physical activity is well-established to release tension and anxiety, facilitate emotional stability, and promote emotional stability and resilience. Studies show that students who stay physically active are more successful with other schoolwork and are more fit as adults, leading to longer, healthier, and more productive lives. This course focuses on the different methods and strategies available for teaching physical education and yoga, emphasizing the development of skills related to pedagogical analysis, textbook content identification, learning outcomes, planning activities, experiments, observation, and evaluation procedures in an inclusive setting.

Learning Outcomes

After completion of the course, student teachers will be able to:

- develop requisite skills and competencies to adopt appropriate teaching method,
- evaluate the different methods and approaches of teaching Physical Education and Yoga,
- identify and develop various learning resources for the teaching of Physical Education and Yoga,
- understand the precautions and safety measures to be taken while teaching,
- conduct pedagogical analysis of content for identification of minor and major concepts,
- conduct pedagogical analysis of content for listing learning outcomes,
- conduct pedagogical analysis of content for planning activities.

UNIT - I

Teaching Learning Methods for Teaching Physical Education and Yoga

A. Teaching methods-verbal, explanation, command, demonstration, whole, part, whole-part-whole, progressive, observation, imitation, dramatization, project method.
B. Command method- meaning, types and its uses in different situations. Techniques of commanding: counting, continuous counting, counting the beat, rhythmic counting, counting aloud, use of whistle, procession instruments and music. Execution of command during physical activities and aasana.
C. Demonstration- meaning, types and its uses in different situations. Techniques of demonstration, demonstration of exercises, aasana, breathing technique.
D. Whole-part-whole- meaning, types and its uses in different situations. Techniques of whole-part-whole.
E. General guidelines, precautions and safety measures while practicing Physical Education activities and Yoga.
F. Various formations for practical class management and yoga practice.

UNIT - II

Teaching Learning Aids and Resources for Teaching Physical Education and Yoga

A. Teaching Learning Aids/Materials: concept, definition, role and importance in classroom teaching and practical training learning the subject.
B. Types of Teaching Learning Aids/Materials: non-print and digital media for offline/ online classroom teaching learning
C. Benefits of Practical and Classroom teaching aids – fitness aids, cones, belts, medicine balls, audio-visual aids, play kits, toys, sports equipment.
D. Presentation Technique – personal and technical preparation; steps in presentation.

UNIT - III

Planning for Practice of Physical Education and Yoga

A. Teaching team games, individual sports and yoga.
B. Teaching drills for various games, sports and yoga.
C. Teaching calisthenics and recreation games for the students.
D. Planning and preparation of play fields.
E. Developing the general and specific lesson plan for the Physical Education and Yoga activities.

Suggestive Practicum

1. Planning a regime for exercises for morning assembly.
2. Planning fun games, outdoor group activities.
3. Organizing competitions at class/school level.
4. Practice of all pranayams and asanas.
5. Preparation of low-cost teaching-learning materials.
6. Preparation of Art and TPCK integrated learning resources for the teaching of Physical Education and Yoga.

Suggested Mode of Transaction

Short Lectures cum discussion, group work and presentation, seminar, demonstrations, experiential learning, skill development, school visits, report writing and presentation.

Suggestive Mode of Assessment:

Written test, classroom presentation, workshop, assignments, practicum, sessional and terminal semester examination.

Suggestive Reading Material

- Administration Manual. (2020). Khelo India: https://schoolfitness.kheloindia.gov.in /UploadedFiles/SampleData/ AdminManual.pdf
- National Health Mission. Ministry of Health and Family Welfare: https://nhm.gov.in/
- NCERT (2023). Health and Physical Education. Effects of Physical Activities on Human Body. Textbook for Xth class. New Delhi.
- NCERT (2023). Health and Physical Education. Physical Education: Relationship with other Subjects. Textbook for Xth class. New Delhi.
- Recommended dietary intakes for Indian sports men and women, 1985 National Institute of Nutrition. Dietary guidelines for Indians – A Manual, 1998

*Teachers may also suggest books/readings as per the need of the learners and learning content.

SSCPC 606: Content cum Pedagogy of Physical Education and Yoga at Preparatory Stage - Course (III)

Credit: 2

Semester: S-6

About the Course

Physical activity encourages children to be active, engaged, and interested in social relationships with adults and other children, which is a primordial and intuitive part of children's development. Physical education is a subject that requires more practical activities for building skills, and the appropriate use of charts and equipment in the learning process enhances learning. Physical activity is integral to human life and is integral to the school curriculum. Teachers must evolve strategies considering the overall learning styles of children in the Preparatory stage. Sports and physical activities teach important motor skills, physical fitness, socio-emotional awareness, and cognitive abilities, as well as values of hard work, teamwork, and accepting one's strengths and vulnerabilities. These activities have been an inseparable part of many cultures, bringing people together over shared interests and spirit. A good physical education program is considered important for everyone, regardless of their field of interest. It prepares students to live a happy, fulfilling, and healthy life, as well as building values, skills, dispositions, and cultural awareness and literacy. The aim of Physical Education in the school curriculum is to help students develop a love for physical activity/sports, develop knowledge and capacity to execute various skills and movements of the human body, develop resilience, tenacity, and an interest in excellence, and nurture empathy, cooperation, fair play, and fraternity. Assessment should be varied and planned according to learning outcomes, encompassing all major and minor concepts. This course focuses on providing training for different asanas and enhancing teacher performance by conducting minor classroom and school-level research.

Learning Outcomes

After completion of this course, student teachers will be able to:

- appreciate the need for unit and lesson planning to develop unit and lesson plans based on learning outcomes,
- develop lesson plans for varied contents of Physical Education and Yoga,
- discuss the purpose, process and importance of evaluation and assessment in the teaching of Physical Education and Yoga,
- provide feedback based on learning outcomes,
- write items and construct table of specialization,
- adopt performance-based evaluation to improve students' outcomes,
- conduct action research in the teaching of Physical Education and Yoga.

UNIT - I

Assessment and Evaluation for Teaching of Physical Education

A. Assessment and evaluation in Physical Education: concept, importance, and principles, providing feedback.
B. Various evaluation methods and tests in Physical Education.
C. Khelo India Fitness Assessment Test
D. Preparation of Fitness Report Card and Feedback.
E. Competitions for the evaluation of performance: types of competition.

UNIT - II

Planning and Evaluation for Teaching of Yoga

A. Essentials for a good lesson plan in Yoga. Creating the environment, introduction to the practice, demonstrating practice, analyzing the practice, correcting mistakes, giving instructions, repeat demonstration and practice, rest period, individual and group practices, lesson on meditation, caution, and self-evaluation.
B. Developing unit plans and lesson plans. design, approaches & writing lesson plan through integrating PCK, Integration of arts and TPCK.
C. Importance of assessment and evaluation in yoga. Correcting strategies, providing feedback, performance-based evaluation.
D. Types of items, Construction of Table of Specialization.
E. Action research in Yoga.

