शिक्षा संकाय
कुमाऊँ विश्वविद्यालय
पाठ्यक्रम समिति 2023

दिनांक 6 जनवरी 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.

Curricular Structure of four year Integrated Teacher Education Programme

ITEP Structure												
S.No.	**Curricular component**	**Courses**	**Credits per Semester**								**Total Credits per course**	**Total credits**
			S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8		
1.	1.Student Induction Programme	Two week student induction programme		-	-	-	-	-	-	-	-	-
2.1	2.Foundation of Education	Evolution of Indian Education	4	-	-	-	-	-	-	-	4	30
2.2		Child Development and Educational Psychology	-	-	4	-	-	-	-	-	4	
2.3		Philosophical and Sociological Perspectives of Education-I	-	-	-	4	-	-	-	-	4	
2.4		Assessment and Evaluation	-	-	-	-	-	2	-	-	2	
2.5		Inclusive Education	-	-	-	-	-	2	-	-	2	
2.6		Perspectives on School leadership and management	-	-	-	-	-	-	2	-	2	
2.7		Curriculum Planning and Development (text books material development etc.)-(Stage specific)	-	-	-	-	-	-	2	-	2	
2.8		Philosophical and Sociological Perspectives of Education-II	-	-	-	-	-	-	-	4	4	
2.9		Education Policy Analysis	-	-	-	-	-	-	-	2	2	
2.10		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,	-	-	-	-	-	-	-	4	4	

		Sports and fitness education, Tribal education, Economics of Education, or any other relevant course decided by the university/Institution)											
3.1	3.Disciplinary/ Inter-disciplinary courses	One/two discipline(s) from any of the school curricular areas. (i)Languages (ii)Physical Sciences (Physics, Chemistry etc.) (iii)Biological Sciences (Zoology, Botany, etc.) (iv) Mathematics (v) Social sciences & Humanities (Economics, History, Geography, Psychology, Political Science etc.) (vi) Business studies, Accountancy, etc. (vii) Arts (visual and performing) (viii) Physical Education and yoga (ix) Vocational Education (x) Computer science (xi) Agriculture (xii) Home science (xiii) Any other school subject	8	12	12	12	12	8	-	-	64	64
4.1	4.Stage-specific Content-cum-Pedagogy	Stage-Specific Content-cum-Pedagogy Courses	-	-	4	4	4	4	-	-	16	16
5.1	5. Ability Enhancement &Value-Added Courses	Language-I (as per the 8th schedule of constitution of India)	4	-	-	-	-	-	-	-	4	28
5.2		Language-II (Other than language I)	-	4	-	-	-	-	-	-	4	
5.3		Art Education (Performing and Visual)	2	-	-	-	-	-	2	-	4	
5.4		Understanding India (Indian Ethos and Knowledge systems)	2	2	-	-	-	-	-	-	4	

5.5		Teacher and society	-	2	-	-	-	-	-	-	2	
5.6		ICT in Education	-	-	-	-	2	-	-	-	2	
5.7		Mathematical and Quantitative reasoning	-	-	-	-	-	2	-	-	2	
5.8		Sports, Nutrition and Fitness	-	-	-	-	-	-	2	-	2	
5.9		Yoga and Understanding self	-	-	-	-	-	-	-	2	2	
5.10		Citizenship education, Sustainability and environment education	-	-	-	-	-	-	-	2	2	
6.1	6. School Experience	Pre-internship Practice (Demonstration lesson, Peer teaching)	-	-	-	-	2	-	-	-	2	20
6.2		School Observation (Field Practice)	-	-	-	-	-	2	-	-	2	
6.3		School-based Research Project	-	-	-	-	-	-	2	-	2	
6.4		Internship in Teaching	-	-	-	-	-	-	10	-	10	
6.5		Post Internship (Review and Analysis)	-	-	-	-	-	-	-	2	2	
6.6		Creating Teaching Learning Material/Work Experience (Education Toy making, local/traditional vocational, etc.)	-	-	-	-	-	-	-	2	2	
7.1	7. Community Engagement and Service	Community Engagement and Service (Participation in NSS-related activities, New India Liberty Programme etc.)	-	-	-	-	-	-	-	2	2	2
		Total	20	20	20	20	20	20	20	20		160

Course Structure and Scheme of Examination

SEMESTER I

Courses	Paper Code	Course/Paper	Periods per week	Credits	Total Credits	External	Internal	Max. Marks	Exam Duration
SIP	SIP	Induction Programme for Two Week	-	-	-	-	-	-	-
FE	FE-101	Evolution of Indian Education	3+1	4	4	70	30	100	3 Hrs.
Disciplinary/Interdisciplinary Courses	PHY-101	Mechanics	3+3+2	4+4	8	70	30	100	3 Hrs.
	PHY-102	Electricity				70	30	100	3 Hrs.
	MTH-101	Sets, Theory of Equations and Trigonometry	3+3+2	4+4	8	70	30	100	3 Hrs.
	MTH-102	Vector Calculus and Matrices				70	30	100	3 Hrs.
	CHE-101	Fundamentals Of Chemistry-I (Inorganic & Physical Chemistry)	3+3+2	4+4	8	70	30	100	3 Hrs.
	CHE-102	Fundamentals Of Chemistry-II (Organic Chemistry)				70	30	100	3 Hrs.
	BOT-101	cytology, microbes and fungi	3+3+2	4+4	8	70	30	100	3 Hrs.
	BOT-102	algae, bryophytes and pteridophytes				70	30	100	3 Hrs.
	ZOO-101	Animal Diversity I	3+3+2	4+4	8	70	30	100	3 Hrs.
	ZOO-102	Animal Diversity II				70	30	100	3 Hrs.
	ENG-101	Introduction to English Prose-Fiction	3+3+2	4+4	8	70	30	100	3 Hrs.
	ENG-102	Introduction to English Prose-Non-Fiction				70	30	100	3 Hrs.
	HIN-101	प्राचीन एवं मध्यकालीन काव्य भाग–1	3+3+2	4+4	8	70	30	100	3 Hrs.
	HIN-102	प्राचीन एवं मध्यकालीन काव्य भाग–2				70	30	100	3 Hrs.
	POL-101	Basic Concepts of Political Science (Part: I)	3+3+2	4+4	8	70	30	100	3 Hrs.
	POL-102	Basic Concepts of Political Science (Part: II)				70	30	100	3 Hrs.
	SOC-101	Introductory Sociology	3+3+2	4+4	8	70	30	100	3 Hrs.
	SOC-102	Man and Society				70	30	100	3 Hrs.

