

NATIONAL EDUCATION POLICY-2020

Syllabus for Sri Dev Suman Uttarakhand University and Affiliated Colleges



PROPOSED STRUCTURE OF Under Graduate Physics Course Syllabus


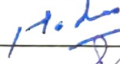
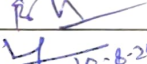
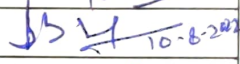
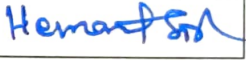
2022

Board Of Studies

Department of Physics, Sri Dev Suman Uttarakhand University
Pt. Lalit Mohan Sharma Campus Rishikesh

Syllabus Preparation Committee

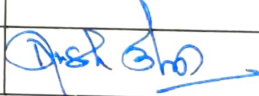
A: Department of Physics, Sri Dev Suman Uttarakhand University, Pt. Lalit Mohan Sharma Campus, Rishikesh

S.N.	Name	Designation	Signature
1.	Dr. Yogesh Kumar Sharma	Professor & Head	 10/8/22
2.	Dr. Manoj Yadav	Professor	
3.	Dr. Rajkumar Tyagi	Professor	
4.	Dr. Bimal Prakash Bahuguna	Professor	 10-8-2022
5.	Dr. Hemant Singh	Associate Professor	 Hemant Singh

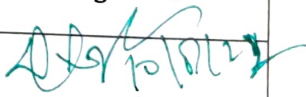

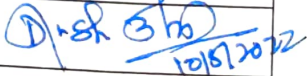
B: Director from Research Institute

1.	Professor Durgesh Pant	Director General UCOST, Dehradun	
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C: Expert from Other Institutions

1.	Dr. A. A. Baurai	Professor & Director S. R. T Campus, Badshahithol Tehri (Garhwal) H. N. B. Garhwal Univeristy Srinagar (Garhwal)	
2.	Dr. D. P. Bhatt	Professor & Principal Govt. Degree College, Vedhikhal	

D: Invited Principals from Government Post Graduate Colleges

S. N.	Name	Designation and Address	Signature
1.	Dr. D. C. Nainwal	Professor & Principal Govt. P. G. College, Doiwala	 10/8/22
2.	Dr. Renu Negi	Professor & Principal Govt. P. G. College, New Tehri	 10/8/2022
3.	Dr. D. P. Bhatt	Professor & Principal Govt. Degree College, Vedhikhal	 10/8/2022

List of Papers in Six Semesters (B.Sc. Degree)					
Semester-wise Titles of the Papers in Physics					
Year	Sem.	Course Code	Paper Title	Theory/ Practical	Credits
Certificate Course in Basic Physics					
FIRST YEAR	I		Mechanics	Theory	(04)
			Mechanical Properties of Matter	Practical	(02)
	II		Electricity and Magnetism	Theory	(04)
			Demonstrative Aspects of Electricity& Magnetism	Practical	(02)
Diploma in Applied Physics					
SECOND YEAR	III		Thermodynamics and Statistical Physics	Theory	(04)
			Demonstrative Aspects of Thermal Properties of Matter	Practical	(02)
	IV		Optics	Theory	(04)
			Demonstrative Aspects of Optics	Practical	(02)
Bachelor of Science					
THIRD YEAR	V		Solid State Physics	Theory	(04)
			Demonstrative Aspects of Solid State Physics & Circuit Designing	Practical	(02)
			Basic Electronics	Theory	(04)
			Demonstrative Aspects of Basic Electronics	Practical	(02)
	VI		Modern Physics & Elementary Quantum Mechanics	Theory	(04)
			Demonstrative Aspects of Modern Physics	Practical	(02)
			Analog and Digital Electronics	Theory	(04)
			Demonstrative Aspects of Analog & Digital Circuits	Practical	(02)

Subject prerequisites:

1. For Semester I: 12th pass with subjects Physics, Chemistry & Mathematics
2. For Semester II: Passed Semester I with Physics
3. For Semester III: Passed Semester II with Certificate Course in Basic Physics
4. For Semester IV: Passed Semester III
5. For Semester V: Passed Semester IV with Diploma in Applied Physics
6. For Semester VI: Passed Semester V

Programme outcomes (POs):	
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.	
PO 1	<ol style="list-style-type: none"> 1. Competence in the methods and techniques of calculations using Mechanics. 2. Students are expected to have hands-on experience to apply the theoretical knowledge to solve practical problems.
PO2	<ol style="list-style-type: none"> 1. Students are expected to have deep understanding of electricity and magnetism. 2. Student should be able to make basic electrical circuits and handle electrical instruments.
PO 3	<ol style="list-style-type: none"> 1. Competence in the concepts of Thermodynamics and Statistical Physics. 2. Students are expected to have hands on experience in Thermal Physics and Statistical Physics Experiments.
PO 4	<ol style="list-style-type: none"> 1 Knowledge of different concepts in Optics. 2 Students are expected to have hands on experience of Experiments of Optics
PO 5	<ol style="list-style-type: none"> 1. Knowledge of basic concepts of Solid State Physics with their applications 2. Students are expected to have an insight in handling electronic instruments.
PO 6	<ol style="list-style-type: none"> 1. Comprehensive knowledge of Analog & Digital Principles and Applications. 2. Learn the integrated approach to analog electronic circuitry and digital electronics for R&D.
<p style="text-align: center;">Programme specific outcomes (PSOs): <i>UG I Year / Certificate course in Basic Physics</i></p>	
<p>After completing this certificate course, the student should have</p> <ul style="list-style-type: none"> • Acquired the basic knowledge of Mechanics, Electricity and Magnetism. • Hands-on experience to apply the theoretical knowledge to solve practical problems of basic physical phenomena. He should be able to carry out experiments to understand the laws and concepts of Physics. • An insight in understanding electrical circuits and in handling electrical instruments. 	
<p style="text-align: center;">Programme specific outcomes (PSOs): <i>UG II Year/ (Diploma in Applied Physics)</i></p>	
<p>After completing this diploma course, the student should have</p> <ul style="list-style-type: none"> • Knowledge of different concepts in Thermodynamics, Statistical Physics and Optics. • Knowledge of different aspects of Thermal Physics which serves as a basis for many physical systems used in industrial applications and deals with the physics and technology of Engines and Refrigerators. • A deeper insight in Optics to understand the Physics of many optical instruments which are widely used in research and Industry, Optoelectronics, IT and communication devices, and in industrial instrumentation. • Knowledge of basic concepts of optical instruments with their applications in technology. 	

Programme specific outcomes (PSOs): UG III Year / Bachelor of Science	
After completing this degree course, the student should have:	
PSO 1	<i>Knowledge of Mechanics and basic properties of matter. The course will empower him to apply his theoretical knowledge in various physical phenomena that occur in day to day life and he can use this scientific knowledge for the betterment of the society.</i>
PSO2	<i>Understanding of basic concepts related to Electricity and Magnetism. He should be proficient in designing and handling different electrical circuits</i>
PSO3	<i>Expertise in different aspects of Thermal and Statistical Physics which serves as a basis for many physical systems used in industrial applications and deals with the physics and technology of Engines and Refrigerators.</i>
PSO4	<i>Proficient in the field of Optics which will increase his demand in research and industrial establishments engaged in activities involving optical instruments.</i>
PSO5	<i>Basic knowledge in the field of Modern physics, which have utmost importance at both undergraduate and graduate level.</i>
PSO6	<ul style="list-style-type: none"> • <i>Comprehensive knowledge of Analog & Digital Principles and Applications.</i> • <i>Learn the integrated approach to analog electronic circuitry and digital electronics for R&D.</i>

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: I Paper-I
Subject: Physics		
Course Code:	Course Title: Mechanics	
Course Outcomes		
1. Understanding of Vector Algebra and Vector Calculus.		
2. Understand the physical interpretation of gradient, divergence and curl.		
3. Study of gravitational field and potential and understanding of Kepler’s laws of Planetary motion.		
4. Understanding of different frames of references and conservation laws.		
5. Understand the dynamics of rigid body and concept of moment of inertia. Study of moment of inertia of different bodies and its applications.		
6. Study the properties of matter, response of the classical systems to external forces and their elastic deformation and its applications.		
7. Comprehend the dynamics of Fluid and concept of viscosity and surface tension along with its applications.		
8. Understanding the basic idea of waves and oscillations through Simple harmonic motion.		
Credits: 04		Core Compulsory
Max. Marks: 100 External Exam: 75 Internal Assessment: 25		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Vectors Algebra Vector algebra. Scalar and vector products, scalar and vector triple products, Derivative of a vector with respect to a parameter, Del operator, gradient, divergence and curl, Gauss divergence theorem and applications, Stokes curl theorem and applications; and Green's theorem, Line, surface and volume integral of a vector function.	10

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.	10
Unit III	Conservation Laws Frames of reference, Concept of inertial and Non-inertial frames of references, Work energy theorem, Conservative and non-Conservative forces, Linear restoring force, Gradient of potential, Conservation of energy for the particle; Energy function, Concept of Centre of mass, Angular momentum and torque, Laws of conservation of total energy, total linear momentum and total angular momentum along with their examples.	10
Unit IV	Dynamics of rigid body and Moment of Inertia Translatory and Rotatory motion, Equation of motion for Rotating rigid body, angular momentum vector and moment of inertia, Theorem of parallel and perpendicular axes, Moment of inertia of a cylinder, rod, lamina, ring, disc, spherical shell, solid sphere, kinetic energy of rotation, rolling along a slope, Application to compound pendulum.	10
Unit V	Properties of Matter Basic concept, Elastic constants and their Interrelations, torsion of cylinder, bending of beam, bending moment, Cantilever, shape of Girders/ rail tracks. Viscosity, Stokes's law, Poiseuille's formula, Equation of continuity, Bernoulli's theorem, Surface tension and its molecular interpretation.	10
Unit VI	Waves and Oscillations Characteristics, Differential equation of a wave motion, Periodic motion, SHM in mechanical systems, Energy of Simple harmonic oscillator, Superposition of SHM(s), Applications of Simple harmonic motion in compound pendulum, Torsional pendulum and LC circuit, Composition of two SHM(s) of different frequency ratio, Lissajous' figures for equal frequencies ratio and 2:1 frequencies ratio.	10

Suggested Reading

1. R. Resnick and D. Halliday: Physics Vol-I
2. Berkeley Physics Course: Mechanics Vol-I
3. R. P. Feynman, R. B. Leighton and M. Sands: The Feynman Lectures in Physics
4. D. S. Mathur: Mechanics
5. D. S. Mathur: Elements of Properties of Matter
6. Murray Spiegel, Seymour Lipschutz, Dennis Spellman: Schaum's Outline Series: Vector Analysis, McGraw Hill, 2017.
7. J. C. Upadhyaya: Mechanics

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology, <https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL),
<https://www.youtube.com/user/nptelhrd>
3. Swayam Prabha - DTH Channel,
https://www.swayamprabha.gov.in/index.php/program/current_he/8

This course can be opted as an elective by the students of following subjects: The course can be opted as an elective, which is open to all students.

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Class Test/Assignment- (25 marks)

Course Prerequisites: Physics and Mathematics in 12th

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: I Practical
Subject: Physics (Practical)		
Course Code	Course Title: Mechanical Properties of Matter (Practical)	
Course Outcomes: 1. Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the mechanical properties. 2. Measurement precision and perfection is achieved through Lab Experiments.		
Credits: 02		Core Compulsory
Max. Marks: 50 Internal (Record File): 15 External Practical Exam: 20 External Viva Voce: 15		Min. Passing Marks: 17
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-4		
Unit	Topic	No. of Lectures
Lab Experiment List		
	1. To study the Motion of Spring and calculate (a) Spring constant, (b) g and (c) Modulus of rigidity. 2. To determine the Moment of Inertia of a Flywheel. 3. To determine the Moment of Inertia of a Inertia table 4. To determine g and velocity for a freely falling body using Digital Timing Technique. 5. To determine Coefficient of Viscosity of water by Capillary Flow Method (Poiseuille’s method). 6. To determine the Young's Modulus of a Wire by Optical Lever Method. 7. To determine the Young's Modulus by bending of beam. 8. To determine the Modulus of Rigidity of a Wire by Maxwell’sneedle 9. To determine the elastic Constants of a wire by Searle’s method. 10. To determine the value of g using Bar Pendulum. 11. To determine the value of g using Kater’s Pendulum. 12. To determine Surface Tension. 13. To determine the modulus of rigidity by Barton’s apparatus (Horizontal/Vertical)	60

Suggested Readings:

1. B. L. Worsnop, H. T. Flint, “Advanced Practical Physics for Students”, Methuen & Co., Ltd., London, 1962.
2. S. Panigrahi, B. Mallick, “Engineering Practical Physics”, Cengage Learning India Pvt. Ltd., 2015.
3. Indu Prakash: Practical Physics
4. S. L. Gupta, V. Kumar, “Practical Physics”, Pragati Prakashan, Meerut, 2014.

Suggestive Digital Platforms / Web Links:

1. Virtual Labs at Amrita Vishwa Vidyapeetham, <https://vlab.amrita.edu/?sub=1&brch=74>
2. Digital Platforms /Web Links of other virtual labs may be suggested / added to this list by individual Universities

Suggested Continuous Evaluation Methods:

Continuous internal evaluation shall be based on attendance of student in Lab and presentation of practical in the record file. The marks shall be as follows

Record File (15 marks)

PREREQUISITE: Opted / Passed Semester I, Theory Paper-1

Further Suggestions:

- The institution may suggest a minimum number of experiments (say 6) to be performed by each student per semester from the Lab Experiment List.

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: I Vocational/Minor
Subject: Physics		
Course Code:	Course Title: Basic Instrumentation Skills	
Credits: 03		Vocational/Minor (Experiments/hands on training)
Max. Marks: 100 External Exam: 75 Internal Assessment: 25		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 3-0-0		
Unit	Topic	No. of Lectures
Unit I	Basics of Measurement Instruments accuracy, precision, sensitivity, resolution, range, least count of different instruments etc. Errors in measurements and loading effects. Principle of Galvanometer, Voltmeter and Ammeter, Conversion of galvanometer into voltmeter and ammeter.	15
Unit II	Multimeter Principles of measurement of dc voltage and dc current, ac voltage, ac current and resistance. Specifications of a multimeter and their significance. Advantage over conventional multimeter for voltage measurement with respect to input impedance and sensitivity.	10
Unit III	Digital Multimeter Block diagram and working of a digital multimeter. Working principle of time interval, frequency and period measurement using universal counter/frequency counter, time-base stability, accuracy and resolution.	10
Unit IV	Digital Instruments: Comparison of analog and digital instruments. Characteristics of a digital meter. Working principle of digital voltmeter.	10

Suggested Reading

1. B. L. Theraja: A text book in Electrical Technology
2. M. G. Say: Performance and design of AC machines
3. Venugopal: Digital Circuits and Systems
4. P. Vingron, Shimon: Logic Circuit Design
5. Subrata Ghoshal: Digital Electronics.
6. S. Salivahanan & N. S. Kumar: Electronic Devices and Circuits, 3rd Edn

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology, <https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL),
<https://www.youtube.com/user/nptelhrd>
3. SwayamPrabha - DTH Channel,
https://www.swayamprabha.gov.in/index.php/program/current_he/8

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Class Test/Assignment (25 marks)

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: II Paper-I
Subject: Physics		
Course Code:	Course Title: Electricity and Magnetism	
Course Outcomes:		
1. Understanding of Electric Field and Potential. Evaluation of Electric Field and Potential for different types of charge distributions.		
2. Study of Electric and Magnetic Fields in matter. Understand the concept of polarizability, Magnetization and Electric Displacement Vector.		
3. Study of Steady and Varying electric currents.		
4. Understanding of different aspects of alternating currents and its applications.		
5. Understand the Magnetostatics, Lorentz Force and Energy stored in magnetic Field.		
6. Comprehend the different aspects of Electromagnetic induction and its applications.		
7. Understanding the relation between electricity and magnetism.		
Credits: 04		Core Compulsory
Max. Marks: 100 External Exam: 75 Internal Assessment: 25		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
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 potential due to long charged wire, Spherical shell, sphere, disc, dipole.	10
Unit II	Electric and Magnetic fields in Matter Moments of charge distributions, Polar and non-polar molecule, polarization vector, electric displacement vector, three electric vectors, dielectric susceptibility and permittivity, polarizability, Clausius-Mossotti relation Magnetization, magnetic susceptibility, diamagnetic, paramagnetic and ferromagnetic substances, Hysteresis and B-H curve, hysteresis loss.	10
Unit III	Electric Currents (Steady and Varying) Current density, Equation of Continuity, Ohm’s law and electrical conductivity, Kirchhoff’s Laws and their applications, Transient current, Growth and decay of D. C. in L - R and R - C circuits, charging and discharging of a capacitor through a resistance.	10

Unit IV	Magnetostatics Lorentz force, Bio-Savart's law, Ampere's law and application, Application of Biot-Savart law, magnetic field due steady current in a long straight wire, coil, Interaction between two wires, field due a Helmholtz coil, solenoid and current loop, magnetic vector potential, Energy stored in Magnetic field.	10
Unit V	Electromagnetic Induction and Alternating Current Faraday's laws of induction, Lenz's law, Electromotive force, Measurement of magnetic field, Eddy current, Mutual inductance, Self-inductance. Impedance, admittance and reactance, R-C, R-L and L-C circuits with alternating e.m.f. source, series and parallel L-C-R circuits, resonance and sharpness, Quality factor, Power in A. C. circuits, Choke coil.	10
Unit VI	Maxwell's Equations Review of electrostatic and electromagnetic equations, their differential and integral forms, Maxwell's equations. Displacement Current. Wave Equations. Plane Waves in Dielectric Media. Poynting Theorem and Poynting Vector. Electromagnetic (EM) Energy Density. Physical Concept of Electromagnetic Field Energy Density.	10

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.

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology, <https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL), <https://www.youtube.com/user/nptelhrd>
3. SwayamPrabha - DTH Channel, https://www.swayamprabha.gov.in/index.php/program/current_he/8

This course can be opted as an elective by the students of following subjects: The course can be opted as an elective, which is open to all students.

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Class Test/Assignment (25 marks)

Course Prerequisites: Passed semester I, theory paper-1

CERTIFICATE COURSE IN BASIC PHYSICS			
Programme: <i>Certificate Course in Basic Physics</i>		Year: I	Semester: II Practical
Subject: Physics (Practical)			
Course Code:	Course Title: Demonstrative Aspects of Electricity & Magnetism (Practical)		
Course Outcomes:			
1. Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the electric and magnetic properties.			
2. Measurement precision and perfection is achieved through Lab Experiments.			
Credits: 02		Core Compulsory	
Max. Marks: 50 Internal (Record File): 15 External Practical Exam: 20 External Viva Voce: 15		Min. Passing Marks: 17	
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-4			
Unit	Topic		No. of Lectures
Lab Experiment List			
	1. Frequency of A.C. Mains. 2. Melde’s Experiment. 3. Calibration of Voltmeter by potentiometer. 4. Calibration of ammeter by potentiometer. 5. Specific resistance determination by Carey Foster bridge. 6. Conversion of a Galvanometer into a Voltmeter. 7. Conversion of a Galvanometer into Ammeter. 8. Variation of magnetic field along the axis of a current carrying circular coil. 9. Electrochemical equivalent. 10. De Sauty’s bridge- C ₁ / C ₂ 11. R ₁ /R ₂ by potentiometer. 12. Study of R-C, L-C-R circuits. 13. Determination of self inductance, mutual inductance. 14. Magnetic field determination by search coil and ballistic galvanometer. 15. Sonometer.		60

Suggested Readings:

1. B. L. Worsnop, H.T. Flint, “Advanced Practical Physics for Students”, Methuen & Co., Ltd., London, 1962.
2. S. Panigrahi, B. Mallick, “Engineering Practical Physics”, Cengage Learning India Pvt. Ltd., 2015.
3. Indu Prakash: Practical Physics
4. S. L. Gupta, V. Kumar, “Practical Physics”, Pragati Prakashan, Meerut, 2014.

Suggestive Digital Platforms / Web Links:

1. Virtual Labs at Amrita Vishwa Vidyapeetham, <https://vlab.amrita.edu/?sub=1&brch=74>
2. Digital Platforms /Web Links of other virtual labs may be suggested / added to this lists by individual Universities

Suggested Continuous Evaluation Methods:

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Record File (15 marks)

PREREQUISITE: Passed Semester I

Further Suggestions:

- The institution may suggest a minimum number of experiments (say 6) to be performed by each student per semester from the Lab Experiment List.

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme : <i>Certificate Course in Basic Physics</i>		Year: I Semester: II Vocational/Minor
Subject: Physics		
Course Code:	Course Title: Electronics Instrumentation skills	
Credits: 03		Vocational/Minor
Max. Marks: 100 External Exam: 75 Internal Assessment: 25		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 3-0-0		
Unit	Topic	No. of Lectures
Unit I	Electronic Voltmeter Principles of voltage, measurement (block diagram only). Specifications of an electronic Voltmeter, Multimeter and their significance. AC millivoltmeter: Type of AC millivoltmeters: Amplifier- rectifier, and rectifier- amplifier. Block diagram ac milli -voltmeter, specifications and their significance.	10
Unit II	Cathode Ray Oscilloscope Block diagram of basic CRO. Construction of CRT, Electron gun, electrostatic focusing and acceleration (Explanation only– no mathematical treatment), brief discussion on screen phosphor, visual persistence & chemical composition. Time base operation, synchronization. Front panel controls. Specifications of a CRO and their significance. Use of CRO for the measurement of voltage (dc and ac frequency, time period. Special features of dual trace, introduction to digital oscilloscope, probes. Digital storage Oscilloscope: Block diagram and principle of working.	15
Unit III	Signal and pulse Generators Block diagram, explanation and specifications of low frequency signal generator and pulse generator. Brief idea for testing, specifications. Distortion factor meter, wave analysis.	10
Unit IV	Impedance Bridges Block diagram of bridge. Working principles of basic (balancing) RLC bridge. Specifications of RLC bridge. Block diagram and working principles of a Q-meter. Digital LCR bridges.	10

Suggested Reading

1. B. L. Theraja: Basic Electronics
2. M. G. Say: Performance and design of AC machines
3. Venugopal: Digital Circuits and Systems
4. P. Vingron, Shimon: Logic Circuit Design
5. Subrata Ghoshal: Digital Electronics
6. S. Salivahanan & N. S..Kumar: Electronic Devices and Circuits
7. V. K. Mehta: Basic Electronics

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology, <https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL),
<https://www.youtube.com/user/nptelhrd>
3. SwayamPrabha - DTH Channel,
https://www.swayamprabha.gov.in/index.php/program/current_he/8

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Class Test/Assignment (25 Marks)

Minor/Elective (04 Credit, One from the list El 1)

Students having major in Physics will have to choose the elective/minor from sl. no. 1-4 only. Other students may have choice from sl. no. 1-6.

1. Statistical Physics
2. Numerical Methods
3. Computer Programming
4. Waves and Oscillations
5. Fundamental Mechanics
6. Basic Electricity and Magnetism

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: I/II
Subject: Physics		
Course Code:	Course Title: Statistical Physics	

Credits: 04		Minor/Elective
Max. Marks: 100 External Exam: 75 Internal Assessment: 25		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Basic Concepts in Statistical Physics Basic postulates of Statistical Physics, Macro and Micro States, Phase Space, Density distribution in phase space, μ space representation and its division, Statistical average values, Condition of equilibrium, Stirling's Approximation, Entropy and Thermodynamic probability, Boltzmann entropy relation.	15
Unit II	Ensembles and Thermodynamic connections Ensembles, Micro -canonical, Canonical and Grand Canonical ensembles, Statistical definition of temperature and interpretation of second law of thermodynamic, Pressure, Entropy and Chemical potential. Entropy of mixing and Gibb's paradox, Partition function and Physical significances of various statistical quantities.	15
Unit III	Classical Statistics Maxwell-Boltzmann statistics and Distribution law, Energy distribution function, Maxwell Boltzmann law of velocity distribution (most probable velocity, average velocity, RMS velocity), Limitations of M-B statistics, Elementary idea of quantum statistics.	15

Unit IV	Bose-Einstein and Fermi-Dirac Statistics B-E distribution law, Thermodynamic functions of a strongly Degenerate Bose Gas, Bose Einstein condensation, properties of liquid He (qualitative description), Radiation as a photon gas and Thermodynamic functions of photon gas, Bose derivation of Planck's law. Fermi-Dirac Distribution Law, Thermodynamic functions of a Completely and strongly Degenerate Fermi Gas, Fermi Energy, Electron gas in a Metal, Specific Heat of Metals, Relativistic Fermi gas, White Dwarf Stars, Chandrasekhar Mass Limit.	15
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Suggested Reading

1. B. B. Laud: Introductions to Statistical Mechanics
2. J. K. Bhattacharjee: Statistical Physics (Allied Publishers)
3. F. Reif : Statistical Physics (Mc.Graw Hill)
4. Kamal Singh: Elements of Statistical Mechanics
5. K. Hung: Statistical Physics (Chapman and Hall/CRC)
6. K. E. Atkinson: Elementary Numerical Analysis
7. R. K. Pathria, B. Heinemann: Statistical Mechanics

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology, <https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL), <https://www.youtube.com/user/nptelhrd>
3. Swayam Prabha - DTH Channel, https://www.swayamprabha.gov.in/index.php/program/current_he/8

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Class Test/Assignment (25 marks)

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: I/II
Subject: Physics		
Course Code:	Course Title: Numerical Methods	

Credits: 04	Minor/Elective
Max. Marks: 100 External Exam: 75 Internal Assessment: 25	Min. Passing Marks: 33

Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0

Unit	Topic	No. of Lectures
Unit I	Ordinary Differential Equations Brief review of ordinary differential equations, Exact equations, Equations reducible to exact equations, Equations of the first order and higher degrees, Clairaut's equation. Applications of ODEs in concerned engineering branch. Linear differential equations with constant co-efficient, Complimentary functions and particular integral, Method of variation of parameters, Equations reducible to linear equations with constant co-efficient (Cauchy's and Legendre's linear equations), Initial and Boundary value problems Simultaneous linear equations with constant co-efficient, Applications of differential equations in concerned engineering branch.	15
Unit II	Partial Differential Equations Formulation of Partial Differential Equations (PDE), Solution of PDE, Linear PDE of First Order (Lagrange's Linear Equation), Non-linear Equation of First Order (Standard Forms), Charpit's Method, Homogeneous Linear Equations with Constant Coefficients, Non-homogeneous Linear Equations. Applications of PDE: Method of separation of variables, Solution of one dimensional wave and heat equation and two dimensional Laplace's equation.	15
Unit III	Transforms Theory Laplace Transform: Laplace Transforms of standard functions and their properties, Inverse Laplace Transforms, General Properties of inverse Laplace transforms and Convolution Theorem, Laplace Transforms of periodic functions, Dirac-delta Function, Heaviside's Unit Function, Solution of ODE	15

	and linear simultaneous differential equations using Laplace transforms. Fourier Transform: Fourier integral representation, Fourier sine, cosine and complex transform, Finite Fourier Transforms and their applications. Z – Transforms: Z–Transforms & its properties, inversion of Z – transform and applications of Z – transform	
Unit IV	Probability and Statistics Review of probability, Conditional probability and sampling theorems, Discrete and Continuous Probability Distribution, Probability Mass & Probability Density Functions, Distribution function, Discrete and Continuous probability distributions, Binomial, Poisson and Normal distributions.	15

Suggested Reading

1. Advanced Engineering Mathematics by E. Kreyszig, John Wiley and Sons, NC, New York.
2. Differential Equations by S. L. Ross, John Wiley & Sons, New York.
3. An Introduction to Probability Theory & its Applications by W. Feller, Wiley.
4. Probability and Statistics for Engineers and Scientists by R.E. Walpole, S. L. Myers and K. Ye, Pearson.
5. Integral Transforms and Their Applications by Lokenath Dennath and Dambaru Bhatta, Chapman and Hall/CRC Press.

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology, <https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL),
<https://www.youtube.com/user/nptelhrd>
3. Swayam Prabha - DTH Channel,
https://www.swayamprabha.gov.in/index.php/program/current_he/8

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Class Test/Assignment (25 marks)

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: I/II
Subject: Physics		
Course Code:	Course Title: Computer Programming	

Credits: 04	Minor/Elective
Max. Marks: 100 External Exam: 75 Internal Assessment: 25	Min. Passing Marks: 33

Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0

Unit	Topic	No. of Lectures
Unit I	Programming Fundamentals Introduction to computer, block diagram and organization of computer, number system and binary arithmetic, processing data, hardware, software, firmware, types of programming language -Machine language, Assembly level language, higher level language, source file, object file, translator-assembler, compiler, interpreter. Evolution and classification of programming languages.	15
Unit II	Programming Techniques Steps in program development, algorithm, flowchart, pseudo code. C Language: 'C' character set, literals, keywords, identifiers, data types and size, variable declaration, expression, labels, statements, formatted input output statements, types of operators, data type conversion, mixed mode arithmetics, control structures.	15
Unit III	Data Structures Storage classes, scope rules and visibility, arrays, pointers, dynamic storage allocation, structures and unions, self-referential structures. Relationship between pointers and arrays, dynamic arrays: Introduction to dynamic data structures linked lists, stack, and binary trees.	15
Unit IV	Functions and File Handling 'C' functions, library functions, parameter passing, recursion, 'C' files function for file handling, 'C' pre-processors and command line arguments, macros and conditional compiler directives.	15

Suggested Reading

1. C Programming Language by Brian W. Kenigham and Dennis Ritchie, Prentice Hall of India.
2. Programming with C by Byron Gottfried, Tata McGraw Hill.
3. The Complete Reference C by Herbert Schildt, Tata McGraw Hill.
4. Let us C by Yashwant Kanetkar, BPB Publication.
5. A Structured Programming Approach in C by B.A. Forouzan and R.F. Gilberg, Cengage Learning.

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology, <https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL),
<https://www.youtube.com/user/nptelhrd>
3. Swayam Prabha - DTH Channel,
https://www.swayamprabha.gov.in/index.php/program/current_he/8

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Class Test/Assignment (25 marks)

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: I/II
Subject: Physics		
Course Code:	Course Title: Fundamental Mechanics	

Credits: 04		Minor/Elective
Max. Marks: 100 External Exam: 75 Internal Assessment: 25		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Vectors Algebra and Ordinary Differential Equations Vector algebra. Scalar and vector products. Derivatives of a vector with respect to a parameter. 1st order homogeneous differential equations. 2nd order homogeneous differential equations with constant coefficients.	15
Unit II	Translatory and Rotatory Motion and Conservation Laws Frames of reference. Newton's Laws of motion. Dynamics of a system of particles. Centre of Mass, Conservation of momentum. Work and energy. Conservation of energy. Motion of rockets, Angular velocity and angular momentum. Torque. Conservation of angular momentum.	15
Unit III	Gravitation Newton's Law of Gravitation. Motion of a particle in a central force field (motion in a plane, angular momentum conservation). Kepler's Laws (statement only). Satellite in circular orbit and applications. Geosynchronous orbits. Basic idea of global positioning system (GPS). Weightlessness. Physiological effects on astronauts.	15
Unit IV	Elasticity Hooke's law - Stress-strain diagram - Elastic moduli-Relation between elastic constants - Poisson's Ratio-Expression for Poisson's ratio in terms of elastic constants - Work done in stretching and work done in twisting a wire – Twisting couple on a cylinder - Determination of Rigidity modulus by static torsion – Torsional pendulum-Determination of Rigidity modulus and moment of inertia - q , η and σ by Searles method.	15

Suggested Reading

1. Sears, Zemansky and Young: University Physics
2. Berkeley Physics Course: Volume-1 Mechanics
3. Resnick, Halliday & Walker Fundamentals of Physics
4. Basudeb Bhattacharya: Engineering Mechanics 2nd Edn
5. Ronald Lane Reese: University Physics
6. B.L. Flint and H.T. Worsnop: Advanced Practical Physics for Students

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology, <https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL),
<https://www.youtube.com/user/nptelhrd>
3. Swayam Prabha - DTH Channel,
https://www.swayamprabha.gov.in/index.php/program/current_he/8

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Class Test/ Assignment (25 marks)

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: I/II
Subject: Physics		
Course Code:	Course Title: Waves and Oscillations	

Credits: 04		Minor/Elective
Max. Marks: 100 External Exam: 75 Internal Assessment: 25		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	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. 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, Sabine’s formula, Principle of sonar system.	15
Unit II	Ultrasonics Classification of Sound waves, Ultrasonics, Quartz crystal and Piezo electric effect, Magnetostriction effect, Properties of Ultrasonic, Detection of ultrasonic waves, Determination of velocity of ultrasonic waves in liquid (Acoustic grating method) . Application of Ultrasonics.	15
Unit III	Simple Harmonic Oscillations Periodic motion, SHM in mechanical systems, Energy of Simple harmonic oscillator, Superposition of SHM(s), Oscillations of two masses connected by a spring, Non-linear (An-harmonic) oscillator and its applications to simple pendulum. Applications of Simple harmonic motion in compound pendulum, Torsional pendulum and LC circuit, Composition of two SHM(s) of different frequency ratio, Lissajous’ figures for equal frequencies ratio and 2:1 frequencies ratio	15
Unit IV	Damped and Forced Harmonic Oscillations Damping force, Different cases for over, critical and under damping, Mechanical damped harmonic oscillators, Logarithmic decrement, Power Dissipation, Relaxation time & Quality Factor.	15

	Forced oscillations, Mechanical driven harmonic oscillators, Transient and steady state behavior, Power absorption, phenomenon of resonance, amplitude resonance, velocity resonance, sharpness of resonance/Fidelity, Bandwidth and quality factor.	
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Suggested Reading

1. R. Resnick and D. Halliday: Physics Vol-I
2. D. S. Mathur: Mechanics
3. Brijlal and Subrahmanyam: Waves and Oscillations
4. B. S. Semwal and M. S. Panwar: Wave Phenomena and Material Science
5. Berkeley Physics Course: Mechanics Vol-I
6. R. K. Ghose: The mathematics of waves and Vibrations
7. D. P. Khandelwal: Oscillations and Waves
8. I. I. Pain: Physics of Vibration
9. A. P. French: Vibrations and Waves

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology, <https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL), <https://www.youtube.com/user/nptelhrd>
3. Swayam Prabha - DTH Channel, https://www.swayamprabha.gov.in/index.php/program/current_he/8

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marks shall be as follows:

Class Test/Assignment (25 marks)

CERTIFICATE COURSE IN BASIC PHYSICS		
Programme: <i>Certificate Course in Basic Physics</i>		Year: I Semester: I/II
Subject: Physics		
Course Code:	Course Title: Basic Electricity and Magnetism	

Credits: 04		Minor/Elective
Max. Marks: 100 External Exam: 75 Internal Assessment: 25		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Electrostatics: Electrostatic Field, electric flux, Gauss's theorem of electrostatics. Applications of Gauss theorem- Electric field due to point charge, infinite line of charge, uniformly charged spherical shell and solid sphere, plane charged sheet, charged conductor. Electric potential as line integral of electric field, potential due to a point charge, electric dipole, uniformly charged spherical shell and solid sphere.	15
Unit II	Magnetism Magnetostatics: Biot-Savart's law and its applications- straight conductor circular coil, solenoid carrying current. Divergence and curl of magnetic field. Magnetic vector potential. Ampere's circuital law. Magnetic properties of materials: Magnetic intensity, magnetic induction, permeability, magnetic susceptibility. Brief introduction of dia-, para-and ferromagnetic materials.	15
Unit III	Electromagnetic Induction and Alternating Current Faraday's laws of electromagnetic induction, Lenz's law, self and mutual inductance, L of single coil, M of two coils. Energy stored in magnetic field. Basic concepts of alternating currents.	15
Unit IV	Maxwell's equations and Electromagnetic wave propagation Equation of continuity, Displacement current, Maxwell's equations, Poynting vector, energy density in electromagnetic field, electromagnetic wave and its transverse nature.	15

Suggested Reading

1. Edward M. Purcell: Electricity and Magnetism
2. J. H. Fewkes & J. Yarwood: Electricity & Magnetism, Vol. I
3. D. C. Tayal: Electricity and Magnetism

4. Ronald Lane Reese: University Physics
5. D. J. Griffiths: Introduction to Electrodynamics, 3rd Edn.
6. B. L. Flint & H. T. Worsnop: Advanced Practical Physics for Students
7. M. Nelson and J. M. Ogborn: Advanced level Physics Practicals, 4th Ed
8. I. Prakash & Ramakrishna: A Text Book of Practical Physics, 11th Ed
9. S. Panigrahi & B. Mallick: Engineering Practical Physics

Suggested Online Link:

1. MIT Open Learning - Massachusetts Institute of Technology,
<https://openlearning.mit.edu/>
2. National Programme on Technology Enhanced Learning (NPTEL),
<https://www.youtube.com/user/nptelhrd>
3. Swayam Prabha - DTH Channel,
https://www.swayamprabha.gov.in/index.php/program/current_he/8

Suggested Continuous Evaluation (25 Marks):

Continuous internal evaluation shall be based on allotted assignment and class tests. The marksshall be as follows:

Class Test/Assignment (25 marks)

Theory and Practical Examination Pattern

Theory (External) each theory paper carrying **maximum marks 75** and shall consist of two sections A and B. Examination duration shall be 02 hours.

- a. Section A: Multiple choice questions (MCQ)/true and false/very very short answer type questions.

Section A will consist of 10 questions, each of one mark)

Total: $10 \times 1 = 10$ Marks

- b. Section B: (Short answers type, 200 words)

Section B will consist of 08 questions, each of 7 marks in which 5 has to be answered.

Total: $7 \times 5 = 35$ Marks

- c. Section C: (Long answers type, 500 words)

Section C will consist of 3 long answered questions, in which has to be answered, each of 15 marks.

Total: $2 \times 15 = 30$ marks

For each theory paper internal assessment shall be conducted periodically (in the form of class tests and/or assignments/ group discussion/ oral presentation/ overall performance) during the semester period. Total marks allotted to internal assessment shall be 25 (Assignments 10 marks, written test/viva 10 marks and regularity 5 marks). The evaluated answer sheets/assignments have to be retained by the Professor In-Charge for the period of six months and can be shown to the students if students want to see the evaluated answer sheets. The marks obtained by the students shall be submitted to the Head of concerned department/ the Principal of the College for uploading onto the University examination portal.

Practical The laboratory work of the students has to be evaluated periodically.

The internal assessment (in the form of lab test, lab record, internal evaluation, assignment/home assignment and attendance) of total 10 marks for each semester shall be conducted during the semester. All kinds of exercises have to be conducted during a semester. Maximum 5 marks of attendance can be given to the students.

In each semester practical examination of 40 marks has to be conducted by two examiners (External and internal) having duration of 4 hours. The total number of students to be examined per batch should not be more than sixty. Marks obtained in the practical examination have to be submitted to the Head of the department/ Principal of the College. The Head of the Department/Principal of the College will make necessary arrangement for uploading the marks onto the University exam portal. The hard copy of the award list from portal has to be submitted to the Controller of Examination, Sri Dev Suman Uttarakhand University, Badshahithaul, New Tehri.

The breakup of marks for practical examination for each semester would be as follows:

Practical exam:	30 Marks (exercises)
Viva voce:	05 Marks
Lab Record and collection:	05 Marks
Sessional (Internal):	10 Marks
Total:	50 marks (each semester)

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**Department of Botany
Sri Dev Suman Uttarakhand University
Badshahithaul, Tehri Garhwal**



**SYLLABUS
of
BOTANY
for
First Three Years of Higher Education
UG - BOTANY SYLLABUS
(Under National Education Policy-2020)**

2022

Semester-wise Titles of the Papers in B. Sc (Botany)					
Year	Semester	Course Code	Paper title	Theory/ Practical	Credits
Certificate Course in Basic Botany					
First Year	I	BOT101T	Microbes, Algae, Fungi and Bryophytes	Theory	4
		BOT102P	Practical/Lab course	Practical	2
	II	BOT201T	Pteridophytes, Gymnosperms and Angiosperms	Theory	4
		BOT202P	Practical/Lab course	Practical	2
Diploma Course in Developmental Botany					
Second Year	III	BOT301T	Morphology and Anatomy	Theory	4
		BOT302P	Practical/Lab course	Practical	2
	IV	BOT401T	Embryology and Cytogenetics	Theory	4
		BOT402P	Practical/Lab course	Practical	2
Bachelor of Science					
Third Year	V	BOT501T	Molecular Biology and Plant Biotechnology	Theory	4
		BOT502T	Economic Botany and Plant Breeding	Theory	4
		BOT503 P	Practical/Lab course	Practical	2
		BOT504R	Project I-Local Plant Diversity	Practical	4
	VI	BOT 601T	Physiology and Biochemistry	Theory	4
		BOT602T	Ecology and Biostatistics	Theory	4
		BOT603P	Practical/Lab course	Practical	2
			Project II-Local Ecosystem studies	Practical	4

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Year wise Structure of B.Sc. in Botany (Core/elective courses and Projects)

Subject: Botany

Course/ Entry-Exit level	Year	Semester	Paper-1	Credits/hrs	Paper-2	Credits/ hrs	Paper-3	Credits/hrs	Research project	Credits /hrs	Total Credits/hrs
Certificate Course in Basic Botany	I	I	Microbes, Algae, Fungi and Bryophytes	4/60	Practical/ Lab course	2/60	-	-	-	-	6/120
		II	Pteridophytes, Gymnosperms and Angiosperms	4/60	Practical/ Lab course	2/60	-	-	-	-	6/120
Diploma Course in Developmental Botany	II	III	Morphology and Anatomy	4/60	Practical/ Lab course	2/60	-	-	-	-	6/120
		IV	Embryology and Cytogenetics	4/60	Practical/ Lab course	2/60	-	-	-	-	6/120
Bachelor of Science	III	V	Molecular Biology and Plant Biotechnology	4/60	Economic Botany and Plant Breeding	4/60	Practical /Lab course	2/60	Project-I	4/60	14/240
		VI	Physiology and Biochemistry	4/60	Ecology and Biostatistics	4/60	Practical /Lab course	2/60	Project-II	4/60	14/240

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COURSE INTRODUCTION

The new curriculum of B.Sc. in Science (Botany) offers essential knowledge and technical skills to study plants in a holistic manner. Students would be trained in all areas of plant biology using a unique combination of core, elective and vocational papers with significant inter-disciplinary components. Students would be exposed to cutting-edge technologies that are currently being used in the study of plant life forms, their evolution and interactions with other organisms within the ecosystem. Students would also become aware of the social and environmental significance of plants and their relevance to the national economy.

B.Sc. Botany Programme covers academic activities within the classroom sessions along with practical concepts at laboratory sessions. Infield, outstation activities and projects would also be organized for real-life experience and learning. Candidates who have curiosity in plants kingdom, ecosystem, love exploring exotic places and wish to work as researchers or professions like Botanist, Conservationist, Ecologist, etc. can choose B.Sc. Botany course.

Programme outcomes (POs):

Transformed curriculum shall develop educated outcome-oriented candidature, fostered with discovery- learning, equipped with practice & skills to deal practical problems and versed with recent pedagogical trends in education including e-learning, flipped class and hybrid learning to develop into responsible citizen for nation-building and transforming the country towards the future with their knowledge gained in the field of plant science.

PO1	CBCS syllabus with a combination of general and specialized education shall introduce the concepts of breadth and depth in learning.
PO2	Shall produce competent plant biologists who can employ and implement their gained knowledge in basic and applied aspects that will profoundly influence the prevailing paradigm of agriculture, industry, healthcare and environment to provide sustainable development.
PO3	Will increase the ability of critical thinking, development of scientific attitude, handling of problems and generating solutions, improve practical skills, enhance communication skill, social interaction, and increase awareness in judicious use of plant resources by recognizing the ethical value system.
PO4	The training provided to the students will make them competent enough for doing jobs in Govt. and private sectors of academia, research and industry along with graduate preparation for national as well as international competitive examinations, especially UGC-CSIR NET, UPSC Civil Services Examination, IFS, NSC, FCI, BSI, FRI etc.

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PO5	Certificate and diploma courses are framed to generate self- entrepreneurship and self- employability, if multi exit option is opted.
PO6	Lifelong learning is achieved by drawing attention to the vast world of knowledge of plants and their domestication.

Programme specific objectives (PSOs): B.Sc. I Year Certificate Course in Basic Botany

- This certificate course will provide knowledge on various fields of basic Botany.
- The syllabus is prepared to enable students for competitive exams in frontier areas of plant sciences.
- Students will be able to know about habit, habitat, morphology, anatomy and reproduction of various plant groups.

Programme specific outcomes (PSOs): B.Sc. II Year/ Diploma Course in Developmental Botany

- This programme will provide knowledge on plant anatomy, embryology and cytogenetics.
- Laboratory sessions following theory will provide easy understanding of internal structure of various plant parts, structural organization, reproductive biology and genetics.
- This course will help students to become a plant morphologist.

Programme specific outcomes (PSOs): B.Sc. III Year/ Bachelor of Science

- The three year learning outcome of graduation will provide understanding of plant systematic, developmental biology, ecology, statistics, physiology, biochemistry, anatomy, and plant genetics.
- It will provide expertise in conservation biology and reproduction biology.
- After completing this course successfully students will be able to contribute in the field of plant sciences. The research project will help to develop research aptitude for higher education and scientific research.

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DETAILED SYLLABUS OF B.Sc. I YEAR FOR CERTIFICATE COURSE IN BASIC BOTANY

Course	Year	Semester
<i>Certificate Course in Basic Botany</i>	<i>B.Sc. I</i>	<i>I</i>

Paper 1: Microbes, Algae, Fungi and Bryophytes (Course code: BOT101T) Credit: 4

Course Outcome

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

1. Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi & Lichens & their economic importance.
2. Develop conceptual skill about identifying microbes, pathogens, biofertilizers & lichens.
3. Gain knowledge about developing commercial enterprise of microbial products.
4. Learn host –pathogen relationship and disease management.
5. Gain Knowledge about uses of microbes in various fields.
6. Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens
7. Develop critical understanding on morphology, anatomy and reproduction of Bryophytes.

Unit	Topic	No. of lectures/ hrs (60)
1	Microbes : Viruses-discovery, general structure, replication (general account), DNA virus (T-phage); Lytic and lysogenic cycle, RNA virus (TMV); economic importance; bacteria-discovery, general characteristics and cell structure; reproduction-vegetative, asexual and recombination (conjugation, transformation and transduction); economic importance.	15
2	Algae: General characteristics; Range of thallus organization and reproduction; classification of algae; morphology and life-cycles of: <i>Nostoc</i> , <i>Chlamydomonas</i> , <i>Oedogonium</i> , <i>Vaucheria</i> , <i>Fucus</i> , <i>Sargassum</i> ; economic importance of algae.	15
3	Fungi : Introduction-general characteristics, ecology and significance, range of somatic thallus organization, cell wall composition, nutrition, reproduction and classification (G.C. Ainsworth); life cycle of <i>Stemonitis</i> (Myxomycota)	15

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	<i>Rhizopus</i> (Zygomycota) <i>Penicillium</i> (Ascomycota), <i>Puccinia</i> , <i>Agaricus</i> (Basidiomycota); <i>Alternaria</i> (Deutromycota), Symbiotic associations: Lichens- General account, reproduction and significance; Mycorrhiza: ectomycorrhiza, endomycorrhiza and their significance.	
4	Bryophytes: General characteristics, adaptations to land habit, classification (up to family), morphology, anatomy and reproduction of <i>Riccia</i> , <i>Marchantia</i> and <i>Funaria</i> ; ecology and economic importance of bryophytes.	15

Suggested reading

- Kumar, H.D. (1999). Introductory Phycology. Affiliated East-West. Press Pvt. Ltd. Delhi. 2nd edition.
- Tortora, G.J., Funke, B.R., Case, C.L. (2010). Microbiology: An Introduction, Pearson Benjamin Cummings, U.S.A. 10th edition.
- Sethi, I.K. and Walia, S.K. (2011). Text book of Fungi and Their Allies, MacMillan Publishers Pvt. Ltd., Delhi.
- Alexopoulos, C.J., Mims, C.W., Blackwell, M. (1996). Introductory Mycology, John Wiley and Sons (Asia), Singapore. 4th edition.
- Raven, P.H., Johnson, G.B., Losos, J.B., Singer, S.R. (2005). Biology. Tata McGraw Hill, Delhi, India.
- Pandey, S.N and Trivedi, P.S. (2015). A text book of Botany Vol.I Vikas publishing House Pvt/ Ltd, New Delhi.
- Vashishta, P.C., Sinha, A.K., Kumar, A. (2010). Bryophyta, S. Chand. Delhi, India.
- Parihar, N.S. (1991). An Introduction to Embryophyta Vol. I Bryophyta. Central Book Depot, Allahabad.

Paper 2: Practical/ Lab course (Course code: BOT102P)

Credit: 2

Course Outcome

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

1. Understand the instruments, techniques, lab etiquettes and good lab practices for working in a microbiology laboratory.
2. Develop skills for identifying microbes and using them for Industrial, Agriculture and Environment purposes.
3. Practical skills in the field and laboratory experiments in Microbiology and Pathology.
4. Learn to identify algae, lichens and plant pathogens along with their symbiotic and parasitic associations.
5. 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 Bryophytes.

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6. Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding diversity, economic values & taxonomy of bryophytes.

Unit	Topic	No. of Lectures/ hrs (60)
1	EMs/Models of viruses – T-Phage and TMV, Line drawing/Photograph of Lytic and Lysogenic Cycle. Types of Bacteria from temporary/permanent slides/photographs; EM of bacterium; Binary Fission; Conjugation; Structure of root nodule; Gram staining technique	15
2	Study of vegetative and reproductive structures of <i>Nostoc</i> , <i>Chlamydomonas</i> (electron micrographs), <i>Oedogonium</i> , <i>Vaucheria</i> , <i>Fucus</i> and <i>Sargassum</i> through temporary preparations and permanent slides/specimens	15
3	<i>Rhizopus</i> and <i>Penicillium</i> : Asexual stages from temporary mounts. <i>Alternaria</i> : Specimens/photographs and tease mounts. <i>Puccinia</i> : 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. <i>Agaricus</i> : Specimens of button stage and full grown mushroom. Lichens: Study of growth forms of lichens (crustose, foliose and fruticose). Mycorrhiza: ecto mycorrhiza and endo mycorrhiza (Photographs).	15
4	<i>Marchantia</i> and <i>Riccia</i> : Morphology of thallus, rhizoids and scales, V.S. thallus through gemma cup, gemmae whole mount (all temporary slides), V.S. antheridiophore, archegoniophore, L.S. sporophyte (all permanent slides). <i>Funaria</i> - Morphology, whole mount leaf, rhizoids, operculum, peristome, annulus, spores (temporary slides); permanent slides showing antheridial and archegonial heads, L.S capsule and protonema.	15

Suggested reading

- 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.

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Course	Year	Semester
<i>Certificate Course in Basic Botany</i>	<i>B.Sc. I</i>	<i>II</i>

Paper 1: Pteridophytes, Gymnosperms and Angiosperms (BOT201T) Credit: 4

Course Outcome

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

1. Develop critical understanding on morphology, anatomy and reproduction of Pteridophytes, Gymnosperms and Angiosperms.
2. Understanding of plant evolution and their transition to land habitat.
3. To learn the major patterns of diversity among plants, and the characters and types of data used to classify plants.
4. To compare the different approaches to classification with regard to the analysis of data.
5. 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.
6. To discover and use diverse taxonomic resources, reference materials, herbarium collections, publications.

Unit	Topic	No. of Lectures/ hrs (60)
1	Pteridophytes General characteristics, classification, early land plants (<i>Rhynia</i>); classification (up to family), morphology, anatomy and reproduction of <i>Selaginella</i> , <i>Equisetum</i> and <i>Pteris</i> ; heterospory and seed habit, stelar evolution; ecological and economic importance of Pteridophytes.	15
2	Gymnosperms General characteristics, classification (up to family), morphology, anatomy and reproduction of <i>Cycas</i> , <i>Pinus</i> and <i>Ephedra</i> ; ecological and economic importance.	15
3	Introduction to plant taxonomy Identification, classification, nomenclature, functions of herbarium, important herbaria and botanical gardens of the world and India 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). Classification: Types of classification-artificial, natural and phylogenetic Bentham and Hooker (upto series) and Hutchinson classification.	10
4	Taxonomy of plant families	20

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Ranunculaceae, Malvaceae, Rutaceae, Fabaceae, Apiaceae, Solanaceae, Lamiaceae, Euphorbiaceae, Asteraceae, Poaceae and Orchidaceae (Families can be chosen as per availability of local flora)	
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Suggested readings

- Vashishta, P.C., Sinha, A.K. and Kumar, A. (2010). Pteridophyta, S Chand and Company Ltd., Ramnagar, New Delhi, India.
- Vashishta, P.C., Sinha, A.K. and Kumar, A. (2010). Gymnosperms, S Chand and Company Ltd., Ramnagar, New Delhi, India.
- Bhatnagar, S.P. and Moitra, A. (1996). Gymnosperms. New Age International (P) Ltd Publishers, New Delhi, India.
- Parihar, N.S. (1991). An Introduction to Embryophyta. Vol. I. Bryophyta. Central Book Depot, Allahabad.
- Simpson, M.G. (2006). Plant Systematics. Elsevier Academic Press, San Diego, CA, U.S.A.
- Singh, G. (2012). Plant Systematics: Theory and Practice. Oxford and IBH Pvt. Ltd., New Delhi. 3rd edition.
- Gangulee H.C., Kar, A.K. and Santra S.C. (2011). College Botany Vol II. 4th Edition New Central Book Agency.
- Parihar, N.S. (1976). Biology and Morphology of Pteridophytes. Central Book Depot.
- Sharma, O.P. (1990). Textbook of Pteridophyta. MacMillan India Ltd. Delhi.
- Pandey, B.P. (2010). College Botany Vol II. S. Chand and Company Ltd., New Delhi, India.

Paper 2: Practical/ Lab course (BOT202P)

Credit: 2

Course outcomes:

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 & taxonomy of plants.

Unit	Topic	No. of Lectures/ hrs (60)
1	<i>Selaginella</i> : Morphology, whole mount leaf with ligule, strobilus, microsporophyll and megasporophyll (temporary slides), T.S. stem, L.S. strobilus (permanent slide). <i>Equisetum</i> : Morphology, T.S. internode, L.S. strobilus, T.S and L.S.	15

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	strobilus, whole mount sporangiophore, spores (wet and dry) (temporary slides); T.S. rhizome (permanent slide). <i>Pteris</i> : 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).	
2	<i>Cycas</i> : 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). <i>Pinus</i> : 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).	15
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)	20
4	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.	10

Suggested readings

- 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.

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**DETAILED SYLLABUS OF B.Sc. II YEAR OR DIPLOMA COURSE IN
DEVELOPMENTAL BOTANY**

Course	Year	Semester
<i>Diploma Course in Developmental Botany</i>	<i>B.Sc. II</i>	<i>III</i>

Paper 1: Morphology and Anatomy (Course code: BOT301T) Credit: 4

Course outcomes:

1. Understand morphology and anatomy.
2. Understand role of tissues in plant functions.
3. Understand the composition, modifications, internal structure & architecture of plants.