UNIT - III

Pedagogical Analysis of Physical Education and Yoga

A. Pedagogical analysis of content (for theory and practical) for identification of minor and major concepts, listing learning outcomes, planning activities, experiments, observation, and evaluation procedure in an inclusive setup of following textbook contents. "Principles of Sports Training, Badminton, Gymnastics, Judo, Swimming, Sports Ethics, Yama and Niyama, Pranayama, Pratyahara, Bandha and Mudra, Shatkarma/Kriya (Cleansing Process), Meditation, Surya Namaskara, Tadasana"
B. Understanding the following textbook subject matter from the pedagogical content knowledge (PCK) perspective and lesson planning.
"Healthy lifestyle, Mental health care, Balanced diet, Mood swings in adolescents, Anger, Recreational and Outdoor Activities, Safety, Security and First Aid, Physical Culture, Vrikshasana (Tree Posture), Utkatasana, Vajrasana, Swastikasana (Auspicious Posture), Ardhapadmasana (Half Lotus Posture), Niralamba Bhujangasana (Cobra Posture), Ardhashalabhasana (Half Locust Posture), Makarasana (Crocodile Posture), Uttanapadasana, Trataka (Concentrated Gazing), Sustainable Development Goals (SDGs)."

C. Providing opportunity to learn. Common injuries, its types, and preventive measures.
D. Professional preparation for pedagogy in Physical Education

Suggestive Practicum

1. Development of an inclusive lesson plan that integrates two disciples of school education with a game/sports/yoga.
2. Make a report enlisting the professional ethics for Physical Education and Yoga.
3. Construction of an Achievement test/ Table of Specialization.
4. Preparation of question banks covering all aspects of Bloom's Taxonomy
5. Visit a playground and observe children playing different games. Make a list of tasks that help children build social relationships and a strong social dynamic.
6. Prepare a plan for action research in any area of Physical Education

Suggested Mode of Transaction

Short Lectures cum discussion, group work and presentation, seminar, demonstrations, experiential learning, skill development, school visits, report writing and presentation.

Suggestive Mode of Assessment

Written test, classroom presentation, workshop, assignments, practicum, sessional and terminal semester examination.

Suggestive Reading Material

Teachers may suggest books/readings as per the need of the learners and learning content.

- Administration Manual. (2020). Khelo India: https://schoolfitness.kheloindia.gov.in/UploadedFiles/SampleData/ AdminManual.pdf
- National Health Mission. Ministry of Health and Family Welfare: https://nhm.gov.in/
- NCERT (2023). Health and Physical Education. Effects of Physical Activities on Human Body. Textbook for Xth class. New Delhi.
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STRUCTURE OF ITEP, B.Sc./B.A./B.COM. -B.Ed. IN THE SUBJECT OF SCHOOL EXPERIENCE

SEM.	PAPER CODE	TITLE	CREDITS
V	SE-501	PRE-INTERNSHIP PRACTICE (DEMONSTRATION LESSONS, PEER TEACHING)	01+01=02
VI	SE-601	SCHOOL OBSERVATION (FIELD PRACTICE)	01+01=02
VII	SE-701	SCHOOL-BASED RESEARCH PROJECT	01+01=02
	SE-702	INTERNSHIP IN TEACHING	01+01=02
VIII	SE-801	POST INTERNSHIP (REVIEW AND ANALYSIS)	01+01=02
	SE-802	CREATING TEACHING LEARNING MATERIAL/WORK EXPERIENCE (EDUCATIONAL TOY MAKING, LOCAL/TRADITIONAL VOCATIONS ETC.)	01+01=02

SE 501: Pre-Internship Practice

Credits 2

Semester: S-5

About the Course

Pre-Internship is a vital component of the Teacher Education Programme. It is a prerequisite for the student teachers to experience a simulated classroom environment to prepare them for real- life situations. Student teachers get exposure in a conducive, guided environment to manage a classroom and learn pedagogic and classroom management skills and get an opportunity to have hands-on experience.

Learning Objectives:

After completion of the course, student teachers will be able to:

- acquainted with various pedagogic practices, classroom management skills, assessment tools and learning standards,
- get experience of conducting classes by observing lessons transacted by teacher educators (demonstration lessons),
- develop lesson plans to transact them using appropriate pedagogies and learning resources,
- develop and practice teaching skills in a guided environment to be an effective teacher,
- be prepared for the school internship.

Suggestive Mode of Transaction

- Demonstration lesson (minimum 1 in each pedagogical subject)
- Peer Group teaching and peer observation (minimum 5 in each pedagogical subject)
- Observation of lessons by teacher educators during peer group teaching
- Reflective group discussions/workshops/seminars
- Preparation and presentation of the video content illustrating best classroom practices.

Content

The pre-internship will include activities relating to the stage-specific pedagogy courses, ability enhancement and value-added courses and foundation courses transacted during previous semesters. It will also include knowledge of pedagogy, formats of lesson plans, different ICT tools, schooling systems in India, principles of classroom management, assessment, and other relevant content.

Activities to be conducted:

- Observation of lessons transacted by teacher educators to identify pedagogic skills.
- Exposure to various types of lesson plans through workshops.
- Development of relevant Teaching Learning Materials (TLMs).
- Participation in screening and discussion of educational videos on pedagogy and assessment.
- Learning about inclusiveness in school education
- Orientation for Action Research/case study

Foundational Stage

Orientation of student teachers to different pedagogic (flexible, multilevel, play/activity/story-based learning) and classroom management skills

- Observation of the lessons demonstrated by teacher educators/experts in the institute.
- Designing guided play/activities for each class/subject based on learning outcomes.
- Identify local toys/games to facilitate play activities and pedagogical practices.
- Study Foundational Stage Learning Standards in the NCF-FS
- Content analysis and development of the unit plan, concept map and lesson plan.
- Discussion on unit plan and lesson plan with teacher educators/experts
- Preparation of a Portfolio (for self-work) that the student-teacher will use to keep all her/his work.
- Develop a one-day teaching plan that caters to all domains of development and record the difference in children's engagement before and after implementing the new plan.
- Transaction of demonstration lesson plan in a guided situation in the institute in the macro group (get the feedback from the mentor and TE)
- Collection and development of warmup activities and trials with the student trainee for rapport building with the young children.
- Exploring available learning resources, local traditional stories, rhymes, riddles, and educational videos
- Developing local, low-cost, and innovative TLMs
- Reading and reflecting on inspiring books on pedagogic practices like *'Divaswapna'*

Preparatory Stage

- Orientation of student teachers to different pedagogic (play, discovery, and activity/project-based) and classroom management skills
- Observation of the lesson demonstrated by teacher educators/experts in the institute.
- Designing guided play/activities for each class/subject based on learning outcomes.
- Identify local toys/games to facilitate play activities and pedagogical practices.
- Study Preparatory Stage Learning Standards from the NCF
- Content analysis and development of the unit plan, concept map and lesson plan.
- Discussion on unit plan and lesson plan with teacher educators/experts
- Preparation of a Portfolio (for self-work) that the student-teacher will use to keep all her/his work.
- Exploring available learning resources and educational videos
- Developing local, low-cost and innovative TLMs
- Reading and reflecting on inspiring books on pedagogic practices like *'Divaswapna'*