	HIS-101	History of India (Earliest time to 600 BC)	3+3+2	4+4	8	70	30	100	3 Hrs.
	HIS-102	History of India (600 BC to 300 AD)				70	30	100	3 Hrs.
	ECO-101	Basics of Macro-Economic	3+3+2	4+4	8	70	30	100	3 Hrs.
	ECO-102	Economy of Uttarakhand				70	30	100	3 Hrs.
	COM-101	Financial Accounting	3+3+2	4+4	8	70	30	100	3 Hrs.
	COM-102	Business Regulatory Framework				70	30	100	3 Hrs.
Ability Enhancement & Value-Added C	AEVA-101	Language-I	3+1	4	4	70	30	100	3 Hrs.
	AEVA-102	Art Education (Performing and Visual)	1+1	2	2	35	15	50	2 Hrs.
	AEVA-103	Understanding India (Indian Ethos and Knowledge System)	1+1	2	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	Periods per week	Credits	Total Credits	External	Internal	Max. Marks	Exam Duration
Disciplinary/Interdisciplinary Courses Disciplinary/Interdisciplinary minor Courses	PHY-201	Theory of oscillation and waves	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	PHY-202	Magnetism				70	30	100	3 Hrs
	PHY-203	Basic physics-i (for those students who do not have physics as a major)				70	30	100	3 Hrs
	MTH-201	Analytical Geometry	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	MTH-202	Analytical Geometry				70	30	100	3 Hrs
	MTH-203	Mathematics- i				70	30	100	3 Hrs
	CHE-201	Fundamentals of Chemistry-I (Inorganic & Physical Chemistry)	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	CHE-202	Fundamentals of Chemistry-II (Organic Chemistry)				70	30	100	3 Hrs
	CHE-203	Basics Of Chemistry				70	30	100	3 Hrs
	BOT-201	Gymnosperms and taxonomy of angiosperms	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	BOT-202	Plant Physiology and ecology				70	30	100	3 Hrs
	BOT-203	Plant Science				70	30	100	3 Hrs
	ZOO-201	Lower Chordata	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	ZOO-202	Higher Chordata				70	30	100	3 Hrs
	ZOO-203	Environmental Science				70	30	100	3 Hrs

	ENG-201	History Of English Literature (Chaucer To Restoration Period)	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	ENG-202	History Of English Literature (Augustan To Postmodern Period)				70	30	100	3 Hrs
	ENG-203	Creative Writing				70	30	100	3 Hrs
	HIN-201	हिन्दी कथा साहित्य भाग–1	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	HIN-202	हिन्दी कथा साहित्य भाग–2				70	30	100	3 Hrs
	HIN-203	कुमाऊँनी संस्कृति एवं भाषा				70	30	100	3 Hrs
	POL-201	Comparativepolitics	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	POL-202	Major constitutions of the word				70	30	100	3 Hrs
	POL-203	Awareness With Civic Rights				70	30	100	3 Hrs
	SOC-201	Indian Social System	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	SOC-202	Society in India				70	30	100	3 Hrs
	SOC-203	Industrial Sociology				70	30	100	3 Hrs
	HIS-201	History of India (300ad to 800ad)	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	HIS-202	History of India (800AD to 1200AD)				70	30	100	3 Hrs
	HIS-203	Indian Society and Culture Through the Ages				70	30	100	3 Hrs
	ECO-201	Basics of Macro-economics	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	ECO-202	Economy of Uttarakhand				70	30	100	3 Hrs
	ECO-203	Fundamentals of Economics				70	30	100	3 Hrs
	COM-201	Business statistics	3+3+3+3	4+4+4	12	70	30	100	3 Hrs
	COM-202	Business Environment				70	30	100	3 Hrs
	COM-203	Business Organization &				70	30	100	3 Hrs

		Management							
Ability Enhancement & Value-Added Courses	AEVA-201	Language-II	3+1	4	4			100	3 Hrs.
	AEVA-202	Understanding India (Indian Ethos and Knowledge System)	1+1	2	2	35	15	50	2 Hrs.
	AEVA-203	Teacher and Society	1+1	2	2	35	15	50	2 Hrs.
Total Credits				20		Total Marks 500			

SEMESTER	TOTAL CREDITS	TOTAL MARKS
I	20	500
II	20	500

SEMESTER

I

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-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: II-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
- National values and national integration, international Understanding Globalisationprivatisation and liberalisation.

Unit: III-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.
- Education in Independent India, constitutional provisions for Education: specific provision for Education.
- Education for Fundamental Rights and duties.

Unit: IV-Indian Thinkers and their Educational Contribution

- Rabindranath Tagore, Swami Vivekanand, Mahatma Gandhi, Dr. Bhim Rao Ambedkar, GujjubhaiBadheka and Bhaktdarshan
- 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 भरातीय समाज में शिक्षक N.R.Swaroop Saxena
- शिक्षा केंदार्शनिक एवं समाजशास्त्रीय आधार रमन बिहारीलाल
- भारतीय शिक्षा की समस्याऐं P.D Pathak
- History of Education in India R.N. Sharma
- अधिगम एवं शिक्षण डा0 योगेश कुमार

PHYSICS

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.
6. To investigate the Motion of Coupled Oscillators.
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**.**

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.

CHEMISTRY

CHE 101: FUNDAMENTALS OF CHEMISTRY-I

(Inorganic & Physical Chemistry)

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 our 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; atomic spectrum of hydrogen atom: de Broglie concept. Heisenberg uncertainty principle; its significance. Atomic orbitals, Schrödinger wave equation (no derivation); significance of wave function. 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 behavior 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. Molecular velocities: Root mean square, average and most probable velocities.

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

Solid State: Introduction to crystalline materials, Definition of space lattice, unit cell, Miller indices, Laws of crystallography – (i) law of constancy of interfacial angles (ii) law of rationality of indices (iii) law of symmetry. X-ray diffraction by crystals. Bragg's equation.

Colloidal State: Definition of colloids, classification of colloids. Solids in liquids (sols): properties – kinetic, optical and electrical; stability of colloids.

Suggestive 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.

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
(Organic Chemistry)

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 analyze 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: Structure and bonding, Hybridization, Bond length and bond energy, localized and delocalized chemical bonding, aromaticity, Hydrogen 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. Energy considerations. Reactive intermediates- carbocations, carbanions, free radicals, carbenes, arynes and nitrenes (with examples).

UNIT III: Stereochemistry of Organic Compounds:

Types of isomerism- optical isomerism- elements of symmetry, molecular chirality, enantiomers, stereogenic centers, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogenic center, diastereomers, threo and erythro diastereomers, meso compounds, inversion, retention and racemization. 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.

Suggestive 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.