Unit	Topic	No. of Lectures/ hrs (60)
1	Meristematic and permanent tissues: Types of tissues, Root and shoot apical meristems, Theories related to apical meristem, simple, complex and secretory tissues	15
2	Organs: Structure of dicot and monocot root, stem and leaf, root stem transition	15
3	Adaptive and protective systems: Epidermis, cuticle and stomata	15
4	Secondary growth: Structure and function of Vascular cambium, secondary growth in stem and roots, abnormal secondary growth	15

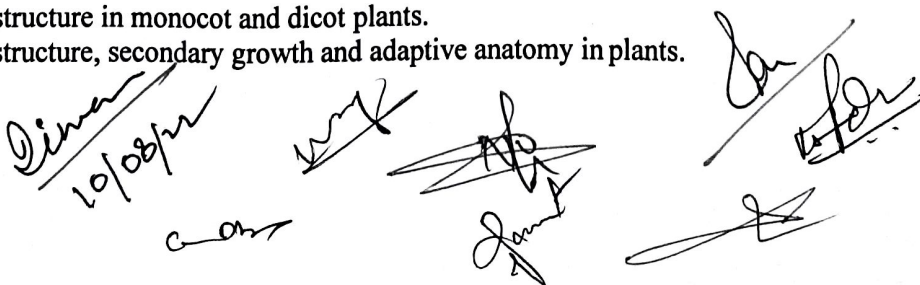
Suggested readings

- Mauseth, J.D. (1988). Plant Anatomy. The Benjamin/Cummings Publisher, USA.
- Pandey, B.P. (2001) Plant Anatomy. S. Chand and Company Ltd., New Delhi.
- Sharma, P.C. (2017). Text Book of Plant Anatomy. Arjun Publishing House.
- Menan, A.B. (2008). Introduction to Plant Anatomy. Neha Publishers and Distributors.
- Sharma, M.K. (2013) Plant Structures (An Introduction to Plant Anatomy). Vayu Education of India.

Paper 2: Practical/Lab Course (Course code: BOT302P) Credits: 02

Course outcomes:

1. Understand cell structure in monocot and dicot plants.
2. Understand cell structure, secondary growth and adaptive anatomy in plants.



Unit	Topic	No. of Lectures (60 hrs)
1	Study of meristems through permanent slides and photographs. Tissues (parenchyma, collenchyma and sclerenchyma), complex and secretory tissues	15
2	Anatomy of monocot and dicot Stem; monocot and dicot leaf; monocot and dicot root (Plants can be chosen as per availability of local flora)	15
3	Adaptive anatomy: Xerophytes, Hydrophytes, Epiphytes (Plants can be chosen as per availability of local flora)	15
4	Normal and abnormal secondary growth in different plants (Plants can be chosen as per availability of local flora)	15

Suggested readings

- Pandey, B.P. (2014). Modern Practical Botany Vol. II. S. Chand and Company Ltd. Ramnagar, New Delhi.
- Pandey, B.P. (2001). Plant Anatomy. S. Chand and Company Ltd., Ram Nagar, New Delhi.
- Sundara, R.S. (2002). Practical Manual Anatomy and Embryology. Anmol Publisher, New Delhi.

Course	Year	Semester
<i>Diploma Course in Developmental Botany</i>	<i>B.Sc. II</i>	<i>IV</i>

Paper 1: Embryology and Cytogenetics (course code: BOT401) Credit: 4

Course outcomes:

1. Understand reproduction and developmental changes in plants.
2. Understand the structure and chemical composition of chromatin and concept of cell division.
3. Interpret the Mendel's principles; acquire knowledge on cytoplasmic inheritance and sex-linked inheritance.

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Unit	Topic	No. of Lectures (60 hrs)
1	Pollination and fertilization: Pollination mechanisms and adaptation, structure of anther and pollen, development of male and female gametophytes, double fertilization.	15
2	Embryo and endosperm: Types of ovules and embryo sacs; embryo and endosperm; types of endosperm; dicot and monocot embryo; apomixis and polyembryony.	15
3	Heredity: (Pre-mendelian genetics, brief life history of Mendel, laws of Inheritance, modified mendelian ratios, lethal genes, co-dominance, incomplete dominance, chi square, pedigree analysis, multiple allelism, chromosome theory of inheritance, sex-determination and sex-linked inheritance, cytoplasmic inheritance Linkage and crossing over: Linkage: concept and history, complete and incomplete linkage, bridges experiment, coupling and repulsion, recombination frequency, linkage maps based on two and three factor crosses.	15
4	Crossing over: Concept and significance, cytological proof of crossing over; mutations and chromosomal aberrations (types of mutations, effects of physical and chemical mutagens, numerical chromosomal changes: euploidy, polyploidy and aneuploidy; structural chromosomal changes: deletions, duplications, inversions and translocations).	15

Suggested readings

- Bhojwani, S.S. and Bhatnagar, S.P. (2010). The Embryology of Angiosperms. Vikas Publication House Pvt. Ltd. New Delhi. 5th edition.
- Johri, B.M. (1984). Embryology of Angiosperms. Springer-Verlag, Berlin
- Maheshwari, P. (1971). An Introduction to Embryology of Angiosperms. McGraw Hill Book Co. London.
- Rastogi, V.B. (2019). Genetics. 4th Edition. MEDTECH: A Division of Scientific International.

Paper 2: Practical/Lab Course (Course code: BOT402) Credits: 4

Course outcomes

1. Understand the pollination and seed dispersal mechanism.
2. Study the structure of ovules and female gametophytes.
3. Interpret the Mendel's principles; and understand the monohybrid and dihybrid crosses and their ratio and chromosomal changes.

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Unit	Topic	No. of Lectures (60 hrs)
1	Pollination types and seed dispersal mechanisms (photographs and specimens)	15
2	Structure of anther (young and mature). Types of ovules: anatropous, orthotropous, circinotropous, amphitropous, campylotropous. Female gametophyte: <i>Polygonum</i> (monosporic) type of embryo sac development (permanent slides/photographs) Ultrastructure of mature egg apparatus cells through electron micrographs (permanent slides/photographs)	15
3	Mendel's laws through seed ratios. Laboratory exercises in probability and chi-square. Monohybrid cross (dominance and incomplete dominance) Dihybrid cross and gene interactions Pedigree analysis for dominant and recessive autosomal and sex linked traits. Incomplete dominance and gene interaction through seed ratios (9:7, 9:6:1, 13:3, 15:1, 12:3:1, 9:3:4).	15
4	Study of aneuploidy: Down's, Klinefelter's and Turner's syndromes through photographs. Photographs/permanent slides showing translocation ring, laggards and inversion bridge	15

Suggested reading

- Sundara, R.S. (2002). Practical Manual Anatomy and Embryology. Anmol Publisher, New Delhi.
- Singh, R.J. (2021). Practical Manual on Plant Cytogenetics. CRC Press, Taylor and Francis Group, Routledge.

DETAILED SYLLABUS OF B. Sc III YEAR OR BACHELOR OF SCIENCE

Course	Year	Semester
<i>Bachelor of Science</i>	<i>B.Sc. III</i>	<i>V</i>





Paper 1: Cell and Molecular Biology, and Biotechnology (Course code: BOT501T)Credit: 4

Course outcomes:

1. Understand cell structure, nucleic acids, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process.
2. Know about processing and modification of RNA and translation process, function and regulation of expression.
3. Understand the basic tools and techniques used in Plant tissue culture.

Unit	Topic	No. of Lectures (60 hrs)
1	Cell Biology: The cell theories, prokaryotic and eukaryotic cells, cell organelles (Mitochondria, Chloroplast, ER, golgi body, lysosomes, peroxisomes, glyoxisomes, nucleus, chromatin; DNA packaging in eukaryotes, euchromatin and heterochromatin, nucleolus and ribosome structure), cell membrane and cell wall; models of membrane structure, cell cycle (overview of cell cycle, mitosis and meiosis, molecular controls).	18
2	Molecular Biology: Genetic material (DNA: Miescher to Watson and Crick- historic perspective, Griffith's and Avery's transformation experiments, Hershey-Chase bacteriophage experiment, DNA structure, types of DNA, types of genetic material); DNA replication (Prokaryotes); Transcription (Prokaryotes) Types of structures of RNA (mRNA, tRNA, rRNA); Translation (Prokaryotes), Regulation of gene expression (Prokaryotes: Lac operon and Tryptophan operon).	18
3	Plant tissue culture: Culture types on the basis of explants and media composition, General lab setup and instrumentation, micropropagation, brief account of protoplast culture, somatic embryogenesis with their applications.	12
4	Recombinant DNA techniques: Blotting techniques: Northern, Southern and Western Blotting, Molecular DNA markers i.e. RAPD, RFLP, SNPs, PCR, hybridoma and monoclonal antibodies, ELISA and Immunodetection.	12

Suggested readings

- Karp, G. (2010). Cell and Molecular Biology: Concepts and Experiments. 6th Edition. John Wiley and Sons. Inc.
- De Robertis, E.D.P. and De Robertis, E.M.F. (2006). Cell and Molecular Biology. 8th edition. Lippincott Williams and Wilkins, Philadelphia.
- Cooper, G.M. and Hausman, R.E. (2009). The Cell: A Molecular Approach. 5th edition. ASM Press and Sunderland, Washington, D.C.; Sinauer Associates, MA.

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- Becker, W.M., Kleinsmith, L.J., Hardin. J. and Bertoni, G.P. (2009). The World of the Cell. 7th edition. Pearson Benjamin Cummings Publishing, San Francisco.

Paper 2: Economic Botany and Plant Breeding (Course code: BOT502T) Credit:4

Course outcomes

1. Know about the importance of medicinal plants and its useful parts, economically important plants in our daily life and also about the traditional medicines and herbs, and its relevance in modern times.
2. Understand the plant breeding systems and heterosis and mutation in plant breeding.

Unit	Topic	No. of Lectures (60 hrs)
1	Origin of cultivated plants (concept of centres of origin, their importance with reference to vavilov's work)	18
2	A brief knowledge of botany and commercial utilization and uses of the following plants: 1. Cereals and millets- Wheat, Rice and Maize, Ragi, Pearl millet 2. Sugar yielding plants- Sugarcane and Sugar beet 3. Fruits- Mango, Apple, Banana, Citrus and Litchi. 4. Fibers- Cotton, Jute, Hemp, Coir, Agave and Semal. 5. Vegetables- Root vegetables, stem vegetables and fruit vegetables. 6. Timbers- Teak, Shisham, Sal, Chir and Deodar. 7. Medicinal plants- <i>Aconitum</i> , <i>Atropa</i> , <i>Cinchona</i> , <i>Rauwolfia</i> , <i>Ephedra</i> , <i>Withania</i> , and <i>Alovera</i> . 8. Oils, Beverages, Fumitories, masticatories, Spices and Condiments yielding plants.	12
3	Plant breeding (introduction and objectives; breeding systems, important achievements and undesirable consequences of plant breeding); methods of crop improvement; centres of origin and domestication of crop plants, plant genetic resources; acclimatization; selection methods.	18
4	Hybridization: for self, cross and vegetatively propagated plants – procedure, advantages and limitations; inbreeding depression and heterosis (history, genetic basis of inbreeding depression and heterosis; applications); crop improvement and breeding (role of mutations; polyploidy; distant hybridization and role of biotechnology in crop improvement).	12

Suggested readings

- Kochhar, S.L. (2011). Economic Botany in the Tropics, MacMillan Publishers India Ltd., New Delhi. 4th edition.
- Pandey, B.P. (1999). Economic Botany. S. Chand, New Delhi.

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- Singh, B.D. (2005). Plant Breeding: Principles and Methods. Kalyani Publishers. 7th edition.
- Acquaah, G. (2007). Principles of Plant Genetics and Breeding. Blackwell Publishing.

Paper 3: Lab Course (Course code: BOT503P) Credit: 2

Course outcomes

1. Learn the basic structure and function of cells and instruments used in molecular biology,
2. Know about the commercial products produced from plants.
3. Understand about the ethnobotanical details of plants.
4. Learn about the chemistry of plants and herbal preparations.

Unit	Topic	No. of Lectures (60 hrs)
1	Structure of prokaryotic cells (bacteria), viruses, eukaryotic cells with the help of light and electron micrographs. Study of the photomicrographs of cell organelles, structure of plant cell through temporary mounts. Study of mitosis and meiosis (temporary mounts and permanent slides). Demonstration of the effect of temperature, organic solvent on semi permeable membrane. Study of plasmolysis, deplasmolysis, Endo- and Exo-osmosis.	15
2	Instruments and equipments used in molecular biology The cell size measurements (either length or breadth/diameter) by micrometry. Study the structure of nuclear pore complex by photograph (from Gerald Karp) Study of special chromosomes (polytene and lampbrush) either by slides or photographs. Study DNA packaging by micrographs. Preparation of the karyotype and ideogram from given photograph of somatic metaphase chromosome.	15
3	Study of economically important plants: Cereals: Wheat, Rice, Maize Millets: Finger millet, Foxtail, Ragi Pulses: Gram, Green gram, Pea, Pigeon pea, Soyabean, Chick pea Timbers: Shisam, Sal, Teak, Deodar, Pine Medicinal plants: Dhatura, Berginia, Hedychium, Poppy, Basil, Barberry Beverages: Tea, Coffee Oils: Mustard, Seseame, Coconut, Linseed, Groundnut, Castor, Laung, Sandal wood, Mentha Spices: Coriander, Cardmum, Curcuma, Cinamom, Laung, Cumin, Thyme, Nigella, Cinamom leaf	15

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	Fibers: Jute, Coconut, Hemp, Urtica, Cotton Sugars and starch yielding plants: Sugarcane, Potato, Beet root Fruits and vegetables cultivated in the area. Gums and Resins.	
4	Hybridization techniques - Emasculation, Bagging (For demonstration only). Induction of polyploidy in plants (For demonstration only).	15

Suggested readings

- Bhojwani, S.S. and Razdan, M.K., (1996). Plant Tissue Culture: Theory and Practice. Elsevier Science Amsterdam. The Netherlands.
- Glick, B.R., Pasternak, J.J. (2003). Molecular Biotechnology- Principles and Applications of recombinant DNA. ASM Press, Washington.
- Pandey, B.P. (1999). Economic Botany. S. Chand, New Delhi.

Paper 4: Project in Botany for Pre-graduation (Course code: BOT504R) Credit: 4

(Based on Local Plant Diversity)

Course	Year	Semester
<i>Bachelor of Science</i>	<i>B.Sc. III</i>	<i>VI</i>

Paper 1: Plant Physiology and Biochemistry (BOT501T) Credit: 4

Course outcome

1. Understand the role of physiological and metabolic processes for plant growth and development.
2. Learn the symptoms of mineral deficiency in crops and their management.
3. Assimilate knowledge about Biochemical constitution of plant diversity.
4. Know the role of plants in development of natural products, nutraceuticals, dietary supplements, antioxidants.

Unit	Topic	No. of Lectures (60 hrs)
1	Plant-water relations: Importance of water, water potential and its components; transpiration and its significance; factors affecting transpiration; root pressure and guttation. Mineral nutrition: Essential elements, macro and micronutrients; criteria of essentiality of elements; role of essential elements; transport of ions across cell membrane, active and passive transport, carriers, channels and Pumps	18
2	Photosynthesis: (photosynthetic Pigments (Chl a, b, xanthophylls,	18

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	carotene); photosystem I and II, electron transport and mechanism of ATP synthesis; C ₃ , C ₄ and CAM pathways of carbon fixation; photorespiration). Respiration (glycolysis, anaerobic respiration, TCA cycle; oxidative phosphorylation, glyoxylate cycle).	
3	Nitrogen metabolism: Biological nitrogen fixation; nitrate and ammonia assimilation. Plant growth regulators: Discovery and physiological roles of auxins, gibberellins, cytokinins, ABA, ethylene.	12
4	Biochemistry: General introduction to carbohydrates, lipids and proteins. Enzymes (structure and properties; mechanism of enzyme catalysis and enzyme inhibition, factors affecting enzyme action).	12

Suggested readings

- 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.

Paper 2: Ecology and Biostatistics (Course code: BOT602T) Credit: 4

Course outcome

1. Acquaint the students with complex interrelationship between organisms and environment;
2. Make them understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography.
3. Understanding the strategies for sustainable natural resource management and biodiversity conservation.
4. Practical knowledge of the different statistics tools and techniques.

Unit	Topic	No. of Lectures (60 hrs)
1	Ecological factors: Soil (Origin, formation, composition, soil profile) Plant adaptation in relation to water (Hydrophytes and xerophytes), light (Sciophytes and heliophytes) and temperature Pollution: Water, Soil and Radioactive.	12

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2	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	18
3	Biostatistics: Definition and scope of statistics, sampling techniques, representation of data: tabular, graphical etc Measures of central tendency: Arithmetic mean, mode, median.	18
4	Measures of dispersion: range, mean deviation, variation, standard deviation; Chi-square test for goodness of fit Regression analysis	12

Suggested reading

- 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 Company Pvt. Ltd., New Delhi.

Paper 3: Practical/lab Course (Course code: BOT603P)

Credit: 2

Course outcome

1. Understand the role of different physiological and metabolic processes of plants.
2. Gaining practical knowledge implemented in the biodiversity assessment and conservation.
3. Practical knowledge of the different statistics tools and techniques.

Unit	Topic	No. of Lectures (60 hrs)
1	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.	18

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	Demonstration of the effect of light intensity and bicarbonate concentration on O ₂ 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.	
2	Test of carbohydrates, proteins and fats.	12
3	Observation and study of different ecosystems mentioned in the syllabus. Study of instruments used to measure microclimatic variables: Soil thermometer, maximum and minimum thermometer, rain gauge and lux meter. Determination of pH, and analysis of soil samples for soil moisture, organic carbon, nitrogen and phosphorus. Comparison of bulk density, porosity and rate of infiltration of water in soil of three habitats. Study of ecological adaptations in hydrophytes and xerophytes. Study of biotic interactions of: stem parasite (<i>Cuscuta</i>), root parasite (orobanche), epiphytes, predation (insectivorous plants) through specimen or diagrams. 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.	18
4	Analysis of statistical data: mean, median, and mode by analyzing the given data of individual, discrete and continuous series, standard error and deviation Numerical based on correlation coefficient Numerical based on chi square value Representation of data by making graphs and diagrams etc. Comment upon given graphs, diagrams etc.	12

Suggested readings

- Plummer, D.T. (1996). An Introduction to Practical Biochemistry. Tata McGraw-Hill Publishing Co. Ltd. New Delhi. 3rd edition.
- Zar, J.H. (2012). Biostatistical Analysis. Pearson Publication. U.S.A. 4th edition.

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(Based on Local Ecosystem studies)

Vocational/Skill Enhancement Courses in Botany

(i) Bio-fertilizers

Credit: 3

Course outcome

1. Develop conceptual skill about identifying microbes, and bio-fertilizers.
2. Gain knowledge about developing commercial enterprise of bio-fertilizers.

Unit	Topic	No. of lecturers/ hrs (45)
1	General account about the microbes used as biofertilizer – <i>Rhizobium</i> – isolation, identification, mass multiplication, carrier based inoculants, Actinorrhizal symbiosis.	10
2	<i>Azospirillum</i> : isolation and mass multiplication – carrier based inoculant, associative effect of different microorganisms. <i>Azotobacter</i> : classification, characteristics – crop response to <i>Azotobacter</i> inoculum, maintenance and mass multiplication Cyanobacteria (blue green algae), <i>Azolla</i> and <i>Anabaena azollae</i> association, nitrogen fixation, factors affecting growth, blue green algae and <i>Azolla</i> in rice cultivation	15
3	Mycorrhizal association, types of mycorrhizal association, taxonomy, occurrence and distribution, phosphorus nutrition, growth and yield – colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield of crop Plants	10
4	Organic farming – Green manuring and organic fertilizers, Recycling of biodegradable municipal, agricultural and Industrial wastes – biocompost making methods, types and method of vermicomposting – field Application. National and state institutes related to the activity.	10

Suggested readings

- Dubey, R.C. (2005). A Text Book of Biotechnology. S.Chand and Co, New Delhi.
- Kumaresan, V. (2005). Biotechnology, Saras Publications, New Delhi.

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- John Jothi Prakash, E. (2004). Outlines of Plant Biotechnology. Emkay Publication, New Delhi.
- Sathe, T.V. (2004). Vermiculture and Organic Farming. Daya Publishers.
- Subha Rao, N.S. (2000). Soil Microbiology, Oxford and IBH Publishers, New Delhi.
- Vayas, S.C, Vayas, S. and Modi, H.A. (1998). Bio-fertilizers and organic Farming. Akta Prakashan, Nadiad.

(ii) Herbal Technology

Credit: 3

Course outcome

1. Develop conceptual skill about traditional Indian medicinal system, herbal medicines, their processing, storage and marketing.
2. Gain knowledge about developing commercial enterprise of herbal medicines.
3. Learn the basic tools and techniques for phytochemical analysis and propagation of the medicinal plants.

Unit	Topic	No. of lecturers/ hrs (45)
1	Herbal medicines: history and scope - definition of medical terms - role of medicinal plants in Siddha systems of medicine; cultivation - harvesting - processing - storage - marketing and utilization of medicinal plants.	10
2	Pharmacognosy - systematic position medicinal uses of the following herbs in curing various ailments; Tulsi, Ginger, Fenugreek, Indian Goose berry and Ashoka. Phytochemistry - active principles and methods of their testing - identification and utilization of the medicinal herbs; <i>Catharanthus roseus</i> (cardiotonic), <i>Withania somnifera</i> (drugs acting on nervous system), <i>Clerodendron phlomoides</i> (anti-rheumatic) and <i>Centella asiatica</i> (memory booster).	15
3	Analytical pharmacognosy: Drug adulteration - types, methods of drug evaluation - Biological testing of herbal drugs - Phytochemical screening tests for secondary metabolites (alkaloids, flavonoids, steroids, triterpenoids, phenolic compounds).	10
4	Medicinal plant banks micro propagation of important species (<i>Withania somnifera</i> , neem and tulsi- Herbal foods-future of pharmacognosy). National and state institutes related to the activity.	10

Suggested readings

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- Chopra, R.N., Nayar S.L. and Chopra, I.C. (1956). Glossary of Indian Medicinal Plants, C.S.I.R., New Delhi.
- Arber, A. (1999). Herbal plants and Drugs. Mangal Deep Publications.
- Sivarajan V.V. and Balachandran I. (1994). Ayurvedic drugs and their plant source. Oxford IBH publishing Co.
- Miller, L. and Miller, B. (1998). Ayurveda and Aromatherapy. Banarsidass, Delhi.
- Green, A. (2000). Principles of Ayurveda, Thomsons, London.
- Kokate, C.K. (1999). Pharmacognosy, Nirali Prakashan.

(iii) Nursery and Gardening

Credit: 3

1. Develop conceptual of nursery and gardening.
2. Gain knowledge about developing commercial enterprise of nursery.

Unit	Topic	No. of lecturers/ hrs (45)
1	Nursery: definition, objectives and scope and building up of infrastructure for nursery, planning and seasonal activities - Planting - direct seeding and transplants. Seed: Structure and types - Seed dormancy; causes and methods of breaking dormancy-Seed storage: Seed banks, factors affecting seed viability, genetic erosion – Seed production technology - seed testing and certification	15
2	Vegetative propagation: air-layering, cutting, selection of cutting, collecting season, treatment of cutting, rooting medium and planting of cuttings - Hardening of plants – green house - mist chamber, shed root, shade house and glass house	10
3	Gardening: definition, objectives and scope - different types of gardening-landscape and home gardening - parks and its components - plant materials and design-computer applications in landscaping - Gardening operations: soil laying, manuring, watering, management of pests and diseases and harvesting.	10
4	Sowing/raising of seeds and seedlings - Transplanting of seedlings - Study of cultivation of different vegetables: cabbage, brinjal, lady's finger, onion, garlic, tomatoes, and carrots - Storage and marketing procedures. National and state institutes related to the activity.	10

Suggested readings

- Bose T.K. and Mukherjee, D. (1972). Gardening in India, Oxford and IBH Publishing Co., New Delhi.

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- Sandhu, M.K. (1989). Plant Propagation, Wile Eastern Ltd., Bangalore, Madras.
- Kumar, N. (1997). Introduction to Horticulture, Rajalakshmi Publications, Nagercoil.
- Agrawal, P.K. (1993). Hand Book of Seed Technology, Dept. of Agriculture and Cooperation, National Seed Corporation Ltd., New Delhi.
- Jules J. (1979). Horticultural Science. (3rd Ed.), W.H. Freeman and Co., San Francisco, USA.

(iv) Floriculture

Credit: 3

Course outcome

1. Develop conceptual skill about floriculture.
2. Gain knowledge about developing commercial enterprise of commercial floriculture.

Unit	Topic	No. of lecturers/ hrs (45)
1	Introduction: History of gardening; Importance and scope of floriculture. Nursery Management and Routine Garden Operations: Sexual and vegetative methods of propagation; Soil sterilization; Seed sowing; Pricking; Planting and transplanting; Role of plant growth regulators.	15
2	Ornamental Plants: Flowering annuals; Herbaceous perennials; Shade and ornamental trees; Cacti and succulents; Palms and Cycads; Ferns; Cultivation of plants in pots; Indoor gardening; Bonsai.	10
3	Principles of Garden Designs: English, Italian, French, Persian, Mughal and Japanese gardens; Features of a garden (Garden wall, Fencing, Steps, Hedge, Edging, Lawn, Flower beds, Shrubbery, Borders, Water garden. Some Famous gardens of India.	10
4	Commercial Floriculture: Factors affecting flower production; Production and packaging of cut flowers; Flower arrangements; Methods to prolong vase life; Cultivation of Important cut flowers (Carnation, Aster, Chrysanthemum, Dahlia, Gerbera, Gladiolous, Marigold, Rose, Lilium, Orchids). Diseases and Pests of Ornamental Plants. National and state institutes related to the activity.	10

Suggested readings

- Randhawa, G.S. and Mukhopadhyay, A. (1986). Floriculture in India. Allied Publishers.

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(v) Medicinal Botany**Credit: 3****Course outcome**

1. Understand the traditional Indian medicinal systems and their importance.
2. To learn the strategies for the conservation of medicinal plants.
3. Gain knowledge about developing commercial enterprise of herbal medicines.

Unit	Topic	No. of lecturers/ hrs (45)
1	History, Scope and Importance of Medicinal Plants. Indigenous Medicinal Sciences; Definition and Scope-Ayurveda: History, origin, panchamahabhutas, saptadhatu and tridosha concepts, Rasayana, plants used in ayurvedic treatments, Siddha:	10
2	Origin of Siddha medicinal systems, Basis of Siddha system, plants used in Siddha medicine. Unani: History, concept: Umoor-e- tabiya, tumors treatments/ therapy, polyherbal formulations.	10
3	Conservation of endangered and endemic medicinal plants. Definition: endemic and endangered medicinal plants, Red list criteria; In situ conservation: Biosphere reserves, sacred groves, National Parks; Ex situ conservation: Botanical Gardens, Ethnomedicinal plant Gardens. Propagation of Medicinal Plants: Objectives of the nursery, its classification, important components of a nursery, sowing, pricking, use of green house for nursery production, propagation through cuttings, layering, grafting and budding	15
4	Ethnobotany and Folk medicines. Definition; Ethnobotany in India: Methods to study ethnobotany; Applications of Ethnobotany: National interacts, Palaeo-ethnobotany. folk medicines of ethnobotany, ethnomedicine, ethnoecology, ethnic communities of India. Application of natural products to certain diseases- Jaundice, cardiac, infertility, diabetics, Blood pressure and skin diseases. National and state institutes related to the activity.	10

Suggested readings

- Trivedi, P.C. (2006). Medicinal Plants: Ethnobotanical Approach, Agrobios, India.
- Purohit, S.S. and Vyas, S.P. (2008). Medicinal Plant Cultivation: A Scientific Approach, 2nd edn. Agrobios, India.

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(vi) Conservation and Management of biodiversity**Credit: 3****Course outcome**

1. Understand the importance, benefits and services of biodiversity.
2. To learn the strategies for the conservation of biodiversity.

Unit	Topic	No. of lecturers/ hrs (45)
1	Plant diversity and its scope- Genetic diversity, Species diversity, Plant diversity at the ecosystem level, Agrobiodiversity and cultivated plant taxa, wild taxa. Values and uses of Biodiversity: Ethical and aesthetic values, Precautionary principle, Methodologies for valuation, Uses of plants, Uses of microbes	10
2	Loss of Biodiversity; Loss of genetic diversity, Loss of species diversity, Loss of ecosystem diversity, Loss of agrobiodiversity, Projected scenario for biodiversity loss, Management of Plant Biodiversity: Organizations associated with biodiversity management-Methodology for execution-IUCN, UNEP, UNESCO, WWF, NBPGR; Biodiversity legislation and conservations, Biodiversity information management and communication.	15
3	Conservation of Biodiversity: Conservation of genetic diversity, species diversity and ecosystem diversity, <i>In situ</i> and <i>ex situ</i> conservation, Social approaches to conservation, Biodiversity awareness programmes, Sustainable development	10
4	Role of plants in relation to Human Welfare; a) Importance of forestry their utilization and commercial aspects b) Avenue trees, c) Ornamental plants of India. d) Alcoholic beverages through ages. Fruits and nuts: Important fruit crops their commercial importance. Wood and its uses. National and state institutes related to the activity.	10

Suggested readings

- Krishnamurthy, K.V. (2004). An Advanced Text Book of Biodiversity – Principles and Practices. Oxford and IBH Publications Co. Pvt. Ltd. New Delhi

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(vii) Ethnobotany

Credit: 3

Course outcomes

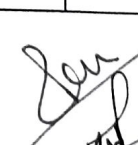

1. To learn the proper documentation and presentation of traditional knowledge about plants.
2. To use important plants by the tribal communities for various purposes.
3. To learn the conservation of wild growing plants and their socioeconomic impacts.

Unit	Topic	No. of lecturers/ hrs (45)
1	Ethnobotany: Introduction, concept, scope and objectives; Ethnobotany as an interdisciplinary science. The relevance of ethnobotany in the present context; Major and minor ethnic groups or Tribals of India, and their life styles. Plants used by the tribals: a) Food plants b) intoxicants and beverages c) Resins and oils and miscellaneous uses	10
2	Methodology of Ethnobotanical studies a) Field work b) Herbarium c) Ancient Literature d) Temples and sacred places e) Indigenous knowledge system	10
3	Role of ethnobotany in modern Medicine Medico-ethnobotanical sources in India; Significance of the following plants in ethno botanical practices (along with their habitat and morphology) a) <i>Azadiractha indica</i> b) <i>Ocimum sanctum</i> c) <i>Vitex negundo</i> . d) <i>Gloriosa superba</i> e) <i>Tribulus terrestris</i> f) <i>Pongamia pinnata</i> g) <i>Cassia auriculata</i> h) <i>Indigofera tinctoria</i> . Role of ethnobotany in modern medicine with special example <i>Rauvolfia serpentina</i> , <i>Trichopus zeylanicus</i> , <i>Artemisia</i> , <i>Withania</i> . Role of ethnic groups in conservation of plant genetic resources. Endangered taxa and forest management (participatory forest management).	15
4	Ethnobotany and legal aspects Ethnobotany as a tool to protect interests of ethnic groups. Sharing of wealth concept with few examples from India. Biopiracy, Intellectual Property Rights and Traditional Knowledge. National and state institutes related to the activity.	10


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Suggested readings

- Jain S.K. (1995). Manual of Ethnobotany, Scientific Publishers, Jodhpur, 1995.
- Jain S.K. (1981). Glimpses of Indian. Ethnobotany, Oxford and I B H, New Delhi.
- Jain S.K. (1989). Methods and approaches in ethnobotany. Society of Ethnobotanists, Lucknow, India.
- Jain S.K. (1990). Contributions of Indian ethnobotany. Scientific publishers, Jodhpur.
- Colton C.M. (1997). Ethnobotany-Principles and applications. John Wiley and sons Chichester.
- Rama Ro, N and A.N. Henry (1996). The Ethnobotany of Eastern Ghats in Andhra Pradesh, India. Botanical Survey of India. Howrah.
- Rajiv K. Sinha (1996). Ethnobotany The Renaissance of Traditional Herbal Medicine – INA –SHREE Publishers, Jaipur).

(viii) Mushroom Cultivation

Credit: 3

Course outcome

1. Understand the economic importance of mushroom cultivation.
2. To learn the basic tools and techniques used in mushroom cultivation.
3. To learn the skills for developing commercial enterprise of mushroom cultivation.

Unit	Topic	No. of lecturers/ hrs (45)
1	Introduction, history. Nutritional and medicinal value of edible mushrooms; Poisonous mushrooms. Types of edible mushrooms available in India- <i>Volvariella volvacea</i> , <i>Pleurotus citrinopileatus</i> , <i>Agaricus bisporus</i> .	10
2	Cultivation methods: Infrastructure: substrates (locally available) Polythene bag, vessels, Inoculation hook, inoculation loop, low cost stove, sieves, culture rack, mushroom unit (Thatched house) water sprayer, tray, small polythene bag. Pure culture: Medium, sterilization, preparation of spawn, multiplication. Mushroom bed preparation - paddy straw, sugarcane trash, maize straw, banana leaves. Factors affecting the mushroom bed preparation - Low cost technology, Composting technology in mushroom production	15
3	Storage and nutrition: Short-term storage (Refrigeration - upto 24 hours) Long term Storage (canning, pickles, papads), drying, storage in salt solutions. Nutrition- Proteins - amino acids, mineral elements nutrition - Carbohydrates, Crude fibre content - Vitamins.	10
4	Food preparation: Delicacies of mushroom and its value addition, Research Centres - National level and Regional level. Cost benefit	10

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	ratio - Marketing in India and abroad, Export Value. National and state institutes related to the activity.	
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Suggested readings

- Marimuthu, T. Krishnamoorthy, A.S. Sivaprakasam, K. and Jayarajan. R. (1991). Oyster Mushrooms, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore.
- Swaminathan, M. (1990). Food and Nutrition. Bappco, The Bangalore Printing and Publishing Co. Ltd., No. 88, Mysore Road, Bangalore - 560018.
- Tewari, P. and Kapoor, S.C. (1988). Mushroom cultivation, Mittal Publications, Delhi.
- Bahl, N. (2000). Hand book of Mushrooms. Oxford & Ibh Publishing Co. Pvt Ltd

(ix) Intellectual Property Rights

Credit: 3

1. Understand the basic concepts of intellectual property rights.
2. To learn the procedure for obtaining the intellectual property rights.

Unit	Topic	No. of lecturers/ hrs (45)
1	Introduction to intellectual property right (IPR) Concept and kinds. Economic importance. IPR in India and world: Genesis and scope, some important examples. IPR, WTO TRIPS and WIPO.	10
2	Patents Objectives, Rights, Patent Act 1970 and its amendments. Procedure of obtaining patents, Working of patents, Infringement. Copyrights Introduction, Works protected under copyright law, Rights, Transfer of Copyright, Infringement. Trademarks Objectives, Types, Rights, Protection of goodwill, Infringement, Passing off, Defenses, Domain name. Geographical Indications Objectives, Justification, International Position, Multilateral Treaties, National Level, Indian Position.	10
3	Protection of Traditional Knowledge Objective, Concept of Traditional Knowledge, Holders, Issues concerning, Bio-Prospecting and Bio-Piracy, Alternative ways, Protectability, need for a Sui-Generis regime, Traditional Knowledge on the International Arena, at WTO, at National level,	10

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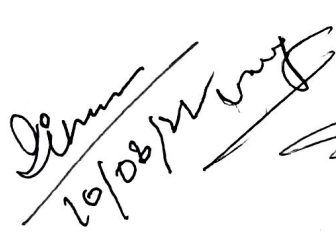


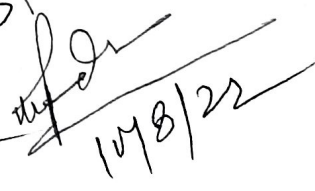

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	Traditional Knowledge Digital Library. Industrial Designs Objectives, Rights, Assignments, Infringements, Defences of Design Infringement	
4	Protection of Plant Varieties Plant Varieties Protection-Objectives, Justification, International Position, Plant varieties protection in India. Rights of farmers, Breeders and Researchers. National gene bank, Benefit sharing. Protection of Plant Varieties and Farmers' Rights Act, 2001. Information Technology Related Intellectual Property Rights Computer Software and Intellectual Property, Database and Data Protection, Protection of Semi-conductor chips, Domain Name Protection. Biotechnology and Intellectual Property Rights. Patenting Biotech Inventions: Objective, Applications, Concept of Novelty, Concept of inventive step, Microorganisms, Moral Issues in Patenting Biotechnological inventions.	15

Suggested readings

- N.K. Acharya (2001). Textbook on intellectual property rights, Asia Law House.
- Manjula Guru and M.B. Rao (2003). Understanding Trips: Managing Knowledge in Developing Countries, Sage Publications.
- P. Ganguli (2001). Intellectual Property Rights: Unleashing the Knowledge Economy, Tata McGraw-Hill.
- Miller, A.R. and Davis M.H. (2000). Intellectual Property: Patents, Trademarks and Copyright in Nutshell, West Group Publishers.
- Watal, J. (2003) Intellectual property rights in the WTO and developing countries, Oxford University Press, Oxford.

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**Sri Dev Suman Uttarakhand University,
Badshahithaul, Tehri (Garhwal), Uttarakhand-249199**



NATIONAL EDUCATION POLICY-2020

Common Minimum Syllabus for Sri Dev Suman
Uttarakhand University Campus and all Affiliated Colleges
for First Three Years of Higher Education

STRUCTURE OF UG - CHEMISTRY SYLLABUS

2022

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2.	Prof. O.P.S. Negi Vice-Chancellor , Uttarakhand Open University	Member
3.	Prof. P. P. Dhyani Vice-Chancellor , Sri Dev Suman Uttarakhand University	Member
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5.	Prof. Surekha Dangwal Vice-Chancellor, Doon University, Dehradun	Member
6.	Prof. M.S.M. Rawat Advisor, Rashtriya Uchchatar Shiksha Abhiyan, Uttarakhand	Member
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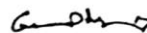


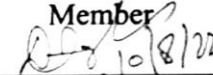


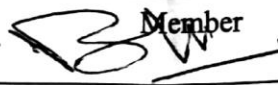
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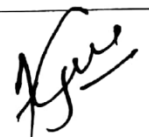
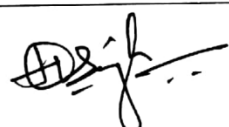
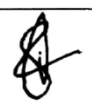
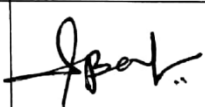
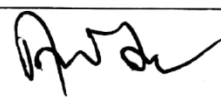
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Dr. G. C. Shah	Professor & Head	SSJ University, Almora
Dr. S. P. Sati	Professor	Sri Dev Suman Uttarakhand University, Pt. LMS Campus, Rishikesh

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1.	Prof. Gulshan Kumar Dhingra Dean Sciences, Pt. LMS Campus, Rishikesh, SDSU University.  Chairman
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4.	Dr. Madhu Thapliyal Government PG College, Uttarkashi.  10/8/2022 Member
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6.	Prof. Renu Negi (Principal) Government PG College, New Tehri.  10/8/2022 Member
7.	Prof. Devesh Bhatt (Principal) Government Degree College, Bedikhal.  Member
8.	Prof. Durgesh Pant (Director General) UCOST, Dehradun Member
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Semester-wise Titles of the Papers in B.Sc. Chemistry

Year	Sem.	Course Code	Paper Title	Theory/Practical	Credits
Certificate in Introductory Chemistry					
1	I		Fundamentals of Chemistry-I	Theory	4
			Chemical Analysis-I	Practical-1	2
	II		Fundamentals of Chemistry-II	Theory	4
			Chemical Analysis-II	Practical-1	2
Diploma in Chemical Science					
2	III		General Chemistry-I	Theory	4
			Analytical Procedures-I	Practical-2	2
	IV		General Chemistry-II	Theory	4
			Analytical Procedures-II	Practical-2	2
Degree in Bachelor of Science					
3	V		Inorganic Chemistry	Theory	4
			Organic Chemistry	Theory	4
			Analytical Procedures -III	Practical-3	2
			Research Project	Project	Qualifying
	VI		Physical Chemistry	Theory	4
			Analytical Chemistry	Theory	4
			Analytical Procedures -IV	Practical-3	2
			Research Project	Project	Qualifying

Purpose of the Program

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.

Program Outcomes

- PO 1.** Students will have a firm foundation in the fundamentals and applications of chemical and scientific theories including those in analytical, inorganic, organic and physical chemistry.
- PO 2.** Students will be able to design and carry out scientific experiments as well as accurately record and analyze the data of such experiments.
- PO 3.** Students will develop skill in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- PO 4.** Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
- PO 5.** 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.
- PO 6.** Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.
- PO 7.** Students will be able to function as a member of an interdisciplinary problem-solving team.

PROGRAM SPECIFIC OUTCOMES (PSOS)	
CERTIFICATE IN INTRODUCTORY CHEMISTRY	
First Year	Certificate in Introductory Chemistry will give the student a basic knowledge of all the fundamental principles of chemistry like atomic structure, molecular polarity, bonding theories of different molecules, resonance concept, hyperconjugation, field effects, periodic properties of more than 111 elements, mechanism of organic reactions, stereochemistry, detailed study of states of matter including kinetic theories of gases, solid and liquid states, chemistry of aliphatic and aromatic compounds, chemical kinetics, its scope and first law of thermodynamics. Student will be able to understand the qualitative and quantitative chemical analysis of the compounds in the laboratory. This certificate course is definitely going to prepare the students for various fields of chemistry and will give an insight into all the branches of chemistry. It will enable students to join the diploma course (semester III and IV) in any University or College of Higher education in Uttarakhand
Second Year	DIPLOMA IN CHEMICAL SCIENCE
	Diploma in Chemical Science will provide the theoretical as well as practical knowledge of handling chemicals, apparatus, equipment and instruments. The knowledge about second law of thermodynamics, chemical equilibrium, phase equilibrium, electrochemistry, coordination chemistry, acid-base theories, chemistry of transition elements, halides, alcohols, phenols, aldehydes, ketones and carboxylic acids will enable the students to work as chemists in various industries. The experimental work during the diploma course will enhance the skill of the students regarding chemical and physical tests of inorganic as well as organic compounds along with some physical experiments which will be beneficial to achieve their goals in industrial sectors. It will enable students to join the Bachelor of Science course (semester V and VI) in any University or College of Higher education in Uttarakhand
Third Year	DEGREE IN BACHELOR OF SCIENCE
	Degree in Bachelor of Science programme aims to introduce very important aspects of modern-day course curriculum, namely, chemistry of nitrogen containing compounds, organometallic, lipids, fats, dyes, paints, reagents in organic synthesis, carbohydrates, proteins, biomolecules, data analysis, nano-chemistry, green chemistry, stability of coordination compounds, cement, paint, ceramics, glass, inorganic fertilizers, radioactivity, corrosion, magnetic behaviour of transition metal complexes, surface chemistry, quantum mechanics, solutions, third law of thermodynamics, photochemistry, and spectroscopic techniques. This knowledge will make the students skilled to work in various chemical industries like cement industries, agro product, paint industries, rubber industries, petrochemical industries, food processing industries, fertilizer industries, pollution monitoring and control agencies etc. It will also enable the students to understand the importance of the biomolecules in biological science and related fields. Upon completion of a degree, chemistry students will be able to employ critical thinking and scientific inquiry in the performance, design, interpretation and documentation of laboratory experiments. It will help a candidate to succeed at an entry-level position in chemical industry or a chemistry postgraduate program.

Subject: Chemistry							
Year	Semester	Theory Paper	Units	Practical Paper	Units	Research Project	Total Credits of the Year subject
1	I	Fundamentals of Chemistry-I	1. Atomic Structure and Periodic Properties 2. Chemical Bonding-I 3. Mechanism of Organic Reactions 4. Stereochemistry of Organic Compounds 5. States of Matter-I 6. States of Matter-II	Chemical Analysis-I	1. Laboratory hazards and safety precautions 2. Inorganic exercise (Acidic radicals including combinations and interfering radicals) 3. Organic exercise 4. Physical exercise	NIL	4+2=6
	II	Fundamentals of Chemistry-II	1. Chemical Bonding-II 2. Salient Features of <i>s</i> - and <i>p</i> -Block Elements 3. Aliphatic Compounds 4. Aromatic Compounds 5. Chemical Kinetics and Catalysis 6. Thermodynamics I	Chemical Analysis-II	1. Laboratory hazards and safety precautions 2. Inorganic exercise (acid-base titrations) 3. Organic exercise 4. Physical exercise	NIL	4+2=6
2	III	General Chemistry-I	1. Chemistry of Transition Elements (First, second and third Transition Series) 2. Coordination Chemistry-I 3. Halides 4. Alcohols and Phenols	Analytical Procedures-I	1. Laboratory hazards and safety precautions 2. Inorganic mixture analysis (including basic radicals) 3. Organic exercise 4. Physical exercise	NIL	4+2=6

			5. Thermodynamics II 6. Chemical Equilibrium, Phase Equilibrium				
	IV	General Chemistry-II	1. Acids and Bases 2. Chemistry of Inner Transition Elements 3. Aldehydes and Ketones 4. Carboxylic Acids 5. Electrochemistry I 6. Electrochemistry II	Analytical Procedures-II	1. Laboratory hazards and safety precautions 2. Inorganic exercise (Redox titration) 3. Organic exercise 4. Physical exercise	NIL	4+2=6
3	V	Inorganic Chemistry	1. Metal-Ligand Bonding in Transition Metal Complexes 2. Thermodynamic and Kinetic Aspects of Coordination Compounds 3. Electronic Spectra of Transition Metal Complexes 4. Magnetic Properties of Transition Metal Complexes 5. Organometallic Chemistry 6. Some Industrially Important Inorganic Materials	Analytical Procedures -III	1. Laboratory hazards and safety precautions 2. Inorganic exercise (Synthesis) 3. Organic exercise 4. Physical exercise	Research Project (Qualifying)	4+4+2=10
		Organic Chemistry	1. Lipids and Fats 2. Reagents in Organic Synthesis				

			3. Nitrogen containing organic Compounds 4. Organometallic Compounds 5. Dyes and Paints 6. Carbohydrates and Proteins				
VI	Physical Chemistry	1. Surface Chemistry 2. Elementary Quantum Mechanics 3. Photochemistry 4. Solutions and Colligative Properties 5. Thermodynamics III 6. Radiochemistry	Analytical Procedures -IV	1. Laboratory hazards and safety precautions 2. Physical exercise 3. Spectroscopic exercise/Chromatographic technique 4. Inorganic exercise (Gravimetric)	Research Project (Qualifying)	4+4+2=10	
	Analytical Chemistry	1. General Biochemistry 2. Data Analysis 3. Fundamentals of Nanochemistry 4. Basics of Green Chemistry 5. Analytical Techniques 6. Spectroscopy					

Subject: Chemistry							
Course	Semester	Paper Title		Prerequisite for Paper	Elective for Major Subject	Hours per Semester	Total Credits of the Year subject
Certificate in Introductory Chemistry	I	Theory-1	Fundamentals of Chemistry-I	Chemistry of 12 th standard	Yes open for all	60	4
		Practical-1	Chemical Analysis-I	Chemistry of 12 th standard	Yes open for all	60	2
	II	Theory-1	Fundamentals of Chemistry-II	Passed Sem-I Theory paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-1	Chemical Analysis-II	Opted Sem-II Theory Paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
Diploma in Chemical Science	III	Theory-1	General Chemistry-I	Passed Certificate Course in Introductory Chemistry	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-2	Analytical Procedures-I	Opted Sem-III Theory Paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
	IV	Theory-1	General Chemistry-II	Passed Sem-III Theory Paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-2	Analytical Procedures-II	Opted Sem-IV Theory Paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
Degree in Bachelor of Science	V	Theory-1	Inorganic Chemistry	Passed Sem-III and Sem-IV Theory papers	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Theory-2	Organic Chemistry	Passed Sem-III and Sem-IV Theory papers	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-3	Analytical Procedures-III	Opted Sem-V Theory Paper-1 &2.	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
		Research Project				60	Qualifying
	VI	Theory-1	Physical Chemistry	Passed Sem-V Theory papers	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Theory-2	Analytical Chemistry	Passed Sem-V Theory papers	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-3	Analytical Procedures-IV	Opted Sem-VI Theory Paper-1 &2	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
		Research Project				60	Qualifying

Theory and Practical Examination Pattern

Theory (External) and theory paper carrying **maximum marks 75** and shall consist of three sections A ,B and C. Examination duration shall be 02 hours.

- **Section A:** Multiple choice questions (MCQ)/ True and False/very very short answer type questions.
Section A will consist 10 questions (each of one mark)- **10 Marks**
- **Section B:** Short Answer Type Questions (within 200 words)
Section B will consist 08 questions, each of 07 marks in which 05 has to be answered- 35 Marks.
- **Section C:** (Long answer type, within 500 words)
- Section C will consist of 04 questions, each of 15 marks, in which 02 has to be answered- 30 marks

A. Internal assessment

For each theory paper internal assessment shall be conducted periodically in the form of class tests and/or assignments/ group discussion/ oral presentation/ overall performance) during the semester period. Total marks allotted to internal assessment shall be 25. The evaluated answer sheets/assignments have to be retained by the Professor In-Charge for the period of six months and can be shown to the students if students want to see the evaluated answer sheets. The marks obtained by the students shall be submitted to the Head of concerned department/ the Principal of the College for uploading onto the University examination portal.

B. Practical

The laboratory work of the students has to be evaluated periodically. The internal assessment (in the form of lab test, lab record, internal evaluation, assignment/home assignment and attendance) of total 10 marks for each semester shall be conducted during the semester. In each semester practical examination(external) of 40 marks has to be conducted by two examiners (External and internal) having duration of 4 hours for I to IV Semester and 5 hours for V and VI Semester. The total number of students to be examined per batch should not be more than sixty. Marks obtained in the practical examination have to be submitted to the Head of the department/ Principal of the College. The Head of the Department/Principal of the College will make necessary arrangement for uploading the marks onto the University exam portal. The hard copy of the award list from portal has to be submitted to the Controller of Examination, SDSU University, Badshahithaul, Tehri (Garhwal).

Year	Semester	Course Code	Paper Title	Theory/Practical	Credits
Certificate in Introductory Chemistry					
1	I		Fundamentals of Chemistry-I	Theory	4
			Chemical Analysis-I	Practical	2
1	II		Fundamentals of Chemistry-II	Theory	4
			Chemical Analysis-II	Practical	2

**Semester-I
Paper-I (Theory)**

Course Title: Fundamentals of Chemistry-I

Programme/Class: Certificate in Introductory Chemistry	Year: First	Semester: First
Paper-I Theory Subject: Chemistry		
Course Code:	Course Title: Fundamentals of Chemistry-I	

Course outcomes: There is nothing more fundamental to chemistry than the chemical bond. Chemical bonding is the language of logic for chemists. Chemical bonding enables scientists to take the 100-plus elements of the periodic table and combine them in myriad ways to form chemical compounds and materials. Periodic trends, arising from the arrangement of the periodic table, provide chemists with an invaluable tool to quickly predict an element's properties. These trends exist because of the similar atomic structure of the elements within their respective group families or periods, and because of the periodic nature of the elements. Reaction mechanism gives the fundamental knowledge of carrying out an organic reaction in a step-by-step manner. This course will provide a broad foundation in chemistry that stresses scientific reasoning and analytical problem solving with a molecular perspective. Students will gain an understanding of;

- ✓ Molecular geometries, physical and chemical properties of the molecules.
- ✓ 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 also strengthen the knowledge of students regarding complete picture of states of matter that includes gaseous, liquid, solid and colloidal states.

Credits:4	Compulsory
Max. Marks: 25+75	Min. Passing Marks: 33

Total Number of Hours = 60

Unit	Content	Number of Hours
1	<p>Atomic Structure and Periodic Properties: Dual nature of matter; de Broglie concept. Heisenberg uncertainty principle; its significance. Atomic orbitals, Schrödinger wave equation (no derivation); significance of ψ and ψ^2. Quantum numbers, radial and angular wave functions and probability distribution curves, 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, Slater's rule.</p> <p>The general idea of Modern periodic table, atomic and ionic radii, ionization potential, electron affinity, electronegativity-definition, trends of variation in periodic table and their application in prediction and explaining the chemical behaviour of elements and compounds thereof.</p>	12
2	<p>Chemical Bonding-I: Ionic bond, covalent bond-Valence Bond Theory and its limitations; various types of hybridization and shapes of different inorganic and organic molecules. Valence Shell Electron Pair Repulsion Theory (VSEPR) and shapes of NH_3, H_2O, H_3O^+, SF_4, ClF_3, ICl_2^-, TeF_5^-, NH_4^+ and other simple molecules/ions (CO_2, SO_2, SO_3, Cl_2O_7, SO_4^{2-}, CO_3^{2-}, NO_3^-, PO_4^{3-}) including compounds of xenon.</p> <p>Resonance, hyperconjugation, field effects- inductive, mesomeric, electromeric effect</p>	8
3	<p>Mechanism of Organic Reactions: Types of reagents-electrophiles and nucleophiles. Types of organic reactions. Energy considerations. Reactive intermediates- carbocations, carbanions, free radicals, carbenes, arynes and nitrenes (with examples).</p>	8
4	<p>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 centre, 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</p>	12

	nomenclature.	
5	<p>States of Matter-I: Gaseous State-Postulates of kinetic theory of gases, deviation from ideal behavior, van der Waal's equation of states, Critical phenomena – PV isotherms of real gases, relationship between critical constants and van der Waals constants. Molecular velocities: Root mean square, average and most probable velocities, qualitative discussion of the Maxwell's distribution of molecular velocities, Numerical problems.</p> <p>Liquid State-Intermolecular forces, Structural differences between solids, liquids and gases. Physical properties of liquids including their methods of determination: surface tension, viscosity, Numerical problems.</p>	12
6	<p>States of Matter-II:</p> <p>Solid State: Introduction to crystalline materials, Definition of space lattice, unit cell, crystal planes, Miller indices, Laws of crystallography – (i) law of constancy of interfacial angles (ii) law of rationality of indices (iii) law of symmetry. Symmetry elements in crystals, X-ray diffraction by crystals. Bragg's equation, Numerical problems.</p> <p>Colloidal State: Definition of colloids, classification of colloids. Solids in liquids (sols): properties – kinetic, optical and electrical; stability of colloids, protective action, Hardy-Schulze law, gold number.</p>	8

Books Recommended:

- Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition.
- Puri, B.R., Sharma, L.R., and Kalia, K.C., "Principles of Inorganic Chemistry", Vishal Publishing Co., India, 2020, 33rd edition.
- Madan, R.L., "Chemistry for Degree Students, B. Sc. First Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
- Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010.
- Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
- Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
- Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
- Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Wiley, 1994, 1st edition.
- Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.

- x. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.
- xi. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
- xii. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.
- xiii. Atkins P.W., "Atkin's Physical Chemistry: International", Oxford University Press, 2018, 11th edition.
- xiv. Ball D.W., "Physical Chemistry", Cengage India Private Limited, 2017, 2nd edition.
- xv. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
- xvi. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010.
- xvii. 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=PLmxSS9XYst219YI3DjIUP52APmR9bea1Y>
2. https://www.youtube.com/watch?v=q-P79gnqNR8&list=PLmUlqVgZsTVVRvO3R8g-x12EMc5vmcq_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=q1qMFCZVIPk>
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

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

Evaluation method	Marks
Home assignments/ group discussions/ oral presentations	10 marks
Mid-term evaluation (written test)	10 marks
Attendance	05 marks

Course prerequisites: To study this course, a student must have studied the chemistry of class 12th standard.

Semester-I, Paper-II (Practical)

Course Title: Chemical Analysis -I

Programme/Class: Certificate in Introductory Chemistry	Year: First	Semester: First
Paper-2 Practical Subject: Chemistry		
Course Code:	Course Title: Chemical Analysis-I	

Course outcomes:

Upon completion of this course, the students will have the knowledge and skills to: understand the laboratory methods and tests related to inorganic mixture analysis and estimation of surface tension of commercial products. Also, they can understand the absolute configuration of organic molecules with the help of models. The students will be able to

- ✓ Qualitatively estimate anions and cations in samples.
- ✓ Determine the relative surface tension of a given liquid.
- ✓ Find out the absolute configuration of organic molecules.