Middle Stage

- Orientation of student teachers to different pedagogic practices like experiential learning, inter-relationship amongst different subjects, integration of Indian Knowledge Systems (IKS) and values in school subjects, and classroom management skills
- Observation of the lesson demonstrated by teacher educators/experts in the institute.
- Designing guided activities for each class/subject based on learning outcomes.
- Study Middle Stage Learning Standards in the NCF
- Content analysis and development of the unit plan, concept map and lesson plan.
- Discussion on unit plan and lesson plan with teacher educators/experts

- Preparation of a Portfolio (for self-work) that the student-teacher will use to keep all her/his work.
- Participate in discussions/reflective sessions for conceptualizing teaching-learning practices.
- Exploring available learning resources and educational videos
- Developing local, low-cost and innovative TLMs
- Reading and reflecting on inspiring books on pedagogic practices

Secondary Stage

- Orientation of student teachers to different pedagogic approaches like storytelling, art-integrated, sports-integrated, project-based, and ICT-integrated for developing critical thinking, attention to life aspirations, and greater flexibility and classroom management skills.
- Observation of the lesson demonstrated by teacher educators/experts in the institute.
- Designing guided activities, including a laboratory for each class/subject based on learning outcomes.
- Study Secondary Stage Learning Standards in the NCF
- Content analysis and development of the unit plan, concept map and lesson plan.
- Discussion on unit plan and lesson plan with teacher educators/experts
- Preparation of a Portfolio (for self-work) that the student-teacher will use to keep all her/his work.
- Participate in discussions/reflective sessions for conceptualizing teaching-learning practices.
- Exploring available learning resources and educational videos
- Developing local, low-cost, and innovative TLM s
- Reading and reflecting on inspiring books on pedagogic practices

Assessment

Competence/Artifact	Method of assessment	Assessed By	Credits
Classroom teaching skills and assessment tools (including learning standards)	Simulated Presentation	Teacher-Educator	1
Reflective group discussions/workshop	Observations	Teacher-Educator	0.5
Artefacts (Lesson Plans, TLM, Curated Videos) and action research procedures.	Evaluation	Teacher-Educator	0.5

Outcomes

After completion of the course, student teachers will be able to:

1. describe the prerequisites of the internship,
2. demonstrate knowledge of pedagogic practices, classroom management skills, assessment tools and learning standards,
3. develop lessons plans and relevant Teaching Learning Materials (TLMs),
4. develop readiness to take up an internship programme.

SE 601: School Observation

Credit: 2

Semester: S-6

About the Course

As school is the heart of the teacher education programme, the student teachers need to gain hands-on experiences from various activities organized by the school. School observation offers an opportunity to learn the processes and practices in a school setup. To expose the student teachers to various schooling systems (urban, rural, tribal, residential, non-residential, government, private, affiliated to different school boards like Central Board, State Board, International Board) prevailing in the country. School observation will also prepare the student teachers to build relationships with various stakeholders. The school observation by the student teachers is aimed at helping them build perspective in the schooling system, student needs, pedagogies, and assessment.

Learning Objectives

After completion of school observation program, student teachers will be able to:

- get acquainted with various schooling systems.
- experience the processes, practices, and overall environment of the school.
- establish a rapport with all the stakeholders of the school system.
- observe the process of conducting different activities in the school.
- study availability and the work of human resources, including members of school management (SMC), school head, teachers, administrative and support staff)
- observe the existing infrastructure available in the schools (classrooms, libraries, laboratories, playground, sanitation, drinking water facility, mid-day meal facility, inclusive facilities, safety and security, rainwater harvesting).
- observe and document the availability and usage of TLM, including ICT.
- study the available physical and digital documents, including UDISE data.
- study interpersonal relationships among the stakeholders.
- study various assessment processes adopted in different types of schools for holistic development of children.
- prepare and present a comprehensive profile of the schools observed (including classroom processes)
- study the engagement of parents and other community members in school activities.

Suggestive Mode of Transaction

- Observation
- Interaction
- Discussion
- Reviewing the available literature on the different schooling system
- Collection of relevant documents and data

  Preparation for school observation
  - Orientation on the school observation process
  - Development of the observation formats/tools

School Observation (minimum three types of schools)

- Student teachers will go for school observation in small groups to observe and collect data by using the developed formats/tools.
- Analysis of the collected data
- Preparing a comprehensive profile of the schools observed

Post-school observation session

- Group-wise presentation of the school profile
- Discussion and Feedback
- Reflection on the understanding of various types of schooling systems.

Content

The school observation as a field-based activity will cover observation of school and classroom processes. The student teachers under the mentorship of teacher educators will visit schools, interact with teachers and students and other stakeholders, and relate the observation with the courses studied during the previous semesters, i.e. Foundations of Education, Disciplinary Courses, Pedagogy courses and Ability Enhancement & Value-Added Courses.

- Meaning and Nature of school observation process
- Difference between monitoring and observation
- Theory and practices of school observation components such as:
    1. Schooling system
    2. Rapport with all the stakeholders
    3. Office management procedures of different types of schools
    4. School environment in all perspectives
    5. Process of conducting curricular activities in the schooling process
    6. Existing infrastructure available in the school
    7. Utility of ICT and TLM facilities
    8. Interpersonal relationships among the stakeholders
    9. Various assessment processes adopted in different types of schools.
    10. Engagement of parents and other community members in school activities.

Activities to be conducted.

Foundational Stage

- Visit to preschool, Balvatika, and classes I and II (foundational stage/ standalone Anganwadi, standalone preschool, co-located Anganwadi and preschools/Balvatika sections in school set up)
- Collect information on the demography of students in preschool, classes I and II, linkage of foundational with the preparatory stage through interaction with teachers, students, and staff.
- To study the use of print materials like collages, flashcards and activities related to foundational literacy and numeracy through classroom observation.
- Observe the activities related to FLN, use of mother tongue as medium of instruction and handling classrooms with children from different home languages.
- Observation of pedagogic practices at preschool, classes I and II

- Observe the use of local/traditional toys, stories, rhymes, songs, games, riddles in the class.
- Observation of availability and usage of reading corners, fun zones,
- Observation of play areas across the foundational stage (both indoor and outdoor)
- Study the practices followed by the school for the growth and health of children- provision of supplementary nutrition, immunization, health check-ups, and referral services.
- Presentation of the classroom observations (play activities and FLN practices) and discussions in groups
- Observation of assessment tools and practices at foundational stage

Preparatory Stage

- Visit three types of schools with observation formats developed in the institute and get acquainted with various schooling systems. Establish rapport with all stakeholders.
- Collect information on the demography of students in classes III to V, the link of the preparatory stage with the foundational and middle stages through interaction with teachers, students, and staff.
- Observation of classroom practices to study toy-based, art-integrated, and sports-integrated pedagogy.
- Observe the activities related to holistic assessment as recommended in NEP 2020 and NCFSE.
- Observation of play areas across the preparatory stage (both indoor and outdoor)
- Observe school processes and the extent of transaction of the curriculum through play, discovery, and activity-based and prepare a report.
- Reflect on effective classroom teaching learning strategies.