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, Plannedlectures 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

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.andRoberts,K.(2014).MolecularBiology of the Cell. CRCP ress, Taylor &Francis Group, USA.; 1464pages
- Cooper, G.M.and Hausman,R.E.(2009).TheCell:AMolecularApproach.5thedition.ASMPress and Sunderland,Washington, D.C.; SinauerAssociates, MA.
- DeRobertis,E.D.P.andDeRobertis,E.M.F.(2006).CellandMolecularBiology.8thedition.Lippincott Williams and Wilkins,Philadelphia.
- Karp,G.(2010).CellandMolecularBiology:ConceptsandExperiments.6thEdition.JohnWileyandSons.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.

ZOOLOGY

ZOO 101: PAPER -I: 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, Coelentrarta, Ctenophora, Platyhelminthes and Nemathelminthes.
Learning objective

1. The student teacher will be able to understand the Animal diversity around us.
2. The student teacher will be able to understand the underlying principles of the classification of animals.
3. The student teacher will be able to understand the terminology needed in classification.
4. The student teacher will be able to understand the differences and similarities in the various aspects of classification.
5. The student teacher will be able to draw nervous system of earthworm.
6. The student teachers will be able to prepare themselves for teaching in school, colleges and universities.

Unit - I
Salient features and outline classification (up to orders) of various Non-Chordata Phyla (from Protozoa to Nemathelminthes).
Protozoa: Type study of Paramecium and Euglena 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
Coelenterata: Type study of Aurelia and Obelia concerning structure, reproduction, and development. Polymorphism in Coelenterata. 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.
Nemathelminthes: Type study of Ascaris lumbricoides concerning structure, reproduction, and development.
Practical/ Practicum

1. Study of living animals: Amoeba, paramecium, Euglena, Hydra, and rectal ciliates.
2. Permanent preparation of Obelia colony.
3. Study of permanent slides/museum specimens/models belonging to the following phyla; **Protozoa**: Amoeba, Paramecium, Euglena, Ceratium 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, Alcyonium, Adamsia.
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.
   Life Cycle of the following: - Entamoeba, T. solium, A. lumbricoides, F. hepatica, Schistosoma

Suggestive 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: PAPER -II: ANIMAL DIVERSITY II

Credit: 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, Arthropoda, 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 identify the mouth parts of cockroach.
- The student teachers will be able to prepare themselves for teaching in schools colleges and universities.
- The student teacher will be able to draw a life cycle of mosquito and housefly.

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-I

Arthropoda: Type study of Palaemon- External features and reproduction. Peripatus- Its distribution and Zoological importance. Type study of Cockroach concerning habitat and habits, external features, mouth parts.

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.

Suggestive Practical:

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;
4. Annelida: T.S. of earthworm and Nereis through different body regions. Neries Heteronereis, Arenicola, Chaetopterus, setae in situ, pharyngeal and septal nephridium of Earthworm.
5. Arthropoda: Mouthparts of insects, Pupa and larva of mosquito Daphnia Cyclops and larval stages of Crustaceans. Crab, hermit crab, Lepas, Balanus, Astaxus, Squilla, millipede, mantis, cricket, stick insect, waterbug, beetle, locust, moth and butterfly, scorpion, spider, king crab, and peripatus.
6. Mollusca: Various larval stages, T.S. of Unio through gills; Chiton, Doris, Aplysia, Aeolis, Dentalium, Octopus, Loligo, Sepia, Nautilus, Teredo, Ostera, Pecten.
7. Echiodermata: Various larval stages, T.S. of an arm of starfish; Echinus, Ophiothrix, 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, gill radula and ospharadium of Pila, salivary glands, mouth parts, and trachea of cockroach; gill lamina of Unio, statocyst, and hastate plate of prawn.

Suggestive 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.

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

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

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 रहाहै।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 होताहै।शिक्षार्थी को राष्ट्र की सर्वप्रमुख भाषा हिन्दी के अत्यन्त समृद्ध साहित्य के सम्पूर्ण स्वरूप का ज्ञान 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 जिस के आलोक में पाठ्यक्रम के अन्तर्गत मुख्य विषय के रूप में प्राचीन एवं मध्य कालीन भक्ति परक 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 आदि कालीन वीर काव्य का सैद्धान्तिक परिचय व ज्ञान सोदाहरण प्राप्त करता है।

Unit-I

प्राचीन हिन्दी काव्य : परिचय एवं इतिहास

Unit-II

भक्तिकालीन हिन्दी काव्य : भक्ति आन्दोलन, प्रमुख सिद्धान्त, निर्गुणकाव्य–ज्ञानमार्ग, प्रेममार्ग, सगुनकाव्य–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 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।

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।

सुझावात्मकपाठ्य पुस्तकः

प्राचीन एवं भक्तिकालीन काव्य संपा0 डॉ0 मानवेन्द्रपाठक, अंकितप्रकाशन, हल्द्वानी (व्याख्या हेतु संतुलित काव्य)

कबीर : एक नई दृष्टि– डॉ0 रघुवंश, लोकभारती, 15–ए, महात्मा गॉधी मार्ग, इलाहाबाद।

HIN-102: प्राचीन एवं मध्यकालीन काव्य भाग–2

Credit: 03+01=04

अधिकतमअंक: 70+30=100

अधिगम प्रतिफल:

- शिक्षार्थी निर्गुण काव्यधारा व संत साहित्य का सैद्धान्तिक परिचय व ज्ञान सोदाहरण 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 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–पुस्तकें:

- प्राचीन एवं भक्तिकालीन काव्य संपा0 डॉ0 मानवेन्द्र पाठक, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संतुलित काव्य)
- कबीर : एक नई दृष्टि– डॉ0 रघुवंश, लोकभारती, 15–ए, महात्मा गॉधी मार्ग, इलाहाबाद।
- जायसी : एक नई दृष्टि– डॉ0 रघुवंश, लोकभारती, इलाहाबाद।
- जायसीतर हिंदी सूफी कवियों की बिम्ब योजना–डॉ. मृदुलाजुगरान, सरिता बुक डिपो, नई दिल्ली।
- जायसी–विजयदेव नारायण साही ; हिंदुस्तानीअकादमी, इलाहाबाद।

POLITICAL SCIENCE

POL 101: BASICCONCEPTS OF POLITICAL SCIENCE PART-I

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 relevantforanyindepthstudyandresearch.