Credits:2	Compulsory
Max. Marks: 10 + 40	Min. Passing Marks: 17

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	Laboratory hazards and safety precautions	6
2	Salt mixture analysis: Identification of acid radicals (three to four) including anions in combination and basic radicals upto II Group in the given salt mixture.	18
3	Organic exercise: Determination of absolute configuration of organic molecules using ball and stick models. Students are supposed to sketch the structure of simple organic compounds showing their stereochemistry using Fischer Projection.	18
4	Physical exercise: Determination of relative surface tension of the given liquid using Stalagmometer.	18

Suggested Continuous Evaluation Methods: Students can be evaluated on the basis of score obtained in viva voce, record and overall performance.

Evaluation method	Marks
Practical s	05 marks
Viva voce/Record and overall performance/ Attendance	05 marks

Course prerequisites: To study this course, a student must have studied the chemistry of class 12th standard.

One exercise each from salt mixture analysis (acidic radicals), organic exercise (absolute configuration) and physical exercise (relative surface tension) shall be given in the examination.

Distribution of marks shall be as given below:

1. Inorganic salt analysis (Acidic and Basic radicals)	12
2. Organic exercise	10
3. Physical	08
4. Viva	05
5. Lab record	05
6. Home assignment/internal assessment, lab record and attendance	10
TOTAL	50

Note:

- *The lab work of the student has to be evaluated and assessed carefully and periodically. The semester lab record has to be maintained by the department/college as an official record.*
- *Less than zero mark will not be awarded.*
- *The total number of students to be examined per batch shall not be more than sixty.*
- *Duration of the practical examination shall be of 04 (four) hours.*
- *Marks obtained in the practical examination have to be submitted to the Head of the department/ Principal of the College. The Head of the Department/Principal of the College will make necessary arrangement for uploading the marks onto the University exam portal. The hard copy of the award list from portal has to be submitted to the Controller of Examination, SDSU University, Badshahithaul, Tehri(Garhwal).*

Suggested Readings:

- Mendham, J. Vogel's Quantitative Chemical Analysis, Pearson, 2009.
- Harris, D. C. Quantitative Chemical Analysis. 6th Ed., Freeman (2007) Chapters 3-5.
- Harris, D. C. Exploring Chemical Analysis, 9th Ed. New York, W.H. Freeman, 2016.
- Khopkar, S.M. Basic Concepts of Analytical Chemistry. New Age International Publisher, 2009.
- Skoog, D.A. Holler F.J. and Nieman, T.A. Principles of Instrumental Analysis, Cengage Learning India Edition.

Suggestive digital platforms web links:

- <http://chemcollective.org/vlabs>
- <https://www.vlab.co.in/broad-area-chemical-sciences>
- <https://wp.labster.com/chemistry-virtual-labs/>

Semester-II
Paper-I (Theory)
Course Title: Fundamentals of Chemistry-II

Programme/Class: Certificate in Introductory Chemistry	Year: First	Semester: Second
Paper-I Theory Subject: Chemistry		
Course Code:	Course Title: Fundamentals of Chemistry-II	

Course outcomes: Upon successful completion of this course, the students will be able to describe the reactions shown by aliphatic and aromatic compounds. They will also be able to understand the bonding in inorganic molecules, salient features of s- and p- block elements, different aspects of chemical kinetics, catalysis and first law of thermodynamics.

Credits: 4		Compulsory
Max. Marks: 25+75		Min. Passing Marks: 33
Total Number of Hours = 60		
Units	Content	Number of Hours
1	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, NO, HF difference between VB and MO theories. Multicentre bonding in electron deficient molecules. Polarization of covalent molecules, Percentage ionic character from dipole and electronegativity difference. Polarizing power and polarizability; Fajan's rule. Metallic bond- Electron Pool, valence bond and MO theories. Weak interactions-hydrogen bonding in inorganic and organic molecules and van der Waals interactions.	10
2	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, p π - p π , d π -p π bond, chemistry of hydrides, halides, oxides and oxyacids of p-block elements. Silicates, Boron nitrogen compounds (borazene and boron nitrides), interhalogen compounds, basic property of iodine.	10

3	<p>Aliphatic Compounds: Chemical reactions of alkanes. Mechanism of free radical halogenation of alkanes. Cycloalkanes- Baeyer's strain theory and its limitations. Ring strain in small rings (cyclopropane and cyclobutane), theory of strainless rings. The case of cyclopropane ring-bent or banana bonds.</p> <p>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.</p> <p>Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions, hydroboration-oxidation, metal- ammonia reduction, oxidation and polymerization.</p>	10
4	<p>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, mercuration and Friedel- Crafts reaction. Energy profile diagrams. Activating and deactivating substituents, orientation and ortho/para ratio. Side chain reactions of benzene derivatives.</p>	10
5	<p>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 and promoters. Concentration dependence of rates of simple reaction, Molecularity, Order of reaction- zero order, first order, second order, pseudo-order, Radioactive decay a first order phenomenon, half-life period, Methods of determination of the order of reaction- differential method, method of integration, method of half-life period and isolation methods, Numerical problems.</p>	10
6	<p>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, Numerical problems.</p>	10

Books Recommended:

- i. Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition.
- ii. 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.
- iv. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010.
- v. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
- vi. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
- vii. Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
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- xv. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
- xvi. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010.
- xvii. 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=Gg4-go6tTiA&list=PLmxSS9XYst208kJs0npO_v_L-AGkHZJIS
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-of-main-group-elements-certification-course>
7. https://onlinecourses.swayam2.ac.in/cec20_lb01/preview
8. <https://nptel.ac.in/courses/104/103/104103071/>

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

Evaluation method	Marks
Home assignments/ group discussions/ oral presentations	10 marks
Mid-term evaluation (written test)	10 marks
Attendance	05 marks

Course prerequisites: To study this course, a student must have passed Sem-I, Theory paper-1

Semester-II, Paper-II (Practical)
Course Title: Chemical Analysis -II

Programme/Class: Certificate in Introductory Chemistry	Year: First	Semester: Second
Paper-2 Practical Subject: Chemistry		
Course Code:	Course Title: Chemical Analysis –II	

Course outcomes:

After completing this course, the students will be able to quantitatively find out the amount of acid or base in the samples, to qualitatively differentiate among different classes of organic compounds and to measure the relative viscosity of a given liquid.

Credits:2	Compulsory
Max. Marks: 10 + 40	Min. Passing Marks: 17

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	Laboratory hazards and safety precautions	6
2	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.	18

3	Organic exercise: Differentiation between alkanes, alkenes and alkynes. Differentiation between aliphatic and aromatic compounds using chemical and physical tests.	18
4	Physical exercise: Determination of relative viscosity of the given liquid using Ostwald viscometer.	18

Suggested Readings:

- Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.
- Willard, H.H. et al.: Instrumental Methods of Analysis, 7th Ed. Wardsworth Publishing Company, Belmont, California, USA, 1988.
- Christian, G.D. Analytical Chemistry, 6th Ed. John Wiley & Sons, New York, 2004.
- Harris, D. C. Exploring Chemical Analysis, 9th Ed. New York, W.H. Freeman, 2016.
- Khopkar, S.M. Basic Concepts of Analytical Chemistry. New Age International Publisher, 2009.
- Skoog, D.A. Holler F.J. and Nieman, T.A. Principles of Instrumental Analysis, Cengage Learning India Edition.
- Mikes, O. & Chalmers, R.A. Laboratory Handbook of Chromatographic & Allied Methods, Elles Harwood Ltd. London.
- Ditts, R.V. Analytical Chemistry: Methods of separation. Van Nostrand, New York, 1974.

Suggestive digital platforms web links

- <https://www.labster.com/chemistry-virtual-labs/>
- <https://www.vlab.co.in/broad-area-chemical-sciences>
- <http://chemcollective.org/vlabs>

Suggested Continuous Evaluation Methods: Students can be evaluated on the basis of score obtained in viva voce, record and overall performance.

Evaluation method	Marks
Practical s	05 marks
Viva voce/Record and overall performance/ Attendance	05 marks

Course prerequisites: To study this course, a student must have opted Semester-II Theory Paper-I

Suggested equivalent online courses

One exercise each from volumetric analysis (acid-base titration), organic exercise (tests for alkanes, alkenes, alkynes, aliphatic and aromatic compounds) and physical exercise (relative viscosity) shall be given in the examination.

Distribution of marks shall be as given below:

1. Inorganic salt analysis (Acidic and Basic radicals)	12
2. Organic exercise	10
3. Physical	08
4. Viva	05
5. Lab record	05
6. Home assignment/internal assessment, lab record and attendance	10
TOTAL	50

Note:

- The lab work of the student has to be evaluated and assessed carefully and periodically. The semester record has to be maintained by the department/college as an official record.
- Less than zero mark will not be awarded.
- The total number of students to be examined per batch shall not be more than sixty.
- Duration of the practical examination shall be of 04 (four) hours.
- Marks obtained in the practical examination have to be submitted to the Head of the department/ Principal of the College. The Head of the Department/Principal of the College will make necessary arrangement for uploading the marks onto the University exam portal. The hard copy of the award list from portal has to be submitted to the Controller of Examination, SDSU University, Badshahi Thaul, Tehri (Garhwal).

Year	Semester	Course Code	Paper Title	Theory/Practical	Credits
Diploma in Chemical Science					
2	III		General Chemistry-I	Theory	4
			Analytical Procedures-I	Practical	2
2	IV		General Chemistry-II	Theory	4
			Analytical Procedures-II	Practical	2

Semester-III**Paper-I (Theory)****Course Title: General Chemistry-I**

Programme/Class: Diploma in Chemical Science	Year: Second	Semester: Third
Paper-I Theory Subject: Chemistry		
Course Code:	Course Title: General Chemistry-II	

Course outcomes: This paper provides detailed knowledge of synthesis of various classes of organic compounds and functional groups inter conversion. Organic synthesis is the most important branch of organic chemistry which provides jobs in production & QC departments related to chemicals, drugs, medicines, FMCG etc. industries.

- ✓ It relates and gives an analytical aptitude for synthesizing various industrially important compounds.
- ✓ This paper also provides a detailed knowledge on the elements present in our surroundings, their occurrence in nature. Their position in periodic table, their physical and chemical properties. This paper also gives detailed understanding of the d-block elements and their characteristics.

- ✓ After successful completion of this course, the students will be able to gather the information regarding Werner's theory and VBT of transition metal complexes.
- ✓ Students will be able to learn the basic concepts of spontaneity, chemical and phase equilibrium and able to apply these concepts in predicting the spontaneous reactions and will be able to solve the numerical problems based on these concepts.

Credit: 4	Compulsory
Max. Marks: 25+75	Min. Passing Marks: 33
Total No. of Hours- = 60	

Unit	Contents	Number of Hours
1	Chemistry of Transition Elements (First, second and third Transition Series): Characteristic properties of the elements; electronic configuration, atomic & ionic radii, oxidation states and stability of uncommon oxidation states, ionization energy, boiling & melting points, complex compound formation, colour, catalytic properties and magnetic properties. coordination number and geometry. Comparative treatment of 3d, 4d and 5d elements and their analogues in respect of occurrence, atomic & ionic radii, oxidation state, ionization energy, complex formation tendency, magnetic behaviour, geometry and colour.	10
2	Coordination Chemistry-I: Definition, terminology (ligand, coordination number, coordination sphere, complex ion etc.), Nomenclature of coordination compounds (IUPAC system), Werner's theory for coordination compounds; its experimental verification, effective atomic number (EAN) concept, 18-electron rule, stability of complexes and factors contributing to the stability. Chelates- Introduction, factors affecting the stability of chelates, thermodynamic origin of stability, applications. Valence Bond Theory (VBT) for coordination compounds, geometry of complexes (tetrahedral, octahedral, square planar), magnetic properties of complex compounds.	10
3	Halides: Chemical reactions. Alkyl, aryl and vinyl halides. Mechanism of nucleophilic substitution reactions, S _N 2 and S _N 1 reactions with energy profile diagrams.	8
4	Alcohols and Phenols: Alcohols: Reactions of alcohols. Dihydric alcohols-methods of preparation, chemical reactions of vicinal glycols, oxidative cleavage [Pb(OAc) ₄ and HIO ₄] and pinacol-pinacolone rearrangement. Trihydric alcohols-methods of formation, chemical reactions of glycerol.	12

	Phenols: Physical properties and acidic character. Comparative acidic strengths of alcohols and phenols, resonance stabilization of phenoxide ion. Reactions of phenols-electrophilic aromatic substitution, acylation and carboxylation. Mechanism of Fries rearrangement, Claisen condensation, Gatterman synthesis, Houben-Hoesch reaction, Lederer-Manasse reaction and Reimer-Tiemann reaction.	
5	Thermodynamics II: Second law of thermodynamics, need of the law, different statements of the law. Carnot cycle and its efficiency, Carnot theorem. Thermodynamic scale of temperature. Concept of entropy: entropy as a state function, entropy as a function of V and T, entropy as a function of P and T, entropy change in physical and chemical processes, entropy change for reversible, irreversible and equilibrium condition. Clausius inequality, entropy as criteria of spontaneity and equilibrium. Entropy change in ideal gases. Gibbs free energy and Helmholtz work functions. Criteria for thermodynamic equilibrium and spontaneity, advantage Gibbs free energy and Helmholtz work functions over entropy change for spontaneity. Variation of G and A with P, V and T, Gibbs-Helmholtz equation, Numerical problems.	12
6	Chemical Equilibrium: The law of mass action, free energy and equilibrium constant, factors influencing equilibrium constant, relationship between K_p and K_c . Le-Chatelier's principle, Numerical problems. Phase Equilibrium: Statement and meaning of the terms: phase, component and degree of freedom, Gibbs phase rule, phase equilibria of one component systems- water, carbon dioxide and sulphur. Raoult's and Henry's law.	8

Books Recommended:

- i. Lee, J.D., "Concise, Inorganic Chemistry", Oxford University Press, 2008, India, 5th edition.
- ii. 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. Second Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
- iv. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010.
- v. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
- vi. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
- vii. Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.

- viii. Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Wiley, 1994, 1st edition.
- ix. Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
- x. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.
- xi. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
- xii. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.
- xiii. Atkins P.W., "Atkin's Physical Chemistry: International", Oxford University Press, 2018, 11th edition.
- xiv. Ball D.W., "Physical Chemistry", Cengage India Private Limited, 2017, 2nd edition.
- xv. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
- xvi. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010.

Suggested online links:

1. <https://www.youtube.com/watch?v=Fmclk9oUkEE&list=PLmxSS9XYst20Pz1SpRI4jdcrv-zh1AoYy>
2. <https://www.youtube.com/watch?v=y67STFWoQ3A&list=PLmUlqVgZsTVV9zQAF-umZzs65MzOU8Ty9>
3. https://www.youtube.com/watch?v=xo2sRayaVyc&list=PLmUlqVgZsTVUAETHwJsJw_WPE87_yfhCO
4. <https://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/intro1.htm>
5. <https://nptel.ac.in/courses/104/103/104103071/#>
6. <https://swayam.gov.in/>
7. <https://nptel.ac.in/courses/104/103/104103071/>

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

Evaluation method	Marks
Home assignments/ group discussions/ oral presentations	10 marks
Mid-term evaluation (written test)	10 marks
Attendance	05 marks

Course prerequisites: To study this course, a student must have passed Certificate Course in Introductory Chemistry.

Semester-III Paper-II (Practical)
Course Title: Analytical Procedures-I

Programme/Class: Diploma in Chemical Science	Year: Second	Semester: Third
Paper-II Practical Subject: Chemistry		
Course Code:	Course Title: Analytical Procedures-I	

Course outcomes:

After completing this course, the students will be able to test the inorganic mixtures of acidic and basic radicals in given samples, to qualitatively differentiate between alcohols and phenols and determine the critical solution temperature of partially miscible liquids.

Credits:2	Compulsory
Max. Marks: 10 + 40	Min. Passing Marks: 17

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	Laboratory hazards and safety precautions	6
2	Inorganic exercise: Complete analysis of inorganic mixture including both acid and basic radicals with a special emphasis on the role of common ion effect and solubility product.	30
3	Organic exercise: Functional group tests for alcohols and phenols. Differentiation between alcohols and phenols using chemical and physical tests.	12
4	Physical exercise: Determination of critical solution temperature (CST) Or Determination of Transition temperature of given inorganic salt	12

Suggested Readings:

- i. Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.
- ii. Willard, H.H. et al.: Instrumental Methods of Analysis, 7th Ed. Wordsworth Publishing Company, Belmont, California, USA, 1988.
- iii. Christian, G.D. Analytical Chemistry, 6th Ed. John Wiley & Sons, New York, 2004.
- iv. Harris, D. C. Exploring Chemical Analysis, 9th Ed. New York, W.H. Freeman, 2016.
- v. Khopkar, S.M. Basic Concepts of Analytical Chemistry. New Age International Publisher, 2009.
- vi. Skoog, D.A. Holler F.J. and Nieman, T.A. Principles of Instrumental Analysis, Cengage Learning India Edition.
- vii. Mikes, O. & Chalmes, R.A. Laboratory Handbook of Chromatographic & Allied Methods, Elles Harwood Ltd. London.
- viii. Ditts, R.V. Analytical Chemistry: Methods of separation. Van Nostrand, New York, 1974.

Suggestive digital platforms web links

1. <https://www.labster.com/chemistry-virtual-labs/>
2. <https://www.vlab.co.in/broad-area-chemical-sciences>
3. <http://chemcollective.org/vlabs>

Suggested Continuous Evaluation Methods: Students can be evaluated on the basis of score obtained in viva voce, record and overall performance.

Evaluation method	Marks
Practical s	05 marks
Viva voce/Record and overall performance/ Attendance	05 marks

Course prerequisites: To study this course, a student must have opted Sem-III Theory Paper-1

One exercise each from Inorganic mixture (qualitative), organic exercise (tests for alcohols and phenols) and physical exercise (critical solution temperature) shall be given in the examination.

Distribution of marks shall be as given below:

1. Inorganic salt analysis (Acidic and Basic radicals)	12
2. Organic exercise	10
3. Physical	08
4. Viva	05
5. Lab record	05
6. Home assignment/internal assessment, lab record and attendance	10
TOTAL	50

Note:

- *The lab work of the student has to be evaluated and assessed carefully and periodically. The semester record has to be maintained by the department/college as an official record.*
- *Less than zero mark will not be awarded.*
- *The total number of students to be examined per batch shall not be more than sixty.*
- *Duration of the practical examination shall be of 04 (four) hours.*
- *Marks obtained in the practical examination have to be submitted to the Head of the department/ Principal of the College. The Head of the Department/Principal of the College will make necessary arrangement for uploading the marks onto the University exam portal. The hard copy of the award list from portal has to be submitted to the Controller of Examination, SDSU University, Badshahi Thaul, Tehri (Garhwal).*

Semester-IV
Paper-I (Theory)
Course Title: General Chemistry-II

Programme/Class: Diploma in Chemical Science	Year: Second	Semester: Fourth
Paper-I Theory Subject: Chemistry		
Course Code:	Course Title: General Chemistry-II	

Course outcomes: This paper provides detailed knowledge of synthesis of aldehydes, ketones, carboxylic acids and functional groups inter conversion. The students will be able to describe the concepts of electrochemistry in detail and its applications. Also, they will be able to solve the numerical problems based on these concepts. Students will be able to define the acids and bases on the basis of various concepts/ theories and will be able to identify the position of various elements in the periodic table and able to explain their properties on the basis of their position.

Credits: 4	Compulsory
Max. Marks: 25+75	Min. Passing Marks: 33

Total No. of Hours- = 60

Unit	Contents	Number of Hours
1	Acids and Bases: Arrhenius concept, Bronsted-Lowry concept, Lux-Flood and Lewis concept of acids and bases; Hard and Soft Acid-Base Theory: Classification of acids and bases as hard and soft. Pearson's hard and soft acid base concept, acid base strength and hardness and softness. Symbiosis, theoretical basis of hardness and softness, electronegativity and hardness and softness; Role of the solvent and strength of acids and bases. Acid-base properties in non-aqueous media.	10
2	Chemistry of Inner Transition Elements: Chemistry of Lanthanides: Electronic configuration, oxidation states, atomic & ionic radii, lanthanide contraction and its consequences, complex formation, colour; Methods of separation of lanthanides- fractional crystallization, fractional precipitation, change in oxidation state, solvent extraction and ion exchange methods. Chemistry of Actinides: General features of actinides-electronic configuration, atomic & ionic radii, ionization potential, oxidation states and complex formation.	10

3	Aldehydes and Ketones: Comparative account of properties of aliphatic and aromatic aldehydes and ketones. Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, Perkin and Knoevenagel condensation. Condensation with ammonia and its derivatives; Wittig reaction, Mannich reaction. Use of acetals as protecting group. Oxidation of aldehydes, Baeyer-Villiger oxidation of ketones, Cannizzaro reaction, MPV, Clemmensen, Wolff-Kishner, LiAlH_4 and NaBH_4 reductions. Halogenation of enolizable ketones. An introduction to α -, β -unsaturated aldehydes and ketones.	10
4	Carboxylic Acids: Reactions of carboxylic acids, Hell-Volhard-Zelinsky reaction. Synthesis of acid chlorides, esters and amides. Reduction of carboxylic acids, mechanism of decarboxylation. Methods of formation and chemical reactions of halo acids, hydroxy acids- malic, tartaric, and citric acids. Methods of preparation and chemical reactions of unsaturated monocarboxylic acids. Dicarboxylic acids-methods of preparation and effect of heat and dehydrating agents.	10
5	Electrochemistry I: Electrical transport-conduction in metals and electrolytic solutions, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of equivalent and specific conductance with dilution. Arrhenius theory of electrolytic dissociation and its limitations, weak and strong electrolytes, Ostwald's dilution law, its uses and limitations, Numerical Problems.	8
6	Electrochemistry II: Oxidation state, types of redox reactions, balancing of chemical reactions by ion electron and oxidation state method. Computations of equivalent weights. Types of reversible electrodes-gas-metal ion, metal-metal ion, metal-insoluble salt anion and redox electrodes. Electrode reactions, Nernst equation, derivation of cell EMF and single electrode potential, standard hydrogen electrode-reference electrode, standard electrode potential, sign conventions, electrochemical series and its significance. Electrolytic and Galvanic cells-reversible and irreversible cells, conventional representation of electrochemical cells. EMF of a cell and its measurements. Calculation of thermodynamic quantities of cell reactions (ΔG , ΔH and K), Numerical Problems.	12

Books Recommended:

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

- Publishing, New Delhi, India, 2011, 3rd edition.
- iv. Madan, R.D., Malik, U.M. and Tuli, G.D., "Selected topics in Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2010.
 - v. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
 - vi. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
 - vii. Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
 - viii. Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Wiley, 1994, 1st edition.
 - ix. Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
 - x. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.
 - xi. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
 - xii. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.
 - xiii. Atkins P.W., "Atkin's Physical Chemistry: International", Oxford University Press, 2018, 11th edition.
 - xiv. Ball D.W., "Physical Chemistry", Cengage India Private Limited, 2017, 2nd edition.
 - xv. Puri, B.R., Pathania, M.S. and Sharma, L.R., "Principles of Physical Chemistry", Vishal Publishing, India, 2020, 47th edition.
 - xvi. Bahl, A., Bahl, B.S. and Tuli, G.D., "Essential of Physical Chemistry", S. Chand Publishing, India, 2010.

Suggested online links:

1. <https://www.youtube.com/watch?v=UJgzQ5XP8wQ&list=PLmxSS9XYst20FfphDeS03pqkcuJk0vuvv>
2. <https://www.youtube.com/watch?v=2G79ICT5Os8&list=PLmxSS9XYst23WTFnTWuRg-Ww0k6foth7e>
3. <https://www.youtube.com/watch?v=SNXFYz31iFI&list=PLmUlqVgZsTVUfjMBLDQvNLUbF9CIEsef>
4. https://www.youtube.com/watch?v=1t0GDMSzZ9A&list=PLmxSS9XYst21dec_6u2yWWj295Y8pHGrA
5. <https://swayam.gov.in/>
6. <https://www.coursera.org/learn/physical-chemistry>
7. <https://www.mooc-list.com/tags/physical-chemistry>
8. <https://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/intro1.htm>
9. <https://nptel.ac.in/courses/104/103/104103071/>

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

Evaluation method	Marks
Home assignments/ group discussions/ oral presentations	10 marks
Mid-term evaluation (written test)	10 marks
Attendance	05 marks

Course prerequisites: To study this course, a student must have had Passed Sem-III Theory Paper-1

Semester-IV Paper-II (Practical)
Course Title: Analytical Procedures-II

Programme/Class: Diploma in Chemical Science	Year: Second	Semester: Fourth
Paper-II Practical Subject: Chemistry		
Course Code:	Course Title: Analytical Procedures-II	

Course outcomes:

After completing this course, the students will be able to determine the concentrations of oxidising and reducing agents through double titration, qualitatively differentiate between aldehydes, ketones and carboxylic acids and determine the solubility of salts.

Credits:2	Compulsory
Max. Marks: 10 + 40	Min. Passing Marks: 17

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	Laboratory hazards and safety precautions	6
2	Inorganic exercise: Volumetric exercises (double titration) based on redox reactions involving internal as well as external indicators.	18
3	Organic exercise: Preliminary and Functional group tests for aldehydes, ketones and carboxylic acids (both aliphatic and aromatic).	18
4	Physical exercise: Determination of solubility of salts.	18

Suggestive digital platforms web links

1. <https://www.labster.com/chemistry-virtual-labs/>
2. <https://www.vlab.co.in/broad-area-chemical-sciences>
3. <http://chemcollective.org/vlabs>

Suggested Continuous Evaluation Methods: Students can be evaluated on the basis of

score obtained in viva voce, record and overall performance.

Evaluation method	Marks
Practical s	05 marks
Viva voce/Record and overall performance/ Attendance	05 marks

Course prerequisites: To study this course, a student must have Opted Sem-IV Theory Paper-1

One exercise each from inorganic volumetric analysis (quantitative), organic exercise (tests for aldehydes, ketones and carboxylic acids) and physical exercise (solubility of salts) shall be given in the examination.

Distribution of marks shall be as given below:

1. Inorganic salt analysis (Acidic and Basic radicals)	12
2. Organic exercise	10
3. Physical	08
4. Viva	05
5. Lab record	05
6. Home assignment/internal assessment, lab record and attendance	10
TOTAL	50

Note:

- *The lab work of the student has to be evaluated and assessed carefully and periodically. The semester record has to be maintained by the department/college as an official record.*
- *Less than zero mark will not be awarded.*
- *The total number of students to be examined per batch shall not be more than sixty.*
- *Duration of the practical examination shall be of 04 (four) hours.*
- *Marks obtained in the practical examination have to be submitted to the Head of the department/ Principal of the College. The Head of the Department/Principal of the College will make necessary arrangement for uploading the marks onto the University exam portal. The hard copy of the award list from portal has to be submitted to the Controller of Examination, SDSU University, Badshahi Thaul, Tehri (Garhwal).*

Year	Semester	Course Code	Paper Title	Theory/Practical	Credits
Degree in Bachelor of Science					
3	V		Inorganic Chemistry	Theory	4
			Organic Chemistry	Theory	4
			Analytical Procedures-III	Practical	2
3	VI		Physical Chemistry	Theory	4
			Analytical Chemistry	Theory	4
			Analytical Procedures-IV	Practical	2

Semester-V
Paper-I (Theory)
Course Title: Inorganic Chemistry

Programme/Class: Degree	Year: Third	Semester: Fifth
in Bachelor of Science		
Paper-1 Theory Subject: Chemistry		
Course Code:	Course Title: Inorganic Chemistry	

Course Outcomes: Upon successful completion of this course, the students will be able to describe the stability, crystal field theory, electronic spectra and magnetic properties of coordination compounds. They will also learn about organometallic compounds, some industrially important inorganic materials and their applications in various industries. It will assist them to get a suitable job in the relevant industrial and scientific field.

Credits:4	Compulsory
Max. Marks: 25+75	Min. Passing Marks: 33

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	Metal-Ligand Bonding in Transition Metal Complexes: Limitations of valence bond theory, an elementary idea about crystal field theory (CFT); crystal field splitting of octahedral and tetrahedral complexes, tetragonal distortion (Jahn-Teller distortion, crystal field splitting of square planar and trigonal bipyramidal complexes, factors affecting the crystal-field parameters, calculation of crystal field stabilization energy (CFSE), spectrochemical series. Applications (color and magnetic properties) and limitations CFT. Comparison between VBT and CFT.	10
2	Thermodynamic and Kinetic Aspects of Coordination Compounds: Stability of metal complexes- thermodynamic and kinetic stability, stable and unstable complexes, inert and labile complexes, stepwise and overall stability constants, relationship between the stepwise and overall stability constants, factors affecting the thermodynamic and kinetic stabilities of coordination compounds. Chelate effect and its thermodynamic origin. Determination of binary formation constants by pH-metry and spectrophotometry	10
3	Electronic Spectra of Transition Metal Complexes: Types of electronic transitions, selection rules for d-d transitions, calculations of spectroscopic ground states (Russell Saunders/L-S coupling), Orgel energy level diagram for d^1 , d^4 and d^6 , d^9 tetrahedral and octahedral complexes, discussion of the electronic spectrum of $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$ complex ion.	8

4	Magnetic Properties of Transition Metal Complexes: Origin of magnetic behavior, concept of magnetic susceptibility, diamagnetism, paramagnetism, ferromagnetism, ferrimagnetism and antiferromagnetism, magnetic moments, quenching of orbital magnetic moment by crystal field, magnetic susceptibility-definition relationship with temperature, Curie law and Curie Weiss law. methods of determining magnetic susceptibility; Gouy's and Quincke's methods, magnetic moment, spin only formula, correlation of μ_s and μ_{eff} values, orbital contribution to magnetic moments, application of magnetic moment data for 3d metal complexes.	10
5	Organometallic Chemistry: Definition, nomenclature and classification based on nature of metal-carbon bond. EAN and 18-electron rule. Definition, nomenclature, classification, general methods of preparation of organometallic compounds and a brief account of metal-ethylenic complexes. Applications of organometallic compounds-Ziegler-Natta catalyst, Wilkinson catalyst (No mechanism).	8
6	Some Industrially Important Inorganic Materials: Silicones, siloxanes, polymethylhydrosiloxanes, their applications. Phosphazenes, nature of bonding in triphosphazenes. Aluminosilicates- Feldspars, Ultramarines, Zeolites. Clays and Pillared Clays. Cement- manufacture, composition and setting. Glass-manufacture, annealing, types and uses. Ceramics-definition, traditional and new ceramics, structure of ceramics. Inorganic fertilizers-essential nutrients for plants, nitrogenous, phosphatic and potash fertilizers.	14

Books Recommended:

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

Suggested online links:

1. <https://www.youtube.com/watch?v=0BQ38GEYF7s&list=PLmxSS9XYst22OYcJbKWq66APcEq5pVsL1>
2. <https://www.youtube.com/watch?v=9oQcm281TT0&list=PLmxSS9XYst20MhuKSMREzLhG4ZBIdNys9>
3. https://www.youtube.com/watch?v=WGd4gOncw9s&list=PLmxSS9XYst22CtJwFrXW_VA9kCp7OP0kn
4. <https://www.youtube.com/watch?v=R4rPlpWT1cA&list=PLmxSS9XYst21uxf3tsohnDUmTRFrvFv8>
5. <https://www.youtube.com/watch?v=3TWLAJuVN0c&list=PLmxSS9XYst23hk5m9-MsHTpbADe1Mx-p8>
6. <https://www.youtube.com/watch?v=0k4ryWpwhmo&list=PLmxSS9XYst22xP0d02UtcIlgt0GIofvVm>
7. https://www.youtube.com/watch?v=0ZBMRjyHWfY&list=PLmxSS9XYst205pTMkW_PmDa3lv0s6DFoXM
8. https://www.youtube.com/watch?v=najS_fXL38U&list=PLmxSS9XYst23yE3f2Kqsir4lQ1dTmofFv&index=6
9. <https://www.youtube.com/watch?v=3VoKRgPj7OI&list=PLmxSS9XYst23yE3f2Kqsir4lQ1dTmofFv&index=8>
10. <https://www.youtube.com/watch?v=57hQHF1E3PE&list=PLmxSS9XYst23yE3f2Kqsir4lQ1dTmofFv&index=7>
11. <https://nptel.ac.in/noc/courses/noc19/SEM2/noc19-cy19/>
12. https://onlinecourses.nptel.ac.in/noc22_cy02/preview
13. <https://nptel.ac.in/courses/104/105/104105033/>
14. <https://nptel.ac.in/courses/104/101/104101079/>
15. https://onlinecourses.nptel.ac.in/noc21_cy12/preview
16. <https://nptel.ac.in/courses/104/108/104108062/>
17. https://onlinecourses.nptel.ac.in/noc21_cy36/preview
18. https://onlinecourses.nptel.ac.in/noc22_cy05/preview
19. <https://nptel.ac.in/courses/104/105/104105033/>
20. <https://www.york.ac.uk/media/chemistry/research/douthwaite/Metal-Ligand%20bonding%20and%20Inorganic%20reaction%20mechanisms.pdf>
21. <https://nptel.ac.in/courses/104/106/104106089/>
22. http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000005CH/P000658/M014009/ET/1456899566CHE_P3_M5_etext.pdf
23. http://ddugu.ac.in/epathshala_content1.aspx
24. <https://www.uou.ac.in/sites/default/files/slm/BSCCH-301.pdf>
25. http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/chemistry/07.inorganic_chemistry-ii/31.magnetic_properties_of_transition_metal_ions/et/6388_et_chemistry_p7_m31_etext.pdf
26. <https://egyankosh.ac.in/bitstream/123456789/15794/1/Unit-7.pdf>
27. <https://www.hhrc.ac.in/ePortal/Chemistry/IImsscchem-18pche3-unit1-sv.pdf>
28. <http://www.du.edu.eg/upFilesCenter/sci/1596861612.pdf>
29. <https://www.uou.ac.in/sites/default/files/slm/BSCCH-301.pdf>
30. <https://nptel.ac.in/courses/104/105/104105103/>
31. <https://www.uou.ac.in/sites/default/files/slm/BSCCH-301.pdf>
32. <https://nptel.ac.in/content/storage2/courses/103107086/module1/lecture1/lecture1.pdf>
33. <https://nptel.ac.in/content/storage2/courses/103107086/module4/lecture1/lecture1.pdf>

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

Evaluation method	Marks
Home assignments/ group discussions/ oral presentations	10 marks
Mid-term evaluation (written test)	10 marks
Attendance	05 marks

Course prerequisites: To study this course, a student must have passed Sem-III and Sem-IV Theory papers.

Suggested equivalent online courses:

1. <https://www.labster.com/chemistry-virtual-labs/>
2. <https://www.vlab.co.in/broad-area-chemical-sciences>
3. <http://chemcollective.org/vlabs>

Semester-V
Paper-II (Theory)
Course Title: Organic Chemistry

Programme/Class: Degree in Bachelor of Science	Year: Third	Semester: Fifth
Paper-II Theory Subject: Chemistry		
Course Code:	Course Title: Organic Chemistry	

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

Credits:4	Compulsory
Max. Marks: 25+75	Min. Passing Marks: 33

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	Lipids and Fats: Lipids-Definition, categories, biological functions, metabolism, nutrition and health, tests, examples. Fats-Definition, biological importance, metabolism, digestion and its metabolism. Soaps, Detergents and their action mechanism.	12
2	Reagents in Organic Synthesis: Reagent compounds, types of reagents, acetylene, ammonia, Bayer's reagent, NBS, n-butyl lithium, CAN, chromic acid, chromium trioxide, diborane, DMSO, dioxane, Fehling reagent, Grignard reagent, hydrazide, hydrogen peroxide, LAH, OsO ₄ , PCl ₅ , potassium dichromate, potassium permanganate, Raney Ni, silver nitrate, sodium borohydride, NaH, THF, TMS, SOCl ₂ , Tollen's reagent.	12
3	Nitrogen Containing Organic Compounds: Chemical reactions of nitroalkanes. Mechanism of nucleophilic substitution in nitroarenes and their reduction in acidic, neutral and alkaline medium. Picric acid. Halo nitroarenes-reactivity, structure and nomenclature of amines. Physical properties. Separation of mixture of primary, secondary and tertiary amines. Structural features affecting basicity of amines. Amine salts as phase-transfer catalysts. Preparation of alkyl and aryl amines (reduction of nitro compounds, nitriles), reductive amination of aldehydic and ketonic compounds. Gabriel-phthalimide reaction, Hofmann bromamide reaction. Reaction of amines, electrophilic aromatic substitution in aryl amines, reaction of amines with nitrous acid. Synthetic transformations of aryl diazonium salts, azo coupling.	14
4	Organometallic Compounds: Organ magnesium compounds; the Grignard reagent-formation, structure and chemical reactions. Organozinc compounds; formation and chemical reactions.	10
5	Dyes and Paints: Color and constitution, types of dyes, Alizarin, Indigo, Congo red, Malachite green, Methylene blue, Phenolphthalein, Methyl orange. Paints and Varnishes: Definition, components, chemistry, applications.	10

6	<p>Carbohydrates and Proteins: Carbohydrates: Classification and nomenclature. Monosaccharides, mechanism of osazone formation, interconversion of glucose and fructose, chain lengthening and chain shortening of aldoses. Configuration of monosaccharides. Erythro and threo diastereomers. Conversion of glucose into mannose. Formation of glycosides, ethers and esters. Cyclic structure of D(+)-glucose. Mechanism of mutarotation. General study of disaccharides.</p> <p>Proteins: Classification, structure and stereochemistry of amino acids. Acid-base behavior, isoelectric point and electrophoresis. Classification of proteins.</p>	12
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Books Recommended:

- Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
- Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Wiley, 1994, 1st edition.
- Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
- Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.
- Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
- Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.
- Madan, R.L., "Chemistry for Degree Students, B. Sc. Third Year", S. Chand Publishing, New Delhi, India, 2011, 3rd edition.
- Bahl, A. and Bahl, B.S. a "Advance Organic Chemistry", S. Chand Publishing, India, 2010.

Suggested online links:

- https://www.youtube.com/watch?v=xBNv80Dg6nI&list=PLmUlqVgZsTVUk5NkroUmYXvbterBXbk_J
- https://www.youtube.com/watch?v=UgbaIFI_q6E
- <https://www.youtube.com/watch?v=tz0BrCqPTV0&t=15s>
- <https://www.youtube.com/watch?v=2sHILNzTpUU&t=4s>
- <https://www.youtube.com/watch?v=ALaTCbetFSg&t=210s>
- <https://www.youtube.com/watch?v=kruIzuor5v8>
- <https://www.youtube.com/watch?v=IuERNLx-J7k&t=19s>
- <https://www.youtube.com/watch?v=RW7KlYbpNxx&t=1414s>
- <https://www.youtube.com/watch?v=LcUoeFe0iN8>
- <https://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/intro1.htm>
- <https://nptel.ac.in/courses/104/103/104103111/>
- <https://nptel.ac.in/courses/104/103/104103071/>
- https://onlinecourses.nptel.ac.in/noc19_cy24/preview
- <https://nptel.ac.in/content/storage2/courses/104103071/pdf/mod10.pdf>

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

Evaluation method	Marks
Home assignments/ group discussions/ oral presentations	10 marks
Mid-term evaluation (written test)	10 marks
Attendance	05 marks

Course prerequisites: To study this course, a student must have passed Sem-III and Sem-IV Theory papers.

Semester-V, Paper-III (Practical)

Course Title: Analytical Procedures-III

Programme/Class: Certificate in Introductory/General Chemistry	Year: Third	Semester: Fifth
Paper-III Practical Subject: Chemistry		
Course Code:	Course Title: Analytical Procedures-III	

Course outcomes:

Upon completion of this course, the students will have the knowledge and skills to understand the synthetic methods related to inorganic and organic fields. Also, they can easily analyze the nitrogen containing compounds and separate the binary organic mixture.

Credits:2	Compulsory
Max. Marks: 10+40	Min. Passing Marks: 17

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	Laboratory hazards and safety precautions	6
2	Inorganic exercise: Inorganic synthesis – cuprous chloride, potash alum, chrome alum, ferrous oxalate, ferrous ammonium sulphate, tetraamminecopper(II) sulphate and hexaamminenickel(II) chloride. Crystallization of compounds.	14

3	Organic exercise: Organic qualitative analysis: Analysis of Nitrogen containing organic compounds (detection of elements, amines, nitro, amides and anilides) Binary mixture of organic compounds separable by water Organic synthesis: through nitration, halogenation, acetylation, sulphonation and simple oxidation	40
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Suggested Continuous Evaluation Methods: Students can be evaluated on the basis of score obtained in viva voce, record and overall performance.

Evaluation method	Marks
Attendance	05 marks
Viva voce/Record and overall performance	05 marks

Course prerequisites: To study this course, a student must have opted Sem-V Theory Paper-1 &2

Suggested equivalent online courses:

1. <https://www.labster.com/chemistry-virtual-labs/>
2. <https://www.vlab.co.in/broad-area-chemical-sciences>
3. <http://chemcollective.org/vlabs>

One exercise each from inorganic synthesis, organic qualitative analysis and organic synthesis shall be given in the examination.

Distribution of marks shall be as given below:

1. Inorganic salt analysis (Acidic and Basic radicals)	10
2. Organic exercise	20
3. Viva	05
4. Lab record	05
5. Home assignment/internal assessment, lab record and attendance	10
TOTAL	50

Note:

- *The lab work of the student has to be evaluated and assessed carefully and periodically. The semester record has to be maintained by the department/college as an official record.*
- *Less than zero mark will not be awarded.*
- *The total number of students to be examined per batch shall not be more than sixty.*
- *Duration of the practical examination shall be of 05(five) hours.*

- *Marks obtained in the practical examination have to be submitted to the Head of the department/ Principal of the College. The Head of the Department/Principal of the College will make necessary arrangement for uploading the marks onto the University exam portal. The hard copy of the award list from portal has to be submitted to the Controller of Examination, SDSU University, Badshahi Thaul, Tehri (Garhwal).*

Semester-VI
Paper-I (Theory)
Course Title: Physical Chemistry

Programme/Class: Degree in Bachelor of Science	Year: Third	Semester: Sixth
Paper-I Theory Subject: Chemistry		
Course Code:	Course Title: Physical Chemistry	

Course outcomes: The core concepts of Physical Chemistry have been included in this semester with a view that students' command over these topics will help them to understand the higher chemistry in PG classes. Their understanding of Photochemistry and Solutions will help him to explain the day today phenomenon of the relevant field whereas. Thermodynamics will help them to understand the natural flow of energy. Learning the Quantum Mechanics will help them to praise the beauty of behavior of fundamental particles. It will assist them to get a suitable job in the relevant industrial and scientific field.

Credits:4	Compulsory
Max. Marks: 25+75	Min. Passing Marks: 33

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	Surface Chemistry: Definition of surface phenomenon- Adsorption. Chemical and physical adsorption, Factors affecting adsorption. Isotherm and Isobar. Free energy of adsorption. Quantitative treatment of adsorption, Freundlich's and Langmuir's adsorption model and their applications. Limitation of Langmuir adsorption model. Adsorption in catalysis, characteristics of catalyzed reactions.	10
2	Elementary Quantum Mechanics: Black-body radiation, Plank's radiation law, photoelectric effect, Bohr's model of hydrogen atom (no derivation) and its defects. Compton effect, de Broglie hypothesis, Heisenberg's uncertainty principle, operator concept, Hamiltonian operator, Schrödinger wave equation and its importance, physical interpretation of the wave function, Numerical Problems.	12
3	Photochemistry: Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry; Grothuss-Draper law, Lambert's law, Lambert-Beer's law, Stark-Einstein law, Jablonski diagram depicting various processes occurring in the excited state, fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), quantum yield, Numerical Problems.	10

4	Solutions and Colligative Properties: Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient. Dilute solutions, colligative properties, Raoult's law, relative lowering of vapour pressure, molecular mass determination. Osmosis, law of osmotic pressure, determination of molecular mass from osmotic pressure. Elevation of boiling point and depression in freezing point, Numerical Problems.	10
5	Thermodynamics III: Statement and concept of residual entropy, third law of thermodynamics, unattainability of absolute zero, Nernst heat theorem. Evaluation of absolute entropy from heat capacity data, Numerical Problems	8
6	Radioactivity: Definition, nature of radioactivity, emission, types of radioactivity, occurrence, Energetics and kinetics radioactivity, rates of radioactive transitions, Applications of radioactivity, Numerical Problems.	10

Books Recommended:

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

Suggested online links:

- <https://www.youtube.com/watch?v=CMYg3ElZwDY>
- https://www.youtube.com/watch?v=01dY_ILWdMA&t=4s
- https://onlinecourses.nptel.ac.in/noc20_cy27/preview
- https://onlinecourses.nptel.ac.in/noc21_cy20/preview
- <https://www.classcentral.com/course/swayam-chemistry-i-introduction-to-quantum-chemistry-and-molecular-spectroscopy-3981>
- <https://www.classcentral.com/course/swayam-quantum-chemistry-of-atoms-and-molecules-19982>

7. <https://nptel.ac.in/courses/104/108/104108057/>
8. <https://nptel.ac.in/courses/115/101/115101107/>
9. <https://nptel.ac.in/courses/104/101/104101124/>
10. <https://nptel.ac.in/courses/104/105/104105128/>
11. <https://www.classcentral.com/course/swayam-concepts-of-thermodynamics-13015>
12. https://onlinecourses.nptel.ac.in/noc20_me20/preview
13. <https://www.careers360.com/university/indian-institute-of-technology-kharagpur/concepts-of-thermodynamics-certification-course>
14. <https://www.coursera.org/learn/thermodynamics-intro>
15. https://onlinecourses.nptel.ac.in/noc22_cy14/preview
16. https://onlinecourses.nptel.ac.in/noc20_cy22/preview
17. https://onlinecourses.nptel.ac.in/noc21_cy45/preview
18. https://onlinecourses.nptel.ac.in/noc21_ch48/preview

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

Evaluation method	Marks
Home assignments/ group discussions/ oral presentations	10 marks
Mid-term evaluation (written test)	10 marks
Attendance	05 marks

Course prerequisites: To study this course, a student must have passed Sem-V Theory papers.

Semester-VI
Paper-II (Theory)
Course Title: Analytical Chemistry

Programme/Class: Degree in Bachelor of Science	Year: Third	Semester: Sixth
Paper-II Theory Subject: Chemistry		
Course Code:	Course Title: Analytical Chemistry	

Course outcomes: After completion of this course, the students will be able to understand the chemistry of biomolecules. They will become acquainted in the field of data analysis. The new frontiers of chemistry such as nano-chemistry and green chemistry are the part of syllabi of this course which boost the knowledge of the students in these fields. The chemistry of industrially important inorganic materials such as cement, ceramics, glass and inorganic fertilizers has been incorporated in the course to enhance the skills and capability of the

students pursuing this course. The students will also be able to understand the analytical techniques such as electro-gravimetric analysis, coulometric analysis, thermogravimetry, polarography and chromatography.

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

Credits:4	Compulsory
Max. Marks: 25+75	Min. Passing Marks: 33

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	General Biochemistry: Introduction to biomolecules, Enzymes; Definition, classification, role in physiology. General introduction to hormones. Nucleic acids; Nitrogen bases, purines, pyrimidines, nucleosides, nucleotides, structure of RNA and DNA molecule.	12
2	Data Analysis: Errors; Definition, types of errors, precision, accuracy, absolute, Significant Figures; significant figures in Arithmetics-addition, subtraction, multiplication and division, Mean and Standard deviation, Standard deviation and probability.	10
3	Fundamentals of Nanochemistry: Definition, brief history, classification, general approach of nano synthesis, general methods of characterization, general applications.	9
4	Basics of Green Chemistry: Introduction, role of green chemistry in sustainable development, principles of green chemistry.	8
5	Analytical Techniques: Basic concepts of electro-gravimetric and coulometric analysis. Thermogravimetric analysis. Voltametry; principle of polarography Chromatography: Introduction, Types, paper and column chromatography	9
6	Spectroscopy: Ultraviolet (UV) absorption spectroscopy-absorption laws (Beer-Lambert law), molar absorptivity, presentation and analysis of UV spectra, types of electronic transitions, effect of conjugation, concept of chromophore and auxochrome. Bathochromic, hypsochromic, hyperchromic and hypochromic shifts. UV spectra of conjugated enes and enones.	12

	<p>Infra-Red (IR) absorption spectroscopy- molecular vibrations, Hooke's Law, selection rules, intensity and position of IR bands, measurement of IR spectrum, finger print region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds. Nuclear magnetic resonance (NMR) spectroscopy; Proton magnetic resonance (^1H NMR) spectroscopy, nuclear shielding and deshielding, chemical shift and molecular structure, spin-spin splitting and coupling constants, areas of signals, interpretation of ^1H NMR spectra of simple organic molecules such as ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromoethane, ethyl acetate, toluene and acetophenone, Problems pertaining to the structure elucidation of simple organic compounds using UV, IR and ^1H NMR spectroscopic techniques</p>	
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Books Recommended:

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

Suggested online links:

- <https://www.youtube.com/watch?v=qJMJUtgVUVw>
- <https://www.youtube.com/watch?v=58pAYgrZjF0&t=26s>
- https://onlinecourses.nptel.ac.in/noc19_mm21/preview
- <https://www.classcentral.com/course/swayam-introduction-to-data-analytics-3973>
- https://onlinecourses.nptel.ac.in/noc21_cy26/preview
- <https://www.classcentral.com/course/swayam-biochemistry-5229>
- https://onlinecourses.nptel.ac.in/noc19_cy18/preview

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

Evaluation method	Marks
Home assignments/ group discussions/ oral presentations	10 marks
Mid-term evaluation (written test)	10 marks
Attendance	05 marks

Course prerequisites: To study this course, a student must have passed Sem-V Theory papers.

Semester-VI, Paper-III (Practical)**Course Title:** Analytical Procedures-IV

Programme/Class: Certificate in Introductory/General Chemistry	Year: Third	Semester: Sixth
Paper-III Practical Subject: Chemistry		
Course Code:	Course Title: Analytical Procedures-IV	

Course outcomes: Upon completion of this course, the students will have the knowledge and skills to determine the heat of neutralization, solubility of organic compounds by titration method. They will be able to estimate different metal ions through gravimetric exercise. Spectroscopic and chromatographic exercise will train them to interpret the spectral data and chromatograms of organic compounds and will make them job ready for suitable industries.

Credits:2	Compulsory
Max. Marks: 10+40	Min. Passing Marks: 17

Total Number of Hours = 60

Unit	Contents	Number of Hours
1	Laboratory hazards and safety precautions	6
2	Physical exercise: Determination of solubility of organic compound (viz. oxalic acid) in water by titration method. Determination of Heat of neutralization.	18
3	Spectroscopic exercise: Functional Group determination by UV and IR Spectroscopy; analysis of organic compounds including alcohols, phenols, carboxylic acids, carbonyl compounds, nitrogen containing compounds.	18
4	Inorganic Exercise: Gravimetric analysis of any one or two metal ions; Ba ²⁺ , Fe ³⁺ , Ni ²⁺ , Cu ²⁺ , Zn ²⁺ etc.	10
5	Chromatographic technique: Demonstrative Chromatography- paper chromatography (Analytical separation of organic compounds- Amino acids/ dyes)	8

Suggested Continuous Evaluation Methods: Students can be evaluated on the basis of score obtained in viva voce, record and overall performance.

Evaluation method	Marks
Attendance	05 marks
Viva voce/Record and overall performance	05 marks

Course prerequisites: To study this course, a student must have opted Sem-VI Theory Paper-1 &2

One exercise each from inorganic analysis (quantitative), Spectroscopy/ Chromatography and physical exercise shall be given in the examination.

Distribution of marks shall be as given below:

1. Inorganic salt analysis	12
2. Organic exercise	08
3. Physical	10
4. Viva	05
5. Lab record	05
6. Home assignment/internal assessment, lab record and attendance	10
TOTAL	50

Note:

- *The lab work of the student has to be evaluated and assessed carefully and periodically. The semester record has to be maintained by the department/college as an official record.*
- *Less than zero mark will not be awarded.*
- *The total number of students to be examined per batch shall not be more than sixty.*
- *Duration of the practical examination shall be of 05(five) hours.*
- *Marks obtained in the practical examination have to be submitted to the Head of the department/ Principal of the College. The Head of the Department/Principal of the College will make necessary arrangement for uploading the marks onto the University exam portal. The hard copy of the award list from portal has to be submitted to the Controller of Examination, SDSU University, Badshahi Thaul, Tehri (Garhwal).*

Minor/Elective courses
Semester-I/II
Paper-I (Theory)
Course Title: Basics of Chemistry

Programme/Class: Certificate in Science	Year: First	Semester: First/Second
Paper-I Theory Subject: Chemistry		
Course Code:	Course Title: Basics of Chemistry	

Course outcomes: There is nothing more fundamental to chemistry than the atom and combination of atoms to form molecules by chemical bond. Chemical bonding is the language of logic for chemists. Chemical bonding enables scientists to take the 100-plus elements of the periodic table and combine them in myriad ways to form chemical compounds and materials. The kind of bond present in a molecule decides nature of molecule (ionic or covalent) and its structure (geometry). The formation of molecules via various chemical reactions involve energy. The course will provide basic understanding on atomic structure, formation of compounds, chemical bonding, chemical changes and energy change in the formation of a matter. Students will gain an understanding of;

- ✓ Molecular geometries, physical and chemical properties of the molecules.
- ✓ Current bonding models for simple inorganic 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.

Credits:4	Compulsory
Max. Marks: 25+75	Min. Passing Marks: 33

Total Number of Hours = 60

Unit	Content	Number of Hours
1	Atom and Molecules: Bohr's Atomic theory (only postulates), structure of an atom; nuclear particles, atomic number, mass number and Isotopes, Atomic orbitals, filling of electrons in various orbitals-Aufbau energy diagram, Pauli's Exclusion Principle, Hund's rule of maximum multiplicity Measurement- least count, significant figures, their use in simple arithmetic calculations	8
2	Ions, Molecules, bonding, molar mass and chemical reactions Ions, ionic bond and ionic compounds, Chemical equations, Reactions in aqueous medium- Arrhenius theory of acids and bases, Acid-Base reaction, definition of acid and base, neutralization, Oxidation Reduction reactions-oxidation number, balancing of oxidation reduction reactions Molecules and chemical formulae, molar mass, molar mass and Avogadro's number, Covalent compounds-bonding, VSEPR	18

	concept and geometry, Valence Bond theory, Hybridization, geometry of covalent molecules, Hydrogen bonding	
3	Periodic Properties Periodic table and periodic law, periodic classification of the elements, Periodic relationship among the elements, periodic properties-atomic size, ionization energy, electron affinity, electronegativity	10
4	Gaseous State Pressure of a gas, pressure volume relationship-Boyle's law, the temperature volume relationship-Charle's law, Ideal gas equation	8
5	Thermochemistry Energy changes in chemical reactions, Enthalpy, specific heat, heat capacity- constant volume and constant pressure, Standard enthalpy of formation and reactions	8
6	Hydrocarbons, functional groups Alkanes, alkenes, alkynes, aromatic hydrocarbons. Homologous series, Preparation and properties of ethene and ethyne. Functional groups in organic compounds-alcohols, ethers, aldehydes, ketones and carboxylic acids Electronegativity and polarization of covalent bond; inductive, mesomeric, electromeric effect, hydrogen bonding and its significance Polymers-definition, properties, polyethylene-preparation	8
7	Practical Basic Knowledge of Laboratory equipments, Basic idea of practicals for better understanding of science concepts. (i) pH measurement (ii) Determination of Viscosity/Surface Tension of a liquid	-

Books Recommended:

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

- v. Chandra, S., "Comprehensive Inorganic Chemistry" New Age International Publishers, India, 2018, 1st edition.
- vi. Prakash, S., Tuli, G.D., Basu, S.K. and Madan, R.D., "Advanced Inorganic Chemistry", S. Chand Publishing, New Delhi, India, 2000, Vol 1.
- vii. Bariyar, A., Singh, R.P. and Dwivedi, A., "Text Book for B. Sc. Chemistry I", Anu Books, 2019.
- viii. Finar, I.L., "Organic Chemistry", Pearson Education India, 2002, 6th edition.
- ix. Eliel, E.L. and Wilen, S.H., "Stereochemistry of Organic Compounds", Wiley, 1994, 1st edition.
- x. Boyd, Morrison and Bhattacharjee, "Organic Chemistry", Pearson Education India, 2010, 7th edition.
- xi. Mukerji, S.M., "Reaction mechanism in Organic Chemistry", Laxmi Publications, 2007, 3rd edition.
- xii. Singh, Jagdamba and Yadav, L.D.S., "Undergraduate Organic Chemistry" Pragati Prakashan, India, 2011, Vol 1.
- xiii. Loudon, G. Marc, "Organic Chemistry", Oxford University Press, 2008, 4th edition.