Middle Stage

- Visit three types of middle schools with observation formats developed in the institute and get acquainted with various schooling systems. Establish rapport with all stakeholders.
- Collect information about the demography of students in classes VI to VIII and understand the linkage of the middle stage with the secondary and preparatory stages through interaction with teachers, students, and staff.
- Observe school processes and curriculum transactions through experiential learning and prepare a report.
- Interact with teachers and students and report on implementing ten bag-less days and skill development courses.
- Reflect on effective classroom teaching learning strategies.
- Observe integration of IKS, values, local resources in teaching learning process
- Observe practice and assessment of vocational education in the school.
- Observe the availability and usage of library resources, laboratories (General Science, Mathematics, Languages, Social Science, Computer), sports facilities, and art and music learning facilities.
- Study the provision of other student support services- guidance and counselling, scouts and guides, and health and wellness programme.

Secondary Stage

- Visit three types of secondary schools with observation formats developed in the institute and get acquainted with various schooling systems. Establish rapport with all stakeholders.
- Collect information about the demography of students in classes IX to XII and understand the linkage of the secondary stage with the middle stage and higher education through interaction with teachers, students and staff.
- Observe school processes and transactions of the curriculum through experiential learning and prepare a report.
- Interact with teachers and students and report on implementing ten bag-less days and internship opportunities to learn vocational subjects.
- Study the available opportunities for learning interdisciplinary subjects.
- Observe the availability and usage of library resources, laboratories (Atal Tinkering Lab, Physics, Chemistry, Biology, Mathematics, Languages, Social Science, Computer), sports facilities, and art and music learning facilities.
- Study the provision of other student support services- guidance and counselling, NCC, NSS, health and wellness programme.
- Observe the organization of various activities like classroom teaching-learning processes, laboratory activities, library activities, sports and games, debate/elocution/essay writing and other competitions.
- Interact with School heads and subject teachers to understand how students are evaluated by following different tools and techniques of evaluation, how examinations are conducted, how answers are assessed, and how the result is communicated to parents in at least two different types of schools.

Assessment

Competence/Artifact	Method of assessment	Assessed By	Credits
Involvement and active participation during the school visit	Observations	Teacher Educator	0.5
Comprehensive school profile	Presentation & reflection	Teacher-Educator	1.5

Outcomes

Student teachers will be able to:

- describe various schooling systems,
- describe the processes, practices and overall environment of the school,
- establish rapport with the stakeholders of the school system state the process of conducting different activities in the school,
- describe the available school infrastructure (classrooms, libraries, laboratories, playground, sanitation, drinking water facility, mid-day meal facility, inclusive facilities, safety and security, rainwater harvesting),
- describe the availability and usage of ICT and TLMs,

- summarize the available documents in both physical and digital modes, including UDISE data,
- reflect upon relationships among the stakeholders,
- analyze various assessment processes adopted in different types of schools,
- prepare and present a comprehensive profile of the schools observed (including classroom processes).

Suggested Components for school observation report

- School information (Context, Vision and Mission, Association with the Board)
- School Infrastructure
- Provision for CWSN/Divyang Children
- Inclusiveness at all levels
- Teacher-Student Ratio
- Teaching-Learning process
    - Academic plan
    - Classroom activities
    - Assessment
- School Development Plan (SDP)
- Academic Calendar
- Administrative processes
    - Maintenance of students' records
    - Maintenance of teachers' records
- Cultural activities
- Sports activities
- Annual Day
- National and Social functions
- School Management
- School Discipline
- Interpersonal Relationships
- Understanding different types (socio-economic status, ability) of students and their needs
- Development of ICT and TLMs
- Engagement of parents and community members in the school activity
- Office Management
- The assessment process includes provision and practices for 360-degree holistic assessment.
- The overall progress of the school (planning, organizing, staffing, directing, motivating and controlling)
- Challenges faced and overcoming them.

SE 701: School-Based Research Projects

Credit: 2

Semester: S-7

About the Course

Action research enables teachers to reflect on their wisdom to bring the desired changeover and explore the system when necessary. They may experiment with practices in a controlled environment to improve the transactional processes. Learning about classroom research in action research and case studies practices promotes opportunities to improve the student-teacher learning environment in teacher education institutions. Their involvement in the learning processes during their stay in teacher education institutions becomes more fruitful. It could be individual or collaborative research among the student teachers. Action research and case studies are school-based research, which is acted upon as collective, self-reflective inquiry undertaken in social situations to improve the rationality and justice of their own contextual and educational practices. These two processes explore the answers to the problem and contribute towards theory development. These two methodologies foster critical thinking, problem-solving, collaboration and ethical decision-making skills. The student teachers are placed in schools for internships. School Internship provides the student teachers with a platform to apply theoretical knowledge understanding, techniques, methods, and approaches in an actual classroom situation. It enables them to gain intensive experience in teaching, planning, preparing support materials, and performing other school activities that a regular teacher is expected to do. The student teachers will systematically undertake school-based research to find solutions to contextual problems/challenges. During the school internship, the student teachers will identify school practices and challenges through involvement in different activities, design relevant interventions, analyze data and prepare reports.

Learning Objectives

The student teachers will:

- Identify contextual problems and formulate appropriate research design,
- Prepare the plan of action for undertaking school-based research,
- Develop and use tools and techniques for the collection of relevant data,
- Collect and analyze the data to identify the causes,
- Develop and implement need-based interventions for addressing the problems,
- Study the effectiveness of the intervention(s),
- Reflect and share school-based research experiences through reports and presentations.

Suggestive Mode of Transaction

The following strategies will be used during the school-based research project:

- Discussions with teacher educator, school head, mentors, and peers for identification of problem and development of intervention(s).
- Finalize the school-based research project proposal outline through discussion with mentor teachers/teacher educators.
- Document analysis, interaction with all stakeholders, and field visits.
- Sharing and presentation of the outcomes of school-based research.

Content:

The student teachers during previous semesters have studied different courses in Foundations of Education, Disciplinary Courses, Stage-specific pedagogy courses, Ability Enhancement and Value-Added Courses. The required knowledge of action research and case study includes- the concept and importance of action research/case study, the steps of conducting action research/case study (objectives, methods, research design, design tools, data collection, and data analysis) and report writing.