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, Civil Society: Definitions, Elements

UNIT III:

Theories of the Originof 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 PoliticalScience (HindiandEnglish)
2. AndrewHeywood-PoliticalTheory
3. BhargavRajeevAcharyaAshokPoliticalTheory|AnIntroduction to Political science, PearsonEducation India, 2008, (1st edition)
4. E. Ashirvadam-Political Theory (Hindi and English)
5. H.J.Laski-GrammarofPolitics(HindiandEnglish)
6. MadanGandhi-ModernPoliticalTheory
7. OPGauba-An Introduction to Political Theory (HindiandEnglish)
8. Roskin, Michael G., Robert L. Cord, James A. Medeiros and Walter S. Jones"Political Science: AnIntroduction"Pearson Educationuk, 2019, (14thedition)
9. SushilaRamaswamy-PoliticalTheory
10. वीरकेश्वरप्रसादः राजनीतिक शास्त्र के मूलसि्द्धान्त
11. Khosla, Madhav, et al. 2016. The Oxford Handbook of the Indianconstitution.Newdelhi
12. Benegal, Shyam.2014. Samvidhan. RajyaSabhaTV

POL 102: BASICCONCEPTSOFPOLITICALSCIENCEPART: II

Credit: 03+01=04

Maximum Marks: 70+30=100

Learning Outcome:

After studying the following units 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, RepresentationandParticipation

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 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-AnInroductiontoPoliticalScience(HindiandEnglish)
2. AndrewHeywood-PoliticalTheory
3. BhargavRajeevAcharyaAshokPoliticalTheory|An Introduction to Political science, PearsonEducation India,2008, (1st edition)
4. E.Ashirvadam-PoliticalTheory(HindiandEnglish)
5. H.J.Laski-GrammarofPolitics(HindiandEnglish)
6. MadanGandhi-ModernPoliticalTheory
7. OPGauba-An Introduction to Political Theory (HindiandEnglish)
8. Roskin, Michael G., Robert L. Cord, James A. Medeiros and Walter S. Jones"Political Science: AnIntroduction"Pearson Educationuk, 2019, (14thedition)
9. SushilaRamaswamy-PoliticalTheory
10. वीरकेश्वरप्रसादः राजनीतिक शास्त्र के मूलसि्द्धान्त
11. Khosla, Madhav, et al. 2016. The Oxford Handbook of the Indianconstitution.Newdelhi
12. Benegal, Shyam. 2014. Samvidhan. RajyaSabhaTV

SOCIOLOGY

SOS101: 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",OxfordUniversityPress,London,2006
- MacIver and Page, "Society", McMillan, London, 1949
- Inkeles, A, "WhatisSociology", Prentice HallofIndia, 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

SOS102: 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 & Civilization

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

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 all aspects 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 there by enabling us to study continuity and changes that are taking place over a time. It is an act of both investigation and imagination that seeks to explain how people changed over time. Historians use all forms of evidence to examine, interpret, revisit and reinterpret the past. These include not just written documents, but also oral communication and objects such as buildings, artifacts, photographs and paintings. Historians are trained in the method of discovering and evaluating these sources and the challenging task of making historical sense out of them. Historical discourse gives an understanding of the past which enables us to appreciate our present and shape our future. Besides, history provides background 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, 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, 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

- सर मार्टिमर व्हीलर, पृथ्वी से पुरातत्व, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चानना, देवराज. प्राचीन भारत में दास प्रथा, हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- गार्डनचाइल्ड, वी0 एच0. प्राचीनतम प्राच्य सभ्यता पर नया 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.

Suggested Online Link:
https://ndl.iitkgp.ac.in
https://epustakalay.com
https://archive.org
https://ignou.ac.in
www.cec.nic.in

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
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- शर्मा, रामशरण. प्रारम्भिक भारत का आर्थिक और सामाजिक इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- झा, द्विजेन्द्र नारायण एवं श्रीमाली, 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

- सर मार्टिमर व्हीलर, पृथ्वी से पुरातत्व, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चानना, देवराज. प्राचीन भारत में दास प्रथा, हिन्दी माध्यम कार्यान्वयन निदेशालय,दिल्ली.
- गार्डनचाइल्ड, वी0 एच0. प्राचीनतम प्राच्य सभ्यता पर नया 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.

Suggested Online Link:

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https://epustakalay.com
https://archive.org
https://ignou.ac.in

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. 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, उच्चआर्थिकसिद्धान्त, वृन्दापब्लिकेषन, नईदिल्ली।

- आहूजा,एच0 एल0, उच्चतरआर्थिकसिद्धान्त, 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, उच्चआर्थिकसिद्धान्त, वृन्दापब्लिकेषन, नईदिल्ली।
- आहूजा,एच0 एल0, उच्चतरआर्थिकसिद्धान्त, एस0 चाँद, नईदिल्ली

COMMERCE

COM 101: FINANCIAL ACCOUNTING

Credits:03+01=04

Maximum Marks: 70+30=100

About the course:

Learning objectives:

The objective of this paper is to help students to acquire conceptualknowledgeoffundamentalsofaccountingandtoimpartskillsforrecordingvarious kindsofbusinesstransactions.

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.

Installment 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 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.

SuggestedReadings:

1. Jain&Naranag, "AdvancedAccounts",18thEdition, Reprint (2014)
2. Gupta,R.L. &Radhaswamy,M.,FinancialAccounting:SultanChandandsons.
3. Shukla,M.C.,Grewal T.S.&Gupta,S.C.,AdvancedAccounts:S.Chand&Co.
4. MaheshwariS.N.&MaheshwariS.K,"AtextbookofAccountingforManagement",VikasPublication,10th Edition(2013)
5. Shukla,S.M.,FinancialAccounting,Edition:55th,SahityaBhawanPublications,2021
6. Gupta.R.LandShukla,M.C.,"PrinciplesofAccountancy",S.Chand&CompanyLtd.,(2011)

7. Arulanandam, M.A. & Raman, K.S., "Advanced Accounting", Vikas Publishers, (2010).

Note-Latesteditionofthe textbooksshouldbe used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

COM 102:BUSINESS REGULATORY FRAME WORK

Credits:03+01=04

Maximum Marks: 70+30=100

Learning outcomes:

Theobjectiveofthiscourseistoprovideabriefideaaboutthe frameworkofIndianContractAct,1872, NegotiableInstrumentAct, Competition Act, 2002andSaleofGoodsAct,1930.

UNIT I:

IndianContractAct, 1872: Definition& Nature of Contract, Classification; Offer & Acceptance; Capacity of Parties; Free Consent; Consideration; Legality ofObjects

UNIT II:

VoidAgreements; Performanceof Contracts; Discharge of Contract; Contingent Contracts; QuasiContracts; Remedies for Breach of Contract, Special Contracts: Indemnity&Guarantee; Bailment&Pledge; ContractofAgency.

UNIT III:

Sale of Goods Act, 1930: Contract of Sale of Goods, Conditions & Warranties; Transfer of Ownership; Performanceof the Contract: RemedialMeasures; Auction ableClaims.

UNIT IV:

Negotiable Instrument Act: Cheque, PromissoryNote, Billof Exchange, Crossing of Cheque, Dishonorof Cheque, PaymentindueCourse.

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.