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=PLmxSS9XYst20arjxnrlpnl0P99AnswmSs>
4. <https://www.youtube.com/watch?v=zGk6VeTfpuE&list=PLmxSS9XYst21tCVcVKQ9nZdW3OO-20iNW>
5. <https://www.youtube.com/watch?v=zUwbVaBaxTY&list=PLmxSS9XYst22fU5l0ryKCEZNxuVkia6-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>

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

Evaluation method	Marks
Home assignments/ group discussions/ oral presentations	10 marks
Mid-term evaluation (written test)	10 marks
Attendance	05 marks

Course prerequisites: To study this course, a student must have studied the Science/chemistry of class 10th.

Semester-III/IV
Paper-I (Theory)
Course Title: yet to be decided

Programme/Class: Diploma in Chemical Science	Year: Second	Semester: Third/Four
Paper-I Theory Subject: Chemistry		
Course Code:	Course Title:	

Course outcomes:

**SRIDEV SUMAN UTTARAKHAND UNIVERSITY
BADSHAITHAUL (TEHRI GARHWAL)**



U.G. SYLLABUS

ECONOMICS

FOR

**MAJOR, MINOR ELECTIVE & VOCATIONAL/SKILL
ENHANCEMENT COURSE**

SESSION-2022-23(ONWARD)

DEVELOPED BY:

DEPARTMENT OF ECONOMICS

PDT. L.M.S SRI DEV SUMAN UTTARAKHAND UNIVERSITY,

CAMPUS RISHIKESH

SRI DEV SUMAN UTTARAKHAND UNIVERSITY

BADSHAITHAUL(TEHRI GARHWAL), UTTARAKHAND

Syllabus Preparation Committee

Department of Economics

Pdt. L.M.S SRI DEV SUMAN UTTARAKHAND UNIVERSITY, CAMPUS
RISHIKESH

S.NO.	Name of faculty	Designation
1.	Dr. Pushpanjali Arya	Associate Professor & Head
2.	Dr. Ashok Kumar	Assistant Professor

Payg 10/8/2022
M. Indola
10/8/2022

Board of Study: Arts Faculty

1-Prof. Dinesh Chandra Goswami- (Dean Faculty of Arts)	Chairman
2- Prof. Mukti Nath Yadav- (Head of Department -Hindi)	Member
3- Prof. Hemant Kumar Shukla – (Head of Department- English)	Member
4- Prof. Sangeeta Mishra – (Head of Department – History)	Member
5- Prof. Priti Kumari – (Head of Department – Home Science)	Member
6- Prof. Anand Prakash Singh- (Head of Department- Sociology)	Member
7- Prof. Pushpanjali Arya- (Head of Department – Economics)	Member
8- Prof. Durga Kant Prakash Chaudhary- (Head of Department- Political Science)	Member
9- Dr. Poonam Pathak- (Head of Department- Sanskrit)	Member

- | | |
|----------------------------------------------------------------------------------------------|----------------|
| 10- Dr. Atal Bihari Tripathy-
(Head of Department- Education) | Member |
| 11- Dr. Pushkar Gaud-
(Head of department – Physical Education) | Member |
| 12- Dr. Sikha Mamgai-
(Head of Department- Music) | Member |
| 13- Prof. M.S. Mawadi-
(Department of Drawing and Fine Arts)
Kumaun University Nanital | Member |
| 14- Dr. Preeti Gupta –
Assistant Professor, Harshvidya Mandir, Raisi | Member |
| 15- Dr. Narbdesvar Shukla-
(Defence Studies – Govt. P.G. College, Doiwala) | Member |
| 16- Dr. Poonam Pandey-
(Department of Psychology- Govt. P.G. College, Doiwala) | Member |
| 17- Dr. Vandana Sharma-
(Principal – Govt. Degree College, Devprayag) | Invited Member |
| 18- Dr. Asha Devi-
(Department of Philosophy-
Govt. P.G. College, Kotdwar) | Member |
| 19- Dr. P.C. Penuli- | Member |

(Department of Anthropology-

Govt. P.G. College, New Tehri)

II- Principals of Govt. P.G. Colleges

1- Prof. Janki Panwar-

Principal

(Govt. P.G. College, Kotdwar)

2- Prof. Lovely Rajwansi-

Principal

(Govt. P.G. College, Jaiharikhal)

3- Prof. K.L. Talwar-

Principal

(Govt. Degree College, Chakrata Dehradun)

III- Director Research Institute

1- DR. Himanshu Das-

Director

(National Institute for the Empowerment
of Persons with Visual Disabilities
(Divyangjan), Dehradun)

IV- Nominee of Honourable Vice- Chancellor

1-Prof. M.S.M. Negi, S.R.T. Campus Badshahithaul Tehri Garhwal

2- Prof. M.C. Sati, Department of Economics, H.N.B. Garhwal University,
Srinagar Garhwal


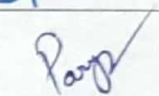
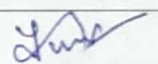
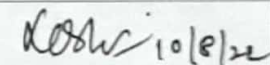
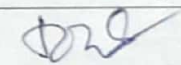

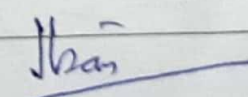
3-Prof. S.L. Bhatt, Retd. Principal Govt. P.G. College, Kotdwar

Sri Dev Suman Uttarakhand University

Syllabus**Economics**

Syllabus of B.A. I, II, III, IV, V, VI Semesters respectively for Sri Dev Suman Uttarakhand University (SDSUU) Badshahithoul, Tehri-Garhwal and its Affiliated Colleges w.e.f. Educational Session: 2022-23

Syllabus checked & modified by the following President/ Members of B.O.S. (Board of Studies) on Wednesday, 10.08.2022

Sr. No.	Name	Designation & Institute	Designation in BOS	Signature
A: Faculty of Arts, SDSUU, Tehri-Garhwal				
1	Prof. Dinesh Chandra Goswami	Dean, SDSUU, Tehri Garhwal Pt. L.M.S. University Campus, Rishikesh (U.K.)	President	
2	Prof. Pushpanjali Arya	H.O.D.-Department of Economics SDSUU, Tehri Garhwal, Pt. L.M.S. University Campus, Rishikesh (U.K.)	Member	
B: Three Principals of Post-Graduate Colleges				
1	Prof. Janaki Panwar	Principal Govt. P.G. College, Kotdwar (U.K.)	Member	
2	Prof. Lavani Rajvanshi	Principal Govt. P.G. College, Jaiharikhal (U.K.)	Member	
3	Prof. K.L. Talwar	Principal Govt. Degree College, Chakarata (U.K.)	Member	
C: Director of any Research Institute				
1	Dr. Himanshu Das	Director Rashtriya Drishti Badhitarth Sansthan, Dehradun (U.K.)	Member	
Sr. No.	Name	Designation & Institute	Designation in BOS	Signature
D. Two Professors & 01 External Expert nominated by honourable Vice-Chancellor				
1	Prof. M.S.M. Negi	S.R.T. Campus Badshahithoul, Tehri-Garhwal (U.K.)	Member	
2	Prof. M.C. Sati	Department of Economics HNBGU, Srinagar-Garhwal (U.K.)	Member	
3	Prof. S.L. Bhatt	Principal (Rtd.) Govt. P.G. College, Kotdwar (U.K.)	Member	

SRI DEV SUMAN UTTARAKHAND UNIVERSITY

Badshahithaul, Tehri Garhwal (Uttarakhand)

List of Members of Board of Studies

Sl. No.	Name of the Members	Designation	Nominated as
1	Prof. Dinesh Chandra Goswami	Dean of Arts	Chairman
2	Prof. Muktinath Yadav	Professor	Member
3	Prof. Hemant Kumar Shukla	Professor	Member
4	Prof. Sangeeta Mishra	Professor	Member
5	Prof. Preeti Kumari	Professor	Member
6	Prof. Anand Prakash Singh	Professor	Member
7	Prof. Pushpanjali Arya	Asso. Professor	Member
8	Prof. D K P. Choudhury	Professor	Member
9	Dr. Poonam Pathak	Professor	Member
10	Dr. Atal Bihari Tripathy	Asst. Professor	Member
11	Dr. Pushkar Gaur	Asst. Professor	Member
12	Dr. Shikha Mangai	Asst. Professor	Member
13	Prof. M. S. Mawri	Professor	Member
14	Dr. Preeti Gupta	Asst. Professor	Member
15	Dr. Narmadeshwar Shukla	Professor	Member
16	Dr. Poonam Pandey	Asst. Professor	Member
17	Dr. Vandana Sharma	Principal	Member
1	Prof, Janki Panwar	Principal	GPGC Kotdwar
2	Prof. Lovely Rajvanshi LOVNEY	Principal	GPGC, Jaiharikhal
3	Prof. K. L. Talwar	Principal	GDC, Chakrata
4	Dr. Himanshu Das	Director	NIVH, Rajpur Road
5	Prof. M. S. M. Negi	Professor	SRT Campus, HNBGU, Srinagar
6	Prof. M. C. Sati	Professor	HNBGU, Srinagar
7	Prof. S. L. Bhatt	Ex. Principal	GPGC, Kotdwar
8	Dr. P.C. Painuli	Asst. Professor	GPGC, New Tehri
9	Dr. Asha Devi	Asso. Prof.	GPGC, Kotdwar

NATIONAL EDUCATION POLICY-2020

**Common Minimum Syllabus for all
Uttarakhand State Universities and Colleges for
First Three Years of Higher Education**

PROPOSED STRUCTURE OF UG ECONOMICS SYLLABUS

2021

Curriculum Design Committee, Uttarakhand

Sr.No.	Name & Designation
1.	Prof. N.K. Joshi Vice-Chancellor , Kumaun University Nainital Chairman
2.	Prof. O.P.S. Negi Vice-Chancellor , Uttarakhand Open University Member
3.	Prof. P. P. Dhyani Vice-Chancellor , Sri Dev Suman Uttarakhand University Member
4.	Prof. N.S. Bhandari Vice-Chancellor, Soban Singh Jeena University Almora Member
5.	Prof. Surekha Dangwal Vice-Chancellor, Doon University, Dehradun Member
6.	Prof. M.S.M. Rawat Advisor, Rashtriya Uchchatar Shiksha Abhiyan, Uttarakhand Member
7.	Prof. K. D. Purohit Advisor, Rashtriya Uchchatar Shiksha Abhiyan, Uttarakhand Member

Expert Committee

Sr.No.	Name	Designation	Department	Affiliation
1.	Prof. Rajnish Pande	Head, Professor	Dept. of Economic	Kumaun University, Nainital
2.	Prof. Padam S. Bisht	Professor	Dept. of Economics	Kumaun University, Nainital
3.	Prof. Harish Joshi	Professor	Dept. of Economics	S.S.J University, Almora
4.	Prof. R.P. Mangain	Professor	Dept. of Economics	Doon University, Dehradun
5.	Prof. Puspanjali Arya	Associate Professor	Dept. of Economics	Sri dev Suman Uttarakhand University
6.	Dr. Nandan Singh Bisht	Assistant Professor	Dept. of Economics	Kumaun University, Nainital
7.	Dr. Jitendra Kumar Lohani	Assistant Professor	Dept. of Economics	Kumaun University, Nainital
8.	Dr. Abha Agarwal (Online)	Assistant Professor	Dept. of Economics	Govt. Degree College, Syalde Kumaun University, Nainital
9.	Dr. Manisha Tewari (Online)	Assistant Professor	Dept. of Economics	S.B.S P.G. College Rudrapur, Kumaun University, Nainital
10.	Dr. Vishwanath Pandey (Online)	Assistant Professor	Dept. of Economics	H.N.B P.G College, Khatima Kumaun University, Nainital

Syllabus Preparation Committee

Sr.No.	Name	Designation	Department	Affiliation
1.	Prof. Padam S. Bisht	Professor	Dept. of Economics	Kumaun University, Nainital
2.	Dr. B.S Rawat	Associate Professor	Dept. of Economics	D.V.S College, Dehradun
3.	Prof. Rajnish Pande	Professor	Dept. of Economics	Kumaun University, Nainital
4.	Prof. R.P. Mangain	Professor	Dept. of Economics	Doon University, Dehradun
5.	Dr Raj Laxmi Dutta	Assistant Professor	Dept. of Economics	D.V.S College, Dehradun
6.	Dr. Madhu Bisht	Assistant Professor	Dept. of Economics	Doon University, Dehradun
7.	Dr. Shikha Ahmed	Assistant Professor	Dept. of Economics	Sri Gruru Govind Ram rai College
8.	Dr. Nandan Singh Bisht	Assistant Professor	Dept. of Economics	Kumaun University, Nainital
9.	Dr. Jitendra Kumar Lohani	Assistant Professor (Contract)	Dept. of Economics	Kumaun University, Nainital

List of all Papers in Six Semester Semester-wise Titles of the Papers in Economics						
Year	Sem.	Course Code		Theory/ Practical	Credits	
Certificate Course in Fundamentals of Economics						
FIRST YEAR	I	ECOMJ101	Fundamentals in Microeconomics	Theory	6 Credits	
	II	ECOMJ201	Fundamentals in Macroeconomics	Theory	6 Credits	
Diploma in Economics						
SECOND YEAR	III	ECOMJ301	Basics of Public Finance	Theory	6 Credits	
	IV	ECOMJ401	Money, Banking & International Trade	Theory	6 Credits	
Bachelor of Economics						
THIRD YEAR	V	ECOMJ501	1. Indian Economy	Theory	5 Credits	
		ECOMJE501 ECOMJE502 ECOMJE503 ECOMJE504	2. Optional Paper - Select any one of the following - (2a). Basics of Labour Economics (2b). Basics of Agriculture Economics (2c). Basics of Demography (2d). Basics of Quantitative Techniques in Economics	Theory	5 Credits	
	VI	ECORP501	3. Field Survey	Project	4 Credits	
		ECOMJ601	1. Economics of Growth & Development	Theory	5 Credits	
		ECOMJE601 ECOMJE602 ECOMJE603 ECOMJE604	2. Optional Paper - Select any one of the following - (2a). History of Economic Thought (2b). Basics of Industrial Economics (2c). Economy of Uttarakhand (2d) Basics of Computer Application in Economics	Theory	5 Credits	
ECORP601	3. Research Project		Project	4 Credits		

Abbreviations :-

ECOMJ	-	Economics Major Core
ECOMJE	-	Economics Major Elective
ECORP	-	Economics Research Project
ECOMIE	-	Economics Minor Elective

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COURSE INTRODUCTION

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. 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.

Programme Outcomes (Pos) :	
PO 1	Economics subject enables the learners to build up a professional carrier as economists, financial advisors, economics planners and policy makers. It prepares them to cope up with the stress and strain involved in the process of economic development.

Programme Specific Outcomes (PSOs) : UG I Year / Certificate Course in Fundamentals of Economics	
PSO1	To understand the basic concepts of Microeconomics
PSO2	To understand the basic concepts of Macroeconomics

Programme Specific Outcomes (PSOs) : UG II Year / Diploma in Economics	
PSO1	To understand the basic concepts of Public Revenue, Public Debt, Public Expenditure etc.
PSO2	To understand the basic concepts of Money, Banking & International Trade.
PSO3	To understand different monetary standards, central banking system etc.

Programme Specific Outcomes (PSOs) : UG III Year / Bachelor of Economics	
PSO 1	To understand the basic concept of Indian Economy.
PSO2	To understand the concept of Basic Labour Economics
PSO3	To understand the basics of Agricultural Economics.
PSO4	To understand the basics of Demography.
PSO5	To understand the basic concept of Quantitative Techniques that are used in economic analysis.
PSO6	To understand the basic concepts of Theory of Economic Growth & development.
PSO7	To understand about the Economic thinkers and their economic thoughts.
PSO8	To understand the basic concepts of Industrial Economy.
PSO9	To Understand the Economy of Uttarakhand.
PSO10	To understand the basic Computer Application in Economics.

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Page 6 of 44

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Certificate Course in Fundamentals of Economics

B.A.-I Year	SEM 1	Fundamentals in Micro Economics	[6 CREDITS]
	SEM 2	Fundamentals in Macro Economics	[6 CREDITS]

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Certificate Course in Fundamentals of Economics		
Programme : Certificate Course in Fundamentals of Economics		Year 1 Semester 1 Paper I
Subject : Economics		
Course Code : ECOMJ101	Course Title : Basics of Microeconomics	
Course Outcomes: The course will help in: <ul style="list-style-type: none">• 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 price and output determination of the firm and industry under different market forms. They also learn about the Welfare concept in modern Economics.		
Credits : 6 Credits		Core Compulsory
Max. Marks :75		Min. Passing Marks: 25
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topic	No. of Lectures
I	Definition, Nature, Scope and Methods of Micro Economics. Equilibrium: Partial and General, Static and Dynamic.	16
II	Theory of Demand: Utility Analysis of Demand. (Cardinal & Ordinal Approach) Indifference Curve Analysis. Consumer's Equilibrium. Giffen Goods. Concept and Calculation of Elasticity of Demand & Consumer's Surplus.	18
III	Theory of Production: Returns to a Variable Factor. Production Possibility Curve. Production Function: Isoquants, Fixed Proportions and Variable Proportions Production Functions, Returns to Scale. Concept and Calculation of Total, average and marginal cost. Concept and Calculation of Revenue Curves - Total, Average and Marginal.	20
IV	Market Structures and Price Determination. Equilibrium of the Firm. Perfect Competition. Monopoly & Monopolistic Competition.	18
V	Theory of Factor Pricing: Marginal Productivity theory of Distribution. Modern Theories of Wage, Rent, Interest & Profit.	18

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Handwritten signatures and initials

Handwritten signatures

Suggested Reading:

1. Ahuja, H.L., Advanced Economic Theory, S. Chand & Co., New Delhi.
2. Koutsoyiannis, A., Modern Microeconomics, Macmillan, London.
3. Roy Choudhary, K., Modern Micro Economics, Theory and Application, Vols. I, II & III, Dominant Publishers and Distributors, New Delhi.
4. Lipsey, R.G., Introduction to Positive Economics, ELBS, London.
5. Baumol, W., Economic Theory and Operations Analysis, Prentice Hall of India, New Delhi.
6. Weintraub, E.R., General Equilibrium Theory, Macmillan, London.
7. Da Costa, G.C., Production, Prices and Distribution, Tata McGraw Hill, New Delhi.
8. Henderson, J.M. and R.E. Quandt, Microeconomic Theory: A Mathematical Analysis, McGraw Hill, Singapore.
9. Mishan, E.J., Welfare Economics: An Assessment, North Holland, Amsterdam.
10. एम० एल० झिंगन, उच्चआर्थिकसिद्धान्त, वृन्दापब्लिकेशन, नईदिल्ली।
11. आहुजा, एच० एल०, उच्चतरआर्थिकसिद्धान्त, एस० चॉद, नईदिल्ली

Suggested online link:

www.ignou

www.swayam

www.inflibnet

This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared there 10+2 or Equivalent examination.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have basic knowledge of economics.

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Page 9 of 44

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Certificate Course in Fundamentals of Economics		
Programme : Certificate Course in Fundamentals of Economics	Year 1	Semester 2 Paper I
Subject : Economics		
Course Code : ECOMJ201	Course Title : Basics of Macroeconomics	
Course Outcomes:		
<ul style="list-style-type: none">Students learn about macroeconomics and different theories regarding the determination of income and employment by different economists.They learn about the consumption and investment functions. And also, about the functioning of multiplier process.Students learn about money and banking and become able to know about the theories of inflation and Unemployment etc.		
Credits : 6 Credits		Core Compulsory
Max. Marks :75		Min. Passing Marks: 25
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Macro-economics: Meaning, Nature, Scope, Importance and Limitations. Types of Macro Economics – Macro-Statics and Macro - Dynamics.	16
II	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). Measures of National Income: Product Method, Income Method, Expenditure Method & Mixed Method.	20
III	Classical Approach to Employment: Classical Theory of Employment, Say's Law of Market, Pigou's Wage Cut Theory of Employment. Unemployment – Types and Causes.	18
IV	Keynesian Economics: Theory of Employment, Aggregate Demand and Aggregate Supply. Concept of Effective Demand. Multiplier – Investment Multiplier..	16
V	Consumption, Saving and Investment Function: Average and Marginal Propensity to Consume, Average and Marginal Propensity to Save, Marginal Efficiency of Capital, Autonomous Investment and Induced Investment.	20

Suggested Readings :

1. Ackley, G., Macroeconomics: Theory and Policy, Macmillan, New Y
2. Dornbusch, R. and F. Stanley, Macroeconomics, Mc Graw Hill, New York.
3. Jha, R., Contemporary Macroeconomic Theory and Policy, Wiley Eastern, New Delhi.

4. Vaish, M.C., Macroeconomic Theory, Vikas, New Delhi.
5. Romer, D.L., Advanced Macroeconomics, Mc Graw Hill, New York.
6. Gupta, S.B., Monetary Planning in India, OUP, New Delhi.
7. Reddy, Y.V., A Review of Monetary and Financial Sector Reforms in India, UBSPD, New Delhi.
8. Frisch, H., Theories of Inflation, Cambridge University Press.
9. Rakshit, M., Studies in the Macroeconomics of Developing Countries, OUP, New Delhi.
10. Vasudevan, A., Central Banking for Emerging Market Economies, Academic Foundation, New Delhi.
11. Rana K.C. and K.N. Verma, Macro Economic Analysis, Vishal Publishing Co., Jalandhar.
12. एम० एल० झिंगन, समष्टिअर्थशास्त्र, वृन्दापब्लिकेशन, नईदिल्ली।
13. एच० एल० आहुजा, उच्चतरसमष्टिअर्थशास्त्र, एस० चॉद, नईदिल्ली।

Suggested online link :

www.ignou
www.swayam
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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared there 10+2 or Equivalent examination.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have basic knowledge of economics.

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Diploma in Economics

B.A.-I Year	SEM 1	Fundamentals in Micro Economics	[6 CREDITS]
	SEM 2	Fundamentals in Macro Economics	[6 CREDITS]
B.A.-II Year	SEM 3	Basics of Public Finance	[6 CREDITS]
	SEM 4	Money Banking & International Trade	[6 CREDITS]

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12. आहूजा, एच० एल०, उच्चतरआर्थिकसिद्धान्त, एस० चौद, नईदिल्ली।
13. के० पी० जैन एवं के० एल० गुप्ता, मैक्रोअर्थशास्त्र एवंराजस्व, नवयुगसाहित्य
सदन, आगरा।
14. एस० के० सिंह, लोकवित्त, साहित्य भवनआगरा।

Suggested online link :

www.ignou

www.swayam

www.inflibnet

This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Certificate Course in Fundamentals of Economics.**

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Certificate Course in Fundamentals of Economics.**

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Page 14 of 44
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Diploma in Economics		
Programme : Diploma in Economics		Year 2 Semester 4 Paper I
Subject: Economics		
Course Code: ECOMJ401	Course Title: Money, Banking & International Trade	
Course Outcomes:		
1. The students will understand the concept of money and banking.		
2. The students will learn Indian monetary system and its working.		
Credits : 6 Credits		Core Compulsory
Max. Marks :75		Min. Passing Marks: 25
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Nature, Functions, Significance and Classification of Money. Role of Money in Capitalist, Socialist and Mixed Economies.	15
II	Supply and Demand for Money. Fisher's Quantity Theory of Money. Income Theory of Money. Inflation and Deflation – Definition, Types, Causes and Effects on Different Sectors.	18
III	Commercial Banking: Meaning, Functions& types of commercial banks. Central Banking: Meaning, Functions and methods of credit control. Role and Functions of the Reserve Bank of India.	20
IV	Nature, Scope and Importance of International Trade. Inter-regional and International Trade. Theories of International Trade: Theory of Absolute Advantage, Theory of Comparative Advantage. Modern Theory of Trade : Heckscher Ohlin Theory.	19
V	Balance of Payments and Balance of Trade. Disequilibrium in the Balance of Payments: Causes and Correction. Rate of Exchange: Fixed vs. Flexible Exchange Rates. Free Trade vs. Protection.	18

Suggested Reading :-

1. Ackley, G. : Macroeconomics: Theory and Policy.
2. Kindleberger, C.P. : International Economics.
3. Sodersten, Bo : International Economics.
4. K.M.P. Sumdharam, : Money, Banking and International Trade, Sultan Chand, New Delhi.
5. Sethi, T. T., Money, Banking & International Trade, S chand, New Delhi.
6. Jalal, R. S., N. S. Bisht, Emerging Dimensions of Global Trade: Discussions on Trade Related Policies, Sarup & Sons, New Delhi
7. Jalal, R. S., Trade Policy and Global Participation: Indian Experience, Sarup & Sons, New Delhi
8. शिगन, एम. एल., अन्तर्राष्ट्रीय अर्थशास्त्र, वृन्दावनपब्लिकेशन, नईदिल्ली
9. अग्रवाल एवंबरला, अन्तर्राष्ट्रीय अर्थशास्त्र

10 सेठी, टी.टी., मुद्राबैंकिंग एवं अन्तर्राष्ट्रीय व्यापार, लक्ष्मी नारायण अग्रवाल, आगरा
11 सिंघई, जी.सी. एवं जे. पी. मिश्रा, मुद्राबैंकिंग एवं अन्तर्राष्ट्रीय व्यापार, साहित्य भवन प्रकाशक, आगरा

Suggested online link :

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www.swayam

www.inflibnet

This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Certificate Course in Fundamentals of Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Certificate Course in Fundamentals of Economics**.

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Bachelor in Economics

B.A.-I Year	SEM 1	Fundamentals in Micro Economics	[6 CREDITS]
	SEM 2	Fundamentals in Macro Economics	[6 CREDITS]
B.A.-II Year	SEM 3	Basics of Public Finance	[6 CREDITS]
	SEM 4	Money Banking & International Trade	[6 CREDITS]
B.A.-III Year	SEM 5	1. Indian Economy [Compulsory]	[5 CREDITS]
		2. Optional Paper Select any one of the following: - (2a.) Basics of Labour Economics (2b.) Basic Quantitative Techniques in Economics (2c.) Basics of Agricultural Economics (2d.) Basics of Demography	[5 CREDITS]
		3. Field Survey	[4 CREDITS]
	SEM 6	1. Economics of Growth & Development	[5 CREDITS]
		2. Optional Paper Select any one of the following: - (2a.) History of Economic Thought (2b.) Economy of Uttarakhand (2c.) Basics of Industrial Economics (2d.) Basic Computer Application in Economics	[5 CREDITS]
		3. Research Project	[4 CREDITS]

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Bachelor in Economics			
Programme : Bachelor in Economics		Year 3	Semester 5 Paper I
Subject : Economics			
Course Code : ECOMJ501		Course Title : Indian Economy	
Course Outcomes:			
1. The students will come to know the Features of Indian Economy.			
2. The students will Learn Agriculture, Industrial and Service Sectors of the economy.			
3. The students will get familiar with various Poverty Alleviation and Employment Generation Schemes.			
Credits :5 Credits		Core Compulsory	
Max. Marks :75		Min. Passing Marks: 25	
Total No. of Lectures – Practical (in hours per week) : 4-0-0			
Unit	Topics		No. of Lectures
I	Indian Economy – Nature, structure and Features. Natural Resources – Land, water, Forest and Minerals. Infrastructure – Importance and its development in India.		13
II	Demographic Profile of Indian Economy –Population composition and main characteristics of Indian population according to current census, Problems of Population and New Population Policy in India.		13
III	Agricultural structure in India – Importance& Nature. Agricultural Holdings and Land Reforms. Green Revolution. Agricultural Rural Labour. Agricultural Finance and Marketing. Agriculture Policy.		15
IV	Industry- Growth & Problems of Heavy, Medium, Small & Cottage Industries in India since globalisation. Industrial Finance. Make in India and SKILL Development Programme, Digital India, Jan Dhan Yojna. New Industrial Policy.		16
V	Nature and Estimation of Unemployment in India, Causes, types and remedies of Unemployment. Concept of Poverty, Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA).DeenDayalUpadhyaya National Rural Livelihood Mission (DDU-NRLM)		18

Suggested Reading:

1. Agrawal, A.N. : Indian Economy, WishwaPrakashan, New age International (P) Limited, New Delhi.
2. Misra, S. K. & V. K.Puri : Indian Economy.
3. RuddarDatt & K. M..P.Sundharam: Indian Economy, S. Chand, New Delhi.
4. Bimal Jalan : Problems of Indian Economy.

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5. R.S.Jalal, "RURAL DEVELOPMENT IN INDIA : ISSUES AND POLICY" (Vol. I & II), Anmol Publication, New Delhi
6. Parekh, K.S.: India Development Report.
7. Dutt, R. (ed.): Second Generation Economic Reforms in India.
- 8^० रूद्रदत्त एवं के० एम० पी० सुन्दरम, भारतीय अर्थव्यवस्था, एस० चौद, नईदिल्ली।
- 9 मिश्रा एवंपुरी, भारतीय भारतीय अर्थव्यवस्था, हिमालयापब्लिकेशन, दिल्ली।

Suggested online link :

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Diploma in Economics**.

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Bachelor in Economics		
Programme : Bachelor in Economics	Year 3	Semester 5 Paper II(a)
Subject : Economics		
Course Code : ECOMJE501	Course Title : Basics of Labour Economics	
Course Outcomes :		
1. The students will learn the importance of labour economics.		
2. The students will get familiar with characteristics of Industrial labour.		
3. The students will come to know about labour legislation and labour unions.		
4. The students will learn Social Security and Labour Welfare measures for labours.		
Credits : 5 Credits		Core Compulsory Elective
Max. Marks :75		Min. Passing Marks: 25
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Meaning & Importance of Labour Economics. Characterstics of Indian Industrial Labour Market. Migratory Character. Absentiesm, Labour Turnover. Unemployment – Causes, Types and Remedies., Recruitment of Industrial Labour : Through intermediately, Direct & Contract.	16
II	Types of Wage Determining Theory - Classical & Modern. Various Concept of Wages – Minimum Wage, Fair Wage and Living Wage. Organised and UnorganisedLabour, Rural Labour, Agricultural labour.	15
III	Labour Union – Meaning, Importance and Functions of Labour Unions, Methods of Settlement of Industrial Disputes - Preventive Measure & Settlement Measures.	15
IV	Labour Legislation in India- Factory Act 1948, Indian Labour Laws - Mines & Plantation.	13
V	State and Social Security of Labour – Concept of Social Security - Social Assistance and Social Insurance, Social Security in India, Labour Welfare in India, Causes & Problems of Child & Women labour in India.	16

Suggested Reading:

1. Allen, V.L.: Power in Trade Unions.
2. Beveridge, W.H.: Social Security Plan.
3. Chamberlain, N.W.: Collective Bargaining.
4. Clow, A. G.: Indian Factory Legislation.
5. Das, N.: Unemployment and Full Employment in India.
6. Deshpande, L.K. Brahmmananda P. R. (Ed.) : Employment Policy in a Developing Economy.
7. Deshpande, D. K. and Sandesara, J.C. (Ed.) : Wage Policy and Wage Determination in India.

8. Dobb, M. : Wages.
9. Gilman, N.P. : Profit Sharing Between Employer and Employee.
10. Gadgil, D.R. : Women Workers in India.
11. Hicks, J.R. : Theory of Wages.
12. Giri, V.V. : Labour Problems in Indian Industry.
13. Joshi, N.N. : Trade Union movement in India.
14. Kaul, N.N. : India and the I.L.O..
15. Kether, D.P. : India's Labour Welfare.
16. Mukerjee, R.K. : The Indian Working Class.
17. Mukerjee, P.K. : Labour Legislation in India.
18. टी० एन० भगोलीवाल, श्रम अर्थशास्त्र एवं औद्योगिक संरक्षण।
19. Memoria, C.B. : Labour Problems and Social Welfare in India. (हिन्दी रूपान्तर)

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www.swayam

www.inflibnet

This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Diploma in Economics**.

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Bachelor in Economics		
Programme : Bachelor in Economics		Year 3 Semester 5 Paper II(b)
Subject : Economics		
Course Code : ECOMJE502	Course Title : Basics of Agriculture Economics	
Course Outcomes:		
1. The student will come to know the basics of agriculture and rural economics.		
2. The student will get familiar with land distribution and agriculture production.		
3. The student will learn the diversification in agriculture and about agriculture finance.		
Credits : 5 Credits		Core Compulsory Elective
Max. Marks :75		Min. Passing Marks: 25
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Nature , scope and types of Agricultural Economics : Sustainable, organic, agro forestry. Role of Agriculture in development of Economy. Recent Trends in Agricultural Growth in India.	15
II	Land Distribution – Structure and Trends. Land Tenures Land Reforms in India during post independence period. Rural Labour Supply. Agricultural Wages in India.	15
III	Agricultural Production – Resource Use and Efficiency. Demand and Supply and Allocation of Basic Inputs- Labour, Land, Livestock Energy, Machinery and Equipment. Emerging Trends in Agricultural Technology.	15
IV	Diversification of Agriculture : Agriculture and Allied Activities. Revolutions in Agriculture - Green Revolution, White Revolution. Blue Revolution. Role of Women in Agriculture.	15
V	Agricultural Finance in India - Institutional and Non-institutional Sources. Rural Credit – Cooperatives, Regional Rural Banks. Role of NABARD. Agricultural Market Structure and Imperfections. Food Security in India. Public Distribution System.	15

Suggested Reading:

1. Heady, E.O. : (ed.) Economic Development of Agriculture.
2. Snodgrass, Milton M. and L.T. Wallace : Agricultural Economic and Resource Management, Prentice Hall of India Pvt. Ltd., 1977.
3. Eicher, Earl and Lawrence Witt (ed.): Agriculture in Economic Development: Vora Co. Pub. Pvt. Ltd. 1970.
4. Shah, C.H. and C.N. Vakil (ed.) : Agriculture Development of India : Policy and Problems, Orient Longman, 1979.
5. Southworth N. and A. Johnston : Agriculture Development and Economic Growth, Cornell University Press.
6. एस० बी० गुप्ता, कृषिअर्थशास्त्र, एस० बी० पी० डी० पब्लिकेशन आगारा।
7. Chaudhari, Pramit : Selected Readings in Indian Agriculture.
8. Govt. of India : Report of the National Commission on Agriculture.

9. R.S.Jalal, "RURAL DEVELOPMENT IN INDIA : ISSUES AND POLICY" (Vol. I & II), Anmol
10. Publication, New Delhi
11. Rao. H.H. : Technological Change and Distribution of Gains.
12. Rudra, Ashok : Indian Agricultural Economics : Myths and realities, Allied Pub., New Delhi, 1982.
13. Mitra, A : Terms of Trade and Class Relations.
14. Schultz, T.W. : Economic Crisis in World Agriculture.
15. Schultz, T.W. : Transforming Traditional Agriculture
16. Govt. of India: Five year Plans (Documents)

Suggested online link :

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Diploma in Economics**.

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Bachelor in Economics		
Programme : Bachelor in Economics		Year 3 Semester 5 Paper II(c)
Subject : Economics		
Course Code: ECOMJE503	Course Title: Basics of Demography	
Course Outcomes: 1. The students will come to know population growth and economic development. 2. The students will come to know about migration and its features. 3. The students will be able to understand the concept of demographical development of India,		
Credits : 5 Credits		Core Compulsory Elective
Max. Marks :75		Min. Passing Marks: 25
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Meaning ,Scope& importance of Demography. Theories of Population: Malthusian Theory, Optimum Theory& Theory of Demographic Transition.	15
II	Fertility & Mortality Statistics :Crude Birth Rate (CBR), Maternal Age, Death Rate, Sex Ratio, Life Expectancy, Infant Mortality Rate (IMR), Fertility Rate. Child Health in India. Temporal and Spatial Variation in Sex Ratios. Methods of Population Projection.	18
III	Migration : Meaning, Types and Measurement. Causes and Effects of Internal and International migrations. Urbanisation - Causes and effects.	12
IV	Population Growth and Economic Development. Qualitative Control of Population. Human Development Index (HDI), Gender Development Index (GDI). Effects of Population Growth in Indian economy.	15
V	Sources of Demographic Data in India. Population Census in India – Nature, Methods, Problems and Defects. Salient Features of current Population Census. Family Planning Programmes in India.	15

Suggested Reading:

1. Agarwal, U.D.: Population Projections and Their Accuracy, B.R.Publishing Corporation, New Delhi.
2. Bhende,A.A. and T.R.Kanitkar: Principles of Population Studies, Himalaya Publishing House, Bombay.
3. Bogue, D.J.: Principles of Demography, John Wiley, New York.
4. Bose, A.:India's Basic Demographic Statistics, B.R.Publishing Corporation, New Delhi.
5. Census of India: Various Reports.
6. Choubey,P.K.: Population Policy in India, Kanishka Publications, New Delhi.
7. Misra, B.D.: An Introduction to the Study of Population, South Asia Publishers, New Delhi.
8. Srinivasan, K.: Basic Demographic Techniques and Applications, Sage Publications, New Delhi.
9. Krishnaji,M., R.M.Sudrashan and A.Shariff: Gender Population and Development, OUP, New Delhi.

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Diploma in Economics**.

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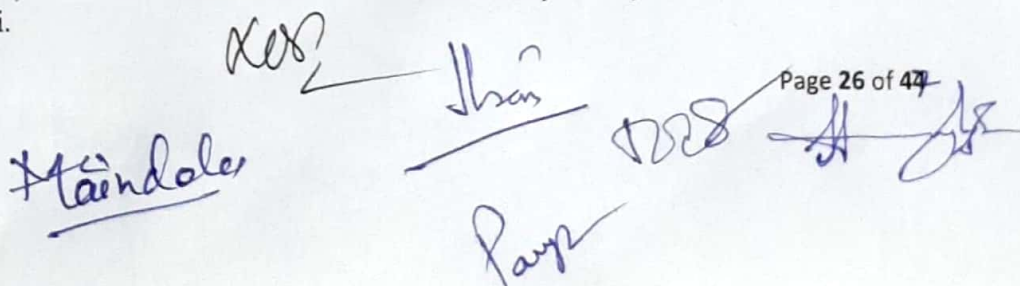
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Bachelor in Economics		
Programme : Bachelor in Economics		Year 3 Semester 5 Paper II(d)
Subject: Economics		
Course Code: ECOMJE504	Course Title: Basic Quantitative Techniques in Economics	
Course Outcomes: 1. Students will be able to understand the Basic concept of Mathematical Economics 2. Students will be able to use the mathematical tools and methods in Economics		
Credits: 5 Credits		Core Compulsory Elective
Max. Marks:75		Min. Passing Marks: 25
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
<i>Note: Elementary Quantitative concepts with illustration from Economics with the help of graph and equations where ever possible. Proof of theorems is not expected. (Simple Calculator without mathematical and statistical functions is allowed but candidates shall have to arrange the calculator at their own)</i>		
Unit	Topics	No. of Lectures
I	Definition, Scope, Importance and Limitations of Quantitative Techniques and Statistics; Primary & Secondary Data. Census & Sampling. Techniques of Data Collection, Classification and Tabulation of Data. Diagrammatic and Graphic Representation of Data.	14
II	Measures of Central Tendency: Arithmetic Mean, Median, Mode. Measures of Dispersion: Range, Mean Deviation, Standard Deviation. Simple Correlation.	15
III	Variables, Functions, Identities, Linear Equations in one Unknown. Simultaneous Equations in two variables, Use of Linear Functions in Economics. Differentiation of a Function. : Rules of Differentiation., Basic Economic Applications of the Derivatives. Elementary Integral Calculus. Basic Applications of Differential and Integral calculus in Economics.	17
IV	Matrices (not more than 3 columns, 3 row case): Types, Definition and. Properties, Addition, Subtraction and Multiplication of Matrices. Determinant: Meaning, Rules of Expansion, Properties, Solution of Linear Simultaneous Equation with help of Cramer's Rule.	17
V	Index Numbers- Price Index Number: Simple Price Relative, Weighted Price Index Number.	12

Suggested Reading:

1. Bose, D., An Introduction to Mathematical Economics, Himalaya Publishing House, New Delhi.
2. Yamane, T., Mathematics for Economists- An Elementary Survey, Prentice Hall of India, New Delhi.



3. Allen, R.G.D., Mathematical Analysis for Economists, A.I.T.B.S., Publishers and Distributors, Delhi.
4. Chiang, A.C., Fundamental Methods of Mathematical Economics, McGraw Hill.
5. Monga, G.S., Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi.
6. Gupta, S.P., Statistical Methods, Sultan Chand, New Delhi.
7. Agrawal, D.R., Quantitative Methods, Vrinda Publications, Delhi.
8. Hindi Books
9. Gupta, K.L., ParimanatmakTakniken, NavyugSahitySadan, Agra.
10. Aggarwal, D.R., PrarambhikGanitiyArthshastra, Vrinda Publication, New Delhi.
11. Gupta, K.L., Ravikan Agarwal & Praveen Jain, Arthastastra Ki Aadharbhoot ParimanatmakVidhiyan, Navneet Prakashan, Agra.
12. Gupta, K.L. & S.K. Gupta, UccharSankhiyiki, Navneet Prakashan, Agra.
13. Singh, S.P., SankhiyikiKeMoolTatva, S. Chand, New Delhi.
14. Gupta, S.P., SankhiyikiKe Siddhant, New Delhi.
15. Lohani, Jitendra Kumar & Padam S. Bisht, Arthashastra Mein GanitiyEvmSankhikiya Vidhiyan, Kunal Books, New Delhi.

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Diploma in Economics**.

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Bachelor in Economics		
Programme : Bachelor in Economics	Year 3	Semester 5 Paper III
Subject : Economics		
Course Code : ECORP501	Course Title : Field Survey	
Credits : 4 Credits	Core Compulsory	
Max. Marks :100	Min. Passing Marks:33	
Total No. of Lectures – Practical (in hours per week) : 4-0-0		

Note : The student will be required to collect information on any economic activity.

This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their Diploma in Economics.

Suggested Continuous Evaluation (25 Marks):

Course Prerequisites: Must have cleared Diploma in Economics.

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Bachelor in Economics			
Programme : Bachelor in Economics		Year 3	Semester 6 Paper I
Subject : Economics			
Course Code : ECOMJ601		Course Title : Economic Growth & Development	
Course Outcomes : 1. The students will be able to understand the development theories along with the conceptual issues in growth and development. 2. The students will be able to understand the concept of demographical development of India, its demographic features and HDI.			
Credits : 5 Credits		Core Compulsory	
Max. Marks :75		Min. Passing Marks: 25	
Total No. of Lectures – Practical (in hours per week) : 4-0-0			
Unit	Topics	No. of Lectures	
I	Meaning and Measurement of Economic Growth and Development, Measuring Development and Development Gap, GDP, GNP, Per Capita Income, Factors affecting Economic Growth and Development: Economic and Non-economic factors.	14	
II	Concept of Poverty and Inequality, Vicious cycle of poverty, Lorenz Curve. Concept of Human Development :Physical Quality of Life Index (PQLI), Human Development Index (HDI), Gender Development Index (GDI), Human Poverty Index (HPI) & Purchasing Power Parity (PPP).	16	
III	Economic Models: Adam Smith, Ricardo, Malthus and Marxian theory of Capitalist Development. Schumpeter Model.	15	
IV	Theories of Development: Vicious Circle Theory, Theory of Big Push, Critical Minimum Effort Thesis, Theory of Low-Level Equilibrium Trap, Balanced and Unbalanced Growth.	16	
V	Sectoral Priorities and Development: Role of Agriculture, Industry and Service Sector.	14	

Suggested Reading :

16. Ghatak, S., (1986), An Introduction to Development Economics, Allen and Unwin, London.
17. Thriwall, A. P., (1978), Growth and Development, McMillan, London.
18. Meier, G.M., (1984) : Leading Issues in Economic Development, Oxford University Press, New
19. Higgins, B. (1959) : Economic Development, Norton , New York

20. Kindlerberger, C.P. and B. Harrik (1983) : Economic Development, McGraw-Hill, Tokyo.
21. Salvatore, D. and E. Dowling (1977) : Development Economics, Schuam's Outline Series in Economics, McGraw
22. Agarwal, A. N. and S.P. Singh, (Eds.) (1985) : Economics of Underdevelopment O.U.P., Lon.
23. Adelman I (1969) : Theories of Economic Growth and Development, Stanford University Press, Stanford
24. Sen, A.K. (ed.) (1971) : Growth Economics, Penguin, Harmondsworth.
25. Sundaram, R.M. (1984) : Development Economics : A Framework for Analysis and Policy.
26. Chenery, H. : Redistribution with Growth, Oxford University Pre
27. Todaro, M.P. : Economic Development, Longman, Lond
28. United Nations : Human Development Report.
29. 14.Misra, S.K.&V.K. Puri, Economics of Growth and Development, Himalaya Publishing House, Mumbai.

Suggested online link :

www.ignou

www.swayam

www.inflibnet

This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Diploma in Economics**.

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Bachelor in Economics		
Programme :Bachelor in Economics	Year 3	Semester 6 Paper II(a)
Subject : Economics		
Course Code: ECOMJE601	Course Title : History of Economic Thought	
Course Outcomes:		
1. The students will come to know the thoughts of Mercantilism and Physiocracy.		
2. The students will come to know about Classical period thinkers in economics.		
3. The students will know about Nationalist & Welfare Economists.		
Credits : 5 Credits	Core Compulsory	
Max. Marks :75	Min. Passing Marks: 25	
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Economic Ideas of Mercantilism, Economic Ideas of Physiocrats	10
II	Classical Period: Adam Smith, J.B.Say, David Ricardo Thomas R. Malthus	15
III	Socialists and Associationism — St. Simon and Simonians, Sismondi, Robert Owen,Karl Marx —LabourTheory of Surplus Value	15
IV	Nationalist, Mathematical and Austrian School& Welfare Economist - Fredrick List, Irving Fisher, Karl Menger, Pigou &Keyens.	15
V	Indian Economist: Narouji, Ranade, Gandhian Economics, Gokhle, J.K. Mehta, Amartya Sen, DeenDayal Upadhyay.	20

Suggested Readings :

- Schumpeter, J.A.: A History of Economic Analysis.
- Stigler, G.J.: Essays in the History of Economics.
- Dobb, Maurice: Theories of Value and Distribution since Adam Smith.
- O'Brien: Classical Theory of Value and Distribution.
- Gide and Rist : History of Economic doctrines. (fgUnh :ikUrj)
- Meek, R.L.: Physiocracy.
- Meek R.L.: The Labour Theory of Value.
- Ricardo, David: Principles of Political Economy and Taxation Edited by P. Sraffa.
- Smith, A.: Wealth of Nations, Book I, Chap. I to X.
- Blaug, Mark: Economic Theory in Retrospect.
- Stigler, G.J.: Production and Distribution Theories.

12. Roll, Eric: History of Economic Thought.
13. Haney: History of Economic Thought.
14. Sheshadri, G.B.: Economic Doctrines.
15. Ganguli, B.N.: Indian Economic Thought: A 19th Century Perspective.
- 16^ए वी०सी० सिन्हा, आर्थिकविचारों का इतिहास, एस० बी० पी० डी० पब्लिकेशनआगरा।

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared Diploma in Economics.

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Bachelor in Economics		
Programme : Bachelor in Economics	Year 3	Semester 6 Paper II(b)
Subject : Economics		
Course Code : ECOMJE602	Course Title : Basics of Industrial Economics	
Course Outcomes : 1. The students will come to know about Industrial Process, growth of Firm and Process of Innovation. 2. The students will study rationalism and effects of globalization on industry.		
Credits : 5 Credits	Core Compulsory	
Max. Marks : 75	Min. Passing Marks: 25	
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Scope and Method of Industrial Economics. Industrial Efficiency: Organisational Form and Alternative Motives of the Firm. Efficiency and Size of the Firm. Concept and Measurement of Profitability. Determinants of Profitability.	15
II	Growth of the Firm. Conceptual Framework for the Theory of Growth of the Firm . Pricing Decisions: General Situations for Pricing Decisions. Pricing Procedures. Pricing in Public Enterprises.	15
III	Process of Innovation.. Theory of Technological Innovation. Production Control. Cost Control.. Quality Control, Financial Structure of the Firm – Components of Funds. Role, Nature, Volume and Types of Institutional Finance.	15
IV	Theories of Industrial Location – Weber and Sargent Florence. Determinants of Industrial Location. Approaches to Industrial Location Analysis. Operational Approaches to Industrial Location. Industrial Location Trends in India.	15
V	Industrialisation: Rationale, Objectives, Strategies and Policies. Industrialisation and Regional Development. Employment Implications of Industrialisation. Need for Government Intervention in Industry. New Industrial Policy of India.	15

Suggested Readings :

1. Ahluwalia, I.J.: Industrial Growth in India, OUP, New Delhi.
2. Barthwal, R.R.: Industrial Economics, Wiley Eastern, New Delhi.
3. Jalal, R.S.: "Industrial Entrepreneurship", Anmol Publication, New Delhi.
4. Cherunilam, F.: Industrial Economics: Indian Perspective, Himalaya Publishing House, Mumbai.
5. Desai, B.: Industrial Economy in India, Himalaya Publishing House, Mumbai.
6. Hay, D. and D.J. Morris: Industrial Economics: Theory and Evidence, OUP, New Delhi.
7. Kuchhal, S.C.: Industrial Economy of India, Chaitanya Publishing House, Allahabad.

8. Government of India: Economic Survey (Annual).
9. Smith, D.M.: Industrial Location: An Economic and Geographical Analysis, John Wiley, New York.
10. Mamoria and Mamoria: Dynamics of Industrial Relations in India, Himalaya Publishing House, Mumbai.

Suggested online link :

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Diploma in Economics**.

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Bachelor in Economics		
Programme : Bachelor in Economics	Year 3	Semester 6 Paper II(c)
Subject : Economics		
Course Code : ECOMJE603	Course Title : Economy of Uttarakhand	
Course Outcomes :		
1. The course introduces about the economy of Uttarakhand and demographic profile of Uttarakhand.		
2. The student will learn agriculture and industrial profile of Uttarakhand economy.		
3. The student will come to know about various poverty alleviation programmes in Uttarakhand.		
4. The students will come to know about various employment generation programmes in Uttarakhand.		
Credits : 5 Credits	Core Compulsory	
Max. Marks :75	Min. Passing Marks: 25	
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Economy of Uttarakhand - Introduction &Characterstics. Demographic Profile of Uttarakhand. Natural Resources in Uttarakhand.	10
II	Agricultural Profile – Agriculture& allied sector in Uttarakhand. Animal Husbandry and Dairy Farming in Uttarakhand. Problems in Agriculture Sector.	15
III	Industrial Profile of Uttarakhand - Heavy Industries, MSME in Uttarakhand, New Industrial Policies. Problems of Village and Cottage Industries.	15
IV	Tourism sector in Uttarakhand. Problems of Migration & Reverse Migration in Uttarakhand. Role of Women in Uttarakhand's Economy.	15
V	Unemployment and Poverty in Uttarakhand. Various Poverty Alleviating Programmes in Uttarakhand. Mukhyamantri Saur SwarozgarYojna. Mukhyamantri Saur SwarozgarYojna, Veer Chandra Singh Garhwali Yojna, National Rural Livelihood Mission, National Urban Livelihood Mission.	20

Suggested Readings :

1. Pandey, P.C., D.C. Pandey, P.S. Bisht, Rajnish Pande : Economy of Uttaranchal Profile and Dynamics of Change, co-ed. Anamika Publishers & Distributors Pvt. Ltd. New Delhi.
2. Pandey, R.K., Rajnish Pande & Padam S. Bisht : Economy of Uttaranchal - Profile and Dynamics of Change, co-ed., Anamika Publishers & Distributors (P) Ltd., New Delhi.
3. Bisht, Padam S.; Tourism Development in Kumaon, Anamika Publishers & Distributors Pvt. Ltd. New Delhi.
4. Lohani, Jitendra Kumar & Padam S. Bisht: Uttarakhand Ki Arthvyavastha, Kunal Books, New Delhi.

Suggested online link :

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Diploma in Economics**.

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Bachelor in Economics			
Programme : Bachelor in Economics		Year 3	Semester 6 Paper II(d)
Subject : Economics			
Course Code : ECOMJE604		Course Title : Basics of Computer Application in Economics	
Course Outcomes : 1. The students will come to know about various devices related to computer system. 2. The students will come to know about the number system used in computer system. 3. The students will get familiar with various types of Basic Computer Application software's. 4. The students will come to know about word processing software and internet.			
Credits : 5 Credits		Core Compulsory	
Max. Marks :75		Min. Passing Marks: 25	
Total No. of Lectures – Practical (in hours per week) : 4-0-0			
Unit	Topics		No. of Lectures
I	Introduction to computer system, uses, types. Data Representation: Number systems and character representation, Components of Computer System. binary. Devices: Input and output devices. Memory: Primary, Secondary, & Auxiliary Memory. Printers and it's types - impact and non-impact printers.		15
II	Number system - Binary number system, Octal & Hexa-Decimal system. Arithmetic operations of Binary Numbers. Overview of Emerging Technologies: Bluetooth, cloud computing, big data, datamining, mobile computing and embedded systems. Use of Computers in Education and Research: Data analysis, e-Library, Google Scholar		15
III	Types of software, Operating system as user interface & utility programs - Operating System, Application Programme, Programming Language. Virus & Antivirus Softwares.		15
IV	Introduction to Word Processing Software - MS-Office & Introduction to Desktop Publishing. Spreadsheet and database package software - MS-Excel & Introduction to MS-Access. Data Presentation Software - MS-Powerpoint.		15
V	Introduction to Internet – Browsers – Search Engine - WWW – Internet Protocols – FTP – TELNET – HTTP - E-mail –How to create E-mail – Internet Vs Intranet - Webpage – URL.		15

Suggested Readings :

1. Sanders, D.H.: Computers Today, McGraw Hill, New York.
2. Sinha, P.K.: Computer Fundamentals, BPB Publications, New Delhi.
3. Rajaraman, V.: Fundamentals of Computers, Prentice Hall of India, New Delhi.

Suggested online link :

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their **Diploma in Economics**.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have cleared **Diploma in Economics**.

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Bachelor in Economics		
Programme : Bachelor in Economics	Year 3	Semester 6 Paper III
Subject : Economics		
Course Code : ECORP601	Course Title : Research Project	
Credits : 4 Credits	Core Compulsory	
Max. Marks : 100	Min. Passing Marks:33	
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Note: The Research Project will be based on Primary /Secondary Data.		

Note :-The students are required to prepare a research project of 30-50 pages based on Primary / Secondary data on the topic allotted by the concerned teacher.

This course can be opted as an elective by the students of following subjects: Those students who have successfully qualified Diploma in Economics are eligible for this course.

Course Prerequisites: Successfully completion of Diploma in Economics.

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Minor Elective

[4 Credits]

- *Fundamentals of Economics*
- *Indian Economy & Economy of Uttarakhand*

[Note :- Minor Elective Paper to be opted by students of other Department.]