The research problem will be taken from the day-to-day teaching-learning process of the school. Some of the significant areas may cover:

- Learning progress and outcomes in different subjects
- School-based assessment
- Learners' diversity and inclusion
- Participation in arts, games, sports

Suggestive Mode of Assessment

The assessment of the school-based research project will be continuous. The teacher educators, as well as mentors, will be involved in the assessment of the activities. The following rating scale may be used to assess the student teachers:

Competence/Artifact	Method of assessment	Assessed By	Credits
Observation during the execution of action research	Observation	Teacher-Educator	0.5
Research Report	Presentation of Report	Teacher-Educators (panel of three experts)	1.5

Learning Outcomes

The student teachers will:

- present contextual problems, an appropriate research design and the plan of action for undertaking school-based research,
- demonstrate the tools and techniques used for the collection of relevant data,
- summarize the analyzed data used to identify the causes,
- demonstrate the interventions used for addressing the problems,
- present the effectiveness of the intervention(s),
- share the school-based research experiences through reports and presentation.

SE 702: Internship in Teaching

Credit: **10**

Semester: **S-7**

About the Course

Teacher preparation is a reflective and experiential process, and internship is vital to connecting student teachers with school, teachers, students and other stakeholders in various ways. It provides a platform and actual field experience for the student teachers to apply theoretical knowledge and teaching methods. During the internship, student teachers are placed in schools in groups as an integral part of all school activities. This provides them with the opportunity to observe classes taken by school teachers, take independent classes, develop a relationship with students, contribute to everyday school activities (e.g., conducting the assembly, assisting in the mid-day meal scheme, organizing school events) and get exposure to all school administrative practices (e.g., maintaining administration records, creating an annual calendar). This enables them to get intensive experience in all aspects of teaching- preparation, planning, developing/ collecting/localizing Teaching Learning Materials, classroom transactions, assessment, reflection, and review of their experience. The student teachers are exposed to situations where they can observe different roles played by the teacher in the field, which they will also have to undergo. After completing the internship, student teachers will be ready to take up a teacher's responsibility independently.

Suggestive Structure

ITEP 7th semester has an internship programme where student teachers are expected to go to the participating schools and visit the Institute for completion of other courses. ITEP institute can choose suitable option based on their context.

- Four days in schools and two days at ITEP Institute
- Six weeks in one school, three weeks in the institute and six weeks in another school (preferably in two different types of schools)
- Three weeks in the institute and 12 weeks in two types of schools
- Any other option can be adopted by the institute depending on their local conditions keeping 12 weeks of school internship.

Learning Objectives:

On completion of the school internship, student teachers will be able to:

1. explain the overall functioning of the school.
2. describe and appreciate the different roles played by a teacher in the school.
3. experience the importance of teacher-student relationships for effective teaching.
4. develop age-appropriate pedagogic skills.
5. use different pedagogies learnt in real-life classrooms.
6. create appropriate teaching-learning materials.
7. develop necessary planning and execution skills to conduct school activities (assembly, celebrations, cultural programmes).
8. express the school, teacher, parents, and community relationships.
9. create rapport with the stakeholders and understand their roles in the school system.
10. create student portfolios and comprehensive 360-degree (holistic) progress reports.
11. discuss the importance of maintaining different types of records in the school system.

12. develop research aptitude and ability to conduct action research for the situations/problems faced during their school internship experience.

Suggestive Mode of Transaction

- Observation
- Interaction
- Discussion
- Teaching in the classroom
- Analysis and reporting
- Collection of relevant documents and data

Content

1. Pedagogies' different methods and strategies
2. Scheme of lessons
3. Peer lesson observation
4. Management of substitute classes
5. Various TLMs (including ICT tools) and their uses in teaching-learning.
6. Achievement test
7. Diagnostic tests
8. Analysis of the result of the achievement test
9. Assembly activities
10. Action research and case studies.

Activities:

Student teachers are required to undertake the following stage specific activities:

Foundational stage

1. Meet the subject-based mentors, collect timetables of preschool, Balvatika, and classes I and II and develop a scheme of lessons from the syllabus to be covered during the internship.
2. Get acquainted with the school within 2-3 days. Observe classroom teaching of school teachers.
3. Plan and transact minimum 80 lessons (40+40), including 4 stray lessons (2+2). Stray lessons are class appropriate lessons on any topic(s) to be transacted by student teachers as per their convenience to build up confidence gradually. The last 5 lessons in each pedagogy course may be transacted using lesson notes.
    - Lesson plans should derive their inspiration from NCF-FS documents.
    - Lesson plans should include a theme/ web chart/concept map for integrating early learning activities related to FLN.
    - Lesson plans must promote education for sustainability, including equity, environment, global citizenship, pride and rootedness in Indian culture and character building.
4. Participate in post-lesson discussions with peers, mentor(s) and teacher educators.
5. Observe peer lessons and discuss with the group.
6. Conduct sports activities and arts and crafts activities.

7. Participate in student support services- guidance and counselling, bunny, health and wellness programmes.
8. Create age and developmentally appropriate TLM that caters to different domains of development, for example, picture reading posters, letter-sound dominoes, number-object dominoes, stories, rhymes, toys, and number puzzles.
9. Identify the toys and TLM available for 3 to 8-year-olds. and map them with different concepts and skills.
10. Develop differential assessment plans based on interest and expected goals/competencies.
11. Identify children with special needs and address their learning needs.
12. Experience classes as a substitute teacher.
13. Participate in the reading corners, fun zones, gallery walks and other activities.
14. Participate in teacher development and training activities.
15. Participate and Organize school assemblies and other events (cultural, sports, yoga, and other development activities).
16. Attend Parents-Teachers Association (PTA) meetings if held during the internship.
17. Attend School Management Committee (SMC) meeting if held during the internship.
18. Study the process of parent and community engagement for the school development programme.
19. Conduct action research /case study.
20. Prepare a sample student portfolio,
21. Write a reflective diary daily and prepare a report of each activity.

Preparatory Stage

1. Meet the subject-based mentors, collect timetables of classes III to V and develop a scheme of lessons from the syllabus to be covered during the internship.
2. Get acquainted with the school within 2-3 days. Observe classroom teaching of school teachers.
3. Plan and transact minimum 80 lessons (40+40), including 4 stray lessons (2+2). Stray lessons are class appropriate lessons on any topic(s) to be transacted by student teachers as per their convenience to build up confidence gradually. The last 5 lessons in each pedagogy course may be transacted using lesson notes.
    - Lesson plans should include activities to promote creativity, inquiry, inquisitiveness, experimentation, exploration, analytical thinking.
    - Lesson plans must promote education for sustainability, including equity, environment, global citizenship, pride and rootedness in Indian culture and character building.
4. Participate in post-lesson discussions with peers, mentor(s) and teacher educators.
5. Observe peer lessons and discuss with the group.
6. Conduct sports, arts and crafts activities.
7. Participate in student support services- guidance and counselling, clubs and bulbuls, health, and wellness programmes.
8. Create teaching-learning materials, including ICT tools for opted pedagogic courses.
9. Plan assessment, prepare material and formative and summative assessment tools, and analyze the results.
10. Prepare and conduct diagnostic tests to identify learning difficulties, analyze data and prepare learning enhancement plan.