SuggestedReadings:

1. KuchalM.C:BusinessLaw;VikasPublishingHouse,NewDelhi.
2. ChandhaP.R:BusinessLaw;Galgotia, NewDelhi.
3. KapoorN.D:BusinessLaw;SultanChand&Sons,NewDelhi.(HindiandEnglish)
4. DesaiT.R.:IndianContractAct,SaleofGoodsActandPartnershipAct;S.C.Sarkar& SonsPvt.Ltd.,Kolkata.
5. Tulsian,P.C.,Business Law,NewDelhi,TataMcGrawHill.
6. Dr .S.M .Shukla :***Business Regulatory Framework***; SahityaBhawanPublications, Agra)Hindi & English

Note:- Latest editionofthe text booksshouldbe used.

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

ABILITY ENHANCEMENT AND VALUE-ADDED COURSES

The Ability Enhancement and Value-Added Courses are designed to help student teachers acquire and demonstrate:

• knowledge and capacities in areas that are essential to a holistic education.

• capacities and values that are both useful to life as well as to a career in education.

• sensitivity, critical thinking and analytical capacities, reflection, sensibilities for dialogue and cooperative learning, aesthetic appreciation, and values for a sustainable world - all this in the context of India's rich and diverse cultural context.

• capacity to explore possibilities in different areas of learning, directly and indirectly connected to education.

Principles of Designing the Course:

• The courses have a practical orientation in that they emphasize real-world application of ideas with special focus on application in the practice of education.

• Pedagogy across courses emphasize 'practice' and 'doing.'

• The courses facilitate breadth of knowledge rather than depth.

• The courses have emphasized on the capacities and values that are important for teachers.

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.

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 Arthashastra: 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.

SEMESTER

II

PHYSICS

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.

MATHEMATICS

MTH 201: ANALYTICAL 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.

CHEMISTRY

CHE 201: FUNDAMENTALS OF CHEMISTRY-I

(Inorganic & Physical Chemistry)

Credit: 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 analyze 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, hydration energy, flame colouration, photoelectric effect, polarization power, boiling and melting point) and chemical properties (reactivity towards water, oxygen, air and moisture, hydrogen, halogens, ammonia). Diagonal relationship, catenation, inert pair effect, pπ- pπ, dπ-pπ bond, chemistry of hydrides, halides, oxides and oxyacids of p-block elements. Silicates, Boron nitrogen compounds (borazene and boron nitrides), interhalogen compounds, basic properties of iodine.

UNIT II:

Chemical Kinetics and Catalysis: Chemical kinetics and its scope, rate of a reaction, factors influencing the rate of a reaction– concentration, temperature, pressure, solvent, light, catalyst; hetero and homocatalysis, significance. Inhibitors, poisons, promoters. Concentration dependence of rates of simple reaction, Molecularity, Order of reaction- zero order, first order, second order, pseudo-order, half-life period. Methods of determination of the order of reaction-differential method, integration method, half-life method and isolation methods,Numerical problems.

UNIT III:

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. Heat capacity – heat capacities at constant volume and at constant pressure and their relationship, calculation of w, q, dU&dH for the expansion of ideal gases under isothermal and reversible conditions. Thermochemistry; standard state, standard enthalpy of formation. Hess's law of heat summation and its application. Temperature dependence of enthalpy, Kirchoff's equation (application without derivation) Numerical problems.

Suggestive 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-

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. 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.
10. Bariyar, A., Singh, R.P. and Dwivedi, A., "Text Book for B. Sc. Chemistry I", Anu Books, 2019.

CHE 202: FUNDAMENTALS OF CHEMISTRY-II
(Organic Chemistry)

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:

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. Multicentre bonding in electron deficient molecules (B_2H_6). 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 II:

Aliphatic Compounds: Chemical reactions of alkanes, Reactivity-selectivity principle. Mechanism of free radical halogenation of alkanes. Cycloalkanes-Baeyer's strain theory and its limitations, theory of stainless rings.

Preparation & Chemical reactions of alkenes- mechanisms involved in hydrogenation, electrophilic and free radical additions, Markownikoff's Rule, hydroboration-oxidation, oxymercuration reduction. Epoxidation, ozonolysis, hydration, hydroxylation and oxidation with $KMnO_4$, Polymerization of alkenes. Substitution at the allylic and vinylic positions of alkenes. Industrial applications of ethylene and propene.

Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions, hydroboration-oxidation, metal- ammonia reduction, oxidation and polymerization.

UNIT III:

Aromatic Compounds: Aromaticity- the Hückel rule, aromatic ions. Aromatic electrophilic substitution- general pattern of the mechanism, role of σ and π complexes. Mechanism of

nitration, halogenation, sulphonation, mercuriation and Friedel- Crafts reaction. Energy profile diagrams. Activating and deactivating substituents, orientation and ortho/para ratio. Side chain reactions of benzene derivatives.

Suggestive 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 behavior 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 interdisciplinaryproblem-solving team.

UNIT I: Basic Concepts of Chemistry:

1. **Importance and scope of Chemistry**
2. **Nature of Matter**: States of Matter, Chemical and Physical Classification of Matter
3. **Properties of Matter and their Measurement**: Physical and chemical properties, The International System of Units (SI), Mass and Weight, Volume, Density, Temperature, Uncertainty in Measurement- Scientific Notation, Significant Figures, Dimensional Analysis
4. **Laws of Chemical Combinations**: Law of Conservation, Law of Mass, Law of Definite Proportions, Law of Multiple Proportions, Gay Lussac's, Law of Gaseous Volumes, Avogadro's Law, and Dalton's Atomic Theory.
5. **Atomic and Molecular Masses-** Atomic and molecular Mass, Average Atomic Mass, Formula Mass,
6. **Mole Concept and Molar Masses**: percentage composition and molecular formula, Mass percent, Mole Fraction, Molarity, Molality
7. **Stoichiometry and Stoichiometric Calculations**: Limiting Reagent, Reactions in Solutions, simple numericals on stoichiometry

UNIT II: Basic Principles of Organic chemistry:

1. **General Introduction:** Vital force theory, the origin of name 'organic chemistry', synthesis of urea in lab.
2. **Tetravalence of Carbon**: Shapes of Organic Compounds,
3. **Structural Representations of Organic Compounds**: Complete, Condensed and Bond-line, Structural Formulas.
4. **Classification of Organic Compounds** – Acyclic, open chain compounds, Cyclic, closed chain or ring compounds; Alicyclic compounds, Aromatic compounds, Functional Group, Homologous Series.
5. **Nomenclature of Organic Compounds**: The IUPAC System of Nomenclature, IUPAC Nomenclature of Straight chain hydrocarbons, Branched chain, Unbranched Saturated hydrocarbons, Substituted Benzene Compounds.