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Certificate Course in Fundamentals of Economics		
Programme : <i>Certificate Course in Fundamentals of Economics</i>	Year 1	Semester 1 or 2 Paper II
Subject : Economics		
Course Code : ECOMIE101	Course Title : Fundamentals of Economics	
Course Outcomes :		
1. The student will come to know about the fundamentals of Economics.		
2. The student will come to know about Micro & Macro Economics.		
3. The student will get familiar with various economic systems.		
4. The students will learn Banking system & Public Finance.		
Credits : 4 Credits	Minor Elective	
Max. Marks :75	Min. Passing Marks: 25	
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Meaning, nature & Scope of Micro Economics. Concept of Cardinal & Ordinal approach of Utility. Indifference Curve Analysis. Consumer Equilibrium. Concept of Demand.	13
II	Meaning, Nature & Scope of Macro Economics. Type of Macro Economics. Circular flow of Income. Concept of Inflation and Employment.	13
III	Capitalist, Socialist & Mixed Economy. Problems of Resource Allocation.	12
IV	Types & Classification of Money. Central Bank - RBI. International & Inter -regional Trade.	12
V	Meaning & Scope of Public Finance. Concept of Direct & Indirect Tax.	10

Suggested Readings :

1. Chaturvedi, D.D. & Anand Mittal; Principals of Macro Economics ; Kitab Mahal, Delhi
2. Mithani, D.M. : Macro Economics.
3. Ackley, G. : Macroeconomics: Theory and Policy.

Suggested online link :

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their 10+2 or equivalent examination in any stream.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have basic knowledge of Economics.

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Certificate Course in Fundamentals of Economics		
Programme : <i>Diploma in Economics</i>	Year 1	Semester 3 or 4 Paper II
Subject : Economics		
Course Code : ECOMIE101	Course Title : Indian Economy & Economy of Uttarakhand	
Course Outcomes :		
1. The student will come to know about the fundamentals of Indian Economy.		
2. The student will get familiar to the Economy of Uttarakhand.		
Credits : 4 Credits	Minor Elective	
Max. Marks :75	Min. Passing Marks: 25	
Total No. of Lectures – Practical (in hours per week) : 4-0-0		
Unit	Topics	No. of Lectures
I	Structure and Features of Indian Economy. Introduction to Agriculture, Industrial & Tertiary Sectors in Indian Economy.	12
II	Features & Demographic Profile of India. Success story of Indian Plans & NITI AAYOG.	12
III	Features of Economy of Uttarakhand. Agriculture and Industrial Profile of Uttarakhand.	12
IV	Migration and Reverse Migration in Uttarakhand.	12
V	Role of Tourism and Women in economic development of Uttarakhand.	12

Suggested Readings :

1. Agrawal, A.N. : Indian Economy, WishwaPrakashan, New age International (P) Limited, New Delhi.
2. Misra, S. K. & V. K.Puri : Indian Economy.
3. RuddarDatt & K. M..P.Sundharam: Indian Economy, S. Chand, New Delhi.
4. Bimal Jalan : Problems of Indian Economy.
5. Pandey, P.C., D.C. Pandey, P.S. Bisht, Rajnish Pandey :Economy of Uttaranchal Profile and Dynamics of Change, co-ed. Anamika Publishers & Distributors Pvt. Ltd. New Delhi.
6. Pandey, R.K., Rajnish Pande & Padam S. Bisht : Economy of Uttaranchal - Profile and Dynamics of Change, co-ed., Anamika Publishers & Distributors (P) Ltd., New Delhi.
7. Bisht, Padam S.; Tourism Development in Kumaon, Anamika Publishers & Distributors Pvt. Ltd. New Delhi.
8. Lohani, Jitendra Kumar & Padam S. Bisht: Uttarakhand Ki Arthvyavastha, Kunal Books, New Delhi.

Suggested online link :

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www.inflibnet

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This course can be opted as an elective by the students of following subjects: The course can be opted by those students who have cleared their 10+2 or equivalent examination in any stream.

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria –

[Assignment (10 Marks) + Assignment Presentation (10 Marks) + Attendance (5 Marks)]

Course Prerequisites: Must have basic knowledge of Economics.

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Vocational/Skill Development Course in Economics Department

Economics Department

Vocational Course-01		
Programme: Certificate Course in Economics	Year : First	Semester-I Paper- I VC
Subject : Economics		
Course Code: ECOVC -01	Course Title: DATA ANALYSIS	
Course outcome:		
1. Building knowledge and understanding of collection and presentation of data for drawing statistical inferences.		
2. To introduce the students the important data sources that is available.		
3. To train the students in the use of free statistical software to analyse data.		
Credit: 3 (Three)	Elective	
Maximum marks: 25+75	Minimum Passing Marks: 33	
Total no. of lectures-tutorials-practical(labour per week):3-0-0		
Unit	Topic	No. of lectures
Unit 1	Collection of data- Primary and Secondary. Census and Sampling. Methods of data collection .Classification and Tabulation of data. Diagrammatic and Graphical representation of data	15
Unit 2	Measures of Central Tendency-Arithmetic mean Median, Mode, Geometric mean and Harmonic mean .Measures of dispersion- Standard Deviation, Skewness.	15
Unit 3	Simple Correlation: Karl Pearson and Rank Correlation. Basics of Index numbers :Price and quantity index numbers	15

Suggested Readings:

Allen, R.G.D., Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
 Chiang, A.C., Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
 Gupta, S.C., Fundamentals of Applied Statistics, S. Chand & Sons, New Delhi. Monga, G.S.,
 Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi. Speigal,
 M.R., Theory and Problems of Statistics, McGraw Hill Book Co., London.

Suggested on line link: www.ignou ,www.swayam.

This course can be offered as an elective by the students of following subjects: Open to all

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria – Assignment /Assignment Presentation/ Class Test/Seminar/ Attendance

Course Prerequisites: N/A

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Vocational/Skill Development Course in Economics Department

Vocational Course-02			
Programme: Certificate Course in Economics		Year : First	Semester-II Paper- II VC
Course code: ECOVC-02		Course Title: Environmental Economics	
Course outcome:			
1. To learn an economic approach to environmental problems.			
2. To understand complementary view of environmental economics.			
3. To develop economic tool kit to evaluate applied problems.			
Credit: 3 (Three)		Elective	
Maximum marks: 25+75		Minimum passing marks: 33	
Total no. of lectures-tutorials-practical(labour per week):3-0-0			
Unit	Topic	No. of lectures	
Unit 1	Environment and Economics: 1. Fundamental concepts of Environmental Economics 2. Meaning, nature and scope of Environmental Economics 3. Environmental pollution- air, water and deforestation 4. Inter-linkages between Environment and Economics 5. Economics of Natural Resources- land, air and water	15	
Unit 2	Environment and Development : 1. Environment and Economic Growth: 2. Concepts of Sustainable Development 3. Policy Approach of Sustainable Development 4. Role of State in Environmental Conservation 5. People's participation in management of Natural Resources	15	
Unit 3	Environmental issues: 1. Global warming 2. Climate change 3. Green House Effect, Ozone Depletion 4. Acid Rain 5. Biodiversity Conservation , Chipko movement	15	

Suggested readings:

Bhattacharya, RN(ed) Environmental Economics: An Indian perspective, Oxford New Delhi
 Boumal, W.J. and W.E. Oats, (1998), The Theory of Environmental Policy, Cambridge University Press
 Bromely, D.W. (ed) Hand Book of Environmental Economics, Blackwell, London
 P. Das Gupta and K.G. Miller, (1997) The Environmental and Emerging Development Issues
 Ram Prasad Sen Gupta (2007) Ecology and Economics, Oxford New Delhi
 Seneca, Joseph, J. Taussig M.K. (1979), Environmental economics, New Jersey, Prentice Hall.

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This course can be offered as an elective by the students of following subjects: Open to all

Suggested Continuous Evaluation (25 Marks): The suggested continuous evaluation will have the following criteria – Assignment /Assignment Presentation/ Class Test/Seminar/ Attendance

Course Prerequisites: N/A

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Dr. Pooja

**Sri Dev Suman Uttarakhand University
Badshahithaul (Tehri-Garhwal), Uttarakhand**

Syllabus of English

For

Under- Graduate Course

Approved by

Board of Studies

with effect from Educational Session: 2022-23



**Sri Dev Suman Uttarakhand University
Badshahithaul (Tehri-Garhwal), Uttarakhand**

NATIONAL EDUCATION POLICY- 2020



**Common Minimum Syllabus for all
Affiliated Colleges and Campuses of Sri Dev Suman
Uttarakhand University Badshahithaul, Tehri-Garhwal for
B.A. I, II, III, IV, V, & VI Semesters**

2022-23

Dr. Pramod Kumar Kukreti

Associate Professor

Dr. Parul Mishra

Asst. Prof.

Prof. Hemant Kumar Shukla

H.O.D.


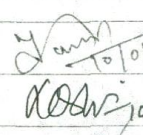
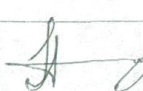
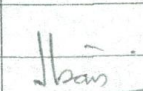
**Department of English
Pt.L.M.S.University Campus, Rishikesh**

Syllabus

B.A. (English Literature-Core/Elective Courses & Projects)

Syllabus of B.A. I, II, III, IV, V, & VI Semesters respectively for Sri Dev Suman Uttarakhand University (SDSUU) Badshahithoul, Tehri-Garhwal and its Affiliated Colleges w.e.f. Educational Session: 2022-23

Syllabus checked & modified by the following President/ Members of B.O.S. (Board of Studies) on Wednesday, 10.08.2022

Sr. No.	Name	Designation & Institute	Designation in BOS	Signature
A: Faculty of Arts, SDSUU, Tehri-Garhwal				
1	Prof. Dinesh Chandra Goswami	Dean, SDSUU, Tehri Garhwal Pt. L.M.S. University Campus, Rishikesh (U.K.)	President	 10.08.22
2	Prof. Hemant Kumar Shukla	H.O.D.-Department of English SDSUU, Tehri Garhwal, Pt. L.M.S. University Campus, Rishikesh (U.K.)	Member	
B: Three Principals of Post-Graduate Colleges				
1	Prof. Janaki Panwar	Principal Govt. P.G. College, Kotdwar (U.K.)	Member	 10/08/2022
2	Prof. Lavani Rajvanshi	Principal Govt. P.G. College, Jaiharikhal (U.K.)	Member	
3	Prof. K.L. Talwar	Principal Govt. Degree College, Chakarata (U.K.)	Member	
C: Director of any Research Institute				
1	Dr. Himanshu Das	Director Rashtriya Drishti Badhitarth Sansthan, Dehradun (U.K.)	Member	
Sr. No.	Name	Designation & Institute	Designation in BOS	Signature
D. Two Professors & 01 External Expert nominated by honourable Vice-Chancellor				
1	Prof. M.S.M. Negi	S.R.T. Campus Badshahithoul, Tehri-Garhwal (U.K.)	Member	
2	Prof. M.C. Sati	Department of Economics HNBGU, Srinagar-Garhwal (U.K.)	Member	
3	Prof. S.L. Bhatt	Principal (Rtd.) Govt. P.G. College, Kotdwar (U.K.)	Member	

SRI DEV SUMAN UTTARAKHAND UNIVERSITY
Badshahithaul, Tehri Garhwal (Uttarakhand)

List of Members of Board of Studies

B.A I, II, III, IV, V, VI sem. (English Literature)

Sl. No.	Name of the Members	Designation	Nominated as
1	Prof. Dinesh Chandra Goswami	Dean of Arts	Chairman
2	Prof. Muktinath Yadav	Professor	Member
3	Prof. Hemant Kumar Shukla	Professor	Member
4	Prof. Sangeeta Mishra	Professor	Member
5	Prof. Preeti Kumari	Professor	Member
6	Prof. Anand Prakash Singh	Professor	Member
7	Prof. Pushpanjali Arya	Asso. Professor	Member
8	Prof. D K P. Choudhury	Professor	Member
9	Dr. Poonam Pathak	Professor	Member
10	Dr. Atal Bihari Tripathy	Asst. Professor	Member
11	Dr. Pushkar Gaur	Asst. Professor	Member
12	Dr. Shikha Mangai	Asst. Professor	Member
13	Prof. M. S, Mawri	Professor	Member
14	Dr. Preeti Gupta	Asst. Professor	Member
15	Dr. Narmadeshwar Shukla	Professor	Member
16	Dr. Poonam Pandey	Asst. Professor	Member
17	Dr. Vandana Sharma	Principal	Member
1	Prof, Janki Panwar	Principal	GPGC Kotdwar
2	Prof. <u>Lovely</u> Rajvanshi <u>LOVNEY</u>	Principal	GPGC, Jaiharikhal
3	Prof. K. L. Talwar	Principal	GDC, Chakrata
4	Dr. Himanshu Das	Director	NIVH, Rajpur Road
5	Prof. M. S. M. Negi	Professor	SRT Campus, HNBGU, Srinagar
6	Prof. M. C. Sati	Professor	HNBGU, Srinagar
7	Prof. S. L. Bhatt	Ex. Principal	GPGC, Kotdwar
8	Dr. P.C. Painuli	Asst. Professor	GPGC, New Tehri
9	Dr. Asha Devi	Asso. Prof.	GPGC, Kotdwar

Department of English
Sri Dev Suman Uttarakhand University
Badshahithaul (Tehri-Garhwal), Uttarakhand
Pt.L.M.S.University Campus, Rishikesh



e-Mail: hemantkumar.shukla1@gmail.com
Contact No.: 7500784114, 9897438142

Dated: 06.08.22

Syllabus

B.A. (English Literature-Core/Elective Courses & Projects)

Syllabus of B.A. I, II, III, IV, V, & VI Semesters respectively for Sri Dev Suman
Uttarakhand University (SDSUU) Badshahithoul, Tehri-Garhwal and its Affiliated
Colleges w.e.f. Educational Session: 2022-23

*Syllabus analyzed by the following Members of "Department of English"
on Monday, 08.08.2022*

Sr. No.	Name	Designation	Signature
1	Prof. Hemant Kumar Shukla	H.O.D.	
2	Dr. Pramod Kumar Kukreti	Assoc. Prof.	
3	Dr. Parul Mishra	Asst. Prof.	

INSTRUCTIONS for PAPER-SETTER along with SYLLABUS**UGENG-CC101****B.A. I Semester Examination: 2022-23****English Literature****Introduction to English Prose**

Credits: 6		Core Compulsory
Max. Marks: 75		Min. Passing Marks: As per University rules
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Introduction to Genres: Poetry, Drama, Essay, Novel, Novella and Short Story	15
Unit II	Elements of Short Story: Plot, Themes, Characterization, Narrative Techniques O' Henry: "The Last Leaf" Anton Chekhov: "The Lament"	15
Unit III	Types of Prose & Prose Style: Autobiography, Biography, Memoir, Travelogue, Essay. Literary Devices: Point of View, Imagery, Antithesis, Aphorism, Humour and Pathos.	15
Unit IV	Francis Bacon: "Of Studies" Charles Lamb: "Dream Children" Oliver Goldsmith: "National Prejudices"	20
Unit V	Virginia Woolf: "Professions for Women"	10
Unit VI	A.P.J. Kalam: Patriotism Beyond Politics & Religion (from Our Ignited Minds) Amartya Sen: "Tagore & His India" (from The Argumentative Indian)	15

Instructions for Paper-setter

Note: This question paper consists of two sections-Section 'A' and Section 'B'. Limit your answers within the given answer book. 'B' answer-book will not be provided or used

Section 'A'**(Short-answer type questions and questions for explanation with reference to context)****(6*5=30)**

Note: In this section, 08 questions will be given out of which 04 questions will be Short-answer type questions and 04 questions will be explanation questions. The students will be required to attempt any 05 questions out of which at least 02 questions should be explanation questions.

Section 'B'**(Long-answer type questions)**

FORMAT for QUESTION PAPER

[Roll No.....]

UGENG-CC101

B.A. I Semester Examination: 2022-23

English Literature

Introduction to English Prose

Time: Three Hours]

[Maximum Marks: 75

Note: This question paper consists of two sections-Section 'A' and Section 'B'. Limit your answers within the given answer book. 'B' answer-book will not be provided or used

Section 'A'

(Short-answer type questions and questions for explanation with reference to context)

(6*5=30)

Note: Attempt any *five* questions out of which at least *two* questions should be explanation questions.

1. Short Notes
2. Short Notes
3. Short Notes
4. Short Notes
5. *Explanation*
6. *Explanation*
7. *Explanation*
8. *Explanation*

Section 'B'

(Long-answer type questions)

(15*3=45)

Note: Attempt any *three* questions.

- 9.
- 10.
- 11.
- 12.
- 13.

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National Education Policy-2020

Common Minimum Syllabus for all Uttarakhand State Universities and Colleges for First Three Years of Higher Education

PROPOSED STRUCTURE OF UG ENGLISH SYLLABUS

2021

Syllabus checked and modified by:

S.N.	Name	Designation	Department	Affiliation
1.	Prof. L.M. Joshi	Prof & HOD	English	Kumaun University, Nainital
2.	Dr. Hari Priya Pathak	Assistant Professor	English	Kumaun University, Nainital
3.	Dr. Shivangi Chanyal	Assistant Professor	English	Kumaun University, Nainital
4.	Dr. Deepika Pant	Assistant Professor	English	Kumaun University, Nainital
5.	Dr. Prashasti Joshi	Assistant Professor	English	Kumaun University, Nainital

List of all Papers in Six Semesters Semester-wise Titles of the Papers in English					
Year	Sem.	Course Code	Paper Title	Theory/ Practical	Credits
<i>Certificate Course in Arts</i>					
FIRST YEAR	I	UGENG- CC101	Introduction to English Prose	Theory	6
		UGENG- VC102	Communicative English Grammar		3
	II	UGENG- CC103	History of English Literature	Theory	6
		UGENG- ME104	Creative Writing		4
		UGENG- VC105	English Listening and Speaking Skills		3
<i>Diploma in Arts</i>					
SECOND YEAR	III	UGENG- CC201	British Poetry	Theory	6
		UGENG- VC202	Language through Literature		3
	IV	UGENG- CC203	Women's Writing and Indian Literature in Translation	Theory	6
		UGENG- ME204	Professional English		4
		UGENG- VC205	Functional English and Translation		3
<i>Bachelor of Arts</i>					
THIRD YEAR	V	UGENG- CC301	Introduction to Literature and Film	Theory	5
		UGENG- CC302	Partition Literature	Theory	5
		UGENG- RP303	Research Project: An Introduction		4
	VI	UGENG- CC304	Regional Literature with special reference to Literature of Uttarakhand	Theory	5
		UGENG- CC305	Indian and New Literatures in English	Theory	5
		UGENG- RP306	Preparing a Research Proposal		4

Yenb
10.08.22
(Prof. Hemant Kumar Shukla)

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Programme outcomes (POs):



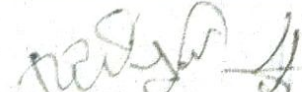

The programme aims to:

- Develop an appreciation of English language, its connotations and interpret and appreciate the didactic purpose of literature.
- Develop in students a deep-rooted pride in being Indian.
- Unravel the historical, social and cultural context of each literary work and thereby make connections between literature and society & appreciate literature's ability to empower us emotionally.
- Sensitize students to the aesthetic, cultural and social aspects of literature
- Present an extensive view of the cultural and social patterns of the society in the specific time and situations in which it flourished resulting in an intellectual and emotional engagement with the work.
- Make students aware of the different kinds of literature written/translated in various English-speaking countries across the world as well as the literature from Asia.
- Develop a more complex understanding of the history, literature, narrative techniques, Drama techniques, kinds of fiction and drama from Britain, America and India.
- Augment the understanding of fundamental tenets of classical literature
- Develop an understanding of the various connotations of the term 'New Literatures' and the difference from other terms like Commonwealth Literature etc.
- Develop an insight regarding the idea of world literature and the pertinent issues of feminism, racism and diasporic relocations
- Provide job opportunities through 'skill-based' courses
- Instill in students anew zeal and a new vision of life to make them better citizens.
- Recreate a response through creative indulgences like script-writing, dialogue writing, and be able to exploit his/her creative potential through digital media.
- Engage students with various strategies of drafting and revising, style of writing and analytical skills, diagnosing and developing scholarly methodologies, use of language as a means of creative expression, will make them effective thinkers and communicators.
- Empower students with knowledge of existing research methodologies and critical thinking.
- Comprehend and contextualise contemporary films adapted from literature, to describe objectively its importance and usefulness for the society while analysing its plot and characters.
- Comprehend translation as a useful bridge between various linguistic regions
- Assist students towards English language comprehension, intellectual flexibility, creativity, and cultural literacy so that they may engage in life-long learning
- Acquire basic skills to pursue translation as research and career
- Introduce the learners to the nuances of the changing media scenario in terms of production of media content
- Inculcate in them the skills of reporting, editing and feature writing in print medium to have a career perspective in media and journalism.
- Strengthen their grasp of the interrelationship between Culture and Society
- Help students prepare for various national and international competitive exams
- Create a possibility for the students to emerge as prospective writers, editors, content developers, teachers, etc.

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Year wise Structure of BA (CORE / ELECTIVE COURSES & PROJECTS)										
Subject: English										
Course/ Entry – Exit Levels	Year	Sem	Subject I	Subject II	Subject III	Subject IV	Vocational	Co- curricular	Research Project	Total
			Major	Major	Major	Minor/ Elective	Minor	Minor	Major	
						4 Credits	3 Credits	2 Credits	4 Credits	
				Own Faculty	Any Faculty	Other Dept. /Faculty				
Certificate Course In Arts	I	I 1 Theory Paper Credit 6	Introduction to English Prose			Creative Writing	Communicative English Grammar			
		II 1 Theory Paper Credit 6	History of English Literature				English Listening and Speaking Skills			
Diploma in Arts	II	III 1 Theory Paper Credit 6	British Poetry			Professional English	Language through Literature			
		IV 1 Theory Paper Credit 6	Women's Writing and Indian Literature in Translation				Functional English and Translation			
Bachelor of Arts	III	V 2 Theory Paper Credit 5 Each	Introduction to Literature and Film						Research Project: An Introduction	
			Partition Literature							
		VI 2 Theory Paper Credit 5 Each	Regional Literature with Special Reference to Literature of Uttarakhand						Preparing a Research Proposal	
			Indian and New Literatures in English							

CERTIFICATE COURSE IN ARTS

Programme: <i>Certificate Course in Arts</i>	Year: I	Semester: I Paper-I
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Subject: English

Course Code: UGENG-CC101	Course Title: Introduction to English Prose
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Course Outcomes:

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

- Gain an introductory knowledge of the development and significance of literature in English.
- Have an introductory study of forms such as Drama and Novel.
- Apprehend the art of story-telling through short-stories and define its basic elements such as plot, plot structure, characterization, and narrative technique.
- Critically evaluate the style and contributions of some of the greatest short-story writers, including Indian writers towards the development of short-story as a genre.
- Define and distinguish various types of prose and prose- styles.
- Understand important terms pertaining to prose writings, including various stylistic and figurative devices.
- Apprehend the growth of English essays through the contributions of some of the greatest essayist.
- Comprehend the wide variety of subject matter that the genre serves.

Credits: 6	Core Compulsory
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Max. Marks:	Min. Passing Marks: As per Univ. rules
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Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0

Unit	Topic	No. of Lectures
Unit I	Introduction to Genres: Poetry, Drama, Essay, Novel, Novella and Short Story	15
Unit II	Elements of Short Story: Plot, Themes, Characterization, Narrative Techniques O' Henry: "The Last Leaf" Anton Chekhov: "The Lament"	15
Unit III	Types of Prose & Prose Style: Autobiography, Biography, Memoir, Travelogue, Essay. Literary Devices: Point of View, Imagery, Antithesis, Aphorism, Humour and Pathos.	15
Unit IV	Francis Bacon: "Of Studies" Charles Lamb: "Dream Children" Oliver Goldsmith: "National Prejudices"	20
Unit V	Virginia Woolf: "Professions for Women"	10

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Unit VI	A.P.J.Kalam: Patriotism Beyond Politics & Religion (from <i>Our Ignited Minds</i>) Amartya Sen-:“Tagore & His India” (from <i>The Argumentative Indian</i>)	15
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Suggested Reading:

- The Routledge History of English Literature by Ronald Carter and John McRae, Special Edition, 2011.
- A History of English Literature by Arthur Compton Rickett
- A Background to the Study of English Literature by B Prasad
- A Glossary of Literary Terms by M. H. Abram

Suggested Continuous Evaluation:

Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. Oral presentations, peer interviews, and group tasks can be used for this purpose. The end-semester written examination will test all the areas targeted in the course.

Course prerequisites: To study this course, a student must have had the subject English in class/12th/certificate/diploma

Suggested equivalent online courses: Vidyamitra.inflibnet.ac.in, literature-study-online.com, epq-pathshala, egyankosh.ac.in

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CERTIFICATE COURSE IN ARTS

Programme: <i>Certificate Course in Arts</i>	Year: I	Semester: I
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Subject: English

Course Code: UGENG-VC102	Course Title: Communicative English Grammar
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Course Outcomes:

At the end of the semester students will be able to

- Acquire basic language skills and use them in communication.
- Make use of thesaurus for learning synonyms, antonym and one word- substitution
- Comprehend the meaning of prose and verse passages.

Credits: 3

Vocational Course

Max. Marks:

Min. Passing Marks: As per Univ. rule

Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0

Unit	Topic	No. of Lectures
Unit I	Importance of English Language in Contemporary World Basic Language Skills & Usage: Articles, Prepositions, Use of Verbs, Subject: Verb Agreement and Punctuation	20
Unit II	Use of Dictionary and Thesaurus- Synonym, Antonym and One-Word substitution Précis Writing	15
Unit III	Comprehension of an Unseen Passage	10

Recommended Readings:

• Pathak et al. *Foundation Course in English Language (Revised)*, Cambridge University Press 2022.

Suggested Reading:

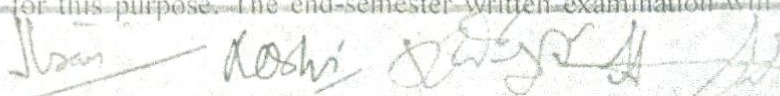
- Shilpa Sapre-Bharmal et al. *Communication Skills in English*. Orient Blackswan. 2012
- Sanjay Kumar and Pushp Lata: *Communication Skills*, Oxford University Press, 2nd ed. 2015.
- Norman Lewis: *Word Power Made Easy*, Penguin Books India, 2015.

This course can be opted as an elective by the students of:

Any Stream

Suggested Continuous Evaluation (25 Marks):

Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The focus here could be on skills and activities that are harder to test in a written evaluation, such as speaking and listening skills, dictionary work, etc. Oral presentations, peer interviews, and group tasks can be used for this purpose. The end-semester written examination will test all the areas.



targeted in the course – reading, comprehension, vocabulary, grammar, composition, and oral communication.

Course prerequisites: To study this course, a student must have had the subject English class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

CERTIFICATE COURSE IN ARTS		
Programme: <i>Certificate Course in Arts</i>		Year: I Semester:II Paper-I
Subject: English		
Course Code: UGENG-CC103	Course Title: History of English Literature	
Course Outcomes:		
After studying this course, the students will be able to:		
<ul style="list-style-type: none">• Develop an understanding of the evolution of English Literature, the concept, causes and the impact of Renaissance and Reformation.• Trace the origin and development of English drama through Miracle and Morality plays and the plays of University Wits.• Develop an acquaintance with major religious, political and social movements from 15th to20th century and their influence on English literature.• Understand the characteristics of Elizabethan and Metaphysical poetry and special Features of Neo-classical age and its literature.• Identify the reasons of the emergence of prose and novels and the decline of drama in England in the 18thcentury.• Comprehend the role of French Revolution in the evolution of romanticism in literature.• Develop an understanding of the evolution of English Literature, the concept, causes and the impact of Renaissance and Reformation.• Comprehend the basic difference and special characteristics of the major literary tendencies of various ages and develop familiarity with major literary works by British writers in the field of Poetry, Drama and Fiction.		
Credits: 6		Core Compulsory
Max. Marks:		Min. Passing Marks: As per Univ. rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	1350- 1550 The Age of Chaucer Introduction of the Major Works 1558- 1603 Elizabethan Age Introduction to Major Poets and Dramatists of the Age	15
Unit II	1603- 1625 Jacobean Age Introduction to Major Poets and Dramatists of the Age 1625- 1649 Caroline Age Major Schools of Poetry	15

Unit III	1649- 1660 Puritan Age or Commonwealth Period 1660- 1700 The Restoration Age Introduction to Restoration Comedy	15
Unit IV	1700- 1745 The Augustan Age Rise of Novel, Major Writers 1745- 1785 Age of Sensibility Introduction to Age of Johnson	15
Unit V	1789- 1832 Romantic Age Introduction to Romantic Period and Major Romantic Writers 1832- 1901 Victorian Age Introduction to Victorian Age and Major Victorian Writers	15
Unit VI	Post 1901- Modern and Postmodern Age Introduction to Major Writers	15

Suggested Reading:

- *The Routledge History of English Literature* by Ronald Carter and John McRae, Special Edition, 2011.
- *History of English Literature* by W. H. Hudson
- *A History of English Literature* by Arthur Compton Rickett
- *A Critical History of English Literature* by David Daiches
- *A Background to the Study of English Literature* by Birjadish Prasad
- *A Glossary of Literary Terms* by M. H. Abrams
- *History of English Literature* by W.J.Long

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The focus here could be on skills and activities that are harder to test in a written evaluation, such as speaking and listening skills, dictionary work, etc. Oral presentations, peer interviews, and group tasks can be used for this purpose.

Course prerequisites: To study this course, a student must have had the subject English in class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

CERTIFICATE COURSE IN ARTS				
Programme: <i>Certificate Course in Arts</i>			Year: I	Semester: II
			Paper- ME	
Subject: English				
Course Code: UGENG-ME104		Course Title: Creative Writing		

Course Outcomes:

The course will help students to

- describe or express their opinions on topics of personal interest such as their experiences of events, their hopes and ambitions
- read and understand information on topical matters and explain the advantages and disadvantages of a situation
- write formal letters, personal notes, blogs, reports, and texts on familiar matters
- comprehend and analyse texts in English
- understand the basic concepts, ethics and type of advertisements.

Credits: 4

Minor Elective

Max. Marks:

Min. Passing Marks: As per Univ. rule

Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0

Unit	Topic	No. of Lectures
Unit I	What is Creative Writing? Types of Writing: Expository, Descriptive, Persuasive and Narrative	15
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 M.R. Anand	15
Unit III	Writing for the Media: Basics of writing for the Print Media.	15
Unit IV	Introduction to Cyber Media and Social Media Social Media, Types of Social Media, Online Journalism, Basics of Cyber Media	15

Recommended Readings

- 1) *Creative writing: A Beginner's Manual* by Anjana Neira Dev and Others, Published by Pearson, Delhi, 2009

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The focus here could be on skills and activities that are harder to test in a written evaluation, such as speaking and listening skills, dictionary work, etc.

Course prerequisites: To study this course, a student must have had the subject English class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

CERTIFICATE COURSE IN ARTS	
Programme: <i>Certificate Course in Arts</i>	Year: I Semester: II Paper-VC

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Subject: English

Course Code: UGENG-VC105 **Course Title:** English Listening and Speaking Skills

Course Outcomes:

At the end of the semester students will be able to

- Learn basic concepts of phonetics
- Improve fluency through regular practice and speaking drills
- Learn the skills of facing interviews, making a speech, presentations etc

Credits: 3

Minor/Vocational Course

Max. Marks:

Min. Passing Marks: As per Univ. rule

Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0

Unit	Topic	No. of Lectures
Unit I	(a) Introduction to Phonetics- Essentials of English Pronunciation (b) Introducing oneself and others	15
Unit II	Interview, Group Discussion	15
Unit III	Making a Speech, Presentation Skills	15

Recommended Readings:

. Krishnan et al. *Interact A Course in Communicative English*, Cambridge University Press 2022.

Suggested Reading:

1. R.K Bansal and J.B. Harrison: *Spoken English*. Orient Black Swan, 1983.
2. Kamlesh Sadanand and Susheela Punitha: *Spoken English: A Foundation Course* (Revised Edition) , Part I, Orient BlackSwan, 2014
3. Bikram K. Das: *Functional Grammar and Spoken and Written Communication in English*. Orient Black Swan; edition , 2006
4. E. Suresh Kumar, B. Sandhya, J. Savithri and P. Sreehari: *Enriching Speaking and Writing Skills*, Orient BlackSwan , 2014.

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The focus here could be on skills and activities that are harder to test in a written evaluation, such as speaking and listening skills, dictionary work, etc. Oral presentations, peer interviews, and group tasks can be used for this purpose. The end semester written examination will test all the areas targeted in the course – reading, comprehension, vocabulary, grammar composition, and oral communication.

Course prerequisites: To study this course, a student must have had the subject English class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

DIPLOMA IN ARTS

Programme: Diploma in Arts

Year: II Semester: III
Paper

Subject: English		
CourseCode: UGENG-CC201	Course Title: British Poetry	
Course Outcomes: After studying this course, the students will be able to:		
<ul style="list-style-type: none">• Identify various forms of poetry and understand the development of these forms in the works of greatest practitioners of these poetic forms.• Characterize some basic stanza patterns, their origin and development.• Critically analyse poems with an understanding of its basic elements.• Assess the contribution of the representative poets of these Ages towards the growth of English poetry and appreciate their poetic genius.• Understand and gain informative understanding of the poems written by modern British poets.• Strengthens the broader understanding to the study of the British poetry.• Learn about transition of poetic style and forms with changing times.• Gain information about Irish poetry, war poems and modern poems.• Learn about changing style and how imagism as a movement in arts influenced the poets.		
Credits: 6	Core Compulsory	
Max. Marks:	Min. Passing Marks:As per Univ. rule	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Types of Poems Lyric, Sonnet, Elegy, Ode, Epic, Ballad, Dramatic Monologue, Allegory Stanza Forms The Heroic Couplet, Blank Verse, The Spenserian Stanza, Terza Rima	15
Unit II	William Shakespeare: Let Me Not to the Marriage of True Minds (Sonnet No.116) John Donne: A Valediction: Forbidding Mourning John Milton: On his Blindness	15
Unit III	Alexander Pope: From Essay on Criticism (Little learning - - -Alps to Alps (lines- 15-32) Thomas Gray: Elegy Written in a Country Churchyard(Lines (1- 19th stanza; The curfew Tolls --- noiseless tenor of thin ways)	15
Unit IV	William Wordsworth: The World is Too Much With Us John Keats: Ode to a Nightingale	15
Unit V	W. B. Yeats: "Second Coming" T.S. Eliot: "The Love Song of J.Alfred Prufrock" (lines 1-34) W H Auden: "The Unknown Citizens"	15
Unit VI	Wilfred Owen: "The Strange Meeting" Rupert Brooke: "The Soldier" Ted Hughes: "Thought Fox" Philip Larkin: "Church Going".	15

Recommended Readings

1. William Wordsworth - the Major Works (Oxford World's Classics) Paperback. OUP
2. William Blake: Selected Poems (Oxford World's Classics) Paperback – Import. OUP

3. Poetry of the Romantics (Penguin Popular Classics) Paperback. Penguin classics
4. The Waste Land, Prufrock, and Other Poems (Dover Thrift S.) Paperback. Dover publications Inc.
5. A Glossary of Literary Terms, MH Abrams
6. David Moody. *The Cambridge Companion to T. S. Eliot*, Cambridge: Cambridge University Press, 2003.
7. Edward Maline. *A Preface to W. B. Yeats*, London: Longman Group Ltd, 1983.
8. Terry Gifford and Neil Roberts. *Ted Hughes: A Critical Study*. London: Faber and Faber, 1981.
9. Stan Smith. *The Cambridge Companion to W H Auden*, Cambridge: Cambridge University Press, 2004.

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks require learners to actively use various language skills, formative assessment can and should be used extensively. presentations, peer interviews, and group tasks can be used for this purpose The end-semester written examination test all the areas targeted in the course.

Course prerequisites: To study this course, a student must have had the subject English class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

DIPLOMA IN ARTS		
Programme: <i>Diploma in Arts</i>		Year: II Semester:III Paper-VC
Subject: English		
Course Code: UGENG-VC202	Course Title: Language through Literature	
Course Outcomes: At the end of the semester students will be able to <ul style="list-style-type: none">• Improve their grammatical competence• Learn the art of writing paragraphs, essays, letters, Biodata, Resume and CV• Identify the meanings of homophones and homonyms.		
Credits: 3		
Max. Marks:		Min. Passing Marks:As per Univ. rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Tenses, Direct and Indirect Speech, Active-Passive Voice, Simple, Complex and Compound sentences, Common Errors in English	20
Unit II	Expansion of an Idea, Essays, Letters, Application Writing, Preparing Biodata/ Resume/ CV	20
Unit III	Homophones, Homonyms, homographs, polysemy , antonyms, synonyms (other lexical terms)	05

Recommended Reading:

1. Terry O'Brien : *Common Errors*, Rupa Publications India Pvt. Ltd., 2012

Shruti Koshi

2. V.N.Arora and Laxmi Chandra: *Improve your Writing*, Oxford University Press, 1981

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The focus here could be on skills and activities that are harder to test in a written evaluation, such as speaking and listening skills, dictionary work, etc. Oral presentations, peer interviews, and group tasks can be used for this purpose. The end semester written examination will test all the areas targeted in the course – reading, comprehension, vocabulary, grammar composition, and oral communication.

Course prerequisites: To study this course, a student must have had the subject English in class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala.egyankosh.ac.in

DIPLOMA IN ARTS		
Programme: <i>Diploma in Arts</i>		Year: II Semester: IV Paper
Subject: English		
Course Code: UGENG-CC203	Course Title: Women's Writing and Indian Literature in Translation	
Course Outcomes: <ul style="list-style-type: none">• This course aims to• Help students understand the social construction of woman by patriarchy.• Examine feminism's concerns of equality with men.• Highlight the structural oppression of women.• Foreground resistance by women.• Discuss women's writing as an act of resistance and of grasping agency.• Facilitate an understanding of the body of woman and its lived experience.• Help students engage with the heterogeneity of the oppression of women in different places, historically and socially.• Understand the rich and diverse tradition of literatures written in regional and vernacular languages.• Develop a comparative and intertextual approach to analyse literatures.• Develop an appreciation of the diverse multilingual and multicultural ethos of India.• Enhance job opportunities by fostering translation skills.• Critically appreciate the poems of Kabir and gain an understanding of his philosophy and assess the strength of Rabindranath Tagore as a translator.		
Credits: 6		Core Compulsory
Max. Marks:		Min. Passing Marks: As per Univ. rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Elaine Showalter: 'Introduction', in <i>A Literature of Their Own: British Women Novelists from Bronte to Lessing</i> (1977).	10

Unit II	Gilman: 'The Yellow Wallpaper' Mahasweta Devi: 'Draupadi'	10
Unit III	Autobiography: Harriet Jacobs, selections from Incidents in the Life of a Slave Girl, Chapter 5	15
Unit IV	Maya Angelou: 'Still I Rise'. Anne Finger: 'Helen and Frida', in Call me Ahab: A Short Story Collection, Sylvia Plath: 'Lady Lazarus'	20
Unit V	Introducing Translation: A Brief History and Significance of Translation in a Multilinguistic and Multicultural Society like India	20
Unit VI	Kabir (Translation) from The English Writings of Rabindra Nath Tagore(1994, Vol.1 Ed. Sisir Kumar Das, Sahitya Akademi, Verses- 1,2,8,12, 53, 69)	15

Recommended Readings

1. Indian Feminism by Jasbir Jain and Avadhesh Kumar Singh
2. The History of Doing: An Illustrated Account of Movements for Women's Rights and Feminism in India, 180 1990, by Radha Kumar
3. Sexual/Textual Politics by T. Moi
4. Gender Trouble by Judith Butler
5. Second Sex by Simone de Beauvoir

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. Or presentations, peer interviews, and group tasks can be used for this purpose. The end-semester written examination will test all the areas targeted in the course.

Course prerequisites: To study this course, a student must have had the subject English class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

DIPLOMA IN ARTS			
Programme: <i>Diploma in Arts</i>		Year: II	Semester: IV Paper-ME
Subject: English			
Course Code: UGENG-ME204	Course Title: Professional English		
Course Outcomes: The course will help students to <ul style="list-style-type: none">• Acquire basic language skills and use them in communication.• Make use of thesaurus for learning synonyms, antonym and one word- substitution• Comprehend the meaning of prose and verse passages.• Learn basic concepts of phonetics• Improve fluency through regular practice and speaking drills• Learn the skills of facing interviews, making a speech, presentations etc.• Improve their grammatical competence• Learn the art of writing paragraphs, essays, letters, Biodata, Resume and CV.			

<ul style="list-style-type: none"> Learn the techniques of report writing, minutes, notices and agendas Become skilled at translating from Hindi to English and vice-versa. 		
Credits: 04		Minor Elective
Max. Marks:		Min. Passing Marks: As per Univ. rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Use of IPA Symbols: Learning Correct Pronunciation through Dictionary.	15
Unit II	Use of Direct and Indirect Speech, Using Verb Tenses, Common Errors in English. Writing Official Correspondences (Letter /Application Writing, Complaints, FIR, Grievance Redressal Letters Grievance & Right to Information)	15
Unit III	Techniques of CV writing, Report Writing, Proposal Writing, Notices and Agendas, Interview, Group Discussion, Making a Speech, Presentation Skills/Using Power Point Presentation.	15
Unit IV	Translation from Hindi to English Translation from English to Hindi	15

Recommended Readings:

- Pathak et al. *Foundation Course in English Language (Revised)*, Cambridge University Press 2022.

Suggested Readings:

- Shilpa Sapre-Bharmal et al. *Communication Skills in English*. Orient Blackswan. 2012
- Sanjay Kumar and Pushp Lata: *Communication Skills*, Oxford University Press, 2nd ed. 2015.
- Norman Lewis: *Word Power Made Easy*, Penguin Books India, 2015.
- R.K Bansal and J.B. Harrison: *Spoken English*, Orient BlackSwan, 1983.
- Kamlesh Sadanand and Susheela Punitha: *Spoken English: A Foundation Course (Revised Edition)*, Part I, Orient BlackSwan, 2014
- Bikram K. Das: *Functional Grammar and Spoken and Written Communication in English*, Orient BlackSwan; 1st edition, 2006
- E. Suresh Kumar, B. Sandhya, J. Savithri and P. Sreehari: *Enriching Speaking and Writing Skills*, Orient BlackSwan, 2014.
- V.N.Arora and Laxmi Chandra: *Improve your Writing*, Oxford University Press, 1981
- Terry O'Brien: *Modern writing Skills*, Rupa Publisher, 2011
- R.C. Sharma and Krishna Mohan: *Business Correspondence and Report Writing*, McGraw Hill Education (India) Pvt. Ltd. Chennai, 5th ed., 2016.

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The focus here could be on skills and activities that are harder to test in a written evaluation, such as speaking and listening skills, dictionary work, etc. Oral presentations, peer interviews, and group tasks can be used for this purpose. The end-semester written examination will test all the areas targeted in the course – reading, comprehension, vocabulary, grammar, composition, and oral communication.

Course prerequisites: To study this course, a student must have had the subject English in class/12th/certificate/diploma

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Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

DIPLOMA IN ARTS		
Programme: <i>Diploma in Arts</i>		Year: II Semester: IV Paper-VC
Subject: English		
Course Code: UGENG-VC205	Course Title: Functional English and Translation	
Course Outcomes: At the end of the semester students will be able to		
<ul style="list-style-type: none">• Learn the formation of words and making of new sentences• Learn the techniques of report writing, minutes, notices and agendas• Become skilled at translating from Hindi to English and vice-versa		
Credits: 3		Vocational Course
Max. Marks:		Min. Passing Marks: As per Univ. rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Formation of Words-Noun, Verb, Adjective, and Affixes Synthesis	15
Unit II	Preparing Reports, Minutes, Notices and Agendas	15
Unit III	Theory and Techniques of Translation: Translation from Hindi to English Translation from English to Hindi	15

Recommended Readings:

. Pathak et al. *Foundation Course in English Language (Revised)*, Cambridge University Press 2022.

Suggested Reading:

1. V.N.Arora and Laxmi Chandra: *Improve your Writing*, Oxford University Press, 1981
2. Terry O'Brien: *Modern writing Skills*, Rupa Publisher, 2011
3. R.C. Sharma and Krishna Mohan: *Business Correspondence and Report Writing*, McGraw Hill Education (India)Pvt. Ltd. Chennai, 5th ed., 2016

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The focus here could be on skills and activities that are harder to test in a written evaluation, such as speaking and listening skills, dictionary work, etc. Oral presentations, peer interviews, and group tasks can be used for this purpose. The end-semester written examination will test all the areas targeted in the course – reading, comprehension, vocabulary, grammar, composition, and oral communication.

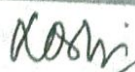
Course prerequisites: To study this course, a student must have had the subject English in class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-

BACHELOR OF ARTS			
Programme: <i>Bachelor of Arts</i>		Year: III	Semester: V Paper-I
Subject: English			
Course Code: UGENG-CC301	Course Title: Introduction to Literature and Film		
Course Outcomes:			
Literature and film have had a close relationship with one another manifest in the celluloid 'adaptation' of classics and 'inspired' productions in the earlier days to the film text studies of recent times. The writer and the auteur both produce art that oftentimes is in conversation particularly since the cultural revolution of modernism. This paper attempts to trace the genealogy of this collaborative mediation between literature and cinema between the textual and the visual.			
Credits: 5		Core Compulsory	
Max. Marks:		Min. Passing Marks: As per Univ. rule	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic	No. of Lectures	
Unit I	Introduction to Basic Concepts in Film-Making: Mise-én-scene, Long Takes, Deep Focus, Types of Shots, Colour and Sound	15	
Unit II	Cinematic Adaptations: Shakespeare's Hamlet	15	
Unit III	The Novel in English and its Adaptation: Charles Dickens's Oliver Twist	15	
Unit IV	Indian English Fiction: Jhumpa Lahiri's The Namesake	10	
Unit V	Popular Fiction: Chetan Bhagat's Five Point Someone	10	
Unit VI	Bhasha Classics: Rabindranath Tagore's Ghare Baire	10	

Recommended Readings

1. Shail Andrew 'From the Cinematograph to The Pictures' in The Cinema and the Origins of Literary Modernism New York and London: Routledge 2012) pp. 1-40.
2. Fernando Solanas and Octavio Getino 'Towards a Third Cinema' in Movies and Methods: An Anthology ed. Bill Nichols (Berkeley: University of California Press 1976) pp. 44-64.
3. Laura Mulvey 'Afterthoughts on 'Visual Pleasure and Narrative Cinema' inspired by King Vidor's *Duel in the Sun* (1946)' in *Visual and Other Pleasures* (London: Palgrave Macmillan 1989).
4. bell hooks 'The Oppositional Gaze: Black Female Spectators' in *Black Looks: Race and Representation* (Boston: South End Press 1992).
5. Robert Stam 'Beyond Fidelity: The Dialogues of Adaptation' in *Film Adaptation* ed. James Naremore (New Brunswick NJ: Rutgers UP 2000) pp. 54-76.
6. Andre Bazin 'Adaptation or the Cinema as Digest' in *Film and Literature: An Introduction and Reader* ed. Timothy Corrigan pp. 57-64.




7. Anna Morcom 'Tapping the Mass Market: The Commercial Life of Hindi Film Songs' in *Global Bollywood: Travels of Hindi Song and Dance* eds Sangita Gopal and Sujata Moorti (Delhi: Orient Blackswan 2010) pp. 63-84.

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The end-semester written examination will test all the areas targeted in the course.

Course prerequisites: To study this course, a student must have had the subject English class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

BACHELOR OF ARTS		
Programme: <i>Bachelor of Arts</i>		Year: III Semester: V Paper-II
Subject: English		
Course Code: UGENG-CC302	Course Title: Partition Literature	
Course Outcomes: The course aims to understand contending interpretation of partition history. The students will be reading a variety of different historical interpretation of partition.		
Credits: 5		Core Compulsory
Max. Marks:		Min. Passing Marks: As per Univ. rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Characteristics of Partition Literature: Violence, Dislocation, Trauma, Memory, History, Narrative, Regeneration.	15
Unit II	Fiction: Khushwant Singh: Train to Pakistan	15
Unit III	Short story: Sadat Hasan Manto: Toba Tek Singh I, Ismat Chughtai: Roots.	15
Unit IV	Non Fiction:Urvashi Butalia: The Other Side of Silence: Voices from the Partition of India (Chapter 2: Blood)	10
Unit V	Bapsi Sidhwa: Ice Candy Man	10
Unit VI	Jyotirmoyee Devi: The River Churning	10

Recommended Readings:

1. Ritu Menon and Kamla Bhasin, 'Introduction', in *Borders and Boundaries* (New Delhi: Kali for Women, 1998).
2. Sukrita P. Kumar, *Narrating Partition* (Delhi: Indialog, 2004).
3. Urvashi Butalia, *The Other Side of Silence: Voices from the Partition of India* (Delhi: Kali for Women, 2000).
4. Sigmund Freud, 'Mourning and Melancholia', in *The Complete Psychological Works of Sigmund Freud*, tr. James Strachey (London: Hogarth Press, 1953) pp. 3041-53.

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that

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require learners to actively use various language skills, formative assessment can and should be used extensively. end-semester written examination will test all the areas targeted in the course.

Course prerequisites: To study this course, a student must have had the subject English class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Programme: Degree		Year: III	Semester: V
Subject: English			
CourseCode: UGENGRP-303		Course Title: Research Project: An Introduction	
Course Outcomes: <ul style="list-style-type: none">• Understand the importance of research and research methodology.• Learn how to conduct research projects.• Learn to prepare research project.			
Credits: 4			Major (Compulsory)
Max. Marks:			Min. Passing Marks: As per Univ. rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
Unit I	Meaning, Types and Significance of Research, Literature Review, Formulation of Research design, Research Problem, Objectives, Hypothesis, Research materials and Methods, Abstract Writing, Keywords and References.		60

BACHELOR OF ARTS				
Programme: <i>Bachelor of Arts</i>			Year: III	Semester: VI Paper-I
Subject: English				
Course Code: UGENG-CC304		Course Title: Regional Literature with Special Reference to Literature of Uttarakhand		
Course Outcomes: After completing this course, the students will be able to: <ul style="list-style-type: none">• To study the language and literature of Kumauni and Garhwali region.• These texts would be read closely to develop understanding of the key concepts and themes of Regional literature.				
Credits: 5			Core Compulsory	
Max. Marks:			Min. Passing Marks: As per Univ.	

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		rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Chatak Tales: To be good or bad, The Buffalo Man	15
Unit II	Manglesh Dabral: Torchlight	10
Unit III	Leeladhar Jagudi: The Delivery of a Bird, The Inland Letter	15
Unit IV	Ruskin Bond: Rusty, The Boy from the Hills	10
Unit V	Mrinal Pande: Girls	10
Unit VI	Namita Gokhale: Things to Leave Behind	15

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The end-semester written examination will test all the areas targeted in the course.

Course prerequisites: To study this course, a student must have had the subject English class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyptankosh.ac.in

BACHELOR OF ARTS		
Programme: <i>Bachelor of Arts</i>		Year: III Semester: VI Paper-II
Subject: English		
Course Code: UGENG-CC305	Course Title: Indian and New Literatures in English	
Course Outcomes: <ul style="list-style-type: none">• After completing this course, the students will be able to:• Develop an understanding of the themes, styles and poetic sensibilities of poets like Toru Dutt, Nissim Ezekiel, Jayanta Mahapatra and Keki N. Daruwala.• Critically analyse drama as a medium of exploration of existing social issues and prejudices through the works of Girish Karnad.• Critically analyse texts from a Postcolonial perspective.• Familiarize themselves with the similar (yet different) socio-historic conditions reflected in the literature of the various colonies.• Comprehend how 'New Literatures' incorporates very different literary products, each with its own cultural, social and geographical specificity.• Comprehend and analyse the poetic discourses of poets like Pablo Neruda, Margaret Atwood, and Dennis Brutus and the variations in their themes and styles.• Comprehend the issues of identity, diaspora and marginalization as explored in the texts prescribed.• Develop an understanding of Postcolonialism and recognise the strategies deployed by Postcolonial writers to resist cultural oppression.		
Credits: 5		Core Compulsory
Max. Marks:		Min. Passing Marks: As per Univ. rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		

Unit	Topic	No. of Lectures
Unit I	Toru Dutt: "Sita" Nissim Ezekiel: "Background Casually" Jayanta Mahapatra: "Hunger" Keki N. Daruwala: "Mother" Kamala Das: The Stone Age	20
Unit II	Pablo Neruda: "If You Forget Me" Margaret Atwood: "Spellings" Dennis Brutus: "Cold"	15
Unit III	Girish Karnad: "Tughlaq"	15
Unit IV	Mahatma Gandhi: Hind Swaraj	10
Unit V	Frantz Fanon: "Black Skin, White Masks" (Chapter 4)	05
Unit VI	Chinua Achebe: "Things Fall Apart"	10

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative assessment can and should be used extensively. The end-semester written examination will test all the areas targeted in the course.