11. Experience classes as a substitute teacher.
12. Participate in library functioning and literary activities.
13. Participate in teacher development and training activities.
14. Participate and Organize school assemblies and other events (cultural, sports, yoga, and other development activities).
15. Attend Parents-Teachers Association (PTA) meetings if held during the internship.
16. Attend School Management Committee (SMC) meeting if held during the internship.
17. Study the process of parent and community engagement for the school development programme.
18. Conduct action research /case study.
19. Prepare a sample student portfolio,
20. Write a reflective diary daily and prepare a report of each activity.

Middle Stage

1. Meet the subject-based mentors, collect timetables of classes VI to VIII and develop a scheme of lessons from the syllabus to be covered during the internship.
2. Get acquainted with the school within 2-3 days. Observe classroom teaching of school teachers.
3. Plan and transact minimum 80 lessons (40+40), including 4 stray lessons (2+2). Stray lessons are class appropriate lessons on any topic(s) to be transacted by student teachers as per their convenience to build up confidence gradually. The last 5 lessons in each pedagogy course may be transacted using lesson notes.
    - Lesson plans should include activities to promote creativity, inquiry, inquisitiveness, experimentation, exploration, analytical thinking, synthesis to understand the coherent whole, problem-solving, and application of knowledge in real-life situations.
    - Lesson plans must promote education for sustainability, including equity, environment, global citizenship, pride and rootedness in Indian culture and character building.
4. Participate in post-lesson discussions with peers, mentor(s) and teacher educators.
5. Observe peer lessons and discuss with the group.
6. Conduct laboratory activities (Atal Tinkering Lab, Science, Mathematics, Languages, Social Science, Computer), sports, and arts and crafts activities.
7. Participate in student support services- guidance and counselling, NCC, health and wellness programme.
8. Create teaching-learning materials, including ICT tools for opted pedagogic courses.
9. Plan assessment, prepare material and formative and summative assessment tools, and analyze the results.
10. Prepare and conduct diagnostic tests to identify learning difficulties, analyze data and prepare learning enhancement plan.
11. Experience classes as a substitute teacher.
12. Participate in library functioning and literary activities.
13. Participate in teacher development and training activities.
14. Organize school assemblies and other events (cultural, sports, yoga, and other development activities).
15. Attend Parents-Teachers Association (PTA) meetings if held during the internship.

16. Attend School Management Committee (SMC) meeting if held during the internship.
17. Study the process of parent and community engagement for the school development programme.
18. Conduct action research /case study.
19. Prepare a sample student portfolio,
20. Write a reflective diary daily and prepare a report of each activity.

Secondary Stage

1. Meet the subject-based mentors, collect timetables of classes IX to XII and develop a scheme of lessons from the syllabus to be covered during the internship.
2. Get acquainted with the school within 2-3 days. Observe classroom teaching of school teachers.
3. Plan and transact minimum 80 lessons (40+40), including 4 stray lessons (2+2). Stray lessons are class appropriate lessons on any topic(s) to be transacted by student teachers as per their convenience to build up confidence gradually. The last 5 lessons in each pedagogy course may be transacted using lesson notes.
    - Lesson plans should include the components to develop critical and reflective thinking, problem-solving, differential learning, synthesis, and application of knowledge in real-life situations.
    - Lesson plans must promote education for sustainability, including equity, environment, global citizenship, pride and rootedness in Indian knowledge systems and character building.
4. Participate in post-lesson discussions with peers, mentor(s) and teacher educators.
5. Observe peer lessons and discuss with the group.
6. Conduct laboratory activities (Atal Tinkering Lab, Physics, Chemistry, Biology, Mathematics, Languages, Social Science, Computer), sports, and arts and crafts activities.
7. Participate in student support services- guidance and counselling, NCC, NSS, health and wellness programme.
8. Create teaching-learning materials, including ICT tools for opted pedagogic courses.
9. Plan assessment, prepare material and formative and summative assessment tools, and analyze the results.
10. Prepare and conduct diagnostic tests to identify learning difficulties, analyze data and prepare learning enhancement plan.
11. Experience classes as a substitute teacher.
12. Participate in library functioning and literary activities.
13. Participate in teacher development and training activities.
14. Organize school assemblies and other events (cultural, sports, yoga, and other development activities).
15. Attend Parents-Teachers Association (PTA) meetings if held during the internship.
16. Attend School Management Committee (SMC) meeting if held during the internship.
17. Study the process of parent and community engagement for the school development programme.
18. Conduct action research /case study.
19. Prepare a sample student portfolio,
20. Write a reflective diary daily and prepare a report of each activity.

Suggestive Mode of Assessment:

The activities conducted / skills acquired during the internship by the student teachers will be assessed as per the following scheme:

Competence/Artifact	Method of assessment	Assessed By	Credits
Observation of classroom practices	• Observation of a Minimum of 6 lessons of School Teachers (3+3) • Observation of a Minimum of 10 lessons of Peers (5+5)	Teacher-Educator	Non-evaluative
Unit planning, Lesson Planning & Transaction	40 lessons transaction for each pedagogical subject * Unit plans and lesson plans * Minimum 2 Innovative lesson plans in each pedagogy subject (Eg: Storytelling, Drama based, Arts and crafts, Use of Technology)	Teacher-Educator, School Mentor	6.0
Assessment Planning and execution	Preparation of report on assessment plan in each lesson transacted i.e., within lesson transaction and lesson end activities. Preparation of a Blue Print (For one/two Pedagogical course/s) and preparation of Assessment tools Conduct of Unit Test & analysis of results (for both Pedagogical course/s) Development of plan for learning enhancement of students related to subjects (for both Pedagogical course/s)	Teacher-Educator, School-Mentor	1.5
Participation/Organization of assembly and other school-level activities, PTM & SMC Meetings	Observation & Interaction	School Mentor	0.5
Preparation of Logbook /Teachers diary Min 5 lessons for each pedagogical method	Review	Teacher-Educator, School Mentor	0.5
Overall feedback on student-teacher performance by School	Observation and Interaction	School Head	0.5

Head			
Test lesson (one in each pedagogical method)	Presentation	Teacher-Educator	1.0

Stakeholders Responsibilities

Role of Head of ITEP Institution

- Identification of the adequate number of internship schools
- Signing the MoU with the schools
- Sharing of mutual expectations of ITEP institutions and the participating schools
- Identification of the internship programme coordinator
- Monitor the progress of the entire School Experience Programme

Role of Teacher-Educators of the ITEP Institution

- Guide the student teachers in preparing lessons and activities, assessment, observation of lessons on peer teaching, action research, and case studies conducting school activities preparation and report writing on Teaching Learning Materials.
- Conduct pre- and post-lesson discussions regularly.
- Assess the transaction of lessons for the complete duration of the lesson in the rating proforma developed by the teacher education institute and give feedback/remarks to the student teachers for lesson improvement.
- Submission of monitoring and supervision reports to the institute in time.
- Discuss with the student teachers frequently and organize a phase-end meeting of the student teachers and mentors to assess the progress and performance of the student teachers.