6. **Isomerism**: Concept of isomerism, Types of isomerism, Structural Isomerism, Stereoisomerism.

UNIT III: Structure of Atom:

1. **Dalton's Atomic Theory**:
2. **Discovery of Sub-atomic Particles**: Discovery of Electron, Protons and Neutrons, Charge to Mass Ratio of Electron, Charge on the Electron**.**
3. **Atomic Models:** Thomson Model of Atom, Rutherford's Nuclear Model of Atom, Atomic Number and Mass Number, Isobars and Isotopes, Drawbacks of Rutherford Model
4. **Bohr's Model for Hydrogen Atom** - Explanation of Line Spectrum of Hydrogen, limitations of Bohr's Model

UNIT IV: States of Matter:

1. Intermolecular Forces: Meaning, dipole-dipole, dispersion, hydrogen bonding taking examples of, HCl, H_2, and H_2O molecules.
2. Thermal Energy: Effect of Temperature on molecular energy
3. Role of Intermolecular Forces and Temperature in the State of Matter
4. Common states of matter: Solid, liquid, gas and their observable properties e.g. rigidity, density, shape, volume, etc.
5. The Gaseous State: experiment on the gaseous state: Boyle, Charles and Avogadro's laws, Ideal Gas Equation
6. Kinetic Molecular Theory of Gases: Postulates and Explanation

Difference between solid, liquid, and gas in terms of Kinetic theory.

SuggestivePractical:

Laboratory hazards and safety precautions.

Inorganic exercise:

Salt mixture analysis: Acid-base test.

Identification of acidic radicals and basic radicals upto 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, wigroup 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://www.youtube.com/watch?v=zUwbVaBaxTY&list=PLmxSS9XYst22fU5l0ryKCEZNx uVkia6-v.
6. https://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/intro1.htm
7. https://www.youtube.com/watch?v=_AYD7YJqQ0Q&t=23s
8. https://www.youtube.com/watch?v=0LaLl1wskEg

BOTANY

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

1. *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).
2. *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).
3. 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 Santra S.C. (2011). College Botany Vol II. 4th Edition New Central Book Agency.

- 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.
Biogeochemical cycles: Cycling of carbon, nitrogen and phosphorous.
Population: Characteristics, Growth curves, Ecotypes and Ecads
Plant communities: Characteristics, plant succession, biological spectrum
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, 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:

- 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.
- Santra S.C. and Chatterjee (2005). College Botany Practical Vol. II New Central Book Agency Pvt. Ltd.

ZOOLOGY

ZOO 201: PAPER -I: 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

1. The student teachers will be able to understand the affinities of different subphylum.
2. The student teachers will be able to differentiate the characteristics of lower chordates.
3. The student teachers will be able to prepare themselves for teaching in schools, colleges and universities.
4. 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 charteristics and habit and habitat, affinities.

UNIT -II

Hemichordata: General characteristics, classification; Type study of Balanoglossus and its affinities.

Urochordata: General characteristics and classification. Type study of Herdmania and its affinities.

UNIT -III

Cephalochordates: General characteristics and classification. Type study of Branchiostoma (Amphioxus) and its affinities.

Cyclostomata: General characteristics and classification. Type study of Petromyzon and its affinities.

Suggested Practical:

1. Protochordata: Study of permanent slides of Amphioxus and Balanoglossus passing through different body regions, Doliolum, Salpa, Oikopleura. Museum specimens of Herdmania, Ciona, and Balanoglossus.
2. Cyclostomata: Museum specimens of Petromyzon and Myxine.
3. Chart/ Model/ Assignment and projects related to content.

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. 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 202: PAPER-II: HIGHER CHORDATA

Credit: 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 HigherChordata. The course aims to enable student teachers to explore the topics, including different classes such as; Pisces, Ambhibians, Reptilia, Aves and Mammalia.

Learning outcomes

1. The student teachers will be able to understand the different classes of higher chordates.
2. The student will be able to identify Poisonous and non-poisonous snakes.
3. The student will understand the ecomic importance of mammals.
4. The student teachers will be able to prepare themselves for teaching in schools, colleges and universities.
5. 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: General characteristics and classification. Types of scales and fins in fishes. Scoliodon as type study, migration. Parental care in fishes. Fishes in relation to man.

Amphibians: General characteristics, affinities of Gymnophiona. Parental care in Amphibia.

UNIT-II

Reptilia: General characteristics and classification. A brief knowledge of extinct reptiles. Poisonous and non-poisonous snakes. Poison apparatus of snake. Snake venom and anti-venom. Adaptive radiation in reptiles. Adaptations of reptiles to desert life.

UNIT-III

Aves: General characteristics and classification. Pigeon as type study. Flightless birds and their distribution. Flight adaptations in birds. Bird migration.

Mammalia: General characteristics and classification and affinities of Prototheria, Metatheria and Eutheria. Economic importance of mammels. Adaptive radiation with particular reference to aquatic mammals.

Suggested Practical:

1. Fishes: Dissections only with the help of Simulations, charts/models of general anatomy, afferent and efferent branchial arteries, cranial nerves, and internal ear of Scoliodon. Preparation of permanent slides of ampulla of Lorenzini, placoid, Cycloid, and ctenoid scales. Study of permanent slides of shark T.S. passing through different body regions and different kinds of scales of fish. Museum specimens of Sphyrna, 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, hyoid apparatus, brain, and columella of a frog. 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.
3. 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.
4. Aves: Permanent preparation of filoplume and down feather. Study of the skeleton of fowl. Study of museum specimens of Psittacula, Corvus, Pavo, Bubo, and model of Archaeopteryx.
5. 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 Tachyglossus and Ornithorynchus (models) Pangolin, Funambulus, Pteropus, 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 readings:

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: ENVIRONMENTAL SCIENCE

Credit: 03+01 = 04

Maximum Marks: 70+30=100

About the course

The course focuses on the study of environmental science. 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

1. The student teachers will be able to incorporate critical thinking into their study to carry out scientific investigations objectively.
2. The student teachers will be able to become enlightened citizens with a commitment to deliver their responsibilities to society and the country at large.
3. The student teachers will be able to give their contribute to the sustainable development of the country by protecting the environment.

UNIT-I

Introduction of environmental Science: Definition, principles, and scope of environmental science, structure and composition of the atmosphere, hydrosphere, lithosphere, and biosphere.

UNIT-II

Environmental Pollution: Types, causes, effects and controls, air, water, soil and noise pollution. Nuclear hazards and human health risks. Solid waste management Control measures of urban and industrial waste. Pollution case studies.

UNIT-III

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.

Suggested Practicum:

Assignment, model, chart of related topics, fieldwork.