Course prerequisites: To study this course, a student must have had the subject English class/12th/certificate/diploma

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Programme: Degree		Year: III	Semester: VI
Subject: English			
Course Code: UGENGRP-306		Course Title: Preparing a Research Proposal	
Course Outcomes: Learn how to conduct research projects. Learn to prepare research paper. Learn to prepare research project.			
Credits: 4			Major (Compulsory)
Max. Marks:			Min. Passing Marks: As per Univ. rule
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
Unit I	Preparing Research Projects on Translation Studies, Gender Studies, Novels and their Film Adaptation, Ecocriticism, Cultural Studies.		60

परीक्षा प्रणाली

श्री देव सुमन उत्तराखण्ड विश्वविद्यालय परिसर, ऋषिकेश में दिनांक 10 अगस्त 2022 को कला संकाय की अध्यापन समिति (Board of Studies) में लिए गए निर्णय के क्रम में श्री देव सुमन उत्तराखण्ड विश्वविद्यालय में संचालित स्नातक पाठ्यक्रमों के निम्न विषयों -

हिन्दी ,
अंग्रेजी ,
संस्कृत,
इतिहास ,
गृह विज्ञान ,
भूगोल,
राजनीति विज्ञान ,
समाज शास्त्र,
अर्थशास्त्र ,
शिक्षा शास्त्र ,
शारीरिक शिक्षा ,
संगीत ,
चित्रकला ,
मानव शास्त्र ,
मनोविज्ञान ,
दर्शन शास्त्र तथा
सैन्य विज्ञान विषयों के स्नातक कक्षाओं के सेमेस्टर परीक्षा 2022-23 हेतु पारित निर्णय निम्नवत हैं :

राष्ट्रीय शिक्षा नीति 2020 के अंतर्गत प्रवर्तित पाठ्यक्रमों के प्रत्येक सेमेस्टर में प्रत्येक लिखित प्रश्न पत्र तीन घंटों का होगा तथा प्रत्येक प्रश्न पत्र अधिकतम 75 अंकों का होगा । प्रत्येक प्रश्न पत्र के दो खंड होंगे - खंड अ और खंड ब । खंड अ में 8 लघु उत्तरीय प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थी को 5 प्रश्नों के उत्तर देना अनिवार्य होगा । खंड अ का प्रत्येक प्रश्न 6 अंकों का होगा । खंड ब में 5 प्रश्न दीर्घ उत्तरीय प्रकृति के होंगे जिनमें से परीक्षार्थी को 3 प्रश्नों के उत्तर देना अनिवार्य होगा । प्रत्येक दीर्घ उत्तरीय प्रश्न 15 अंकों का होगा ।

अध्यक्ष , अध्यापन समिति (Board of Studies)

कला संकाय, श्री देव सुमन उत्तराखण्ड विश्वविद्यालय , बादशाहीथाल

National Education Policy-2020

Sri Dev Suman Uttarakhand University and Affiliated Colleges for First Three Years of Higher Education



STRUCTURE OF UG HINDI SYLLABUS

2022-23

Syllabus Prepared by:

S.N.	Name	Designation	Department	Affiliation
1	PROF. MUKTI NATH YADAV	PROFESSOR AND HEAD	HINDI	SRI DEV SUMAN UTTARAKHAND UNIVERSITY PLMS CAMPUS RISHIKESH
2	PROF. KALPANA PANT	PROFESSOR	HINDI	SRI DEV SUMAN UTTARAKHAND UNIVERSITY PLMS CAMPUS RISHIKESH
3	PROF. ADHEER KUMAR	PROFESSOR	HINDI	SRI DEV SUMAN UTTARAKHAND UNIVERSITY PLMS CAMPUS RISHIKESH

(Based on Common Minimum Syllabus for all Uttarakhand State Universities and Colleges)

1
10.8.2022
10.08.2022

SRI DEV SUMAN UTTARAKHAND UNIVERSITY

Badshahithaul, Tehri Garhwal (Uttarakhand)

List of Members of Board of Studies - HINDI

Sl. No.	Name of the Members	Designation	Nominated as
1	Prof. Dinesh Chandra Goswami	Dean of Arts	Chairman
2	Prof. Muktinath Yadav	Professor	Member
3	Prof. Hemant Kumar Shukla	Professor	Member
4	Prof. Sangeeta Mishra	Professor	Member
5	Prof. Preeti Kumari	Professor	Member
6	Prof. Anand Prakash Singh	Professor	Member
7	Prof. Pushpanjali Arya	Asso. Professor	Member
8	Prof. D K P. Choudhury	Professor	Member
9	Dr. Poonam Pathak	Professor	Member
10	Dr. Atal Bihari Tripathy	Asst. Professor	Member
11	Dr. Pushkar Gaur	Asst. Professor	Member
12	Dr. Shikha Mamgai	Asst. Professor	Member
13	Prof. M. S. Mawri	Professor	Member
14	Dr. Preeti Gupta	Asst. Professor	Member
15	Dr. Narmadeshwar Shukla	Professor	Member
16	Dr. Poonam Pandey	Asst. Professor	Member
17	Dr. Vandana Sharma	Principal	Member
1	Prof, Janki Panwar	Principal	GPGC Kotdwar
2	Prof. Lovely Rajvanshi LOVNEY	Principal	GPGC, Jaiharikhal
3	Prof. K. L. Talwar	Principal	GDC, Chakrata
4	Dr. Himanshu Das	Director	NIVH, Rajpur Road
5	Prof. M. S. M. Negi	Professor	SRT Campus, HNBSU, Srinagar
6	Prof. M. C. Sati	Professor	HNBSU, Srinagar
7	Prof. S. L. Bhatt	Ex. Principal	GPGC, Kotdwar
8	Dr. P.C. Painuli	Asst. Professor	GPGC, New Tehri
9	Dr. Asha Devi	Asso. Prof.	GPGC, Kotdwar

10.8.22

List of all Papers in Six Semesters AND Semester-wise Titles of the Papers in HINDI					
Year	Sem.	Course Code	Paper Title	Theory/ Practical	Credits
Certificate Course in ARTS-HINDI					
FIRST YEAR	I		प्राचीन एवं भक्तिकालीन काव्य Major/Core	Theory	6
			हिन्दी भाषा व व्याकरण Minor Elective	Theory	4
			गढ़वाली भाषा एवं संस्कृति Vocational/Skill Development Course	Theory	3
	II		हिन्दी कथा साहित्य Major/Core	Theory	6
			प्रयोजनमूलक हिन्दी /Skill Development Course	Theory	3
Diploma in ARTS-HINDI					
SECOND YEAR	III		रीतिकालीन काव्य Major/Core	Theory	6
			हिन्दी भाषा : स्वरूप Minor Elective	Theory	4
			कार्यालयी हिन्दी /Skill Development Course	Theory	3
	IV		नाटक एवं स्मारक साहित्य Major/Core	Theory	6
			रचनात्मक लेखन / Skill Development Course	Theory	3
Bachelor of ARTS-HINDI					
THIRD YEAR	V		द्विवेदीयुगीन एवं छायावादी काव्य Major/Core	Theory	5
			छायावादोत्तर हिन्दी कविता Major/Core	Theory	5
			हिन्दी की वैज्ञानिक एवं तकनीकी शब्दावली/Project	Project	4
	VI		हिन्दी निबंध Major/Core	Theory	5
			लोकसाहित्य Major/Core	Theory	5
			साहित्यिक विचारधाराओं का अध्ययन : भक्ति-आन्दोलन, छायावाद, प्रगतिवाद, राष्ट्रवाद, अस्तित्ववाद, नारीवाद, दलित विमर्श, आधुनिकताबोध, उत्तरआधुनिकता में से कोई एक	Project	4

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COURSE INTRODUCTION

Programme outcomes (POs):

1. साहित्य मानव संवेदना की अभिव्यक्ति का प्रमुख स्रोत रहा है। कलाओं में यह सम्पूर्ण कला है। साहित्य समाज का प्रतिदर्श है। स्नातक उपाधि में इस विषय के चयन व अध्ययन से शिक्षार्थी को साहित्य के सांगोपांग महत्व का ज्ञान होता है।
2. शिक्षार्थी को राष्ट्र की सर्वप्रमुख भाषा हिन्दी के अत्यन्त समृद्ध साहित्य के सम्पूर्ण स्वरूप का ज्ञान होता है।
3. शिक्षार्थी को हिन्दी साहित्य की सभी प्रमुख विधाओं का ज्ञान होता है, जिससे उसमें रचनात्मकता का प्रस्फुटन एवं विकास होता है।
4. शिक्षार्थी को जीवन के आजीविकोपार्जन सम्बन्धी पक्ष के रूप में हिन्दी के प्रयोजनमूलक स्वरूप व महत्व का ज्ञान एवं प्रशिक्षण होता है।
5. साहित्य के अध्ययन में अन्य अनुशासनों के सन्दर्भ यथा सामाजिक, मनोवैज्ञानिक, राजनीतिक, आर्थिक, ऐतिहासिक, पर्यावरणीय आदि समाहित होते हैं। स्नातक में हिन्दी साहित्य का चयन शिक्षार्थी को समग्र रूप से शिक्षित करता है।
6. शिक्षार्थी संघ लोक सेवा आयोग एवं प्रादेशिक लोक सेवा आयोगों के परीक्षा पाठ्यक्रम में सम्मिलित हिन्दी साहित्य की आधार व अनिवार्य शिक्षा प्राप्त करता है।

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Programme specific outcomes (PSOs):

UG I Year / Certificate course Arts with Hindi

1. शिक्षार्थी स्नातक प्रमाण पत्र पाठ्यक्रम के अन्तर्गत मुख्य विषय के रूप में हिन्दी की प्राचीन एवं मध्यकालीन कविता तथा कथा साहित्य का आधारभूत ज्ञान प्राप्त करेगा।
2. शिक्षार्थी स्नातक प्रमाण पत्र पाठ्यक्रम के अन्तर्गत वैकल्पिक/सहायक विषय के रूप में हिन्दी व्याकरण का ज्ञान एवं व्यावहारिक प्रशिक्षण प्राप्त करेगा। विकल्प के रूप में यह चयन प्रतियोगी परीक्षाओं में सहायक एवं उपयोगी सिद्ध होगा।
3. शिक्षार्थी प्रमाण पत्र वर्ष में एवं कौशल संवर्द्धन पाठ्यक्रम के रूप में प्रयोजनमूलक हिन्दी का ज्ञान एवं व्यावहारिक प्रशिक्षण प्राप्त करेगा।
4. प्रथम वर्ष में शिक्षा में बाधा हो जाने की स्थिति में शिक्षार्थी हिन्दी तथा अन्य विषयों के साथ स्नातक प्रमाण-पत्र प्राप्त करेगा, जिसका लाभ उसे आजीविका प्राप्त करने में प्राप्त होगा।

Programme specific outcomes (PSOs):

UG II Year/ (Diploma in ARTS with Hindi)

1. शिक्षार्थी स्नातक डिप्लोमा पाठ्यक्रम के अन्तर्गत मुख्य विषय के रूप में हिन्दी की रीतिकालीन कविता व काव्यांग परिचय तथा नाटक एवं स्मारक साहित्य का आधारभूत ज्ञान प्राप्त करेगा।
2. शिक्षार्थी स्नातक डिप्लोमा पाठ्यक्रम के अन्तर्गत वैकल्पिक/सहायक विषय के रूप में हिन्दी भाषा के स्वरूप का ज्ञान एवं व्यावहारिक प्रशिक्षण प्राप्त करेगा। विकल्प के रूप में यह चयन प्रतियोगी परीक्षाओं में सहायक एवं उपयोगी सिद्ध होगा।
3. शिक्षार्थी डिप्लोमा वर्ष में एवं कौशल संवर्द्धन पाठ्यक्रम के रूप में हिन्दी पत्रकारिता का ज्ञान एवं व्यावहारिक प्रशिक्षण प्राप्त करेगा।
4. शिक्षा में बाधा हो जाने की स्थिति में शिक्षार्थी हिन्दी तथा अन्य विषयों के साथ स्नातक डिप्लोमा प्राप्त करेगा, जिसका लाभ उसे आजीविका प्राप्त करने में प्राप्त होगा।

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<p>Programme specific outcomes (PSOs):</p> <p><i>UG III Year / Bachelor of ARTS with Hindi</i></p>	
PSO 1	1. शिक्षार्थी स्नातक उपाधि वर्ष पाठ्यक्रम के अन्तर्गत मुख्य विषय के रूप में हिन्दी की द्विवेदीयुगीन, छायावादी तथा छायावादोत्तर एवं समकालीन कविता, हिन्दी निबन्ध एवं लोक-साहित्य का आधारभूत ज्ञान प्राप्त करेगा।
PSO2	2. शिक्षार्थी के पास उपधि वर्ष में विगत वर्षों के अध्ययन से हिन्दी साहित्य के विविध पक्षों तथा उनके अकादमिक स्वरूप ज्ञान होगा, उसे हिन्दी भाषा के व्याकरण एवं स्वरूप का ज्ञान होगा, उसे कार्यालयी हिन्दी तथा पत्रकारिता जैसे रोजगारपरक विषयों का ज्ञान होगा और वह आगे की शिक्षा एवं शोध के लिए भाषा तथा साहित्य के उच्चस्तरीय आधारभूत ज्ञान व कुशलता के साथ उपाधि प्राप्त करेगा।

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Year wise Structure of UG / BA (CORE / ELECTIVE COURSES & PROJECTS)											
Subject:Hindi											Total Credits /hrs/
Course/ Entry –Exit Levels	Year	Sem.	Paper I Major Course	Credit T	Paper 2 Minor Elective	Credit	Paper 3 Vocational/Skill Development Course	Credit s /hrs	Research Project	Credit/	
<i>Certificate Course In Arts-HINDI</i>	I	I	प्राचीन एवं भक्तिकालीन काव्य	6	हिन्दी भाषा : व्याकरण	4	गढ़वाली भाषा एवं संस्कृति	3			13
		II	हिन्दी कथा साहित्य	6			प्रयोजनमूलक हिन्दी	3			09
<i>Diploma in Arts HINDI</i>	II	III	रीतिकालीन काव्य	6	हिन्दी भाषा : स्वरूप	4	कार्यालयी हिन्दी	3			13
		IV	नाटक एवं स्मारक साहित्य	6			रचनात्मक लेखन	3			09
<i>Bachelor of Arts HINDI</i>	III	V	1. द्विवेदीयुगीन एवं छायावादी काव्य	5					हिन्दी की वैज्ञानिक एवं तकनीकी शब्दावली	4	14
		V	2. छायावादोत्तर हिन्दी कविता	5							

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		VI	1. हिन्दी निबंध	5					साहित्यिक विचारधाराओं का अध्ययन : भक्ति- आन्दोलन, छायावाद, प्रगतिवाद, राष्ट्रवाद, अस्तित्ववाद, नारीवाद, दलित विमर्श, आधुनिकताबोध उत्तर आधुनिकता में से कोई एक	04	14
		VI	2. लोकसाहित्य	5							
Internal Assessment & External Assessment											
Internal Assessment						Marks	External Assessment				Marks
नियतकार्य, समूहचर्चा, कक्षा सेमिनार, मौखिकी आदि						25	लिखित परीक्षा				75

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CERTIFICATE COURSE IN UG

Programme: Certificate Course in ARTS-Hindi

Course Code:

Course Title: प्राचीन एवं भक्तिकालीन काव्य

Subject: Hindi

Year: I/Semester: I/Paper: I

Course Outcomes:

1. शिक्षार्थी हिन्दी साहित्य के आरम्भिक काल की कविता का ऐतिहासिक एवं सैद्धांतिक ज्ञान सोदाहरण प्राप्त करता है।
2. शिक्षार्थी चंदबरदाई, कबीर, जायसी, सूर और तुलसी के कृतित्व को समझने के क्रम में महाकाव्य विधा एवं मुक्तक विधा का शिल्पगत परिचय व ज्ञान पाता है।
3. शिक्षार्थी आदिकालीन वीरकाव्य, निर्गुण काव्यधारा व संत साहित्य का सैद्धांतिक परिचय व ज्ञान सोदाहरण पाता है।
4. शिक्षार्थी सूफी काव्यधारा, सगुण काव्यधारा तथा इनके अंतर्गत रामभक्ति और कृष्णभक्ति के महत्वपूर्ण काव्य का सैद्धांतिक परिचय व ज्ञान सोदाहरण प्राप्त करता है।

Credit: 6

Maximum Marks: 25(Internal)+75(external)=100

Core Compulsory

Minimum Passing Marks 33

Total No. of Lectures-Tutorials-Practical(in hours per week): 6-0-0

Unit	Topic	No. Of Lecture.
I	प्राचीन हिन्दी काव्य : परिचय एवं इतिहास	10
II	भक्तिकालीन हिन्दी काव्य : भक्ति आन्दोलन, प्रमुख सिद्धांत, निर्गुण काव्य-ज्ञान मार्ग और प्रेम-मार्ग, सगुण काव्य-रामभक्ति, कृष्णभक्ति, सूफी काव्य	10
III	चंदबरदाई और उनका काव्य : व्याख्या के लिए पृथ्वीराज रासो के पद्मावती समय से चयनित अंश ('पूरब दिसि गढ़ गढ़नपति' से 'मिलहि राज प्रथिराज जिय' तक / छन्द संख्या 1-10 / (kavitakosh.org)	10
IV	कबीर और उनका काव्य : व्याख्या के लिए साखी संख्या गुरुदेव कौ अंग-3,6,8; सुमिरन कौ अंग-8,9,10; विरह कौ अंग-1,5,8; ज्ञान विरह कौ अंग-3,4,5; परचा कौ अंग-3,4,7; रस कौ अंग-1,4,7; लांबी कौ अंग-1,3,4; निहकमी पतिव्रता कौ अंग-3,5,14; चितावनी कौ अंग-16,25,34) पद संख्या-16,40,43। (कबीर ग्रंथावली, सम्पादक-डा० श्यामसुन्दर दास)	10
V	जायसी और उनका काव्य : व्याख्या के लिए 'मानसरोदक खण्ड' से कड़वक संख्या 4:1-4:8 (जायसी ग्रंथावली, सम्पादक-आचार्य रामचन्द्र शुक्ल)	10
VI	सूरदास और उनका काव्य : व्याख्या के लिए विनय के पद-(1,2,23,24,25,39,44,45,46,52) सूरसागर सार, सम्पादक- डॉ० धीरेन्द्र वर्मा, साहित्य भवन, इलाहाबाद। भ्रमर गीत-(6,7,11,13,23,24,25,28,34,52,64) आचार्य रामचन्द्र शुक्ल ग्रंथावली, भाग 5, ना० प्रचारिणी सभा, काशी	10
VII	तुलसीदास और उनका काव्य : व्याख्या के लिए रामचरितमानस के अयोध्याकाण्ड से दोहा संख्या 125 से 131 तथा विनय पत्रिका से पद-संख्या - 88,91,105, 111,115,162,172, 174,198,245,	10
	ClassRoom Lectures, Tutorials, Assignments, ClassRoom Seminar, Group Discussion etc.	70+20=90

Suggested Readings :

- 1-प्राचीन एवं भक्तिकालीन काव्य - सम्पादक: डॉ० मानवेन्द्र पाठक, अंकित प्रकाशन, हल्द्वानी (प्रस्तावित पाठ्यपुस्तक-व्याख्या हेतु संकलित काव्य)
- 2-कबीर: एक नयी दृष्टि-डॉ० रघुवंश, लोकभारती, 15-एक महात्मा गाँधी मार्ग, इलाहाबाद,
- 3-जायसी-एक नयी दृष्टि डॉ० रघुवंश लोकभारती इलाहाबाद,
- 4-जायसीतर हिन्दी सूफी कवियों की बिम्बयोजना-डॉ० मुदुला जुगरान, सरिता बुक डिपो, नई दिल्ली।
- 5-जायसी-विजयदेव नारायण साही हिन्दुस्तानी अकादमी, इलाहाबाद

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CERTIFICATE COURSE IN UG		
Programme: Certificate Course in ARTS – Hindi		Year: I Semester: I
Subject: Hindi		
Course Code:	Course Title: हिन्दी भाषा : व्याकरण	
Course Outcomes:		
1. शिक्षार्थी हिन्दी भाषा के व्यावहारिक प्रयोजनार्थ वर्तनी एवं शब्दों के मानक स्वरूप का ज्ञान व प्रशिक्षण पाता है। 2. शिक्षार्थी व्यावहारिक प्रयोजनार्थ शुद्ध लेखन हेतु हिन्दी की वाक्य-संरचना एवं व्याकरण का ज्ञान व प्रशिक्षण पाता है। 3. शिक्षार्थी को व्यावहारिक-व्यावसायिक प्रयोजनार्थ हिन्दी भाषा की अत्यन्त समृद्ध शब्द सम्पदा तथा उसकी समाहार- समायोजन शक्ति का ज्ञान होता है। 4. शिक्षार्थी कार्यालयी प्रयोजनार्थ पारिभाषिक – प्रतिपारिभाषिक शब्दों के प्रयोग का ज्ञान व प्रशिक्षण पाता है।		
Credits: 4		Minor Elective Paper
Max. Marks: 25 (Internal) + 75 (External) = 100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	वर्ण विचार : - हिंदी वर्णमाला: स्वर और व्यंजन, वर्णों का उच्चारण और वर्गीकरण	07
Unit II	हिंदी-वर्तनी: हिंदी वर्तनी का मानकीकरण, शब्द और वर्तनी-विश्लेषण, वर्तनी विषयक अशुद्धियाँ और उनका शोधन।	07
Unit III	शब्द विचार :- व्याकरण के आधार पर शब्दों का वर्गीकरण(विकारी और अविकारी शब्द)	07

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Unit IV	हिंदी शब्द रचना- समास, संधि, उपसर्ग, प्रत्यय, शब्द की परिभाषा, रचना के आधार पर शब्दभेद- रूढ़, यौगिक, योगरूढ़; इतिहास के आधार पर- तत्सम्, तद्भव, देशी, देशज, विदेशी और संकर शब्द। अर्थ के आधार पर पर्यायवाची, विलोम और अनेकार्थी शब्द, वाक्यांश के लिए एक शब्द।	07
Unit V	पारिभाषिक शब्द: तात्पर्य, परिभाषा। शब्दों के हिंदी प्रतिपारिभाषिक शब्द, हिंदी पारिभाषिक शब्दों के अंग्रेजी प्रतिपारिभाषिक।	07
Unit VI	विराम चिह्न और उनका प्रयोग।	07
Unit VII	वाक्य रचना, वाक्य-भेद, वाक्य-विश्लेषण, वाक्य-संश्लेषण, वाक्य-शुद्धि।	07
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc	49 11
		Total-60

Suggested Reading:

1. हिंदी व्याकरण की सरल पद्धति, बट्टीनाथ कपूर वाराणसी : विश्वविद्यालय प्रकाशन चौक।
2. हिंदी व्याकरण, कामता प्रसाद गुरु इलाहाबाद : लोकभारती प्रकाशन।
3. हिंदी व्याकरण विमर्श, तेजपाल चौधरी, नई दिल्ली : वाणी प्रकाशन।
4. हिंदी भाषा: कल आज कल, पूर्णचन्द्र टंडन, मुकेश अग्रवाल, किताबघर : नई दिल्ली।
5. मानक हिंदी व्याकरण और रचना, हरिवंश तरुण, प्रकाशन संस्थान : नई दिल्ली।
6. हिंदी भाषा की संरचना, भोलानाथ तिवारी, नई दिल्ली : वाणी प्रकाशन।
7. हिंदी भाषा का आधुनिकीकरण, कैलाशचन्द्र भाटिया, तक्षशिला प्रकाशन: नई दिल्ली।
8. अच्छी हिंदी, रामचन्द्र वर्मा, इलाहाबाद : लोकभारती प्रकाशन।
9. हिंदी शब्दानुशासन, किशोरीदास वाजपेयी, वाराणसी : नागरी प्रचारिणी सभा।
10. हिंदी भाषा : संरचना के विविध आयाम, रवीन्द्रनाथ श्रीवास्तव, नई दिल्ली : राधाकृष्ण प्रकाशन।

This course can be opted as an elective by the students of following subjects:

अन्य सभी विभाग एवं संकाय

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Skill Development Course

Programme: Certificate course in Arts- Hindi Year -I Semester -I Paper-III

Subject : Hindi

Credit: 3

Maximum Marks: 25(Internal) + 75 (External) = 100 Min. Passing Marks: 33

Course Title: गढ़वाली भाषा एवं संस्कृति

Course Outcomes:

1. शिक्षार्थी भाषा और संस्कृति का ज्ञान अर्जित करता है।
2. शिक्षार्थी स्थानीय परंपराओं और रिवाजों से परिचित होता है।
3. शिक्षार्थी गढ़वाली भाषा के उद्भव व उसके विविध रूपों का ज्ञान प्राप्त करता है।
4. शिक्षार्थी गढ़वाली संस्कृति के विविध पक्षों से परिचय होता है।
5. शिक्षार्थी का गढ़वाल में रोजगार हेतु कौशल संवर्धन होता है।

Units	Topic	No. of Lectures
I	गढ़वाली भाषा का परिचय, विकास, विविध रूप	10
II	गढ़वाल: भौगोलिक एवं ऐतिहासिक पृष्ठभूमि	09
III	गढ़वाली लोकगीत, लोकगाथा, लोकसंगीत, लोकनृत्य आदि	09
IV	सांस्कृतिक क्षरण की समस्या एवं संरक्षण के उपाय	09
	Class Room Lectures	37
	Tutorials] Assignments, Seminars, Group Discussion	08
		Total= 45

Suggested Reading:

1. हिमोत्कर्ष – डॉ० शिवानंद नौटियाल
2. हिमांचल दर्शन – डॉ० शिवानंद नौटियाल
3. उत्तराखण्ड : संस्कृति , साहित्य और पर्यटन – डॉ० हरिमोहन एवं डॉ० शिवप्रसाद नैथानी
4. भारतीय संस्कृति का संदर्भ– मध्य हिमालय – डॉ० गोविन्द चातक
5. गढ़वाली लोकगाथाएं– डॉ० गोविन्द चातक
6. गढ़वाली लोकगीत विविधा–डॉ० गोविन्द चातक

This course can be opted as an elective by the students of following subjects:
अन्य सभी विभाग एवं संकाय

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CERTIFICATE COURSE IN UG		
Programme: Certificate Course in ARTS- Hindi		Year: I Semester: II Paper- I
Subject: Hindi		
Course Code:	Course Title: हिंदी कथा-साहित्य	
Course Outcomes:		
1. शिक्षार्थी हिन्दी की कथा परम्परा का परिचय व ज्ञान प्राप्त करता है। 2. शिक्षार्थी हिन्दी उपन्यास के उद्भव और विकास का ज्ञान प्राप्त करता है। 3. शिक्षार्थी हिन्दी कहानी के उद्भव और विकास का ज्ञान प्राप्त करता है। 4. शिक्षार्थी पाठ्यक्रम में सम्मिलित उपन्यास के अध्ययन से उपन्यास विधा का शिल्पगत ज्ञान प्राप्त करता है। 5. शिक्षार्थी पाठ्यक्रम में सम्मिलित कहानियों के आधार पर कहानी विधा का शिल्पगत ज्ञान प्राप्त करता है। 6. शिक्षार्थी कथा-साहित्य की समीक्षा का ज्ञान प्राप्त करता है।		
Credits: 6		Major Core Compulsory
Max. Marks: 25 (Internal) + 75 (External) = 100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0		
Unit	Topic	No. of Lectures
Unit I	हिन्दी में गद्य का आरम्भ : आधुनिककाल	10
Unit II	हिन्दी उपन्यास का उद्भव एवं विकास	10
Unit III	हिन्दी कहानी का उद्भव एवं विकास	10

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Unit IV	हिन्दी उपन्यास का शिल्प	10
Unit V	हिन्दी कहानी का शिल्प	10
Unit VI	कगार की आग: हिमांशु जोशी	10
Unit VII	प्रतिनिधि हिन्दी कहानियाँ : उसने कहा था – चन्द्रधर शर्मा गुलेरी, नमक का दरोगा – प्रेमचंद, आकाशदीप – जयशंकर प्रसाद, पाजेब- जैनेन्द्र कुमार, परदा -यशपाल, दोपहर का भोजन – अमरकान्त, वापसी – उषा प्रियंवदा	10
	Class Room Lectures	70
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	20
		Total-90

Suggested Reading:

1. कहानी सप्तक - संपादक: प्रो. नीरजा टंडन, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित कहानियाँ)
2. कहानी: नई कहानी- डॉ. नामवर सिंह, लोकभारती, 15-ए महात्मा गाँधी मार्ग, इलाहाबाद,
3. हिंदी कहानी: पहचान और परख- इंद्रनाथ मदान, राजकमल प्रकाशन, नई दिल्ली
4. आधुनिकता और हिन्दी उपन्यास – इंद्रनाथ मदान, राजकमल प्रकाशन, नई दिल्ली
5. कहानी: संवाद का तीसरा आयाम- बटरोही, नेशनल पब्लिशिंग हाउस, नई दिल्ली,
6. कहानी की रचना-प्रक्रिया – परमानंद श्रीवास्तव, लोकभारती प्रकाशन, 15-ए महात्मा गाँधी मार्ग, इलाहाबाद
7. समकालीन हिंदी कहानी- गंगाप्रसाद विमल (सं.), मैकमिलन, दिल्ली।
8. कगार की आग: हिमांशु जोशी

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Skill Development Course

Programme: Certificate course in Arts- Hindi Year -I Semester -II Paper-II

Subject : Hindi

Credit: 3

Maximum Marks: 25(Internal) + 75 (External) = 100 Min. Passing Marks: 33

Course Title: प्रयोजनमूलक हिन्दी

Course Outcomes:

1. शिक्षार्थी प्रयोजनमूलक हिन्दी का ज्ञान अर्जित करता है।
2. शिक्षार्थी भाषा के विविध रूपों से परिचित होता है।
3. शिक्षार्थी श्रव्य एवं दृश्य माध्यमों का ज्ञान प्राप्त करता है।
4. शिक्षार्थी पत्रकारिता के विविध पक्षों से परिचय होता है।
5. शिक्षार्थी का रोजगार हेतु कौशल संवर्धन होता है।
- 6.

Units	Topic	No. of Lectures
I	भाषा की संकल्पना (मौखिक, लिखित, सामान्य, औपचारिक)। भाषा के विविध रूप प्रयोजन मूलक हिन्दी की संकल्पना और उसके विविध आयाम	10
II	श्रव्य एवं दृश्य माध्यम: परिचय एवं कार्यविधि। संचार माध्यमों की प्रकृति एवं चरित्र	09
III	पत्रकारिता का स्वरूप एवं विभिन्न प्रकार। हिन्दी पत्रकारिता का संक्षिप्त इतिहास	09
IV	कार्यालय हिन्दी और अनुवाद। भाषान्तरण-प्रविधि,	09
	Class Room Lectures	37
	Tutorials] Assignments, Seminars, Group Discussion	08
		Total= 45

सन्दर्भग्रन्थ :-

- 1- प्रयोजनमूलक व्यावहारिक हिन्दी - ओमप्रकाश सिंहल
- 2- व्यावहारिक हिन्दी संरचना और अभ्यास - बालगोविन्द मिश्र
- 3- प्रयोजनमूलक हिन्दी - माधव सोनटक्के
- 4- प्रारूपण शासकीय पत्राचार और टिप्पण लेखन विधि - राजेन्द्र प्रसाद श्रीवास्तव
- 5- प्रयोजनमूलक हिन्दी - डॉ० रामप्रकाश
- 6- पत्रकारिता संदर्भ ज्ञानकोश - याकूब अली खान

DIPLOMA COURSE IN UG		
Programme: <i>Diploma Course in ARTS- Hindi</i>		Year: II Semester: III Paper-I
Subject: Hindi		
Course Code:	Course Title: रीतिकालीन काव्य	
Course Outcomes:		
1. शिक्षार्थी हिन्दी साहित्य के तीसरे काल रीतिकाल के विषय में ऐतिहासिक एवं सैद्धान्तिक ज्ञान प्राप्त करता है।		
2. शिक्षार्थी पाठ्यक्रम में सम्मिलित कविताओं के आधार पर रीतिकालीन कविता की कला और शिल्प का ज्ञान प्राप्त करता है।		
3. शिक्षार्थी रीतिकालीन काव्य की प्रवृत्तियों का ज्ञान प्राप्त करता है।		
4. शिक्षार्थी प्रमुख रीतिकालीन कवियों से परिचय प्राप्त करता है।		
Credits: 6		Major Core Compulsory
Max. Marks: 25 (Internal) + 75 (External) =100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0		
Unit	Topic	No. of Lectures
Unit I	रीतिकाल : परिचय व इतिहास	05
Unit II	रीतिकालीन काव्य की प्रवृत्तियाँ	05
Unit III	केशवदास— बानी जगरानी की उदारता बखानी जाए....., पूरण पुराण अरु पुरुष पुराण परि..., पुनि आए सरयू सरित तीर....., तुम अमल अनंत अनादि देव....., सीता कैसोदास नींद भूख प्यास उपहास त्रास....., मातु सबै मिलिबे कह आई....., फल फूलन पूरे तरुवर रुरे....., सरिता एक केसव सोभ रई....., अवलोकत हों जबहीं तबहीं....., राम साँचो एक नाम हरि लीन्ह सब दुख हरि...।	20
Unit IV	बिहारी सतसई—1. मेरी भव बाधा हरौ....., और ओप कनीनिकनु गनी घनी सरताज....., जुबति जोन्ह में मिलि गई....., मोर मुकुट कटि काछनी....., मोहन मूरति स्याम की....., तजि तीरथ हरि राधिका....., सनि कज्जल चख झख लगन....., हौं रीझि लखि रीझिहौं छबिहि छबीले लाल....., जोग जुगति सिखए सबै , पिय बिछुरन को दुसह दुख....., झीने पट में झुलमुली , डारे ठोड़ी- गाड़, नैन बटोही मारी....., कीनै हूँ कोटिक जतन , लग्यौ सुमनु है है सफलु....., अजौ तरयौना ही रह्यौ....., सघन कुंज छाया सुखद....., सखि सोहत गोपाल कै..	10

जहाँ जहाँ ठाड़ौ लख्यौ.....चिरजीवी जोरी जुरै....., करौ कुबतु जगु कुटिलता...., अरुन सरोरुह कर चरन दृग खंजन मुख चंद... जनमु जलधि पानिप बिमलु....., समै .समै सुन्दर सबै रुपु. कुरुपु न कोई....., करौ कुबतु जग कुटिलता तजौ न दीनदयाल...., नहीं पराग नहीं मधुर मधु...।	
Unit V	देव- डारि दुम-पलना बिछौना नव- पल्लव के....., फटिक सिलानी सौ सुधार्यौ सुधा मंदिर.....झहरि झहरि झीनी बूँद है परति मानो...., दूलह को देखत हिए मैं हूलफूल है...., माखन सो मन दूध सो जोबन.....प्रेम समुद्र पर्यो गहिरे अभिमान के फेन रह्यो गहि रे मन...., प्रेम चरचा है अरचा है कुल नेमन रचा है....., माथे महावर को देखि महावर पाय सुदार दुरीये....., मंद मही मोहक मधुर सुनियत...., मंद्र हास चंद्रिका को मंदिर बदन चंद्र...., मूरति जो मनमोहन की मनमोहनी के थिर है थिरकी....., बारिध बिरह बड़ी बारिधि की बड़वागि....., कोयन जोति चहूँ चपला जबतें कुबर कान्ह रावरी कलानिधान....., पायनि नूपुर मंजु बजे, कटि किंकिनि की धुनि की मधुराई....., कुंदन से अंग नवयौवन सुरंग उतै....., जागत. जागत खीन भई....., धार मैं धाय धँसी निरधार है जाय फँसी उकसी न अँधेरी....., जाकै न काम न क्रोध विरोध न....., राधे कही है कि ते छमियो....।	10
Unit VI	घनानंद-वहै मुस्क्यानि, वहै मृदु बतरानि...., लाजनि लपेटी चितवनि भेद भाय भरि....., झलकै अति सुन्दर आनन गौर....., छवि को सदन मोद मंडित मदन....., हीन भए जन मीन अधीन...., क्यौ हँसि हेरि हरे हियरा....., रावरे रूप की रीति अनूप....., घनआनन्द जीवन मूल सुजान की....., आसा गुन बाँधि कै....., चातिक चुहुल चहुँ ओर....., पाति मधि छाति. छत लिखि न लिखाए....., कंत रमै उर अंतर में....., ए रे वीर पौन...., पीरी परि देह छीनी...., अति सूधे सनेह को मारग है...।	10
Unit VII	भूषण- एक समै सजि कै सब सैन सिकार को आलमगीर सिधाए....., मिलतहिं कुरुख चकत्ता को निरखि कीन्हो....., इंद्र जिमि जंभ पर...., साजि चतुरंग सैन...., सबन के ऊपर ही ठाड़ो रहिबै के जोग....., गरुड़ को दावा जैसे नाग के समूह पर...., बाने फहराने घहराने घंटा गजन के...., लाजनि लपेटी चितवनि , ऊँचे घोर मंदर के अंदर रहनवारी....., त्रिभुवन में परसिद्ध एक अरि बल वह खंडिय.... आसा गुन बाँधि कै।	10
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc	70 20 Total-90

Suggested Reading:

1. रीतिकालीन काव्य- संपादक: प्रो. मानवेन्द्र पाठक, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित काव्य)
2. काव्य प्रदीप - राम बहोरी शुक्ल, लोकभारती प्रकाशन, इलाहाबाद
3. रीतिकाव्य - नंदकिशोर नवल, राजकमल प्रकाशन, नई दिल्ली।
4. मध्यकालीन बोध का स्वरूप- डॉ. हजारी प्रसाद द्विवेदी, राजकमल प्रकाशन, नई दिल्ली।
5. मध्यकालीन काव्यसाधना- डॉ. वासुदेव सिंह, संजय बुक डिपो, वाराणसी।
6. रीतिकालीन कवियों की प्रेम व्यंजना - बच्चन सिंह, लोकभारती प्रकाशन, इलाहाबाद

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DIPLOMA COURSE IN UG		
Programme: <i>Diploma Course in ARTS- Hindi</i>		Year: II Semester:III Paper-II
Subject: Hindi		
Course Code:	Course Title: हिन्दी भाषा : स्वरूप	
Course Outcomes:		
1. शिक्षार्थी को हिन्दी भाषा के विस्तृत व समृद्ध इतिहास व विकास का ज्ञान होता है।		
2. शिक्षार्थी को हिन्दी की शैलियों यथा हिन्दी, हिन्दुस्तानी व उर्दू का ज्ञान होता है, जो भाषा के व्यावहारिक प्रयोग में काम आता है।		
3. शिक्षार्थी को हिन्दी की बोलियों का ज्ञान होता है, जिसके आधार पर वह अपने भाषा संस्कारों को समृद्ध करता है तथा सम्पर्क भाषा के रूप में हिन्दी का प्रयोग अधिक कुशलता के साथ कर पाता है।		
4. शिक्षार्थी को राजभाषा के रूप में हिन्दी की संवैधानिक स्थिति का ज्ञान होता है, जिसकी आवश्यकता उसे सरकारी सेवाओं में होती है।		
5. शिक्षार्थी विभिन्न व्यावहारिक व व्यावसायिक प्रयोजनों हेतु हिन्दी के मानकीकृत रूप का ज्ञान व प्रशिक्षण पाता है।		
6. शिक्षार्थी कम्प्यूटर व इंटरनेट की तकनीक में हिन्दी के प्रयोग का आरंभिक ज्ञान व प्रशिक्षण पाता है।		
Credits: 4		Elective Paper
Max. Marks: 25 (Internal) + 75 (External) =100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		

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Unit	Topic	No. of Lectures
Unit I	हिंदी भाषा का उद्भव और विकास ।	07
Unit II	हिंदी की शैलियाँ- हिंदी, हिंदुस्तानी, उर्दू ।	07
Unit III	हिंदी की उपभाषाएँ एवं बोलियाँ- (1) पश्चिमी हिंदी (2) पूर्वी हिंदी (3) राजस्थानी (4) बिहारी (5) पहाड़ी एवं उनकी बोलियाँ ।	07
Unit IV	राजभाषा, राष्ट्रभाषा, मानक भाषा, सम्पर्क भाषा,	10
Unit V	हिन्दी और न्यू मीडिया ।	05
Unit VI	देवनागरी लिपि एवं अंक ।	07
Unit VII	निबंध लेखन ।	06
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc	49 11 Total-60

Suggested Reading:

1. डॉ. केशवदत्त खाली- हिंदी भाषा: प्रथम भाग, हिंदी भाषा: द्वितीय भाग, हिंदी भाषा शिक्षण, मानक हिंदी ज्ञान, हिंदी भाषा और व्याकरण, सामान्य हिंदी, हिंदी भाषा का इतिहास, देवनागरी लिपि और अंक, हिंदी भाषा और नागरी लिपि ।
2. डॉ. धीरेन्द्र वर्मा- हिंदी भाषा का इतिहास ।
3. डॉ. भोलानाथ तिवारी- हिंदी भाषा ।
4. डॉ. देवेन्द्रनाथ शर्मा - हिंदी भाषा का विकास ।
5. डॉ. कैलाशचंद्र भाटिया- प्रशासन में राजभाषा का स्वरूप और विकास ।
6. डॉ. पूरनचंद्र टण्डन- व्यावहारिक हिंदी ।

This course can be opted as an elective by the students of following subjects:

अन्य सभी विभाग एवं संकाय

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Programme: Diploma in Arts- Hindi Year -II Semester -III Paper-III
Subject : Hindi Credit: 3

Maximum Marks: 25(Internal) + 75 (External) = 100 Min. Passing Marks: 33

Course Title: कार्यालयी हिन्दी

Course Outcomes:

1. शिक्षार्थी कार्यालयी हिन्दी से अभिप्राय क्षेत्र एवं उद्देश्य, सामान्य एवं कार्यालयी हिन्दी में अन्तः सम्बन्ध आदि से परिचित होता है।
2. शिक्षार्थी कार्यालयी हिन्दी की पारिभाषिक शब्दावली से परिचित होता है।
3. शिक्षार्थी कार्यालय से निर्गत पत्र (ज्ञापन, परिपत्र, आदेश, निविदा आदि)का ज्ञान प्राप्त करता है।
4. शिक्षार्थी का प्रारूपण, संक्षेपण, पल्लवन, टिप्पण आदि विविध पक्षों से परिचय होता है।
5. शिक्षार्थी का कार्यालयों में रोजगार हेतु कौशल संवर्धन होता है।

Units	Topic	No. of Lectures
I	कार्यालयी हिन्दी का स्वरूप, अभिप्राय, उद्देश्य	10
II	कार्यालयी हिन्दी की पारिभाषिक शब्दावली	09
III	कार्यालयी पत्राचार के विविध रूप	09
IV	टिप्पण, प्रारूपण एवं संक्षेपण	09
	Class Room Lectures	37
	Tutorials] Assignments, Seminars, Group Discussion	08
		Total= 45

Suggested Reading:

- 1- प्रयोजनमूलक व्यावहारिक हिन्दी - ओमप्रकाश सिंहल
- 2- प्रयोजनमूलक हिन्दी - माधव सोनटक्के
- 3- प्रयोजनमूलक हिन्दी: सिद्धान्त और प्रयोग - दंगल झाल्टे
- 4- प्रयोजनमूलक हिन्दी की नई भूमिका - कैलाशनाथ पाण्डेय
- 5- हिन्दी की विकास यात्रा - डॉ० रामप्रकाश
- 6- प्रशासनिक पत्राचार - ठाकुरदास

This course can be opted as an elective by the students of following subjects:

अन्य सभी विभाग एवं संकाय

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DIPLOMA COURSE IN UG			
Programme: <i>Diploma Course in ARTS- Hindi</i>		Year: II	Semester:IV Paper-I
Subject: Hindi			
Course Code:	Course Title: नाटक एवं स्मारक साहित्य		
Course Outcomes:			
1. . शिक्षार्थी नाटक की भारतीय एवं पाश्चात्य परम्पराओं का ज्ञान प्राप्त करता है। 2. शिक्षार्थी नाटक के स्वरूप एवं प्रकारों का ज्ञान प्राप्त करता है। 3. शिक्षार्थी पाठ्यक्रम में सम्मिलित नाटक के अध्ययन के आधार पर नाट्यसमीक्षा का ज्ञान प्राप्त करता है। 4. शिक्षार्थी को हिन्दी में स्मारक साहित्य लेखन परम्परा का ज्ञान होता है। 5. शिक्षार्थी को स्मारक साहित्य के स्वरूप व उसकी विधाओं का ज्ञान प्राप्त होता है। 6. शिक्षार्थी को महान साहित्यकारों के जीवन से जुड़ी घटनाओं को पढ़ने से उच्च जीवन मूल्यों की शिक्षा व प्रेरणा प्राप्त होती है।			
Credits: 6		Major Core Compulsory	
Max. Marks: 25 (Internal) + 75 (External) =100		Min. Passing Marks: 33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0			
Unit	Topic		No. of Lectures
Unit I	नाटक : विधागत स्वरूप, उद्भव एवं विकास		10
Unit II	जयशंकर प्रसाद कृत ध्रुवस्वामिनी		10

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Unit III	स्मारक साहित्य : अर्थ एवं स्वरूप, उद्भव एवं विकास	10
Unit IV	संस्मरण : तुम्हारी स्मृति – माखनलाल चतुर्वेदी, स्मरण का स्मृतिकार (रायकृष्ण दास) – अज्ञेय, दादा स्वर्गीय पं. बालकृष्ण शर्मा 'नवीन' – डॉ. नगेन्द्र, निराला भाई – महादेवी वर्मा रेखाचित्र : महाकवि जयशंकर प्रसाद – शिवपूजन सहाय, मकदूम बख्श – सेठ गोविन्ददास, एक कुत्ता और एक मैना – हजारीप्रसाद द्विवेदी, ये हैं प्रोफेसर शशांक – विष्णुकान्त शास्त्री	10
Unit V	जीवनी एवं आत्मकथा	10
Unit VI	यात्रावृत्त एवं रिपोर्टाज	10
Unit VII	स्मारक साहित्य की अन्य विधाएँ	10
	Class Room Lectures	70
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	20
		Total-90

Suggested Reading:

1. स्मरण वीथिका – प्रो. निर्मला डैला बोरा, देवभूमि प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित संस्मरण एवं रेखाचित्र)
2. प्रसाद के नाटक: स्वरूप और संरचना- डॉ. गोविन्द चातक, तक्षशिला प्रकाशन, 23/4762, अंसारी रोड, दरियागंज, दिल्ली।
3. हिंदी स्मारक साहित्य- डॉ. केशवदत्त रुवाली एवं डॉ. जगतसिंह बिष्ट, तारामण्डल, अलीगढ़।
4. स्मारक साहित्य और उसकी विधाएँ- डॉ. निर्मला डैला एवं डॉ. रेखा डैला, ग्रंथायन, अलीगढ़।

Programme: Diploma in Arts- Hindi Year -II **Skill Development Course**
Subject : Hindi Semester -IV Paper-II
Credit: 3

Maximum Marks: 25(Internal) + 75 (External) = 100 Min. Passing Marks: 33

Course Title: रचनात्मक लेखन

Course Outcomes:

1. शिक्षार्थी रचनात्मक लेखन से परिचित होता है।
2. शिक्षार्थी विविध अभिव्यक्ति क्षेत्र का ज्ञान प्राप्त करता है।
3. शिक्षार्थी का लेखन के विविध रूपों से परिचय होता है।
4. शिक्षार्थी प्रिंटमाध्यम के विविध रूपों से परिचित होता है।
5. शिक्षार्थी का रोजगार हेतु कौशल संवर्धन होता है।

Units	Topic	No. of Lectures
I	रचनात्मक लेखन अवधारणा एवं स्वरूप, भाव एवं विचार की रचना में रूपान्तरण की प्रक्रिया	10
II	विविध अभिव्यक्ति क्षेत्र: साहित्य, पत्रकारिता, विज्ञापन, विविध गद्य अभिव्यक्तियाँ लेखन के विविध रूप –मौखिक, लिखित, गद्य-पद्य, कथानक, कलेवर, नाट्य-पाठ्य मुद्रित-इलेक्ट्रॉनिक आदि	09
III	सूचना तंत्र के लिए लेखन रेडियो, दूरदर्शन, फिल्म तथा टेलीविजन पटकथा लेखन	09
IV	प्रिंटमाध्यम: फीचर-लेखन, यात्रा वृत्तांत, साक्षात्कार, पुस्तक, समीक्षा।	09
	Class Room Lectures	37
	Tutorials] Assignments, Seminars, Group Discussion	08
		Total= 45

संदर्भग्रन्थ :-

- 1- साहित्य चिंतन: रचनात्मक आयात - रघुवंश
- 2- कविता से साक्षात्कार -मलयज
- 3- कविता-रचना-प्रक्रिया - कुमार विमल
- 4- सृजनशीलता और सौन्दर्यबोध - निशा अग्रवाल
- 5- उपन्यास की संरचना - गोपाल राय
- 6- रेडियो लेखन - मधुकर गंगाधर

This course can be opted as an elective by the students of following subjects :अन्य सभी विभाग एवं संकाय

DEGREE COURSE IN UG			
Programme: Degree Course in ARTS- Hindi			Year: III Semester: V
Subject: Hindi			Paper-I
Course Code:	Course Title: द्विवेदी युगीन एवं छायावादी काव्य		
Course Outcomes:			
1. शिक्षार्थी हिन्दी के द्विवेदी युग व नवजागरण काल के विषय में ऐतिहासिक व सैद्धान्तिक ज्ञान प्राप्त करता है। 2. शिक्षार्थी हिन्दी कविता के छायावाद युग का ऐतिहासिक व सैद्धान्तिक ज्ञान प्राप्त करता है। 3. शिक्षार्थी खड़ी बोली हिन्दी की आरम्भिक समर्थ काव्य-परम्परा का ज्ञान प्राप्त करता है। 4. शिक्षार्थी पाठ्यक्रम में सम्मिलित द्विवेदीयुगीन कविताओं के अध्ययन से तत्कालीन हिन्दी कविता के स्वरूप, महत्व तथा शिल्प का ज्ञान प्राप्त करता है। 5. शिक्षार्थी पाठ्यक्रम में सम्मिलित छायावादयुगीन कविताओं के अध्ययन से तत्कालीन हिन्दी कविता के स्वरूप, महत्व तथा शिल्प का ज्ञान प्राप्त करता है। 6. शिक्षार्थी आधुनिक कविता की समीक्षा का ज्ञान एवं प्रशिक्षण प्राप्त करता है।			
Credits: 5			
Max. Marks: 25 (Internal) + 75 (External) =100			Major Core Compulsory
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0			Min. Passing Marks: 33

Unit	Topic	No. of Lectures
Unit I	द्विवेदी युगीन काव्य : युगीन प्रवृत्तियाँ, महत्व और संक्षिप्त इतिहास, काव्यभाषा, काव्यशिल्प, काव्यालोचना	09
Unit II	छायावादी काव्य : युगीन प्रवृत्तियाँ, महत्व और संक्षिप्त इतिहास, काव्यभाषा, काव्यशिल्प और काव्यालोचना	08
Unit III	अयोध्यासिंह उपाध्याय हरिऔध (माँ की ममता, सच्चे देवते तथा साहसी)	08
Unit IV	मैथिलीशरण गुप्त (पंचवटी)	08
Unit V	जयशंकर प्रसाद (आँसू तथा गीत)	08
Unit VI	सुमित्रानंदन पंत (परिवर्तन तथा प्रथम रश्मि)	08
Unit VII	सूर्यकान्त त्रिपाठी निराला (वंदना, जुही की कली तथा वह तोड़ती पत्थर)	08
Unit VIII	महादेवी वर्मा (गीत - धीरे धीरे उतर क्षितिज से, बीन भी हूँ मैं, लाए कौन संदेश नए घन, कीर का प्रिय आज पिंजर खोल दो, हे चिर महान, सब बुझे दीपक जला लूँ)	08
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc	65 10 Total-75

Suggested Reading:

1. द्विवेदी युगीन एवं छायावादी काव्य- संपादक: प्रो. चन्द्रकला रावत, देवभूमि प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित कविताएँ)
2. छायावाद - नामवर सिंह, राजकमल प्रकाशन समूह, नई दिल्ली
3. छायावाद और रहस्यवाद- गंगाप्रसाद पाण्डेय, लोकभारती प्रकाशन, इलाहाबाद,
4. आधुनिक कविता यात्रा- रामस्वरूप चतुर्वेदी, लोकभारती प्रकाशन, इलाहाबाद,
5. निराला: मूल्यांकन- इन्द्रनाथ मदान, लोकभारती प्रकाशन, इलाहाबाद,
6. पंत की काव्यभाषा- कांता पंत, लोकभारती प्रकाशन, इलाहाबाद,
7. छायावाद की परिक्रमा- डॉ. श्यामकिशोर मिश्र, लोकभारती प्रकाशन, इलाहाबाद,

DEGREE COURSE IN UG		
Programme: Degree Course in ARTS- Hindi		Year: III Semester: V Paper-II
Subject: Hindi		
Course Code:	Course Title: छायावादोत्तर हिंदी कविता	
Course Outcomes:		
1. शिक्षार्थी छायावादोत्तरी कविता का ऐतिहासिक एवं सैद्धान्तिक ज्ञान प्राप्त करता है।		
4. शिक्षार्थी आधुनिक हिन्दी कविता में प्रगतिवाद का रचनात्मक व आलोचनात्मक ज्ञान प्राप्त करता है।		
5. शिक्षार्थी आधुनिक हिन्दी कविता में प्रयोगवाद का रचनात्मक व आलोचनात्मक ज्ञान प्राप्त करता है।		
6. शिक्षार्थी आधुनिक हिन्दी कविता में नयी कविता का रचनात्मक व आलोचनात्मक ज्ञान प्राप्त करता है।		
7. शिक्षार्थी आधुनिक हिन्दी कविता में समकालीन कविता का रचनात्मक व आलोचनात्मक ज्ञान प्राप्त करता है।		
Credits: 5		Major Core Compulsory
Max. Marks: 25 (Internal) + 75 (External) =100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0		
Unit	Topic	No. of Lectures
Unit I	प्रगतिवाद : विचार, काव्यप्रवृत्ति, विशेषताएँ, महत्व प्रमुख कवि	14

Unit II	प्रयोगवाद : विचार, काव्यप्रवृत्ति, विशेषताएँ, महत्व प्रमुख कवि	08
Unit III	नयी कविता : विचार, काव्यप्रवृत्ति, विशेषताएँ, महत्व प्रमुख कवि	08
Unit IV	समकालीन हिन्दी कविता : विविध विचार, काव्यप्रवृत्ति, विशेषताएँ, महत्व प्रमुख कवि	15
Unit V	कविताएँ एवं व्याख्या - 1 अज्ञेय (कलगी बाजरे की, यह दीप अकेला) 2. मुक्तिबोध (भूल-गलती, एक रंग का राग) 3. नागार्जुन (कालिदास, अकाल और उसके बाद) 4. शमशेर बहादुर सिंह (सूना-सूना पथ है उदास झरना, वह सलोना जिस्म) 5. कुँवर नारायण (नचिकेता) 6. भवानी प्रसाद मिश्र (कहीं नहीं बचे, गीत फ़रोश) 7. सर्वेश्वर दयाल सक्सेना (मैंने कब कहा, हम ले चलेंगे) 8. केदारनाथ सिंह (रचना की आधी रात, फ़र्क नहीं पड़ता) ।	20
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc	65 10 Total-75

Suggested Reading:

1. छायावादोत्तर हिंदी कविता- संपादक: प्रो. शिरीष कुमार मौर्य, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित कविताएँ)
2. नई कविताएँ: एक साक्ष्य- डॉ. रामस्वरूप चतुर्वेदी, लोकभारती प्रकाशन, इलाहाबाद,
3. नयी कविता: नये कवि- डॉ. विश्वम्भर मानव, लोकभारती, इलाहाबाद,
4. हिंदी के आधुनिक कवि- डॉ. द्वारिकाप्रसाद सक्सेना, विनोद पुस्तक मंदिर, आगरा,
5. आधुनिक साहित्य की प्रवृत्तियाँ – नामवर सिंह, लोकभारती प्रकाशन, इलाहाबाद,
6. छायावादोत्तर हिन्दी कविता के प्रतिमान – प्रो. निर्मला ढैला बोरा, आधारशिला प्रकाशन, हल्द्वानी
7. छायावाद की परिक्रमा- डॉ. श्यामकिशोर मिश्र, लोकभारती प्रकाशन, इलाहाबाद,

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mechanic

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DEGREE COURSE IN UG		
Programme: Degree Course in ARTS- Hindi		Year: III Semester: V Paper III- Project
Subject: Hindi		
Course Code:	Course Title: लघुशोध अध्ययन एवं कार्य – हिन्दी की वैज्ञानिक एवं तकनीकी शब्दावली	
Course Outcomes: शिक्षार्थी इस लघुशोधात्मक अध्ययन एवं कार्य के माध्यम से हिन्दी की वैज्ञानिक एवं तकनीकी शब्दावली का ज्ञान प्राप्त करता है। विज्ञान एवं तकनीकी के क्षेत्र में हिन्दी के प्रसार के लिए यह अध्ययन आवश्यक है।		
Credits: 4		Project
Max. Marks: 25 (Internal) + 75 (External) =100		Min. Passing Marks: 40
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	वैज्ञानिक एवं तकनीकी शब्दावली : परिभाषा एवं अर्थ। वैज्ञानिक एवं तकनीकी शब्दावली आयोग – स्थापना, इतिहास, उद्देश्य आदि	20
Unit II	वैज्ञानिक एवं तकनीकी शब्दावली : चयन एवं निर्माण, प्रक्रिया एवं महत्व	20
Unit III	वैज्ञानिक एवं तकनीकी शब्दावली : समस्याएं और समाधान	20
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc	Total-60

DEGREE COURSE IN UG		
Programme: Degree Course in ARTS- Hindi		Year: III Semester: VI Paper-I
Subject: Hindi		
Course Code:	Course Title: हिंदी निबंध	
Course Outcomes: 1. शिक्षार्थी निबंध विधा के स्वरूप का ज्ञान प्राप्त करता है। 2. शिक्षार्थी हिन्दी में निबंध विधा के उद्भव और विकास का ज्ञान प्राप्त करता है। 3. शिक्षार्थी सामाजिक व साहित्यिक विषयों से निबंध के वैचारिक सम्बन्ध तथा अभिव्यक्ति का ज्ञान प्राप्त करता है। 4. शिक्षार्थी निबंध के प्रकारों का ज्ञान प्राप्त करता है। 5. शिक्षार्थी पाठ्यक्रम में सम्मिलित निबंधकारों के अध्ययन से विचार के क्षेत्र में मौलिक अभिव्यक्ति का ज्ञान एवं प्रशिक्षण प्राप्त करता है।		
Credits: 5		Major Core Compulsory
Max. Marks: 25 (Internal) + 75 (External) = 100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0		
Unit	Topic	No. of Lectures
Unit I	निबन्ध विधा – परिचय, स्वरूप, शिल्प तथा प्रकार उद्भव एवं विकास	09