Role of School Head

- To introduce the student teachers to the students and staff of the school in the assembly on the first day.
- To facilitate student teachers to take classes as per stage requirements- Foundational, Preparatory, Middle, and Secondary.
- Ensure the alignment of the timetable, scheme of lessons and plan of activities/ assignments of the student teachers to be carried out during the programme in the school.
- Countersign on the attendance register maintained by the group leader/ mentor of the school.
- Ensure that all facilities and provisions are available to the student teachers to teach their lessons and carry out their assignments smoothly.
- grant of leave applications of the student teachers in exceptional circumstances.
- Involve student teachers in different activities of the school.
- Facilitate phase-end meetings of the student teachers and the mentors to assess the progress and removal of difficulties.
- Countersign/ certify the report/ documents of the activities/ assignments conducted by the student teachers towards the end of the internship programme.
- Provide input about student-teacher performance.
- Provide suggestions for improvement of the programme to the ITEP institution

Role of Mentors

- Guide student teachers to prepare detailed lesson plans, brief lesson notes and plans of activities/ assignments to be conducted by them in school.
- Review the lesson plan before a student-teacher transacts the lesson in the class.
- Observe the classes of student teachers.
- Assess each lesson on the prescribed proforma and write remarks in the lesson plan book provided by the student teachers.
- Give feedback continuously to the student teachers for their improvement in their teaching and other curricular activities.
- Conduct post-lesson discussions regularly.
- Countersign in the peer-teaching observation schedules after their observations in the classroom.
- Organize frequent meetings with the student teachers and supervisors to discuss the progress, difficulties faced, and experience gained by student teachers.

Role of Student-Teacher

- Report to the school head of the participating school at least one day before the start of the internship placement.
- Seek information about the classes, timetable, and topics to teach in stage-specific pedagogic courses from the mentors on the first day of the internship programme.
- Mark your attendance as per the school practice.
- Plan all the assignments/ activities with the help of the mentor/ supervisors.
- Seek cooperation from mentors and supervisors in case of difficulty.
- Prepare the lesson plan and get approval from the mentor/ supervisor before transacting every lesson.
- Take classes according to the timetable of the participating school.
- Take substitute classes and participate in other school duties assigned by the school.
- Follow the conduct and dress code of the participating school.
- Get prior leave approval from the head of the participating school in case of emergency.
- Maintain a diary and regularly list all the innovations, challenges faced and reflections for improvement.
- Check with your mentor before attempting learning activities that depart from routine classroom procedures.
- Carry out the activities you plan for school students according to your approved plans.
- Maintain cordial relationships with the students and staff of the school.
- Refrain from making negative comments about the school or the school's personnel, especially when talking with fellow student teachers.
- Submit student teaching profiles, one each, to the supervisor and mentor who supervises your teaching.
- Before the completion of the internship programme, make sure to return all textbooks and materials to the school.

SE 801: Post Internship

Credit: 2

Semester: S-8

About the Course

After successful completion of internship programme in 7th semester, student teachers compile the learnings, discuss with peers about their experiences, reflect on the experiences, refine the artifacts developed during internship and prepare comprehensive internship report during post internship in 8th semester.

Learning Objectives

After completion of the activities, the student teachers will be able to:

- develop comprehensive understanding of the school ecosystem,
- describe their learning from internship with the peers and teacher educators,
- reflect on school internship sharing learning experiences on each activity undertaken.

Suggestive Mode of Transaction

- Discussion
- Presentation, Gallery walks and Exhibition.
- Report Writing Activities:

Experience Sharing and Reflective Learning

- Presentation of reflective journal summary
    - My Learning Journey: by each student-teacher
- Gallery walks (Exhibition): TLMs, display of participation in school activities (photos/stories) and other artefacts created during the internship by student teachers.
- Sharing of best practices (PPTs, Videos.)
- Survey and collect the local stories and rhymes from the parents and community (in the context of the foundational stage)
- Holding a training workshop for the parents and community and encouraging them to act as volunteers.
- Awareness and advocacy programme in FLN for parents and community: Role play with parents and community on conducting specific FLN activities.
- Organizing a parents /community mela/fair on homemade TLM for FS children

Submission of Internship Report

- Reflective Journal
- Lesson Plans and TLMs
- Observation records (Teacher Educator, Mentor, school heads, Teachers, Parents)
- Assessment records and Student Portfolio
- Action research report/case study
- Comprehensive internship report.

Suggestive Mode of Assessment

Competence/Artifact	Method of assessment	Assessed By	Credits
Artefacts created during the internship. My Learning Journey	Exhibition & Presentation	Teacher-Educator	1
Comprehensive Internship Report	Review	Teacher-Educator	1

Learning Outcomes

The student teachers will be able to:

- demonstrate/Exhibit/Manifest comprehensive understanding of the school ecosystem.
- reflect on school internship experiences in a report.
- share their learning from school internship with the peers and teacher educators.

SE 802: Creating Teaching Learning Material (TLM)/Work Experience

Credit: 2

Semester: S-8

About the Course

Having developed an understanding of education's philosophical, sociological, and psychological perspectives and gained hands-on experiences from pre-internship school observation and internship phases, the student teachers have developed a comprehensive understanding of education. By utilizing these experiences and understanding, the Student teachers will be in a position to develop/create Teaching Learning Materials (in various forms, Programed Learning Materials, Educational videos, teachers' handbooks, flashcards, story books, toys, games, posters, collages, innovative lesson plans using different pedagogies, to mention a few) which in turn may be helpful to both the school students with whom he/she has interacted during school experiences and the student teachers. Schools provide a systematic teaching environment for the learners to acquire the knowledge, skills and attitude required to meet the varied aspirational needs and educational goals. Work experience fosters basic knowledge, skills and disposition among the students that prepare them to think of becoming skilled entrepreneurs. To orient the school students on work education, the student teachers need exposure to visit the local vocational artisans, crafts person and entrepreneurs and prepare learning resources to enhance their professional skills and competencies. Teaching Learning Materials of good quality with (i) innovations, (ii) the use of low-cost materials, (iii) local context and (iv) modern technology (for digital learning materials) will enhance students' engagement, interest, and practical learning.

Learning Objectives

After completion of the activities, the student teachers will be able to:

- Assess the need for Teaching Learning Materials and prepare innovative TLM,
- Develop an understanding of the importance of work experience and competencies of a local crafts person, artisans and entrepreneurs,

Suggestive Mode of transaction

- Workshop
- Group discussion
- Field visits and interaction
- Analysis of existing local-specific learning resources, toys
- Exhibition of TLM and presentation of reflective reports on the use of learning resources, including toys.

Content

- Understanding how students learn at different stages.
- Knowledge of toys and other TLMs from different parts of the countries
- Knowledge of relevant TLMs for specific groups of children- CWSN, kinesthetic learners, visual learners, auditory learners addressing individual differences.

Activities to be conducted.