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. Singh & Kumar: Ecology and Environmental Science, Vishal Publ.
9. Ecology and Environment by P.D. Sharma.

ENGLISH

ENG 201: HISTORY OF ENGLISH LITERATURE

(Chaucer to Restoration Period)

Credits 3+1=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:

1-1350-1550 The Age of Chaucer

Introduction of the major works

2-1558-1603 Elizabethan Age

Introduction to major Poets and Dramatist of the Age

UNIT-II:

1-1603-1625 Jacobean Age

Introduction to major Poets and

Dramatist of the age

2-1625-1649 Caroline Age

Major Schools of Poetry

UNIT-III:

1-1649-1660 Puritan or commonwealth Period

2-1660-1700 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 3+1=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: 3+1=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

हिन्दी

HIN201: हिन्दी कथा साहित्य

Credit: 3+1=04

अधिकतमअंक: 70+30=100

पाठ्यक्रम के विषय में:

साहित्य जन समूह 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 जागरूक 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 हिन्दी में गद्य का का ज्ञान प्राप्त करता है।

UNIT-I

- आरम्भ : आधुनिक काल।

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 टण्डन, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतुसंकलित कहानियॉ)
2.कहानी : नई कहानी–डॉ0 नामवर सिंह, लोक भारती, 15–ए महात्मा गॉधी 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, लोक भारती प्रकाशन, 15–ए महात्मा गॉधी मार्ग, इलाहाबाद।

हिन्दी 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 पाठ्य क्रम 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 कहानियॉः उसने कहा था–चन्द्रधर शर्मा गुलेरी, नमक का दरोगा–प्रेमचंद, आकाशदीप–जयशंकर प्रसाद, पाजेब–जेनेन्द्र कुमार, परदा–यशपाल, दोपहर का भोजन–अमरकान्त, वापसी–उषाप्रियंवदा।

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।

सुझावात्मकपाठ्यपुस्तकः

1. कहानी सप्तक–संपादक : प्रो0 नीरजा टण्डन, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित कहानियॉ)
2. कहानी की रचना प्रक्रिया–परमानन्द श्रीवास्तव, लोक भारती प्रकाशन, 15–ए महात्मा गॉधी मार्ग, इलाहाबाद।
3. आधुनिकता और हिन्दी उपन्यास–इन्द्रनाथ मदान राजकमल प्रकाशन, नई दिल्ली।

4. समकालीन हिन्दी कहानी–गंगाप्रसाद विमल। सं..,मैकमिलन, दिल्ली।

MINOR/ELECTIVE

HIN 203: कुमाऊँनी साहित्य, संस्कृति एवं भाषा

Credit: 03+01=04

अधिकतमअंक: 70+30=100

अधिगम प्रतिफल:

- शिक्षार्थी स्थानीय सांस्कृतिक परम्पराओं से परिचित होताहै।
- छात्रों को कुमाऊँनी संस्कृति के विविध पक्षों तथा उनके अन्दर भाषायी वैविध्य से परिचित होता 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

कुमाऊनी 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 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 सहायक ग्रन्थ :

1. 'हम और हमारा कुमाऊँ'– प्रो0 प्रभापंत, अंकित प्रकाशन, हल्द्वानी
2. डा0 शशि पाण्डे, कुमाऊँनी संस्कृति एवं भाषा,अंकित प्रकाशन, हल्द्वानी
3. पुर्खनैकि सुणाई का्थ–प्रो0 प्रभा पंत,गोलज्यू पब्लिशर्स एण्ड डिस्ट्रीब्यूटर्स, मालरोड, अल्मोड़ा

POLITICAL SCIENCE

POL 201: COMPARATIVEPOLITICS

Credit: 03+01=04

Maximum Marks: 70+30=100

About the Course:

Understanding Politics is integral and indispensable for acomprehensiveand criticalstudy of political science. Thecourse is designed to train a student in the foundational issues of political science, which is relevantforanyindepthstudyandresearch.

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.Kapoorand K.K.Mishra-SelectConstitution(Englishand Hindi)
2. B.Shiva Rao-SelectconstitutionsoftheWorld

3. B.C.Rai-TheWorldConstitution:AComparativeStudy
4. D.D.Basu-SelectConstitutionsoftheWorld
5. G.Almond-ComparativePoliticsToday:AWorld View
6. J.C.Johari-SelectWorldConstitutions(EnglishandHindi)
7. M.Y.Pylee-Constitutionsoftheworld,2nd Volume
8. R.Hague&M.Harrop-ComparativeGovernmentand Politics:AnIntroduction
9. RobertMaddex-ConstitutionoftheWorld
10. S.N.Dubey-NarainsWorldConstitutions
11. VidyaBhusan-World Constitutions: AComparativeStudy
12. VishnooBhagwan–WorldConstitutions
13. वीरकेश्वरप्रसादससह-ववश्वकेप्रससद्सिंवव्ान

POL 202: MAJOR CONSTITUTIONS OF THE WORLD

Credit 03+01=04

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, MainFeatures, The crown, Executivelegislature, 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.KapoorandK.K.Mishra-SelectConstitution(Englishand Hindi)
2. B.ShivaRao-SelectconstitutionsoftheWorld
3. B.C.Rai-TheWorldConstitution:AComparativeStudy
4. D.D.Basu-SelectConstitutionsoftheWorld
5. G.Almond-ComparativePoliticsToday:AWorld View
6. J.C.Johari-SelectWorldConstitutions(EnglishandHindi)
7. M.Y.Pylee-Constitutionsoftheworld,2nd Volume
8. R.Hague&M.Harrop-ComparativeGovernmentand Politics:AnIntroduction
9. RobertMaddex-ConstitutionoftheWorld
10. S.N.Dubey-NarainsWorldConstitutions
11. VidyaBhusan-WorldConstitutions:AComparativeStudy
12. VishnooBhagwan–WorldConstitutions
13. वीरकेश्वरप्रसादससह-ववश्वकेप्रससद्सिंवव्ान

MINOR/ELECTIVE

POL 203: AWARENESS WITH CIVIC RIGHTS

Credit 03+01=04

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.

SuggestedReading:

1. Khosla,Madhav,etal.2016.TheOxfordHandbookofthe Indianconstitution.Newdelhi
2. Benegal,Shyam.2014.Samvidhan.RajyaSabha TV

SuggestedOnlineLink:

1. https://www.digitalindia.gov.in/services
2. https://rtionline.gov.in/
3. https://www.india.gov.in/topics/law-justice

SOCIOLOGY

SOC 201: FEATURES OF INDIAN SOCIETY

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; Purushartha: Meaning, Forms, Sociological Importance of Purushartha; Sanskar: Meaning, Objectives, Major Sanskar of Hindu Life, Sociological Importance of Sanskar ; Doctrine of Karma.