Unit II	बालकृष्ण भट्ट - आरम्भ (साहित्य जनसमूह के हृदय का विकास है)	08
Unit III	चन्द्रधर शर्मा गुलेरी - नीति विचार (कछुआ धर्म)	08
Unit IV	रामचन्द्र शुक्ल - साहित्य (कविता क्या है)	08
Unit V	महादेवी वर्मा - स्त्री (जीने की कला)	08
Unit VI	हजारीप्रसाद द्विवेदी - संस्कृति (अशोक के फूल)	08
Unit VII	हरिशंकर परसाई - व्यंग्य (पगडंडियों का ज़माना)	08
Unit VIII	विद्यानिवास मिश्र - ललित (अस्ति की पुकार)	08
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc	65 10 Total-75

Suggested Reading:

1. प्रतिनिधि हिंदी निबंध- संपादक: प्रो. नीरजा टंडन, अंकित प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित निबन्ध)
2. प्रतिनिधि हिंदी निबंधकार- डॉ. हरिमोहन, तक्षशिला प्रकाशन, 23/4762, अंसारी रोड, दरियागंज, दिल्ली।
3. हिंदी साहित्य में निबंध और निबंधकार- डॉ. गंगाप्रसाद, रचना प्रकाशन, इलाहाबाद।
4. हिंदी गद्य: विन्यास और विकास- डॉ. रामस्वरूप चतुर्वेदी, लोकभारती प्रकाशन, इलाहाबाद।

DEGREE COURSE IN UG		
Programme: Degree Course in ARTS- Hindi		Year: III Semester: VI Paper-II
Subject: Hindi		
Course Code:	Course Title: लोक साहित्य	
Course Outcomes:		
<div>1. शिक्षार्थी साहित्य के लोकपक्ष का ऐतिहासिक तथा सैद्धान्तिक ज्ञान प्राप्त करता है।</div> <div>2. शिक्षार्थी लोक साहित्य के स्वरूप, अध्ययन की प्रविधियों, संकलन प्रक्रिया आदि का प्रशिक्षण एवं ज्ञान प्राप्त करता है।</div> <div>3. शिक्षार्थी लोक संस्कृति का ज्ञान प्राप्त करता है।</div> <div>4. शिक्षार्थी लोकगीतों के स्वरूप, उनके सामाजिक-सांस्कृतिक स्रोतों तथा विविध रूपों का ज्ञान प्राप्त करता है।</div> <div>5. शिक्षार्थी लोक नाट्य के स्वरूप, उसके सामाजिक-सांस्कृतिक स्रोतों तथा विविध रूपों का ज्ञान प्राप्त करता है।</div> <div>6. शिक्षार्थी लोककथाओं के स्वरूप, उनके सामाजिक-सांस्कृतिक स्रोतों तथा विविध रूपों का ज्ञान प्राप्त करता है।</div> <div>7. शिक्षार्थी लोकगाथाओं के स्वरूप, उनके सामाजिक-सांस्कृतिक स्रोतों तथा विविध रूपों का ज्ञान प्राप्त करता है।</div> <div>8. शिक्षार्थी पाठ्यक्रम में सम्मिलित लोक साहित्य के अध्ययन द्वारा लोक का व्यावहारिक ज्ञान प्राप्त करता है।</div>		
Credits: 5		Major Core Compulsory
Max. Marks: 25 (Internal) + 75 (External) =100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0		
<div></div> <div></div>		

Unit	Topic	No. of Lectures
Unit I	लोक-साहित्य : परिभाषा, स्वरूप, लोक संस्कृति अध्ययन की प्रक्रिया, संकलन प्रविधि और समस्याएँ	15
Unit II	लोक-गीत : अर्थ एवं स्वरूप, संस्कार-गीत, व्रत-गीत, श्रम परिहार-गीत, ऋतु-गीत	12
Unit III	लोक-नाट्य : अर्थ एवं स्वरूप, विविध रूप – रामलीला, स्वाँग, यक्षगान, भवाई, नाच, तमाश, नौटंकी, जात्रा, कथकली	12
Unit IV	लोक-कथा : अर्थ एवं स्वरूप, प्रकार - व्रत-कथा, परीकथा, नाग-कथा, बोध-कथा, कथानक रूढ़ियाँ एवं अभिप्राय,	12
Unit V	लोक-गाथा : अर्थ एवं स्वरूप, उत्पत्ति, परम्परा, सामान्य प्रवृत्तियाँ, प्रसिद्ध लोक-गाथाएँ – राजुला-मालूशाही, गौरा-माहेश्वरी, तीलू रौतेली	14
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc	65 10 Total-75

Suggested Reading:

1. लोक साहित्य – सम्पादक : प्रो. चन्द्रकला रावत, देवभूमि प्रकाशन, हल्द्वानी (व्याख्या हेतु संकलित लोक साहित्य)
2. लोक साहित्य की भूमिका : कृष्णदेव उपाध्याय, लोकभारती प्रकाशन, इलाहाबाद
3. लोक और शास्त्र – अन्वय और समन्वय : विद्यानिवास मिश्र, वाणी प्रकाशन, नई दिल्ली
4. भारतीय लोक साहित्य : श्याम परमार, राजकमल प्रकाशन नई दिल्ली
5. लोक साहित्य का अध्ययन : डॉ. त्रिलोचन पांडेय

DEGREE COURSE IN UG		
Programme: Degree Course in ARTS- Hindi		Year: III Semester: VI Paper III Project
Subject: Hindi		
Course Code:	Course Title: लघुशोध अध्ययन एवं कार्य – साहित्यिक विचारधाराओं का अध्ययन	
Course Outcomes: शिक्षार्थी इस लघुशोधात्मक अध्ययन एवं कार्य के माध्यम से हिन्दी की साहित्यिक विचारधाराओं का ज्ञान प्राप्त करता है हिन्दी साहित्य में उच्चस्तरीय शोध के लिए यह पूर्व-अध्ययन अत्यन्त आवश्यक है।		
Credits: 4		Project
Max. Marks: 25 (Internal) + 75 (External) =100		Min. Passing Marks: 40
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures/ Hours
Unit I	निम्नांकित विचारधाराओं अथवा साहित्य आन्दोलनों में से किसी एक पर लघुशोधात्मक अध्ययन एवं कार्य करना है – 1. भक्ति-आन्दोलन 2-छायावाद 3-प्रगतिवाद 4- राष्ट्रवाद 5- अस्तित्ववाद 6- नारीवाद 7- दलित विमर्श 8- आधुनिकताबोध 9- उत्तरआधुनिकता	
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc	Total-60

परीक्षा प्रणाली

श्री देव सुमन उत्तराखण्ड विश्वविद्यालय परिसर, ऋषिकेश में दिनांक 10 अगस्त 2022 को कला संकाय की अध्यापन समिति (Board of Studies) में लिए गए निर्णय के क्रम में श्री देव सुमन उत्तराखण्ड विश्वविद्यालय में संचालित स्नातक पाठ्यक्रमों के निम्न विषयों -

हिन्दी ,
अंग्रेजी ,
संस्कृत,
इतिहास ,
गृह विज्ञान ,
भूगोल,
राजनीति विज्ञान ,
समाज शास्त्र,
अर्थशास्त्र ,
शिक्षा शास्त्र ,
शारीरिक शिक्षा ,
संगीत ,
चित्रकला ,
मानव शास्त्र ,
मनोविज्ञान ,
दर्शन शास्त्र तथा

सैन्य विज्ञान विषयों के स्नातक कक्षाओं के 'सेमेस्टर परीक्षा 2022-23 हेतु पारित निर्णय निम्नवत हैं :

राष्ट्रीय शिक्षा नीति 2020 के अंतर्गत प्रवर्तित पाठ्यक्रमों के प्रत्येक सेमेस्टर में प्रत्येक लिखित प्रश्न पत्र तीन घंटों का होगा तथा प्रत्येक प्रश्न पत्र अधिकतम 75 अंकों का होगा । प्रत्येक प्रश्न पत्र के दो खंड होंगे - खंड अ और खंड ब । खंड अ में 8 लघु उत्तरीय प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थी को 5 प्रश्नों के उत्तर देना अनिवार्य होगा । खंड अ का प्रत्येक प्रश्न 6 अंकों का होगा । खंड ब में 5 प्रश्न दीर्घ उत्तरीय प्रकृति के होंगे जिनमें से परीक्षार्थी को 3 प्रश्नों के उत्तर देना अनिवार्य होगा । प्रत्येक दीर्घ उत्तरीय प्रश्न 15 अंकों का होगा ।

अध्यक्ष , अध्यापन समिति (Board of Studies)

कला संकाय, श्री देव सुमन उत्तराखण्ड विश्वविद्यालय , बादशाहीथाल

**SRI DEV SUMAN UTTARAKHAND UNIVERSITY
BADSHAITHAUL (TEHRI GARHWAL)**



U.G. SYLLABUS (NEP-2020)

HISTORY

**Common Minimum Syllabus for all Affiliated Colleges
and Campus of Sri Dev Suman Uttarakhand University
for First Three Years of Higher Education**

SESSION-2022-23(ONWARD)

DEVELOPED BY:

DEPARTMENT OF HISTORY

Pdt. L.M.S. CAMPUS RISHIKESH, 249201

Curriculum Design Committee, Uttarakhand

Sr. No.	Name & Designation	
1.	Prof. N.K. Joshi Vice-Chancellor, Kumaun University Nainital	Chairman
2.	Prof. O.P.S. Negi Vice-Chancellor, Uttarakhand Open University	Member
3.	Prof. P. P. Dhyani Vice-Chancellor, Sri Dev Suman Uttarakhand University, Tehri	Member
4.	Prof. N.S. Bhandari Vice-Chancellor, Soban Singh Jeena University Almora	Member
5.	Prof. Surekha Dangwal Vice-Chancellor, Doon University, Dehradun	Member
6.	Prof. M.S.M. Rawat Advisor, Rashtriya Uchchatar Shiksha Abhiyan, Uttarakhand	Member
7.	Prof. K. D. Purohit Advisor, Rashtriya Uchchatar Shiksha Abhiyan, Uttarakhand	Member

Syllabus, checked and modified by

S.N.	Name	Designation	Department	Affiliation
1.	Prof. Savitri Kaira Jantwal	Professor & Head	History	DSB Campus, Nainital
2.	Prof Anil Joshi	Professor & Head	History	SSJ University, Almora
3.	Prof. Seraj Mohammad	Professor	History	SSDU, Campus Rishikesh
4.	Prof. G. S. Negi	Professor	History	DSB Campus, Nainital
5.	Prof. Sanjay Ghildiyal	Professor	History	DSB Campus, Nainital
6.	Prof. Sanjay Tamta	Professor	History	DSB Campus, Nainital
7.	Dr. Shivani Rawat	Assistant Professor	History	DSB Campus, Nainital
8.	Dr. Reetesh Sah	Assistant Professor	History / HRDC	DSB Campus, Nainital
9.	Dr. Manoj Bafila	Assistant Professor (Contract)	History	DSB Campus, Nainital

SRI DEV SUMAN UTTARAKHAND UNIVERSITY

Badshahithaul, Tehri Garhwal (Uttarakhand)

List of Members of Board of Studies

Sl. No.	Name of the Members	Designation	Nominated as
1	Prof. Dinesh Chandra Goswami	Dean of Arts	Chairman
2	Prof. Muktinath Yadav	Professor	Member
3	Prof. Hemant Kumar Shukla	Professor	Member
4	Prof. Sangeeta Mishra	Professor	Member
5	Prof. Preeti Kumari	Professor	Member
6	Prof. Anand Prakash Singh	Professor	Member
7	Prof. Pushpanjali Arya	Asso. Professor	Member
8	Prof. D K P. Choudhury	Professor	Member
9	Dr. Poonam Pathak	Professor	Member
10	Dr. Atal Bihari Tripathy	Asst. Professor	Member
11	Dr. Pushkar Gaur	Asst. Professor	Member
12	Dr. Shikha Mamgai	Asst. Professor	Member
13	Prof. M. S. Mawri	Professor	Member
14	Dr. Preeti Gupta	Asst. Professor	Member
15	Dr. Narmadeshwar Shukla	Professor	Member
16	Dr. Poonam Pandey	Asst. Professor	Member
17	Dr. Vandana Sharma	Principal	Member
1	Prof. Janki Panwar	Principal	GPGC Kotdwar
2	Prof. Lovely Rajvanshi LOVNEY	Principal	GPGC, Jaiharikhal
3	Prof. K. L. Talwar	Principal	GDC, Chakrata
4	Dr. Himanshu Das	Director	NIVH, Rajpur Road
5	Prof. M. S. M. Negi	Professor	SRT Campus, HNBGU, Srinagar
6	Prof. M. C. Sati	Professor	HNBGU, Srinagar
7	Prof. S. L. Bhatt	Ex. Principal	GPGC, Kotdwar
8	Dr. P.C. Painuli	Asst. Professor	GPGC, New Tehri
9	Dr. Asha Devi	Asso. Prof.	GPGC, Kotdwar

**SRI DEV SUMAN UTTARAKHAND UNIVERSITY
BADSHAITHAUL (TEHRI GARHWAL)**



Syllabus Preparation Committee

Department of History

Prof.(Dr.) Seraj Mohammad
Professor

Prof.(Dr.) Sangeeta Mishra
Professor & Head

**Pdt. L.M.S. CAMPUS RISHIKESH
SRI DEV SUMAN UTTARAKHAND UNIVERSITY
BADSHAITHAUL (TEHRI GARHWAL), UK**

List of Papers in all Six Semesters Semester-wise Titles of the Papers in History					
Year	Sem.	Course Code	Paper Title	Theory/ Practical	Credits
<i>Certificate in Arts</i>					
FIRST YEAR	I	H101MT	History of India from the Earliest Times up to 300 AD	Theory	6
	II	H102MT	History of India from 300 AD to 1200 AD	Theory	6
<i>Diploma in Arts</i>					
SECOND YEAR	III	H203MT	History of India from 1200 AD to 1526 AD	Theory	6
	IV	H204MT	History of India from 1526 AD to 1756 AD	Theory	6
<i>Bachelor of Arts</i>					
THIRD YEAR	V	H305MT	History of India from 1757 AD to 1857 AD	Theory	5
		H306MT	History of Modern World 1453 AD to 1815 AD	Theory	5
		H307P	Project I: Study of Languages used in Indian History (Qualifying)	Project	4
	VI	H308MT	History of India from 1858 AD to 1950AD	Theory	5
		H309MT	History of Modern World 1815 AD to 1945 AD	Theory	5
		H310P	Project II Research Methodology in History (Qualifying)	Project	4

Minor Elective					
Year	Sem.	Course Code	Paper Title	Theory	Credits
I YEAR		H102MET	Indian Society and Culture through the Ages	Theory	4
II YEAR		H204 MET	History of Nationalism in Modern India (1857-1947 AD)	Theory	4

Vocational Course					
Year	Sem.	Course Code	Paper Title	Theory/ Practical	Credits
I YEAR		HVC-01	Introduction of Archaeology	Theory	3

Subject prerequisites:

1. Open For All. To study this course, a student must have qualified 10+2. Admission to the campus shall be guided by the norms specified by the university.

COURSE INTRODUCTION

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 thereby 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.

Programme Outcomes (POs):

PO 1	Knowledge: The students develop a scientific understanding of the past which enables them to understand the history of India as well as the history of the world.
PO 2	Problem Analysis: The students develop a logical understanding of the past which enable them to make sense of the current societal problems in their historical context. The students gather intimate knowledge of the genesis and evolution of the social, economic, cultural and political formations of human past.
PO 3	Historical Research: Use historical research methods to generate knowledge about the various and diversified issues relating to the past.
PO 4	Conservation and Preservation: Conservation and preservation of art, culture and heritage of the Himalayan region. The department has Himalayan Museum since 1987, which has specifically been devoted to display, conserve and preserve the artefacts of the Himalayan region.
PO 5	Modern methods usage: Select and apply appropriate methods, techniques, resources and modern IT tools for generation and dissemination of historical knowledge.
PO 6	History and society: Apply reasoning informed by the contextual knowledge of human past to assess current state of society, economy, environmental, cultural, and political and other related issues.
PO 7	Career Prospects: Enable them in understanding significance of the subject for various competitive examinations.
PO 8	Individual and team work: Function effectively as an individual
PO 9	Communication: Communicate the outcome of the historical research through writings
PO 10	Life-long learning: Recognize the need for and have the capability of critically evaluating and analysing the past for a better understanding of human past.

BA First Year***Certificate in Arts*****Programme Specific Outcomes (PSOs)*****UG I Year / Certificate in Arts***

At the end of the program following outcomes are expected from the students:

- 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.
- 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.

Certificate in Arts

Semester	Name of The Paper	Credits	No of Lectures
I	History of India from the Earliest Times up to 300 AD	6	90
II	History of India from 300AD to 1200 AD	6	90

BA Second Year***Diploma in Arts*****Programme Specific Outcomes (PSOs)*****UG II Year/ (Diploma in Arts)***

- Prepares students to become historian, museum curator, archaeologist, etc. and to pursue higher education in the field of history.
- Prepares scholars who will identify and conceptualize significant research problems in the history discipline, can do comparative study of different time periods and are qualified to undertake relevant research and contribute new knowledge to the field.
- They can become independent entrepreneurs or become employed.

Diploma in Arts

Semester	Name of The Paper	Credits	No of Lectures
III	History of India from 1200 AD to 1526 AD	6	90
IV	History of India from 1526 AD to 1756 AD	6	90

BA Final Year***Bachelor of Arts*****Programme Specific Outcomes (PSOs)*****UG III Year/ (Bachelor of Arts)***

- Students will be able to formulate basis of modern India and world history through different concepts like modernity, Rule of law etc.
- Students will be able to analyze the process of rise of modern India and its foundation made by social reforms and freedom fighters.
- Students will be able to categorize different school of thoughts about modern Indian history.
- Students will be able to illustrate rise and growth of Economic Nationalism in India.
- Students have understood the process of colonialism in different part of the world.
- Students have understood the problems of contemporary world in the light of its background history.
- Students will understand the necessity of Universal brotherhood.
- After this degree programme students can be benefitted in getting job like government sector, working with NGOs, Jobs as a Journalist, Tourist manager and in the field of education. They can also start their own entrepreneurship as well.

<i>Bachelor of Arts</i>			
Semester	Name of The Paper	Credits	No of Lectures
V	History of India from 1757 AD to 1857 AD	5	75
V	History of Modern World 1453 AD 1815 AD	5	75
V	Project I	4	60
VI	History of India from 1858 AD to 1950 AD	5	75
VI	History of Modern World 1815 AD to 1945 AD	5	75
VI	Project II	4	60

Programme Specific Outcomes (PSOs) <i>UG III Year (Bachelor of Arts)</i>	
PSO 1	After the completion of B.A., history scholars will be able to distinguish between primary and secondary sources and identify and evaluate evidence.
PSO2	Students will demonstrate in discussion and written work their understanding of different people and cultures in past environments and of how those cultures changed over the centuries.
PSO3	The study of history will gave them the ability to compare and contrast different processes, modes of thoughts and modes of expression from different historical time periods and in different geographical areas

PSO4	They will be able to produce their own historical analysis of documents and develop the ability to think critically and historically when discussing the past.
PSO5	Students will offer multi-casual explanation of major historical developments based on a contextualized analysis of interrelated political, social, economic, culture and intellectual process.
PSO6	Students will be able to write an original research paper that locates and synthesizes relevant primary and secondary sources and has a clear coherent and plausible argument, logical structure, proper references.
PSO7	Students will present orally their research of a summary of another's research in an organized coherent and compelling fashion.

	Year wise Structure of B.A. (CORE / ELECTIVE COURSES & PROJECTS)										
	Subject: History										Total Credits /hrs/
Course/Entry –Exit Levels	Year	Sem.	Paper 1	Credit / hrs	Paper 2	Credit/ hrs	Paper 3	Credit s /hrs	Research Project	Credit /hrs	
Certificate in Arts	I	I	Theory History of India from the Earliest Times up to 300 AD	6/90 hrs	-				-	-	6
		II	Theory History of India from 300 AD to 1200 AD	6/90 hrs	-				-	-	6
Diploma in Arts	II	III	Theory History of India from 1200 AD to 1526 AD	6/90 hrs	-				-	-	6
		IV	Theory History of India from 1526 AD to 1756 AD	6/90 hrs	-				-	-	6
Bachelor of Arts	III	V	Theory 1 History of India from 1757AD to 1857AD Theory 2 History of Modern World 1453 AD 1815 AD	5/75 hrs		5/75 hrs	-		Project -I Qualifyi ng		10
	III	VI	Theory 1 History of India from 1858 AD to 1950 AD Theory 2 History of Modern World 1815 AD 1945 AD	5/75 hrs		5/75 hrs	-		Project -II Qualifyi ng		10
Comments											
Internal Assessment & External Assessment											
Internal Assessment				Marks 25	External Assessment				Marks 75		
• Seminar/Assignment on any topic of the above syllabus				10 Marks	Written Examination to be conducted at University Level in each semester. Marking pattern, total marks and distribution of questions shall be decided by the university.						
• Presentation				10 Marks							
• Attendance				05 Marks							

Certificate in Arts			
Programme: <i>Certificate in Arts</i>		Year: I	Semester : I Paper-I
Subject: History			
Course Code: H101MT	Course Title: History of India from the Earliest Times up to 300 AD		
Course Outcomes: The present course will be useful in providing a comprehensive understanding to the evaluation of early Indian society and the student will be able to identify the forces and factors that shaped the course the course of early Indian history. The students will develop a critical awareness of various categories of 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 accomplishments 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 the rise and decline of imperial states in early India.			
Credits: 6		Core Compulsory	
Max. Marks: 25+75 =100			
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0			
Unit	Topic		No. of Lectures
Unit I	Meaning, scope, sources and importance of History.		12
Unit II	An Introduction of Paleolithic, Mesolithic, Neolithic and Chalcolithic cultures.		10
Unit III	Harappan Civilization: Origin, Extent, Main features & Causes of Decline.		11
Unit IV	The Rig Vedic and Later Vedic Period: Polity, Society, Economy and Religion, Iron age with reference to PGW & Megaliths cultures.		8
Unit V	Territorial States and the rise of Magadha, Conditions for the rise of Mahajanpadas and the Causes of Magadha’s success.		8
Unit VI	Jainism and Buddhism: Causes of Origin, Doctrines, Spread, Decline and Contributions.		7
Unit VII	Emergence and Growth of Mauryan Empire: State, Administration, Economy, Ashoka’s Dhamma.		9
Unit VIII	The Shunga’s & Satvahana’s Phase: Aspects of Political History, Material Culture, and Administration.		7

Unit IX	The Sangam Age: Sangam Literature, The three Early Kingdoms- Chera , Chola and Pandya.	8
Unit X	The age of Shakas, Parthians & Kushanas, Aspects of Polity, Society, Religion & Arts.	10

Suggested Reading:

- 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
 - Thapar, Romila History of Early India
 - Yazdani, G. Early History of Deccan
-
- शर्मा, रामशरण. भारत में आर्यों 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. प्राचीनभारत का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
 - ठाकरान, आर०सी०., दत्त, शिव., संजय कुमार., भारतीय उपमहाद्वीप की संस्कृतियाँ, भाग 1, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
 - ठाकरान, आर०सी०., दत्त, शिव., संजय कुमार., भारतीय उपमहाद्वीप की संस्कृतियाँ, भाग 2, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
 - थापर, रोमिला. पूर्वकालीन भारत (प्रारम्भ से 1300 ई० तक), हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
 - थापर, रोमिला. आर्य संरचना का पुनर्गठन, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली
 - सिंह, आनन्द. प्राचीन भारतीय धर्म: उद्भव एवं स्वरूप, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
 - प्रसाद, ओमप्रकाश. संघाधिपति अशोक, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
 - सर मार्टिनर व्हीलर, पृथ्वी से पुरातत्व, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
 - गार्डन चाइल्ड, वी० एच०. प्राचीनतम प्राच्य सभ्यता पर नया प्रकाश, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
 - गार्डन, डी० एच०. भारतीय संस्कृति की प्रागैतिहासिक पृष्ठभूमि, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
 - गोपालशरण, 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

Further Suggestions: For Course Contents visit:

<https://www.youtube.com/watch?v=m9w2ZOUF6So>

<https://www.youtube.com/watch?v=hW7tCQ457FA&t=1475s>

<https://www.youtube.com/watch?v=sWMTXcx-5IM&t=146s>

<https://www.youtube.com/watch?v=5RgzyOXj7Vo>

<https://www.youtube.com/watch?v=omhyRZdWBC4>

Suggested equivalent online courses: IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects:

Open for all

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Prerequisites: To study this course, a student must have qualified 10+2.

Programme: <i>Certificate in Arts</i>		Year: I	Semester: II Paper-I
Subject: History			
Course Code: H102MT	Course Title: History of India from 300 AD to 1200 AD		
Course Outcomes: This paper is designed to 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. 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.			
Credits: 6		Core Compulsory	
Max. Marks:25+75=100			
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0			
Unit	Topic	No. of Lectures	
Unit I	The Rise & Growth of the Guptas: Administration, Society, Economy, Religion, Art, Literature, Science &Technology.	14	
Unit II	The post Gupta Period: Administration, Agrarian and Revenue Systems, Pallavas Chalukyias and Vardhanas.	12	
Unit III	South India: Polity, Society, Economy & Culture.	14	
Unit IV	Towards the Early Medieval: Changes in Society, Polity Economy and Culture with reference to the Pallavas, Chalukayas and Vardhanas.	10	
Unit V	Evolution of Political structures of Rashtrakutas, Pala & Pratiharas.	10	
Unit VI	Emergence of Rajput States in Northern India: Polity, Economy & Society.	11	
Unit VII	The Arabs in Sindh: Polity, Religion & Society.	9	
Unit VIII	Struggle for power in Northern India & establishment of Sultanate.	10	

Suggested Reading:

- B. D. Chattopadhyaya: Making of Early Medieval India
- Derryl N. Maclean: Religion and Society in Arab SindhHistory 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

Hindi books

- शर्मा, रामशरण, पुर्व मध्यकालीन भारत का सामंती समाज और संस्कृति, राजकमल प्रकाशन दिल्ली.
- झा, द्विजेन्द्रनारायण एवं श्रीमाली, कृष्णमोहन. प्राचीन भारत का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- मुखर्जी, राधाकुमुद., प्राचीनभारत, प्रकाशन, राजकमल नई दिल्ली.
- मिश्र, जयशंकर., ग्यारहवीं सदी का भारत, हिन्दी ग्रन्थ अकादमी, पटना.
- थापर, रोमिला. पुर्वकालीन भारत (प्रारम्भ से 1300 ई० तक), हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- सिंह, ओकारनाथ., गुप्तोत्तर कालीन उत्तर भारतीय मुद्रायें (600–1200 ई०), विश्वविद्यालय प्रकाशन, वाराणसी.
- पाण्डेय, अवध बिहारी., पुर्व मध्यकालीन भारत, भाग1, प्रकाशन हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- पाठक, विशुद्वानन्द. उत्तर भारत का राजनीतिक इतिहास, उत्तर प्रदेश हिन्दी संस्थान,लखनऊ.
- पाण्डेय, राजबली., गोरखपुर जनपद और उनकी क्षत्रिय जातियों का इतिहास, ठाकुर महातमराव पब्लिशर, गोरखपुर.
- सोनकर, अशोक कुमार, गाहड़वालों का राजनीतिक और सामाजिक इतिहास, आस्था दिल्ली.

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<https://epustakalay.com>

<https://archive.org>

<https://ignou.ac.in>

www.cec.nic.in

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects:

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Prerequisites: To study this course, a student must have qualified 10+2.

Programme: <i>Diploma in Arts</i>		Year: II	Semester: III Paper-I
Subject: History			
Course Code: H203MT	Course Title: History of India from 1200 AD to 1526 AD		
Course 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 during medieval period. The student will be able to understand the territorial expansion of various Indian kings and impact of Medievalism on Indian Society and Culture.			
Credits: 6		Core Compulsory	
Max. Marks: 25+75=100			
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0			
Unit	Topic	No. of Lectures	
Unit I	Survey of Sources of Medieval Indian history.	14	
Unit II	Foundation, Expansion & consolidation of the Delhi Sultanate. Causes of the success of the Turks: Foundation and consolidation of the Delhi Sultanate: Aibek, Iltutmish, Razia, And Balban.	15	
Unit III	Allauddin Khalji- conquests, economic administrative and economic reforms.	14	
Unit IV	Tughlaq dynasty: Mohammad-bin-Tughlaq’s Experiments; Feroz Shah Tughlaqs reforms and administration, Timur’s invasion.	14	
Unit V	Saiyyads, Lodhis, Provincial kingdoms: Vijay nagara & Bahamanis.	12	
Unit VI	Religious Moments of Bhakti & Sufism and their impacts on Indian society, Art & Culture.	11	
Unit VII	Disintegration of Delhi Sultanate: Causes and its Effects on Indian Society & Polity.	10	

Suggested Reading:

- Chandra, Satish., Essays on Medieval Indian History, Oxford university, New Delhi. 2003
 - Chattopadhyaya, B.D., The making of early Medieval India. Oxford University press, New Delhi. 2003
 - Chopra, P.N., Puri, B.N., Das, M.N., A social, cultural and economic history of India vol. II.
 - Development of Sufism in India, Bhakti Movement and Re-strengthening in North India.
 - H. Siddiqui: Some Aspects of Afghan Despotism
 - Irfan Habib (ed.) : Madhya Kaleen Bharat, (in Hindi), 8 Volumes,
 - Irfan Habib: The Agrarian System of Mughal India 1556-1707,
 - Kesvan Veluthat: Political Structure of Early Medieval South India
-

- Kulke, Herman (ed.) (1995), The State in India (1000-1700), New York and Delhi. Oxford University Press.
- Nigan, S.B.P.: (1968), Nobility under the Sultans of Delhi, Delhi, Munsiram Manoharlal
- Prasad, Ishwari: (1940), Medieval India (English or Hindi Version) Delhi, Indian Press
- Roy, S.C.: (1935), Dynastic History of Northern India, Calcutta, Calcutta University Press
- S.A.A.Rizvi: Muslim Revivalist Movements in Northern India during 16th and 17th Centuries
- Sharma, S.R.: (2005), Crescent in India (English or Hindi Version) Delhi, Bhartiya Kala Prakashan
- Singh, Dilbag: Structure of Rural Society in Medieval India
- Srivastava, A.L: (2017), The Delhi Sultanate (English or Hindi Version) India, Shivalal Agarwal & Co
- Tara Chanda., Influence of Islam on Indian Culture.
- Yaday, B.N.S.: (2012), Society and Culture in North India in the 12th Century. India. Radha Prakashan
- B. Chattopadhyay : the making of Early Mediaeval India, Oxford University Press

Hindi books

- ईश्वरी प्रसाद., मध्यकालीन भारत
- भारद्वाज, दिनेश., मध्यकालीन भारतीय सभ्यता एवं संस्कृति, कैलाश प्रकाशन, भोपाल.
- पाण्डेय, अवध बिहारी., पूर्व मध्यकालीन भारत, भाग1, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- वर्मा, हरिश्चन्द्र., मध्यकालीन भारतभाग 1(750—1540 ई0), हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- वी० के० जैन., सूफी मत और हिन्दीसाहित्य
- ताराचंद्र: अनुवादक सुरेश मिश्र, भारतीय संस्कृति पर इस्लाम का प्रभाव, ग्रंथशिल्पी प्रकाशन दिल्ली
- मीनाक्षी खन्ना: मध्यकालीन भारत का सांस्कृतिक इतिहास, ओरिएंटलब्लैकस्वान

Suggested Online Link:<https://ndl.iitkgp.ac.in>

<https://epustakalav.com>

<https://archive.org>

<https://ignou.ac.in>

www.cec.nic.in

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects:

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Prerequisites: To study this course, a student must have qualified 10+2.

Programme: <i>Diploma in Arts</i>		Year: II	Semester: IV Paper-I
Subject: History			
Course Code: H204MT	Course Title: History of India from 1526 AD to 1756 AD		
Course Outcomes:			
This paper is designed to provide the students with a firm basis for the understanding of the period1526-1707. By discussing the nature of the social, political and religious foundations of Mughal India as a dynamic process, the student will acquire multifaceted understanding of the factor that shaped state and society in the Mughal period and that were carried into the later colonial state.			
Credits: 6		Core Compulsory	
Max. Marks: 25+75=100			
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0			
Unit	Topic	No. of Lectures	
Unit I	Survey of Sources of The Mughal Indian history.	13	
Unit II	Emergence and consolidation of Mughal State, Babur’s conquest, Humayaun: difficulties and failure.	12	
Unit III	Shershah Suri with special reference to Administration and Land revenue system.	12	
Unit IV	Akbar to Shahjahan: administrative structure, Mansabdari, Relation with Rajput and Maharana Pratap, Religious Policy.	14	
Unit V	Aurangzeb: administrative structure-Mansabs & Jagirs; Aurangzeb religious policy, Rajput, Religious and Deccan policy, Decline and disintegration of Mughals.	9	
Unit VI	Cultural in the Medieval Period, Art& Architecture.	8	
Unit VII	Peninsular India–Marathas: Shivaji and his administration, Tamil Kingdoms- Polity and Administration.	8	
Unit VIII	Later Mughals: Disintegration of the empire; invasion of Nadir Shah; 3 rd Battle of Panipat.	7	
Unit IX	Establishment, Expansion & consolidation of Colonial Power up to 1757.	7	

Suggested Reading:

- Chandra, Satish., Essays on Medieval Indian History, Oxford university, New Delhi. 2003
- Chattopadhyaya, B.D., The making of early Medieval India. Oxford University press, New Delhi. 2003
- Chopra, P.N., Puri, B.N., Das, M.N., A social, cultural and economic history of India vol. II.
- Irfan Habib (ed.) : Madhya Kaleen Bharat, (in Hindi), 8Volumes,
- Kulke, Herman (ed.) (1995), The State in India (1000-1700), New York and Delhi. Oxford University Press.
- M. Athar Ali: Mughal Nobility under Aurangzeb
- Prasad, Ishwari: (1940), Medieval India (English or Hindi Version) Delhi, Indian Press
- R.P. Tripathi: The Rise and Fall of the Mughal Empire, 2 vol
- Roy, S.C.: (1935), Dynastic History of Northern India, Calcutta, Calcutta University Press
- S.A.A.Rizvi: Muslim Revivalist Movements in Northern India during 16th and 17th Centuries
- Sharma, S.R.: (2005), Crescent in India (English or Hindi Version) Delhi, Bhartiya Kala Prakashan
- Shireen Moosvi: The Economy of the Mughal Empire
- Singh, Dilbag: Structure of Rural Society in Medieval India
- Stewart Gordon, : The Marathas 1600-1818
- Tara Chanda., Influence of Islam on Indian Culture.
- Yadav, B.N.S.: (2012), Society and Culture in North India in the 12" Century. India. RakaPrakashan
- Sugadh Bose & Aysha Jalal :Modern South Asia history culture and political economy.

Hindi books

- ईश्वरीप्रसाद., मध्यकालीन भारत
- .भारद्वाज, दिनेश., मध्यकालीन भारतीय सभ्यता एवं संस्कृति, कैलाश प्रकाशन, भोपाल.
- पाण्डेय, अवध बिहारी., उत्तर मध्यकालीन भारत, भाग1, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- वर्मा, हरिश्चन्द्र., मध्यकालीन भारत भाग 2(1540—1761 ई0), हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चन्द्र, सतीश., उत्तर मुगल काली नभारत, 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

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects:

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Pre requisites: To study this course, a student must have qualified 10+2.

Bachelor of Arts			
Programme: <i>Bachelor of Arts</i>		Year: III	Semester:V Paper-I
Subject: History			
Course Code: H305MT	Course Title: History of India from 1757AD to 1857AD		
Course Outcomes: The students will be able to trace the British Colonial expansion in the political contexts of mid eighteen th to mid nineteenth century India. They will learn about the changes in society, politics, religious and economy during this period. They will also acquire knowledge about the transition of India into a colonized society and economy.			
Credits: 5		Core Compulsory	
Max. Marks: 25+75=100			
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0			
Unit	Topic		No. of Lecture s
Unit I	Ascendancy of British East India Company: Plassey and Buxar and its Impact.		13
Unit II	Struggle for supremacy – War and diplomacy-East India Company and other Indian power-Marathas, Mysore, Rohillas, Gorkhas and Sikh, Subsidiary Alliance.		12
Unit III	Economic Changes under colonial rule-Permanent settlement, Raytwari and Mahalwari, Commercialization of agriculture & indebtedness Forest policy.		14
Unit IV	Decline of Handicrafts, Development of Irrigation, Introduction of Railways& Growth of Modern Industry, Economic Drain.		11
Unit V	Popular Resistance of company's rule-Peasant and tribal Movements.		9
Unit VI	Socio Religious Reform Movements: Raja Ram Mohan Rai, Ishwar Chandra Vidya Sagar, Abolition of Slavery, Young India Movement.		7
Unit VII	Revolt of Indian Sepoys; Rise in Imperialistic designs-Doctrine of Lapse, Revolt of 1857: causes and consequences.		9

Suggested Reading:

- A.R. Desai, Peasant Struggles in India.
- Amiya Bagchi, Private Investment in India.
- Bipan Chandra, K.N. Panikkar, Mridula Mukherjee, Sucheta Mahajan and Aditya Mukherjee, India's Struggles for Independence.
- Bipan Chandra, Rise and Growth of Economic Nationalism in India.
- C. A. Bayly, Indian Society and the Making of the British Empire, New Cambridge History of India.
- Dadabhai Naroji, Poverty and Un-British Rule in India.
- David Arnold and Ramchandra Guha, eds, Nature, Culture and Imperialism.
- Dharma Kumar and Tapan Raychaudhuri, eds., The Cambridge Economic History of India, Vol. II.
- Eric Stokes, English Utilitarians and India.
- J.Krishnamurti, Women in Colonial India.
- J.S. Grewal, The Sikhs of the Punjab, New Cambridge History of India
- M.J. Fisher, ed., Politics of Annexation (Oxford in India Readings).
- P.C. Joshi, Rebellion 1857: A Symposium.
- P.J. Marshall, Bengal: The British Bridgehead, New Cambridge History of India.
- R.C. Majumdar, ed., History and Culture of Indian People, Vols. IX and X. British Paramountcy and Indian Renaissance.
- R.P. Dutt, India today.
- Rajat K. Ray, ed., Entrepreneurship and Industry in India, 1800- 1947, Oxford In India Readings.
- Ram Lakhan Shukla, ed., Adhunik Bharat ka Itihas.
- Ranajit Guha, ed., A Subaltern Studies Reader.
- Ranajit Guha, Elementary Aspects of Peasant Insurgency in Colonial India (1983).
- Shekher Bandopadhyaya :Plassy to Partation Orient BlackSwan(Hindi & English)
- Suhash Chakravarty, The Raj Syndrome: A Study in Imperial Perceptions, 1989.
-

Hindi Readings:-

- शुक्ल, राम लखन., आधुनिक भारत का इतिहास., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- मोईनुद्दीनहसन खॉ, अनुवादकअब्दुलहक., गदर— 1857(ऑखों देखा विवरण) हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- भारत का स्वतंत्रता संघर्ष., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चन्द्र, बिपिन., मुखर्जी, मृदुला., मुखर्जी, आदित्य., क0न0 पनिकर., महाजन, सुचेता.,
- चन्द्र, बिपिन., मुखर्जी, मृदुला., मुखर्जी, आदित्य., आजादी के बाद का भारत., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चन्द्र, बिपिन., आधुनिक भारत में सांप्रदायिकता., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- गुप्ता, डी0एन0, अनुवाद, भारत की बदलती उत्पादन प्रणालियाँ हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली
- ग्रोवर, बी0एल0, यशपाल., आधुनिक भारत का इतिहास, एस चन्द्र एण्ड कम्पनी लि0, नई दिल्ली.

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<https://epustakalay.com>

<https://archive.org>

<https://ignou.ac.in>

www.cec.nic.in

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects:

Open for all

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Pre requisites: To study this course, a student must have qualified 10+2.



Bachelor of Arts			
Programme: <i>Bachelor of Arts</i>		Year: III	Semester:V Paper-II
Subject: History			
Course Code: H306MT	Course Title: History of Modern World 1453AD 1815AD		
Course Outcomes: This paper is designed to develop an understanding of renaissance and point out the factors for the growth of renaissance. It explains the changes in human thoughts and behavior due to renaissance. The student will be able to learn the rise of reformation movement against the Roman Catholic and how reformation impact globally. It will enable the students to compose an effective narration that analyses the history of western world. They will be able to evaluate the ways in which the history of the early western civilization in forms the current political, cultural and social history of Europe after 15 century and its relationship to the global culture.			
Credits: 5		Core Compulsory	
Max. Marks: 25+75=100			
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0			
Unit	Topic		No. of Lectures
Unit I	Feudalism-Different Aspects and causes of decline		9
Unit II	Advent of Modern Age –Renaissance, Reformation& Counter Reformation.		9
Unit III	Growth of the absolute States : France, Spain and Britain.		10
Unit IV	Mercantilism and commercialism.		8
Unit V	Age of Revolutions-Scientific, Agrarian and Industrial.		8
Unit VI	Glorious Revolution (1688) Background, Events and Consequences.		7
Unit VII	American War of Independence Causes and Consequences Declaration of the Rights of Men Revolution (1776).		9
Unit VIII	French Revolution (1789) Causes: Political, Social, Economic, Role of philosophers, short- and long-term ramifications.		7
Unit IX	Napoleon Bonaparte– initial years, conquests, achievements as first consul, continental system, causes for downfall.		8

Suggested Reading:

- Arvind Sinha, Europe in Transition, Delhi, 2010 (also in Hindi)
- Bailey C.A.: The Birth of Modern World
- Basil Davidson, Modern Africa: A Social and Political History, 3d ed. London /New Jersey: Addison & Wesley, 1995
- Benms, F. Lee: Europe since 1914 *
- Bronski Jacob & Bruce Mazlish : Western Intellectual tradition
- Car, E.H. (1948), International Relations between two world war (1919-1939). Delhi. Macmillan and Co.
- Christopher Hill, From Reformation to Industrial Revolution
- Fisher H.A.L.: History of Europe
- J.H Perry, The Establishment of the European Hegemony 1415-1715, Trade & Exploration in the Age of the Renaissance, Harper Torch books, 1959
- K.R.G.Nair & Romey Borges, Discovering French Canada, Allied Publishers, 2002
- Ketelbey, C.D.M. A History of Modern Times (English or Hindi)
- Lowe, Norman: (1982), Mastering Modern World History, Macmillan and Co.
- Macmillan W.H: History of the World
- Palmer. R.R.: A History of Modern World
- Panikkar K.M: Asia and Western Dominance –
- Ralph Davis, The Rise of the Atlantic Economies,
- Ralph Davis, The Rise of the Atlantic Economies, New York, 1973,
- Roberiz. J.M: Pelican history of the World
- Stavrianos.A.J. : History of the Modern World Since 1500
- Wallerstein Emmanuel : Modern World System

Hindi books

- पार्थसारथि गुप्ता, यूरोप का इतिहास., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- पार्थसारथि गुप्ता, ब्रिटेन का इतिहास., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- पार्थसारथि गुप्ता, आधुनिक पश्चिम का उदय., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- देवेश विजय., फ्रांसीसी क्रांति के सांस्कृतिक पहलू, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- देवेश विजय(संपादक), यूरोपीय संस्कृति(1400–1800 ई०), हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- वर्मा, लालबहादुर, आधुनिक विश्व का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- जेम्स जाल, (अनु० स्नेह महाजन), यूरोप 1870 से., 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

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects:

Open for all

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Pre requisites: To study this course, a student must have qualified 10+2.

Project I

Bachelor of Arts		
Programme:	Bachelor of Arts	Year: III Semester: V Project- I
Subject: History		
Course Code: H3O7P	Course Title: Study of Languages used in Indian history	
Course Outcomes: Student has to prepare research report on any language of Historical importance of his/her interest to consultation with Supervisor. Supervisor will teach following to their students for enabling students to prepare research report. <ul style="list-style-type: none">• Students will be able to the linguistic diversity of textual sources of Indian History• In-depth knowledge of Languages used in Indian- History.• The variation among Historical aspect of different languages.• Interaction with people with different languages and cultural settings.• Study of Historical area of different languages being visited.• Learn to prepare language analysis report.		
Credits: 4		Core Compulsory
Max. Marks: 100		Qualifying
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Meaning, types and significance of Historical Languages.	20
Unit II	Literature review and formulation of research design.	20
Unit III	Techniques of writing and reading of the selected language.	20

Suggested Readings:

- Chitnis, K.N. (2006) - Research Methodology in History, Atlantic Publication.
- Sreedharan, E. : A Textbook of Historiography.
- Kimerling, A. Jon. – Map Use- Reading Analysis Interpretation, ESRI Press
- कार, ई.एच. : (1997) इतिहास क्या है, मैकमिलन प्रेस, नई दिल्ली, कैनाडीन, डेविड : (2002) ह्वाट इज हिस्ट्री नाउ, मैकमिलन, लंदन
- कौशिक, कुँवर बहादुर : (1984) इतिहास दर्शन एवं प्राचीन भारतीय इतिहास लेखन, गोरखपुर
- श्रीधरन, ई. – इतिहास लेख

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects: Open for all

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Pre requisites: To study this course, a student must have qualified 10+2.

Bachelor of Arts			
Programme: <i>Bachelor of Arts</i>		Year: III	Semester: VI Paper-I
Subject: History			
Course Code: H308MT	Course Title: History of India from 1858AD to 1950AD		
Course Outcomes:			
This paper is designed to develop an understanding of historical developments in India during the colonial rule. Understanding of the process of domination and resistance in this phase of colonial era shall enhance the student's awareness about modern India. By studying various strands of freedom movement student will be able to appreciate this phase of Indian past.			
Credits: 5		Core Compulsory	
Max. Marks:25+75=100			
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0			
Unit	Topic		No. of Lectures
Unit I	The Acts of 1858 and 1861 ,Change in the guard Queen Victoria's proclamation and emergence of nationalistic fervor- initial stages; Birth of Indian National Congress Moderates versus Extremists-Surat Split.		12
Unit II	Reform And Revival: Brahmo samaj, Prarthna Samaj, Ramakrishna Mission, Vivekanand, Arya Samaj, Aligarh Movement.		10
Unit III	Advent of Gandhi his Perspective & method; Act of 1919; Impact of World War-I on Independence Movement, Rowlatt Satyagrah & Jallianwala bagh Massacre Non Cooperation and Khilafat Movements, Swaraj Party.		10
Unit IV	Simon Commission; Civil Disobedience Movement, Nehru Report, Gandhi Irwin Pact; Communal Award; Round Table Conferences.		11
Unit V	Rise of revolutionary extremism-Kakori Case, Lahore Conspiracy; Role of expatriates– Gadar Party, Silk letter Conspiracy; Komagatamaru episode.		8
Unit VI	Peasants, Tribal and Depressed Classes Movements.		8
Unit VII	Act of 1935-responsible government in provinces Quit India Movement, Subhas Chandra Bose and INA.		7
Unit VIII	Rise of communal strife-Muslim League; Cripps Mission Cabinet Mission, Wavell Plan; India's independence and partition; Birth of Constitution of India.		9

Suggested Reading:

- Ayodhya Singh; 26 Bharat Ka Mukti Sangram
- B.L. Grover; A New Look on Modern Indian History, S Chand.
- Barbara D Metcalf and T.R. Metcalf; A Concise History of India, Cambridge, 2002
- Bipan Chandra, Aditya Mukherjee, India After Independence, Viking, 1999.
- Bipan Chandra: Nationalism and Colonialism.
- C.A. Bayly: An Illustrated History of Modern India 1600 - 1947, London 1990
- Francine Frankel; India's Political Economy 1947- 1977.
- Gail Omvedt; Dalits and Democratic Revolution.
- K.G. Subramanian; The Living Tradition: Perspectives on Modern Indian Art.
- Lloyd and Susan Rudolph In Pursuit of Laxmi: the Political Economy of the Indian State, Chicago, 1987
- Mushirul Hasan; From Company to the Republic: A story of Modern India
- Parul Brass; The Politics of India since Independence.
- R. Jeffery; J Masselos, From Rebellion to the Republic.
- R.L. Shukla; Adunik Bharat (ed). Delhi University Hindi Madhyam Kriyanwanyan Nideshalaya. 2012.
- R.P. Dutt, India Today.
- Ramachandra Guha The Fissured Land.
- Sekhar Bandyopadhyay: From Plassey to Partition
- Shekher Bandopadhyya :Plassy to Partation Orient BlackSwan(Hindi & English)
- Sumit Sarkar Modern India 1885 1947, Macmillan, 1983
- Sunder Lal; Bharat mein Angreji Raj 2 vol.(National Book Trust of India)
- Thomas Metcalf; Ideologies of the Raj.
- Urvashi Butalia; The Other side of Silence.

Hindi books

- 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.
- चन्द्र, बिपिन., मुखर्जी, मृदुला., मुखर्जी, आदित्य., आजादी के बाद का भारत., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चन्द्र, बिपिन., आधुनिक भारत में सांप्रदायिकता., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- गुप्ता, डी0एन0, अनुवाद, भारत की बदलती उत्पादन प्रणालियाँ हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- ग्रोवर, बी0एल0, यशपाल., आधुनिक भारत का इतिहास, एस चन्द्र एण्ड कम्पनी लि0, नई दिल्ली.

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<https://epustakalav.com>

<https://archive.org>

<https://ignou.ac.in>

www.cec.nic.in

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects:

Open for all

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Pre requisites: To study this course, a student must have qualified 10+2.



Bachelor of Arts			
Programme: <i>Bachelor of Arts</i>		Year: III	Semester: VI Paper-II
Subject: History			
Course Code: H309MT	Course Title: History of Modern World 1815AD 1945AD		
Course Outcomes: This Course will impart knowledge to the students regarding the political transformations of the modern world that took place from the 18 th century till the end of 1945. The students will be able to know about the political history of the world since the end of the first world war focusing on the change and continuity over time and space. The course will impart knowledge on the economic developments of the period in an analytic way.			
Credits: 5		Core Compulsory	
Max. Marks: 25+75=100			
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0			
Unit	Topic		No. of Lectures
Unit I	Age of Conservatism: Vienna Congress Metternich, Concert of Europe.		12
Unit II	French Revolutions 1830 & 1848, Liberalism in England- Reform Act of 1832 and the Chartist Movement.		9
Unit III	Opium war I & II, American civil war.		8
Unit IV	Rise of Nationalism in Europe Unification of Italy and Germany.		8
Unit V	Growth of Imperialism. Causes of First World War.		8
Unit VI	World War One-Major events and Peace settlement, Bolshevik Revolution (1917).		7
Unit VII	Economic and Social crisis between the two World War, the Great Depression and the New Deal.		9
Unit VIII	Awakening of China-Mao's Long March and Rise of Communism, Emergence of USA and Japan.		7
Unit IX	Emergence of New Ideologies-Fascism and Nazism, factors leading To World War II, the Holocaust, Victory of allied powers and shaping of new world order.		7

Suggested Reading:

- Anthony Wood, History of Europe, 1815-1960 (1983)
- Arvind Sinha, Europe in Transition, Delhi, 2010 (also in Hindi)
- Bailey C.A.: The Birth of Modern World
- Basil Davidson, Modern Africa: A Social and Political History, 3rd edn.. London /New Jersey: Addison & Wesley, 1995
- Benms, F. Lee: Europe since 1914
- C.M. Cipolla: Fontana Economic History of Europe, Volume II the Present (1981)
- Christopher Hill, From Reformation to Industrial Revolution
- E.J. Hobsbawm : The Age of Revolution
- Hartly, G M.S. (1950), Short History of international Affairs 1920-1939. New York. Oxford University Press
- Hayes, C.J.H. A Political and Cultural History of Europe. 1830-1839
- J. Evans: The Foundations of a Modern State in 19th Century Europe.
- J.H Perry, The Establishment of the European Hegemony 1415-1715,
- James Joll, Europe Since 1870.
- K.R.G.Nair & Romey Borges, Discovering French Canada, Allied Publishers, 2002
- Langasm. W.C. World Since 1919, Surjeet Publication
- Parker, R.A.C.: (1969). Europe (1919-1945) London, Weidenliekl and Nicolson
- Ralph Davis, The Rise of the Atlantic Economies,
- T.S. Hamerow: Restoration, Revolution and Reaction: Economics and Politics in Germany [1815-1871]
- Taylor, A.J.P. (1961), Origin of the Second World War. Simon and Schuster

Hindi books

- पार्थसारिथ गुप्ता, यूरोप का इतिहास., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- पार्थसारिथ गुप्ता, ब्रिटेन का इतिहास., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली. जेम्स
- पार्थसारिथ गुप्ता, आधुनिक पश्चिम का उदय., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- देवेश विजय., फ्रांसीसी क्रांति के सांस्कृतिक पहलू, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- देवेश विजय(संपादक), यूरोपीय संस्कृति(1400-1800 ई0), हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- वर्मा, लालबहादुर, आधुनिक विश्व का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.

Suggested Online Link:
<https://ndl.iitkgp.ac.in>
<https://epustakalav.com>
<https://archive.org>
www.cec.nic.in

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects:

Open for all

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Pre requisites: To study this course, a student must have qualified 10+2.