The following are a few suggestive activities:

- Orientation workshop on work experience and development of learning resources
- Field visit for interaction with local artisans, craftspeople, and entrepreneurs.
- Observe Traditional work practices and their integration into Local Technologies and Ideas.
- Analysis of available local specific, indigenous learning resources, including toys and their use in the learning-teaching process
- Development of at least two low-cost learning resources as per the local contexts (foundational/preparatory/middle/secondary) and presentation/exhibition
- Prepare the manual of TLM highlighting the objectives that will be achieved by its use, the material used, the process of its development and its use during classroom transaction.

Suggestive Mode of Assessment

Assessment			
Competence/Artifact	**Method of assessment**	**Assessed By**	**Credits**
TLM developed	Presentation /Exhibition	Teacher Educators (panel of three experts including an external expert)	1.5
Manual	Presentation	Teacher Educator	0.5

Outcomes

The student teachers will:

- demonstrate the use of TLM for enhanced learning,
- explain the importance of work experience and competencies of local crafts person.

STRUCTURE OF ITEP, B.SC./B.A./B.COM. -B.ED. IN THE SUBJECT OF COMMUNITY ENGAGEMENT AND SERVICE

SEM.	PAPER CODE	TITLE	CREDITS
V	CES-801	COMMUNITY ENGAGEMENT AND SERVICE (PARTICIPATION IN NSS- RELATED ACTIVITIES, NEW INDIA LITERACY PROGRAMME ETC.)	01+01=02

CES 801: CURRICULAR COMPONENT: COMMUNITY ENGAGEMENT AND SERVICE

(This component is common to student teachers across Stage Specialization)

Credits: **2**

Semester: **S-8**

About the Course

The curricular component of 'community engagement and service' seeks to expose student teachers to the socio-economic issues in society and community-supported development activities so that classroom learnings can be supplemented by life experiences to generate solutions to real-life problems. This course is designed to develop insights into the functions of the community, enhance the ability of student teachers to enlist community support to and participation in school-related activities, make the community aware of the importance of education, issues associated with schooling, gender inequity, health & wellness of children, initiatives for supporting lifelong education etc. It aims at sensitizing the student teachers to initiate actions with the support of the community members to address the social, cultural and educational problems, and develop social leadership skills through community service. The component seeks to enable student teachers to be acquainted with various community development initiatives and organize activities such as street plays, advocacy activities, door-to- door campaigns, and prabhat-pheris etc. to mobilize community participation in development initiatives.

This curricular component envisages participation of student-teacher in activities undertaken under the National Service Scheme (NSS), New India Literacy Programme, Student the mentoring initiatives, etc. Some of the activities include: Survey of community resources for participation in different school activities, Study of the situation with regard to school dropout and the reason thereof (Stage wise); Survey of a specific settlement to study the socioeconomic and educational status; Survey of non-literates in a specific settlement, including identification of 4-5 non-literate adults who will be supported by student teachers to become literate; training of local youth in First-Aid and other relevant activities; assessment of the situation with regard to Health and wellness of children in a locality, creating awareness of the importance of sustainable development, making the community members aware of the importance of environmental protection, creating awareness of rainwater harvesting, mentoring school students with learning deficits, guidance and counselling to school students etc.

Learning Outcomes

On successful completion of the 'Community Engagement and Service' programme, the student-teacher should be able to:

- recognize the socio-economic issues in the community and identify initiatives that could help solve problems faced by the community,
- demonstrate an awareness of the functions of the community, and the measures required for enlisting community participation in school-related activities,
- undertake initiatives that are required to make the community aware of the importance of education, issues associated with schooling, gender inequity, health & wellness of children, illiteracy among youth and adults in the community etc.,

- suggest actions in collaboration with community members to address the social, cultural and educational problems in the community,
- organize activities such as *street plays*, *advocacy activities*, *door-to-door campaigns, and prabhat-pheris* etc. to mobilize community participation in development initiatives,
- demonstrate social leadership quality through community services,
- organize interactions between schools and local communities for generating solutions to problems such as dropout and learning deficits,
- facilitate partnerships between local communities to enhance participation of the community in school-related activities such as PTA meetings,
- recognize the fault lines of the society, such as casteism, social taboos and superstitions etc. and work towards bridging them to establish harmony in the society,
- demonstrate positive feelings towards the local community and appreciate traditional knowledge and practices,
- Recognize the values of public service and active citizenship.

Approach to curriculum transaction

The student teachers will be provided opportunities to have exposure to community life for ten days in total, two days in Preparation for Community Engagement & Service in the institution, seven days working with the community, and the last day in the institution for sharing their experiences and reflections. The activities may be conducted in groups or individually as appropriate.

Days 1-2: Preparation for community services (In the institution)

- Orientation of student teachers on Community Engagement & Services through discussion and group activities.
- Workshop for developing tools for different activities during the programme.

Days 3-9: Engagement with the community (Mandatory onsite stay with the community)

Students will be divided into smaller groups; They would participate in the planned activities with defined roles for seven days on a rotation basis. These activities include:

- participation of student teachers in activities undertaken under the National Service Scheme (NSS), New India Literacy Programme, Student mentoring initiatives, etc.
- Survey of community resources for supporting school activities.
- Study of the situation regarding school dropout and the reason thereof (Stage wise).
- Survey of specific settlement to assess the situation about non-literates in the settlement, including identification of 4-5 non-literate youth and adults who will be supported by student teachers to become literate,
- Training of local youth in First Aid and other relevant interventions,
- Assessment of the situation about Health and wellness of children in a locality,
- Creating awareness of the importance of sustainable development, and making the community members aware of the need to support initiatives to ensure environmental protection, creating awareness of rainwater harvesting, mentoring school students with learning deficits, guidance and counselling to school students etc.)
- Visit and interact with local artisans and craftsperson.

The above activities typically will include working with the community, collecting data, playing local games, community awareness programmes like nukkad natak, rallies, organizing and participating in the cultural programmes with the community members etc.
The student teachers shall conduct different pre-scheduled activities throughout the day. Morning sessions will be used for activities with the community and data collection. The afternoon session will be devoted to data analysis and preparation of the report, and participation in games & sports activities. Evening session will involve cultural activities with community members.

Day 10: Feedback session and Reflection (: In the Institution)

- Sharing experiences and discussion on activities carried out.
- Presentation and submission of report of the activities carried out.
- Evaluation of the activities by collecting feedback on the effectiveness of the campaign from the mentor and the students.
- Reflection of experience (individual/group) of organizing community service

Assessment components and weightage

- Involvement and active participation in activities relating to Community Engagement and Service: (Assessment method: Observation by teacher educator, teacher and community members); Weightage: 75%; Assessed by the teacher educator, teacher and community members),
- Group Report & Reflections: Method of assessment: Presentation by student teachers); Weightage: 25% (Assessed by Teacher Educator)

Suggestive Links

- Ministry of Education (2021).Vidyanjali: Guidelines for Promoting Community and Voluntary Participation for Enhancing Quality School Education, Government of India. https://vidyanjali.education.gov.in/assets/pdf/Final_Guidelines_Vidyanjali_%20December.pdf
- RIE Bhubaneswar (2020). Handbook on Field Engagement in Pre-service Teacher Education, Bhubaneswar, Regional Institute of Educati