UNIT III:

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
- आहूजाराम,'सामाहजक व्यवस्था' रावत पब्लिकेशन्स,जयपुर।
- हसि◌ंजे0पी0, 'समाजशास्त्रकेमूलतत्व'2011.पी0एच0आई0।

SOS 202: INDIAN SOCIAL SYSTEM

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.
- Kinship: Definitions, Types, Kinship Terms, Kinship Usages and Social Significance of Kinship.

UNIT II:

Jajmani System: Meaning, Structure and Functioning, Importance, Change in Jajmani System.

UNIT III:

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.MyersandSubbiahKannappan,IndustrialRelationsinIndia,AsiaPub lishingHouse,Bombay.
- Giri,V.V.,LabourProblemsin Indian Industry,AsiaPublishingHouse,Bombay.
- Gisbert,P.,FundamentalofIndustrialSociology,TataMcGraw-HillPublishingCo.,NewDelhi.
- Karnik,V.B.,IndianLabour:ProblemsandProspects,Minerva AssociatesPvt.Ltd.,Calcutta.
- Kohli, A. S., S. K. Sharma, Labour Welfare and Social Security, Anmol Publications Pvt. Ltd., NewDelhi.
- Mamoria,C.B.andS.Mamoria,Dynamicsof IndustrialRelations,HimalayaPublishingHouse,NewDelhi.
- Mathur, A. S. and J. S. Mathur, Trade Union Movement in India, Chaitanya Publishing House,Allahabad.
- Mehrotra,S.N.,Labour ProblemsinIndia,S.ChandandCo.,New Delhi.
- Miller,C.DelbertandWilliamH.Form,IndustrialSociology,Harperand RowPublishers,NewDelhi.
- Ramanujan,G.,IndianLabourMovement,SterlingPublishers,NewDelhi.
- Reddy,Ram,Industrial RelationsinIndia,MittalPublications,NewDelhi.
- Sanjivaygya,D.,LabourProblemsandIndustrialDevelopmentin India,Oxfordand IBH,NewDelhi.
- Schneider,E.,Industrial Sociology,TataMcGraw-HillPublishingCo.,NewDelhi.
- Vaid,K.N.,LabourWelfareinIndia,S.R.C.,NewDelhi.
- Prashad,J.2012."IndustrialSociology"VayuEducation.
- Singh,N.,2012."Industrialsociology"Rawatpublication.

HISTORY

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 Libraries, 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 with reference 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, पूर्वमध्यकालीन भारत का सामंती समाज और संस्कृति, राजकमल प्रकाशन दिल्ली.
- झा, द्विजेन्द्र नारायण एवं श्रीमाली, 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. पुर्वकालीन 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 महातम राव पब्लिशर, गोरखपुर.
- सोनकर, अशोक कुमार, गाहड़वालों का राजनीतिक और सामाजिक इतिहास, आस्था दिल्ली.

Suggested Online Link:

https://ndl.iitkgp.ac.in
https://epustakalay.com
https://archive.org
https://ignou.ac.in
www.cec.nic.in

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 their significance.

- 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, पूर्वमध्यकालीन भारत का सामंती समाज और संस्कृति, राजकमल प्रकाशन दिल्ली.
- झा, द्विजेन्द्र नारायण एवं श्रीमाली, 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. पुर्वकालीन 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 महातम राव पब्लिशर, गोरखपुर.
- सोनकर, अशोक कुमार, गाहड़वालों का राजनीतिक और सामाजिक इतिहास, आस्था दिल्ली.

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https://archive.org
https://ignou.ac.in
www.cec.nic.in

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.
- The student 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. पूर्वकालीन 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, ओम प्रकाश. संघाधिपति अशोक, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- शर्मा, रामशरण, पुर्वमध्यकालीन भारत का सामंती समाज और संस्कृति, राजकमल प्रकाशन, नई दिल्ली.
- मुखर्जी, राधाकुमुद., प्राचीनभारत, प्रकाशन, राजकमल नई दिल्ली
- मिश्र, जयशंकर., ग्यारहवी सदी का भारत, हिन्दी ग्रन्थ अकादमी, पटना.
- थापर, रोमिला. पुर्वकालीन 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 मुगलकालीन भारत, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली
- शुक्ल, राम लखन., आधुनिक भारत का इतिहास., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- मोईनुद्दीन हसन 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

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-Statics and 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, समष्टि अर्थशास्त्र, वृन्दा पब्लिकेशन, नई दिल्ली।
- एच0 एल0 आहूजा, उच्चतर समष्टि अर्थशास्त्र, एस0 चाँद, नई दिल्ली।

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, नई दिल्ली।
- एच0 एल0 आहूजा, उच्चतर समष्टि अर्थशास्त्र, एस0 चाँद, नई दिल्ली।
- तेज प्रकाश जोशी, 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.
- जोशी, तेजप्रकाश, उत्तराखण्ड आर्थिक विचार एवं विश्लेषण, विद्या प्रकाशन सी, 449,गुजैनी, कानपुर

COMMERCE

COM 201: BUSINESSSTATISTICS

Credits:03+01=04

Maximum Marks: 70+30=100

Learning outcomes:

Theobjectiveofthispaperistoinculcateanalyticalability amongstudents.

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.

SuggestedReadings:

1. Heinz,Kohler:StatisticsforBusiness&Economics,HarperCollins;
2. Gupta,S.C.FundamentalofStatistics,HimalayaPublication.
3. SharmaJ.K.,BusinessStatistics,PearsonEducation.
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***; SahityaBhawanPublications, 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 SinhaRitika, Business Environment, SahityaBhawan 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. AmitKumar :***Business Environment***; SahityaBhawan Publications,Agra.
6. सिन्हा,वी.सी. एवं सिंह, पुष्पा,व्यावसायिक पर्यावरण, साहित्य भवन आगरा।
7. जे पी मिश्रा, व्यावसायिक पर्यावरण, साहित्य भवन आगरा।

Note-Latesteditionofthetextbooksshouldbeused.
Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

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.

SuggestedReadings:

1. Gupta,C.B.,"BusinessOrganisation",MayurPubliction,(2014).
2. Singh,B.P.,Chhabra,T.N.,"AnIntroductiontoBusinessOrganisation&Management",KitabMahal,(2014).
3. BhusanY.K.,"BusinessOrganization",SultanChand&Sons.
4. Dr .S.C .Saksena:***Business Organisation and Management***; SahityaBhawan 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:**Latesteditionofthetextbooks shouldbeused.**

Suggested online link: www.ignou.ac.in, www.swayam.gov.in, www.inflibnet.ac.in

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: 1+1=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. Thecourse 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 teachinglearning 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 Panchakoshas.

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 crosssection 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.