Project II

Programme: <i>Bachelor of Arts</i>		Year: III	Semester: VI Project II
Subject: History			
Course Code: H310P	Course Title: Research Methodology in History		
Course Outcomes The aim of the course is to provide students with an introduction to research methods and report writing. Upon successful completion of the course, you are expected to develop understanding on various kinds of research, objectives of doing research, research process, and research designs. Have basic knowledge on qualitative research techniques.			
Credits: 4		Core Compulsory	
Max. Marks: 100		Qualifying	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
Unit I	Historical Research: Meaning and Types, Choice of subject,		12
Unit II	Research -Hypothesis collection of data sources classification of sources. Sources in context: written, oral, visual and archaeological.		12
Unit III	Historical Facts & Interpretation.		12
Unit IV	Authenticity of Sources and Evaluation of evidence.		12
Unit V	Objectivity and Subjectivity in Writing History.		12

Suggested Reading:

- Arthur Marwick, New Nature of History: Knowledge, Evidence and Language (Chapter V: The Historian at Work: Forget 'Facts', Foreground Sources), Lyceum Books Incorporated, 2001.
 - Arthur Marwick, The Nature of History (Chapter IV: History, Science and Social Science), London: Macmillan, 1989.
 - E. Sreedharan, A Text book of Historiography 500 BC to AD 2000, Orient Longman, 2004(also in hindi)
 - E.H Carr: What is History, Penguin,2008
-

- Marc Bloch, The Historian's Craft (Introduction and Chapter I: History, Men and Time), Manchester University Press, 1992
- Shiek Ali, S; History its Theory and Method Macmillan India Publication Madras 1978
- Thomson, D. Renier, G.J : The Aims of History (London: James and Hudson, 1969); History: Its Purpose and Methods (London: George Allen & Unwin, 1950)

Suggested Online Link:<https://ndl.iitkgp.ac.in>

<https://epustakalay.com>

<https://archive.org>

<https://ignou.ac.in>

www.cec.nic.in

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects: Only for Students with History as a Major Subject

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
 - Presentation (10 Marks).
 - Attendance (5 Marks).
-

Minor Elective					
Year	Sem.	Course Code	Paper Title	Theory	Credits
I YEAR		H102 MET	Indian Society and Culture through the Ages	Theory	4

<ul style="list-style-type: none">• Programme: Society and Culture through the Ages		Year: I	
<ul style="list-style-type: none">• Subject: History			
Course Code: H102 MET	<ul style="list-style-type: none">• Course Title: Indian Society and Culture through the Ages		
<ul style="list-style-type: none">• Course 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.			
<ul style="list-style-type: none">• Credits:4		<ul style="list-style-type: none">• Minor Elective	
<ul style="list-style-type: none">• Max. Marks: 25+75=100			
<ul style="list-style-type: none">• Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
<ul style="list-style-type: none">• Unit	Topic		No. of Lectures
Unit I	Harappan and Vedic culture, Jainism and Buddhism		9
Unit II	Ashoka’s Dhamm, Mauryan Art and Architecture, Social and culture Developments in Post Mauryan Period		9
Unit III	Gupta Age Age: Society and Culture, Sangam Age, Post Gupta Period : Society and Culture.		9
Unit IV	Medieval Society: Art, Architecture and literature.		9
Unit V	Bhakti - Sufi movement & Status of Women		8
Unit VI	Social Change: Impact of Western Civilization, Status of Women		8
Unit VII	Indian Renaissance: Brahmo Samaj, Prarthna Samaj, Ramakrishna Mission, Vivekanand, Arya Samaj, Aligarh Movement, Theosophical Society.		8

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 Maurvas (1997 end

- Thapar, Romila History of Early India
- B. D. Chattopadhyaya: 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
- Chattopadhyaya, B.D., The making of early Medieval India. Oxford University press, New Delhi. 2003
- Chopra, P.N., Puri, B.N., Das, M.N., A social, cultural and economic history of India vol. II.
- Irfan Habib (ed.) : Madhya Kaleen Bharat, (in Hindi), 8 Volumes,
- Prasad, Ishwari: (1940), Medieval India (English or Hindi Version) Delhi, Indian Press
- Tara Chanda., Influence of Islam 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 आर्यों का आगमन, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- शर्मा, रामशरण. प्रारम्भिक भारत का आर्थिक और सामाजिक इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- झा, द्विजेन्द्रनारायण 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. प्राचीनभारतीय धर्म: उद्भव एवं स्वरूप, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- प्रसाद, ओमप्रकाश. संघाधिपति अशोक, हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- शर्मा, रामशरण, पूर्व मध्यकालीन भारत का सामंती समाज और संस्कृति, राजकमल प्रकाशन, नईदिल्ली.
- मुखर्जी, राधाकुमुद., प्राचीन भारत, प्रकाशन, राजकमल नईदिल्ली
- मिश्र, जयशंकर., ग्यारहवीं सदी का भारत, हिन्दी ग्रन्थ अकादमी, पटना.
- थापर, रोमिला. पूर्वकालीन 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.
- मोईनुद्दीनहसन खॉं, अनुवादक अब्दुलहक., गदर— 1857(आँखों 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 दिल्ली.

Suggested Online Link: <https://ndl.iitkgp.ac.in>

<https://epustakalay.com>

<https://archive.org>

<https://ignou.ac.in>

www.cec.nic.in

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as an elective by the students of following subjects:

Open for all

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Prerequisites: Open for All

Minor Elective					
Year	Sem.	Course Code	Paper Title	Theory	Credits
II YEAR		H204 MET	History of Nationalism in Modern India (1857-1947 AD)	Theory	4

<ul style="list-style-type: none">• Programme: History of Nationalism in Modern India (1857-1947 AD)		Year: II	
<ul style="list-style-type: none">• Subject: History			
Course Code: H204 MET	<ul style="list-style-type: none">• Course Title: History of Nationalism in Modern India (1857-1947 AD)		
<ul style="list-style-type: none">• Course Outcomes:• This paper is designed to develop an understanding of historical developments in India during the colonial rule. Understanding of the process of domination and resistance in this phase of colonial era shall enhance the student’s awareness about modern India. By studying various strands of freedom movement student will be able to appreciate this phase of Indian past.			
Credits:4		Minor Elective	
<ul style="list-style-type: none">• Max. Marks: 25+75=100			
<ul style="list-style-type: none">• Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
Unit I	First War of Indian Independence, emergence of nationalistic fervor-initial stages; Birth of Indian National Congress Moderates versus Extremists-Surat Split.		9
Unit II	Advent of Gandhi his Perspective & method; Impact of World War-I on Independence Movement, Rowlett Satyagrah & Jallianwala Bagh Massacre Non-Cooperation and Khilafat Movements, Swaraj Party.		9
Unit III	Simon Commission; Civil Disobedience Movement, Nehru Report, Gandhi Irwin Pact; Communal Award; Round Table Conferences		9
Unit IV	Rise of revolutionary extremism-Kakori Case, Lahore Conspiracy; Role of expatriates– Gardar Party.		9
Unit V	Peasants, Tribal and Depressed Classes Movements.		8
Unit VI	Quit India Movement, Subhas Chandra Bose and INA.		8
Unit VII	Rise of communal strife-Muslim League; Cripps Mission Cabinet Mission, Wavell Plan; India’s independence and partition.		8

Suggested Reading:

- Ayodhya Singh; 26 Bharat Ka Mukti Sangram
 - B.L. Grover; A New Look on Modern Indian History, S Chand.
 - Barbara D Metcalf and T.R. Metcalf; A Concise History of India, Cambridge, 2002
 - Bipan Chandra, Aditya Mukherjee, India After Independence, Viking, 1999.
 - Bipan Chandra: Nationalism and Colonialism.
-

- C.A.Bayley: An Illustrated History of Modern India 1600 - 1947, London 1990
- Francine Frankel; India's Political Economy 1947- 1977.
- Gail Omvedt; Dalits and Democratic Revolution.
- K.G. Subramanian; The Living Tradition: Perspectives on Modern Indian Art.
- Lloyd and Susan Rudolph In Pursuit of Laxmi: the Political Economy of the Indian State, Chicago, 1987
- Mushirul Hasan; From Company to the Republic: A story of Modern India
- Parul Brass; The Politics of India since Independence.
- R. Jeffery; J Masselos, From Rebellion to the Republic.
- R.L. Shukla; Adunik Bharat (ed). Delhi University Hindi Madhyam Kriyanwanyan Nideshalaya. 2012.
- R.P. Dutt, India Today.
- Ramachandra Guha The Fissured Land.
- Sekhar Bandyopadhyay: From Plassey to Partition
- Shekher Bandopadhyya :Plassy to Partation Orient BlackSwan(Hindi & English)
- Sumit Sarkar Modern India 1885 1947, Macmillan, 1983
- Sunder Lal; Bharat meinAngreji Raj 2 vol.(National Book Trust of India)
- Thomas Metcalf; Ideologies of the Raj.
- Urvashi Butalia; The Other side of Silence.

Hindi books

- शुक्ल, राम लखन., आधुनिक भारत का इतिहास., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- मोईनुद्दीनहसन खॉ, अनुवादक अब्दुलहक., गदर— 1857(ऑखों देखा विवरण) हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चन्द्र, बिपिन., मुखर्जी, मृदुला., मुखर्जी, आदित्य., क0न0 पनिकर., महाजन, सुचेता., भारत का स्वतंत्रता संघर्ष., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चन्द्र, बिपिन., मुखर्जी, मृदुला., मुखर्जी, आदित्य., आजादी के बाद का भारत., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- चन्द्र, बिपिन., आधुनिक भारत में सांप्रदायिकता., हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- गुप्ता, डी0एन0, अनुवाद, भारत की बदलती उत्पादन प्रणालियाँ हिन्दी माध्यम कार्यान्वयन निदेशालय, दिल्ली.
- ग्रोवर, बी0एल0, यशपाल., आधुनिक भारत का इतिहास, एस चन्द्र एण्ड कम्पनी लि0, नईदिल्ली.

Suggested Online Link:<https://ndl.iitkgp.ac.in>

<https://epustakalay.com>

<https://archive.org>

<https://ignou.ac.in>

www.cec.nic.in

Suggested equivalent online courses:

IGNOU & other centrally/state operated universities/MOOC platforms such as SWAYAM in India and Abroad.

This course can be opted as a minor elective by the students of following subjects:

Open for all

Suggested Continuous Evaluation (25 Marks):

- Seminar/Assignment on any topic of the above syllabus (10 Marks).
- Presentation (10 Marks).
- Attendance (5 Marks).

Course Prerequisites: Open for All

Vocational/Skill Development Course in History Department

Vocational Course-01		
Programme: <i>Certificate Course in Art</i>		Year: First
Subject: History		
Course Code: HVC-01	Course Title: Introduction of Archaeology	
Course Outcomes: On the successful completion of Introduction to Archaeology students will develop a strong foundation on the basic understanding of the nature, development and value of archaeology as a discipline		
Credits: 3		Elective
Max. Marks: 25+75=100		
Total No. of Lectures-Tutorials-Practical (in hours per week):3-0-0		
Unit	Topic	No. of Lectures
Unit I	Sources of Ancient Indian History.	9
Unit II	Definition, Aims and Scope of Archaeology.	9
Unit III	Type of Archaeology (Marine Archaeology, Ethno-archaeology, Historical Archaeology, Environmental Archaeology.	9
Unit IV	Brief introduction of Pre Historic Culture : Palaeolithic, Mesolithic and Neolithic Culture.	9
Unit V	Brief introduction of Proto Historic Culture : Harappa, PGW Culture (Painted Gray Ware) and Megalithic Culture.	9

Suggested Reading:

1. पाण्डेय, जय नारायण ; पुरातत्व विमर्श, इलाहाबाद
2. वहीलर, मोर्टेयर : पृथ्वी से पुरातत्व
3. वर्मा आर के. : पुरातत्व अनुशीलन, परमज्योति प्रकाशन, इलाहाबाद
4. Agrawal, D.P. : Archaeology of India
5. Wheeler, R. E. M., Archaeology from the Earth
6. Nautiyal, K. P. : Proto-historic India. Delhi
7. Sankalia.H.D : Prehistory and Protohistory of India & Pakistan
8. Atkinson, R. J. C.: Field Archaeology, London
9. Bhattacharya. D.K. : An Outline of India Prehistory
10. Allchin, B. & E.R. Allchin : The Rise of Civilization in India and Pakistan

Suggestive digital platforms web links- IGNOU & Other centrally/state operated Universities / MOOC platforms such as “SWAYAM” in India and Abroad Suggest equivalent online courses : NA

This course can be opted as an elective by the students of following subjects : Open to all.

Suggested Continuous Evaluation(25Marks):

- Seminar/Assignment on any topic of the above syllabus.
- Test with multiple choice questions / short and long answer questions.
- Research Orientation of the student.
- Quiz.

Course Pre requisites: Basic understanding of History

Suggested equivalent online courses:

<https://www.mooc-list.com/tags/archaeology>

<https://online-learning.harvard.edu/subject/archaeology>

<https://www.distancelearningportal.com/search/#q=ci-30|di-70|lv-short|mh-blended,online>

Further Suggestions: For Course Contents visit :

<https://www.youtube.com/watch?v=m9w2ZOUF6So>

<https://www.youtube.com/watch?v=hW7tCQ457FA&t=1475s>

<https://www.youtube.com/watch?v=sWMTXcx-5lM&t=146s>

परीक्षा प्रणाली

श्री देव सुमन उत्तराखण्ड विश्वविद्यालय परिसर, ऋषिकेश में दिनांक 10 अगस्त 2022 को कला संकाय की अध्यापन समिति (Board of Studies) में लिए गए निर्णय के क्रम में श्री देव सुमन उत्तराखण्ड विश्वविद्यालय में संचालित स्नातक पाठ्यक्रमों के निम्न विषयों -

हिन्दी ,
अंग्रेजी ,
संस्कृत,
इतिहास ,
गृह विज्ञान ,
भूगोल,
राजनीति विज्ञान ,
समाज शास्त्र,
अर्थशास्त्र ,
शिक्षा शास्त्र ,
शारीरिक शिक्षा ,
संगीत ,
चित्रकला ,
मानव शास्त्र ,
मनोविज्ञान ,
दर्शन शास्त्र तथा

सैन्य विज्ञान विषयों के स्नातक कक्षाओं के सेमेस्टर परीक्षा 2022-23 हेतु पारित निर्णय निम्नवत हैं :

राष्ट्रीय शिक्षा नीति 2020 के अंतर्गत प्रवर्तित पाठ्यक्रमों के प्रत्येक सेमेस्टर में प्रत्येक लिखित प्रश्न पत्र तीन घंटों का होगा तथा प्रत्येक प्रश्न पत्र अधिकतम 75 अंकों का होगा । प्रत्येक प्रश्न पत्र के दो खंड होंगे - खंड अ और खंड ब । खंड अ में 8 लघु उत्तरीय प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थी को 5 प्रश्नों के उत्तर देना अनिवार्य होगा । खंड अ का प्रत्येक प्रश्न 6 अंकों का होगा । खंड ब में 5 प्रश्न दीर्घ उत्तरीय प्रकृति के होंगे जिनमें से परीक्षार्थी को 3 प्रश्नों के उत्तर देना अनिवार्य होगा । प्रत्येक दीर्घ उत्तरीय प्रश्न 15 अंकों का होगा ।

अध्यक्ष , अध्यापन समिति (Board of Studies)

कला संकाय, श्री देव सुमन उत्तराखण्ड विश्वविद्यालय , बादशाहीघाट

NATIONAL EDUCATION POLICY-2020

Syllabus for First Three Years of Higher Education



**Sri Dev Suman Uttarakhand University
Badshahi Thaul (Tehri Garwal) Uttarakhand -249199**

(State University of Uttarakhand)

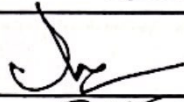
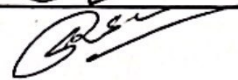
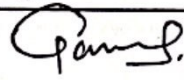
MATHEMATICS

2022

Members of Board of Studies
Faculty of Science
Sri Dev Suman Uttarakhand University
Badshahi Thaul (Tehri Garwal) Uttarakhand -249199

Sr. No.	Name & Designation	
1.	Prof. Gulshan Kumar Dhingra Principal and Dean, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand) -249201	Chairman
2.	Prof. M.S. Rawat Department of Zoology, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand) -249201	Member
3.	Prof. Anita Tomar Head, Department of Mathematics, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand) -249201	Member
4.	Prof. S.P. Sati Head, Department of Chemistry, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh, (Uttarakhand) -249201	Member
5.	Prof. Yogesh Kumar <i>Sharma</i> Head, Department of Physics, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand) -249201	Member
6.	Prof. Rakesh Kumar Head, Department of Zoology, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand) -249201	Member
7.	Prof. Sri Krishan Nautiyal Head, Department of Geology, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand) -249201	Member
8.	Dr. Madhu Thapliyal Department of Zoology, Government P.G. College Uttarkashi (Uttarakhand)	Invited Member
9.	Prof. D.C. Nainwal, Principal Government P.G. College Doiwala (Uttarakhand)	P.G. Principal
10.	Prof. Renu Negi, Principal Government P.G. College New Tehri (Uttarakhand)	P.G. Principal
11.	Prof. Devesh Bhatt, Principal Government Degree College Bedikhal (Uttarakhand)	P.G. Principal
12.	Prof. Durgesh Pant, Director General UCOST, Dehradun (Uttarakhand)	Director Research Institute
13.	Prof. V. K. Khanduri, Dean VCSG UHF Ranichauri Campus (University), Uttarakhand	Hon. V.C. Nominee
14.	Prof. A.A. Baurai SRT Campus Badshahi Thaul, (Tehri Garwal) Uttarakhand	Hon. V.C. Nominee
15.	Prof. J.P. Bhatt, Department of Zoology, H.N.B. Garhwal University, Srinagar Garhwal, Uttarakhand (Retired) Present address: Dehradun	Hon. V.C. Nominee





DEPARTMENT COMMITTEE
Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University,
Rishikesh (Uttarakhand)

S.No.	Name	Signature
1	Prof. Anita Tomar Head, Department of Mathematics, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand)-249201	
2	Dr. Deepa Sharma, Associate Professor, Department of Mathematics, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand)-249201	
3	Dr. Gaurav Varshney, Assistant Professor, Department of Mathematics, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand)-249201	
4	Dr. Dharendra Singh, Assistant Professor, Department of Mathematics, Pt. L. M. S. Campus, Sri Dev Suman Uttarakhand University, Rishikesh (Uttarakhand)-249201	






Curriculum Design Committee, Uttarakhand

Sr.No.	Name & Designation
1.	Prof. N.K. Joshi Vice-Chancellor , Kumaun University Nainital Chairman
2.	Prof. O.P.S. Negi Vice-Chancellor , Uttarakhand Open University Member
3.	Prof. P. P. Dhyani Vice-Chancellor , Sri Dev Suman Uttarakhand University Member
4.	Prof. N.S. Bhandari Vice-Chancellor, Soban Singh Jeena University Almora Member
5.	Prof. Surekha Dangwal Vice-Chancellor, Doon University, Dehradun Member
6.	Prof. M.S.M. Rawat Advisor, Rashtriya Uchchatar Shiksha Abhiyan, Uttarakhand Member
7.	Prof. K. D. Purohit Advisor, Rashtriya Uchchatar Shiksha Abhiyan, Uttarakhand Member

SYLLABUS EXPERT COMMITTEE

S. No.	Name	Signature
1	Prof. Anita Tomar, HoD, Department of Mathematics, Sri Dev Suman Campus, Rishikesh	
2	Prof. Jaya Upreti, HoD, Department of Mathematics, S. S. J. Campus, Almora	
3	Dr. Shankar Kumar, Assistant Professor, Department of Mathematics, Govt. P. G. College, Ranikhet.	
4	Dr. Sundar Kumar Arya, Assistant Professor, Department of Mathematics, Govt. P. G. College, Pithoragarh.	

SYLLABUS PREPARATION COMMITTEE

S. No.	Name	Signature
1	Prof. Jaya Upreti, HoD, Department of Mathematics, S. S. J. Campus, Almora	
2	Prof. Anita Tomar, HoD, Department of Mathematics, Sri Dev Suman Campus, Rishikesh	
3	Dr. Shankar Kumar, Assistant Professor, Department of Mathematics, Govt. P. G. College, Ranikhet.	
4	Dr. Sundar Kumar Arya, Assistant Professor, Department of Mathematics, Govt. P. G. College, Pithoragarh.	
5	Dr. Anita Kumari, Assistant professor, Department of Mathematics, D. S. B. Campus, Almora.	

Theory and Practical Examination Pattern

theory (External) each theory paper carrying maximum marks 75 and shall consist of two sections A and B. Examination duration shall be 02 hours.

- a. Section A: Multiple choice questions (MCQ)/true and false/very very short answer type questions.
Section A will consist of 10 questions, each of one mark)
Total: $10 \times 1 = 10$ Marks
- b. Section B: (Short answers type)
Section B will consist of 08 questions, each of 7 marks in which 5 has to be answered.
Total: $7 \times 5 = 35$ Marks
- c. Section C: (Long answers type)
Section C will consist of 3 long answered questions, in which has to be answered, each of 15 marks.
Total: $2 \times 15 = 30$ marks

For each theory paper internal assessment shall be conducted periodically (in the form of class tests and/or assignments/ group discussion/ oral presentation/ overall performance) during the semester period. Total marks allotted to internal assessment shall be 25 (Assignments 10 marks, written test/viva 10 marks and regularity 5 marks). The evaluated answer sheets/assignments have to be retained by the Professor In-Charge for the period of six months and can be shown to the students if students want to see the evaluated answer sheets. The marks obtained by the students shall be submitted to the Head of concerned department/ the Principal of the College for uploading onto the University examination portal.

Practical The laboratory work of the students has to be evaluated periodically.

The internal assessment (in the form of lab test, lab record, internal evaluation, assignment/home assignment and attendance) of total 10 marks for each semester shall be conducted during the semester. All kinds of exercises have to be conducted during a semester. Maximum 5 marks of attendance can be given to the students.

In each semester practical examination of 40 marks has to be conducted by two examiners (External and internal) having duration of 4 hours. The total number of students to be examined per batch should not be more than sixty. Marks obtained in the practical examination have to be submitted to the Head of the department/ Principal of the College. The Head of the Department/Principal of the College will make necessary arrangement for uploading the marks onto the University exam portal. The hard copy of the award list from portal has to be submitted to the Controller of Examination, Sri Dev Suman Uttarakhand University, Badshahithaul, New Tehri.

The breakup of marks for practical examination for each semester would be as follows: .

Practical exam:	30 Marks (exercises)
Viva voce:	05 Marks
Lab Record and collection:	05 Marks
Sessional (Internal):	10 Marks
Total:	50 marks (each semester)

10/10/2022
[Signatures]

Syllabus under NEP-2020
 Sri Dev Suman Uttarakhand University
 Badshahi Thaul (Tehri Garwal) Uttarakhand -249199
 Session: 2022-23
B.A./B.Sc.(Mathematics)

	Semester	Major	Minor/Additional/Interdisciplinary subject/Multidisciplinary	Skill/Vocational Course-I
Certificate	I	Matrices, Trigonometry and Differential Calculus Credit: 4+2	Differential Calculus Credit: 4	Matrices Credit: 3
	II	Integral Calculus and Vector Analysis Credit: 6		Integral Calculus Credit: 3
Diploma	III	Group Theory and Analytical Geometry Credit: 6	Analytical Geometry Credit: 4	Group Theory Credit: 3
	IV	Ordinary Differential Equations and Ring Theory Credit: 6		Ordinary Differential Equations Credit: 3
Degree	V Paper I	Real Analysis, Functions of several variables and Partial Differential Equations Credit: 5		
		Mathematical Methods and Graph Theory/ Number Theory and Relativity/ Numerical Analysis and Operations Research Credit: 5		
	VI Paper I	Complex Analysis and Mechanics Credit: 5		
		Linear Algebra and Metric Spaces Credit: 5		

SEMESTER WISE TITLES OF THE PAPER IN UG MATHEMATICS COURSE					
YEAR	SEMESTER	COURSE CODE	PAPER TITLE	THEORY/ PRACTICAL	CREDIT
CERTIFICATE COURSE IN BASIC MATHEMATICS					
FIRST YEAR	I	UGMAT101T	Matrices, Trigonometry and Differential Calculus	THEORY	4
		UGMAT102P	Practical	PRACTICAL	2
	II	UGMAT201T	Integral Calculus and Vector Analysis	THEORY	6
DIPLOMA IN MATHEMATICS					
SECOND YEAR	III	UGMAT301T	Group Theory and Analytical Geometry	THEORY	6
	IV	UGMAT401T	Ordinary Differential Equations and Ring Theory	THEORY	6
DEGREE IN MATHEMATICS					
THIRD YEAR	V	UGMAT501T	Real Analysis, Functions of several variables and Partial Differential Equations	THEORY	5
		UGMAT502T	Any one of the following- (i) Mathematical Methods and Graph Theory (ii) Number Theory and Relativity (iii) Numerical Analysis and Operations Research	THEORY	5
	VI	UGMAT601T	Complex Analysis and Mechanics	THEORY	5
		UGMAT602T	Linear Algebra and Metric Spaces	THEORY	5

Qamg

Sh

Sam
10/08/2022

Dr

Dr
10/08/2022

Basu

PROPOSED STRUCTURE OF UG MATHEMATICS SYLLABUS AS PER NEP 2020 GUIDELINES GENERAL

OVERVIEW

B.A./B.Sc.I										
PROGRAMME	YEAR	SEMESTER (15 Weeks)	PAPER	CREDIT	PERIODS Per Week	PERIODS (HOURS) Per Semester	PAPER TITLE	UNIT (Periods Per Semester)	PREREQUISITE	ELECTIVE (For Other Faculty)
CERTIFICATE COURSE IN BASIC MATHEMATICS	FIRST YEAR	SEMESTER - I	Paper-1	4	4	4x15=60	Matrices, Trigonometry and Differential Calculus Part A: Matrices Part B: Trigonometry Part C: Differential Calculus	Part A Unit I (8) Unit II (7) Unit III (5) Part B Unit IV (6) Unit V (6) Part C Unit VI (7) Unit VII (6) Unit VIII (8) Unit IX (7)	Mathematics in 12 th	Engg. and Tech. (UG), Chemistry/ Biochemistry/ Life Sciences (UG), Economics (UG/PG), Commerce (UG), BBA/ BCA, B.Sc. (C.S.)
			Paper-2 Practical	2	2 Lab Periods (2 Hours Each)	2x2x15=60	Practical (Practicals to be done using Mathematica/MATLAB / Maple / Scilab / Maxima etc.)		Mathematics in 12 th	Engg. and Tech. (UG), B.Sc. (C.S.)
		SEMESTER - II	Paper-1	6	6	15x6=90	Integral Calculus and Vector Analysis Part A: Integral Calculus Part B: Vector Analysis	Part A Unit I (12) Unit II (11) Unit III (12) Unit IV (11) Part B Unit V (11) Unit VI (12) Unit VII (11) Unit VIII (10)	Mathematics in 12 th	Engg. and Tech. (UG), B.Sc. (C.S.)

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B.A./B.Sc. II										
PROGRAMME	YEAR	SEMESTER (15 Weeks)	PAPER	CREDIT	PERIODS Per Week	PERIODS (HOURS) Per Semester	PAPER TITLE	UNIT (Periods Per Semester)	PREREQUISITE	ELECTIVE (For Other Faculty)
DIPLOMA IN MATHEMATICS	SECOND YEAR	SEMESTER - III	Paper-I	6	6	6x15=90	Group Theory and Analytical Geometry Part A: Group Theory Part B: Analytical Geometry	Part A Unit I (12) Unit II (20) Unit III (13) Part B Unit IV (11) Unit V (12) Unit VI (12) Unit VII (10)	Certificate Course in Basic Mathematics	Engg. and Tech. (UG), B.Sc. (C.S.)
		SEMESTER - IV	Paper-I	6	6	6x15=90	Ordinary Differential Equations and Ring Theory Part A: Ordinary Differential Equations Part B: Ring Theory	Part A Unit I (12) Unit II (11) Unit III (11) Unit IV (11) Part B Unit V (11) Unit VI (10) Unit VII (12) Unit VIII (12)	Certificate Course in Basic Mathematics	Economics (UG/PG), B.Sc. (C.S.) Engineering and Technology (UG), Science (Physics-UG)

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B.A./B.Sc. III

PROGRAMME	YEAR	SEMESTER (15 Weeks)	PAPER	CREDIT	PERIODS Per Week	PERIODS (HOURS) Per Semester	PAPER TITLE	UNIT (Periods Per Semester)	PREREQUISITE	ELECTIVE (For Other Faculty)
DEGREE IN MATHEMATICS	THIRD YEAR	SEMESTER-V	Paper-1	5	5	5x15=75	Real Analysis & Functions of several variables and Partial Differential Equations Part A: Real Analysis Part B: Functions of several variables and Partial Differential Equations	Part A Unit I (8) Unit II (8) Unit III (7) Unit IV (7) Unit V (7) Part B Unit VI (8) Unit VII (8) Unit VIII (7) Unit IX (8) Unit X (7)	Diploma in Mathematics	Engg. And Tech.(UG), Economics (UG/PG), B.Sc.(C.S.)
			Paper-2	5	5	5x15=75	(i) Mathematical Methods & Graph Theory Part A: Mathematical Methods Part B: Graph Theory	Part A Unit I (8) Unit II (10) Unit III (10) Unit IV (9) Part B Unit V (10) Unit VI (10) Unit VII (9) Unit VIII (9)	Diploma in Mathematics	Engg. and Tech.(UG), BCA, B.Sc.(C.S.)

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DEGREE IN MATHEMATICS	THIRD YEAR	SEMESTER-V	Paper-2	5	5	5x15=75	(ii) Number Theory & Relativity Part A: Number Theory Part B: Relativity	Part A Unit I (16) Unit II (11) Unit III (12) Part B Unit IV (14) Unit V (12) Unit VI (10)	Diploma in Mathematics	Engg. and Tech. (UG), BCA, B.Sc. (C.S.)
			Paper-2	5	5	5x15=75	(iii) Numerical Analysis & Operations Research Part A: Numerical Analysis Part B: Operations Research	Part A Unit I (9) Unit II (9) Unit III (10) Unit IV (10) Unit V (9) Part B Unit VI (16) Unit VII (12)	Diploma in Mathematics	Engg. and Tech. (UG), Economics (U G/PG), BBA/BCA, B.Sc.(C.S.)
DEGREE IN MATHEMATICS	THIRD YEAR	SEMESTER-VI	Paper-1	5	5	5x15=75	Complex Analysis & Mechanics Part A: Complex Analysis Part B: Mechanics	Part A Unit I (9) Unit II (9) Unit III (10) Unit IV (9) Part B Unit V (10) Unit VI (10) Unit VII (9) Unit VIII (9)	Diploma in Mathematics	Engg. and Tech. (UG), B.Sc.(C.S.)

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DEGREE IN MATHEMATICS	THIRD YEAR	SEMESTER-VI	Paper-2	5	5	5x15=75	Linear Algebra & Metric Spaces Part A: Linear Algebra Part B: Metric Spaces	Part A Unit I (10) Unit II (9) Unit III (9) Unit IV (9) Unit V (9) Part B Unit VI (6) Unit VII (11) Unit VIII (12)	Diploma in Mathematics	Engg. and Tech. (UG), B.Sc.(C.S.)
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Programme Outcome/Programme Specific Outcome

Programme Outcome:

- PO1: It is to give in-depth knowledge of geometry, algebra, calculus, differential equations and several other branches of pure and applied mathematics. This also leads to study the related areas such as computer science and other allied subjects.
- PO2: The skills and knowledge gained in this program will be helpful for modeling and solving of real life problems.
- PO3: Students will become employable in various government and private sector.
- PO4: The completing this programme develop enhanced quantitative skills and pursuing higher mathematics and research as well.
- PO5: The completion of this programme will enable the learner to use appropriate digital programmes and softwares to solve various mathematical problems.

Programme Specific Outcome:

- PSO1: Student should be able to think in a critical manner and develop problem solving skills.
- PSO2: Students should be able to recall basic facts about mathematics and display knowledge of conventions such as notations, terminology etc.
- PSO3: Students are able to formulate and develop mathematical arguments in a logical manner.
- PSO4: Students are motivate and prepare for research studies in mathematics and related fields.
- PSO5: Student should be able to apply their skills and knowledge in various fields of studies including, science, engineering, commerce and management etc.

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B.A./B.Sc. I (MATHEMATICS)

Detailed Syllabus For

CERTIFICATE

COURSE IN

BASIC MATHEMATICS

B.A. / B.Sc. I (SEMESTER-I) PAPER-I
Matrices, Trigonometry and Differential Calculus

Programme: Certificate Class: B.A. / B.Sc.	Year: First	Semester: First
Course Code: UGMAT101T	Subject: Mathematics	
Course outcomes:	Course Title: Matrices, Trigonometry and Differential Calculus	
<p>CO1: The programme outcome is to give foundation knowledge for the students to understand basics of mathematics including applied aspect for developing enhanced quantitative skills and pursuing higher mathematics and research as well.</p> <p>CO2: By the time students complete the course they will have wide ranging application of the subject and have the knowledge of matrices and basics of differentiation.</p> <p>CO3: The student will be able to sum the trigonometric series of real and complex numbers and separate the trigonometric function in form of $A+iB$.</p> <p>CO4: The main objective of the course is to equip the student with necessary analytic and technical skills. By applying the principles of differentiation, he learns to solve a variety of practical problems in science and engineering.</p> <p>CO5: The student is equipped with standard concepts and tools at an intermediate to advance level that will serve him well towards taking more advance level course in mathematics.</p>		
Credits: 4	Core Compulsory / Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures-Tutorials – Practical (in hours per week): L-T-P:4-0-0		
Part-A		
Matrices		
Unit	Topics	No. of Lectures
I	Matrix introduction, matrix operations with their properties, symmetric, skew-symmetric, Hermitian and skew- Hermitian matrices, idempotent, nilpotent, involutory, orthogonal and unitary matrices, singular and non-singular matrices, elementary operations on a matrix, adjoint and inverse of a matrix, singular and non-singular matrices, negative integral powers of a non-singular matrix, Trace of a matrix.	8
II	Rank of a matrix, elementary transformations of a matrix and invariance of rank through elementary transformations, normal form of a matrix, elementary matrices, rank of the sum and product of two matrices, inverse of a non-singular matrix through elementary row transformations, equivalence of matrices.	7
III	Solutions of a system of linear equations, condition of consistency and nature of the general solution of a system of linear non-homogeneous equations.	5

Part-B		
Trigonometry		
Unit	Topics	No. of Lectures
IV	Trigonometric or circular and hyperbolic function of complex variable together with their inverses, De Moivre's Theorem and its applications, Euler's theorem, relation between trigonometric and hyperbolic function, Exponential function of a complex variable, Logarithms of complex variable, Properties of logarithmic function, Separation into real and imaginary parts	6
V	Gregory's series, Value of π by different series, Summation of Trigonometric series by C+S method based on Arithmetic Progression, Geometric Progression, Logarithms and Binomial expansions, Summation of Trigonometric series by difference method.	6

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Part-C Differential Calculus		
Unit	Topics	No. of Lectures
VI	Functions of one variable, Limit of a function (ϵ - δ Definition), Continuity of a function, Properties of continuous functions, Intermediate value theorem, Classification of discontinuities, Differentiability of a function, Jacobians, maxima and minima of single variable function, Rolle's Theorem, Mean value theorems and their geometrical interpretations, Applications of mean value theorems.	7
VII	Successive Differentiation, n^{th} Differential coefficient of functions, Leibnitz Theorem, Taylor's Theorem, Maclaurin's Theorem, Taylor's and Maclaurin's series expansions.	6
VIII	Geometrical meaning of tangent, Definition and equation of Tangent, Tangent at origin, Angle of intersection of two curves, Definition and equation of Normal, Cartesian sub tangent and subnormal, Tangents and normals of polar curves, Angle between radius vector and tangent, Perpendicular from pole to tangent, Pedal equation of curve, Polar sub tangent and polar subnormal, Derivatives of arc (Cartesian and polar formula).	8
IX	Curvature, Radius of curvature, Cartesian, Polar and pedal formula for radius of curvature, Tangential polar form, Centre of curvature, Asymptotes of algebraic curves, Methods of finding asymptotes, Parallel asymptotes, existence and classification of singular points, points of inflection.	7

Suggested Readings (PART-A Matrices):

1. Hari Kishan, A Textbook of Matrices, Atlantic Publishers, 2008
2. Fuzhen Zhang, Matrix Theory- Basic Results and Techniques, Springer, 1999
3. Shanti Narayan, P.K. Mittal, A Textbook of Matrices, S Chand & Company, 2010
4. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Readings (PART-B Trigonometry):

1. Margaret L. Lial, John Hornsby, David I. Schneider, Trigonometry, Addison-Wesley, 2001
2. Robert Moyer, Frank Aryes, Schaum's Outline of trigonometry, 2012
3. I. M. Gelfand, Mark Saul, Trigonometry, Birkhäuser, 2001st edition (June 8, 2001)
4. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Readings (Part- C Differential Calculus):

1. R.G. Bartle & D.R. Sherbert, Introduction to Real Analysis, John Wiley & Sons, 1999
2. T.M. Apostol, Calculus Vol. I, John Wiley & Sons Inc., 1974
3. Ajit Kumar and S. Kumaresan, A Basic Course in Real Analysis, CRC Press, 2019
4. S. Balachandra Rao & C. K. Shantha, Differential Calculus, New Age Publication, 1992
5. H. Anton, I. Birens and S. Davis, Calculus, John Wiley and Sons, Inc. 2007
6. G.B. Thomas and R.L. Finney, Calculus, Pearson Education, 2010
7. Suggested digital platform: NPTEL/SWAYAM/MOOCs

This course can be opted as an elective by the students of following subjects: Engg. and Tech. (UG), Chemistry/ Biochemistry/ Life Sciences (UG), Economics (UG/PG), Commerce (UG), BBA/ BCA, B.Sc. (C.S.)

Suggested Continuous Evaluation Methods: Max. Marks: 25

S.N.	Assessment Type	Max. Marks
1	Class Tests	10
2	Online Quizzes/Objective Tests	5
3	Presentation	5
4	Assignment	5

Course prerequisites: To study this course a student must have subject Mathematics in class 12th.

Suggested equivalent online courses:

Further Suggestions:

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B.A./B.Sc. I (SEMESTER-I) Paper-II

Practical

Programme: Certificate		Year: First		Semester: First	
Class: B.A./B.Sc.					
Course Code: UGMAT102P		Subject: Mathematics			
Course outcomes:		Course Title: Practical			
CO1: The main objective of the course is to familiarize the student with different computer software such as Mathematica /MATLAB /Maple /Scilab/Maxima etc.					
CO2: The students will be able to compute various operations on matrices by using different computer software such as Mathematica /MATLAB /Maple /Scilab/Maxima etc.					
CO3: The students will also be able to compute n^{th} derivative of various functions by using different computer software.					
Credits: 2		Core Compulsory/Elective			
Max. Marks: 25+75		Min. Passing Marks:			
Total No. of Lectures – Tutorials – Practical (in hours per week): L-T-P: 4-0-0					
Unit	Topics				Nd. of Lectures
	Practical / Lab work to be performed in Computer Lab. List of the practical to be done using R/Python/Mathematica/MATLAB/Maple/Scilab/Maxima etc.				
	1. Introduction to the software and commands related to the topic. 2. Computation of addition and subtraction of matrices. 3. Computation of multiplication of matrices. 4. Computation of Trace and Transpose of Matrix. 5. Computation of Rank of matrix. 6. Computation of Inverse of a Matrix. 7. Solving the system of homogeneous and non-homogeneous linear algebraic equations. 8. Finding the n^{th} Derivative of e^{ax} , trigonometric and hyperbolic functions. 9. Finding the n^{th} Derivative of algebraic and logarithmic functions. 10. Finding the n^{th} Derivative of $e^{ax}\sin(bx+c)$, $e^{ax}\cos(bx+c)$. 11. Finding the Taylor's and Maclaurin's expansions of the given functions.				60
Suggested Readings:					
This course can be opted as an elective by the students of following subjects: Engg. and Tech. (UG), B.Sc. (C.S.)					
Suggested Continuous Evaluation Methods: Max. Marks: 25					
S.N.	Assessment Type				Max. Marks
1	Class Tests				10
2	Online Quizzes/ Objective Tests				5
3	Presentation				5
4	Assignment				5
Course prerequisites: To study this course a student must have subject Mathematics in class 12 th .					
Suggested equivalent online courses:					
Further Suggestions:					

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B.A. / B.Sc. I (SEMESTER-II) PAPER – I
Integral calculus and Vector Analysis

Programme: Certificate	Year: First	Semester: Second
Class: B.A./B.Sc.		
Course Code: UGMAT201T	Subject: Mathematics	
Course outcomes:	Course Title: Integral calculus and Vector Analysis	
CO1: The Programme outcome is to give foundation knowledge for the students to understand basics of mathematics including applied aspect for developing enhanced quantitative skills and pursuing higher mathematics and research as well.		
CO2: By the time students complete the course they will have wide ranging application of the subject and have the knowledge of surface area and volume of shapes.		
CO3: The main objective of the course is to equip the student with necessary analytic and technical skills. By applying the principles of integral he learns to solve a variety of practical problems in science and engineering.		
CO4: The student is equipped with standard concepts and tools at an intermediate to advance level that will serve him well towards taking more advance level course in mathematics.		
Credits: 6	Core Compulsory/Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures – Tutorials – Practical (in hours per week): L-T-P: 6-0-0		

PART-A

Integral Calculus

Unit	Topics	No of Lectures
I	Integral as a limit of sum, Properties of Definite integrals, Fundamental theorem of integral calculus, Summation of series by integration, Infinite integrals, Differentiation and integration under the integral sign.	12
II	Beta function, Properties and various forms, Gamma function, Recurrence formula and other relations, Relation between Beta and Gamma function, Evaluation of integrals using Beta and Gamma functions.	11
III	Double integrals, Repeated integrals, Evaluation of Double integrals, Double integral in polar coordinates, Change of variables, Change of order of integration in Double integrals, Triple integrals, Evaluation of Triple integrals, Dirichlet's theorem and its Liouville's extension.	12
IV	Area bounded by curves (quadrature), Rectification (length of curves), Volumes and Surfaces of Solids of revolution.	11

PART-B

Vector Analysis

Unit	Topics	No. of Lectures
V	Triple product, Reciprocal vectors, Product of four vectors, General equation of a Plane, Normal and Intercept forms, Two sides of a plane, Length of perpendicular from a point to a plane, Angle between two planes, System of planes.	11
VI	Direction Cosines and Direction ratios of a line, Projection on a straight line, Equation of a line, Symmetrical and unsymmetrical forms, Angle between a line and a plane, Coplanar lines, Lines of shortest distance, Length of perpendicular from a point to a line, Intersection of three planes, Transformation of coordinates.	12
VII	Ordinary differentiation of vectors, Velocity and Acceleration, Differential operator-Del, Gradient, Divergence and Curl.	11
VIII	Line, Surface and volume integrals, Simple applications of Gauss divergence theorem, Green's theorem and Stokes theorem (without proof).	10

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Suggested Readings (Part- A Integral Calculus):

1. T.M. Apostol, Calculus Vol. I, John Wiley & Sons Inc., 1974
2. H. Anton, I. Birens and S. Davis, Calculus, John Wiley and Sons, Inc. 2007
3. Q.B. Thomas and R.L. Finney, Calculus, Pearson Education, 2010
4. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Readings (Part- B Vector Analysis):

1. Murray R. Spiegel: Vector Analysis, Schaum's Outline Series, McGraw Hill.
2. N. Saran and S. N. Nigam: Introduction to Vector Analysis, Pothishala Pvt. Ltd. Allahabad.
3. Suggested digital platform: NPTEL/SWAYAM/MOOCs

This course can be opted as an elective by the students of following subjects: Engg. and Tech. (UG), B.Sc. (C.S.)

Suggested Continuous Evaluation Methods: Max. Marks: 25

S.N.	Assessment Type	Max. Marks
1	Class Tests	10
2	Online Quizzes/ Objective Tests	5
3	Presentation	5
4	Assignment	5

Course prerequisites: To study this course a student must have subject Mathematics in class 12th.

Suggested equivalent online courses:

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B.A./B.Sc. II (MATHEMATICS)

Detailed Syllabus For

**DIPLOMA
IN
MATHEMATICS**

B.A./B.Sc. II (SEMESTER-III) PAPER-I Group Theory and Analytical Geometry

Programme: Diploma	Year: Second	Semester: Third
Class: B.A./B.Sc.		
Subject: Mathematics		
Course Code: UGMAT301T	Course Title: Group Theory and Analytical Geometry	
Course outcomes:		
CO1: Group theory is one of the building blocks of modern algebra. Objective of this course is to introduce students to basic concepts of Group and their properties.		
CO2: This course will lead the student to basic course in advanced mathematics and geometry.		
CO3 The subjects learn and visualize the fundamental ideas about coordinate geometry and learn to describe some of the surface by using analytical geometry.		
CO4: On successful completion of the course students have gained knowledge about regular geometrical figures and their properties. They have the foundation for higher course in geometry.		
CO5: On successful completion of the course students should have knowledge about higher different mathematical methods and will help him in going for higher studies and research.		
Credits: 6	Core Compulsory / Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures - Tutorials-Practical (in hours per week): L-T-P:6-0-0		
Part-A		
Group Theory		
Unit	Topics	No. of Lectures
I	Cartesian product of Sets, Functions or mappings, Binary operations, Relation, Equivalence relations and partitions, Congruence Modulo n, Definition of a group with examples and simple properties, Abelian group, Finite and infinite group, Order of a finite group, General properties of groups, Composition table for finite groups	12
II	An Alternative set of postulates of groups, Subgroups, Permutations, Cyclic Permutations, Even and odd permutations, group of Permutations alternating group, Integral power of an element of a group, Order of an element of a group, Group homomorphism, Isomorphism on groups, the relation of isomorphism in the set of all groups Complexes and subgroup of a group, theorems on subgroups, Coset decomposition, Lagrange's theorem and its consequences, Cayley's theorem, Cyclic group, generating system of group.	20
III	Normal subgroups, Simple group, Conjugate elements, Normalizer of an element of a group, Class equation of a group, Centre of a group, Conjugate subgroups, Invariant sub groups, Quotient group, Homomorphism and Isomorphism on groups, Kernel of a Homomorphism and related theorems.	13

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Part-B Analytical Geometry		
Unit	Topics	No. of Lectures
IV	Polar Equation of conics, Polar coordinate system, Distance between two points, Polar equation of a Straight line, Polar equation of a circle, Polar equation of a conic, Chords, Tangent and Normal to a conic	11
V	Curvilinear coordinates, Spherical and Cylindrical coordinates, Definition and equation of a sphere, Plane section of a sphere, Intersection of two spheres, Intersection of a sphere and a line, Power of a point, tangent plane, Plane of contact, Polar plane, Pole, Angle of Intersection of two spheres, Radical plane, Co-axial system of spheres.	12
VI	Definition and equation of a cone, Vertex, Guiding curve, Generators, Three mutually perpendicular generators, Intersection of a line with a cone, Tangent line and tangent plane, Reciprocal cone, Right circular cone, Definition and equation of a cylinder, Right circular cylinder, Enveloping cylinder.	12
VII	General equation of second degree, Tangent plane, Director sphere, Normal, Plane of contact, Polar plane, Conjugate plane and conjugate points	10

Suggested Readings (Part-A Group Theory):

1. J. B. Fraleigh, A first course in Abstract Algebra, Addison-wiley, 2003
2. I. N. Herstein, Topics in Algebra, John Wiley & Sons, 2006
3. Thomas W Hungerford, Abstract Algebra—An Introduction, Saunders College Publishing, 1990
4. Joseph A Gallian, Contemporary Abstract Algebra, Brooks/Cole Cengage Learning, 2016
5. V. K. Khanna and S. K. Bhambri, A course in Abstract Algebra, Vikas Publishing House Pvt (Ltd), 2014.
6. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Readings (Part-B Analytical Geometry):

1. Robert J.T Bell, An Elementary Treatise on Coordinate Geometry of three dimensions, Macmillan India Ltd., 1923
2. P.R. Vittal, Analytical Geometry 2d & 3D, Pearson, 2013
3. S.L. Loney, The Elements of Coordinate Geometry, McMillan and Company, London. 2018
4. Suggested digital platform: NPTEL/SWAYAM/MOOCs

This course can be opted as an elective by the students of following subjects: Engg. and Tech. (UG), B.Sc. (C.S.)

Suggested Continuous Evaluation Methods: Max. Marks: 25

S.N.	Assessment Type	Max. Marks
1	Class Tests	10
2	Online Quizzes/Objective Tests	5
3	Presentation	5
4	Assignment	5

Course prerequisites: To study this course, a student must have Certificate Course in Basic Mathematics.

Suggested equivalent online courses:

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B.A./B.Sc. II (SEMESTER-IV) PAPER-I Ordinary Differential Equations and Ring Theory

Programme: Diploma Class: B.A./B.Sc.	Year: Second	Semester: Fourth
Subject: Mathematics		
Course Code: UGMAT401T	Course Title: Ordinary Differential Equations and Ring Theory	
Course outcomes:		
CO1: The objective of this course is to familiarize the students with various methods of solving differential equations of first and second order and to have qualitative applications.		
CO2: A student doing this course is able to solve differential equations and is able to model problems in nature using ordinary differential equations. After completing this course, a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, nonlinear evolution equation etc.		
CO3: Ring theory is one of the building areas of modern algebra. Objective of this course is to introduce students to basic concepts of Ring, Integral domain and other structures with their properties. This course will lead the student to basic course in advanced mathematics and Algebra.		
Credits: 6	Core Compulsory/Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures - Tutorials-Practical (in hours per week): L-T-P:6-0-0		
Part-A		
Ordinary Differential Equations		
Unit	Topics	No. of Lectures
I	Introduction of Differential equations, Order and Degree of Differential Equations, Complete primitive (general solution, particular solution and singular solutions), Existence and uniqueness of the solution $dy/dx = f(x,y)$.	12
II	Differential equations of first order and first degree, Separation of variables, Homogeneous linear Equations, Exact Equations, Integrating Factor, Linear Equation, Equation of First order but not of first degree, Various methods of solution, Clairaut's form, Singular solutions, Trajectory, Orthogonal Trajectory, Self-Orthogonal family of Curves.	11
III	Linear differential equations with constant coefficients, Complementary function, Particular integral, Working rule for finding solution of linear differential equations with constant coefficients, Homogeneous linear equations or Cauchy-Euler equations.	11
IV	Simultaneous differential equations, Differential equations of the form $dx/P = dy/Q = dz/R$ where P, Q, R are functions of x, y, z. Exact differential equations, Total differential equations, Series solutions of differential equations, Linear differential equations of second order with variable coefficients, Initial and boundary value problems.	11

**Part-B
Ring Theory**

Unit	Topics	No. of Lectures
V	Rings, Various types of rings, Rings with unity, Rings without zero divisors, Properties of rings, Sub rings.	11
VI	Ideals, Quotient rings, Principal ideals, Maximal ideals, Prime ideals, Principal ideal domains, Characteristic of a ring.	10
VII	Integral domain, Field, Skew field etc., Field of quotients of an integral domain, Embedding of an integral domain in a field, Factorization in an integral domain, Divisibility, Units, Associates, Prime and irreducible elements, Unique Factorisation Domain, Euclidean rings.	12
VIII	Polynomials over a ring, Degree of a polynomial, Zero, Constant and monic polynomials, Equality of polynomials, Addition and multiplication of polynomials, Polynomial rings, Embedding of a ring R into $R[x]$, Division algorithm, Euclidean algorithm, Units and associates in polynomials, Irreducible polynomials.	12

Suggested Readings (Part-A Differential Equations):

1. G.F. Simmons, Differential Equations with Application and Historical Notes, Tata -McGraw Hill, 2002
2. B. Rai, D.P. Choudhary & H. J. Freedman, A Course of Ordinary Differential Equations, Narosa, 2002
3. Ian N. Snedden, Elements of Partial Differential Equations, Dover Publication, 2013
4. L.E. Elsgolts, Differential Equation and Calculus of variations, University Press of the Pacific, 1970
5. M. D. Raisinghania, Ordinary and Partial Differential Equations, S Chand, 2018.
6. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Readings (Part-B Ring Theory):

1. J.B. Fraleigh, A first course in Abstract Algebra, Addison-wiley, 2003
2. I.N. Herstein, Topics in Algebra, John Wiley & Sons, 2006
3. Thomas W Hungerford, Abstract Algebra - An Introduction, Saunders College Publishing, 1990
4. Joseph A Gallian, Contemporary Abstract Algebra, Brooks/Cole Cengage Learning, 2016
5. Suggested digital platform: NPTEL/SWAYAM/MOOCs

This course can be opted as an elective by the students of following subjects: Economics (UG/PG), B.Sc. (C.S.) Engineering and Technology (UG), Science (Physics-UG)

Suggested Continuous Evaluation Methods: Max. Marks:25

S.N.	Assessment Type	Max. Marks
1	Class Tests	10
2	Online Quizzes/Objective Tests	5
3	Presentation	5
4	Assignment	5

Course prerequisites: To study this course, a student must have Certificate Course in Basic Mathematics.

Suggested equivalent online courses:

Further Suggestions:

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B.A./B.Sc. III (MATHEMATICS)

Detailed Syllabus For

**DEGREE
IN
MATHEMATICS**

B.A./B.Sc. III (SEMESTER-V) PAPER-I Real Analysis, Functions of several variables and Partial Differential Equations.

Programme: Degree Class: B.A./B.Sc.	Year: Third	Semester: Fifth
Subject: Mathematics		
Course Code: UGMAT501T	Course Title: Real Analysis, Functions of several variables and Partial Differential Equations	
<p>Course outcomes:</p> <p>CO1: Students will be able to know the basic concepts and developments of real analysis which will prepare the students to take up further applications in the relevant fields.</p> <p>CO2: On successful completion of the course students should have knowledge about real analysis and will help him in going for higher studies and research.</p> <p>CO3: The main objective of the course is to equip the student with necessary analytic and technical skills.</p> <p>CO4: The course in partial differential equation intends to develop problem solving skills for solving various types of partial differential equation especially hyperbolic, parabolic and elliptic types of PDE.</p>		
Credits: 5	Core Compulsory / Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 5-0-0		
<p align="center">PART-A</p> <p align="center">Real Analysis</p>		
Unit	Topic	No. of Lectures
I	Continuity and Differentiability of functions: Continuity of functions, Uniform continuity, Differentiability, Taylor's theorem with various forms of remainders.	8
II	Integration: Riemann integral-definition and properties, integrability of continuous and monotonic functions, Fundamental theorem of integral calculus, Mean value theorems of integral calculus.	8
III	Sequence and Series: Sequences, theorems on limit of sequences, Cauchy's convergence criterion, infinite series, series of non-negative terms, Absolute convergence, tests for convergence, comparison test, Cauchy's root Test, ratio Test, Rabbe's, Logarithmic test, De Morgan's Test, Alternating series, Leibnitz's theorem.	7
IV	Improper Integrals: Improper integrals and their convergence, Comparison test, Dritchlet's test, Absolute and uniform convergence, Weierstrass M-Test, Infinite integral depending on a parameter.	7
V	Uniform Convergence: Point wise convergence, Uniform convergence, Test of uniform convergence, Weierstrass M-Test, Abel's and Dritchlet's test, Convergence and uniform convergence of sequences and series of functions.	7
<p align="center">PART-B</p> <p align="center">Functions of several variables and Partial Differential Equations</p>		
Unit	Topic	No. of Lectures
VI	Functions of several variables: Limit, continuity and differentiability of functions of several variables.	8

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VII	Partial Derivatives: Partial derivatives and their geometrical interpretation, differentials, derivatives of composite and implicit functions, Jacobians, Chain rule, Euler's theorem on homogeneous functions, harmonic functions, Taylor's expansion of functions of several variables.	8
VIII	Maxima and Minima: Maxima and minima of functions of several variables – Lagrange's method of multipliers.	7
IX	Partial differential equations: Partial differential equations of first order, Charpit's method, Linear partial differential equations with constant coefficients. First-order linear, quasi-linear and non-linear PDE's using the method of characteristics: know how to obtain explicit solutions.	8
X	Partial differential equations of 2nd-order: Classification of 2nd-order linear equations in two independent variables: hyperbolic, parabolic and elliptic types (with examples).	7

Suggested Readings (Part-A Real Analysis):

1. Walter Rudin: Principle of Mathematical Analysis (3rd edition) McGraw-Hill Kogakusha, 1976, International Student Edition.
2. K. Knopp: Theory and Application of Infinite Series.
3. T. M. Apostol: Mathematical Analysis, Narosa Publishing House, New Delhi, 1985.
4. P. R. Halmos: Naive Set Theory, Van Nostrand, 1960.
5. S. C. Malik and Savita Arora, Mathematical Analysis, New Age International Pvt. (Ltd), 2012.
6. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Readings (Part-B Functions of several variables and Partial Differential Equations):

1. W. Fleming: Functions of several variables, Springer
2. R P Agrawal: Ordinary and Partial Differential Equations, Springer
3. K Sankar Rao: Partial Differential Equations, PHI
4. M. D. Raisinghani, Ordinary and Partial Differential Equations, S Chand, 2018.
5. Suggested digital platform: NPTEL/SWAYAM/MOOCs

This course can be opted as an elective by the students of following subjects: Engg. And Tech.(UG), Economics (UG/PG), B.Sc.(C.S.)

Suggested Continuous Evaluation Methods: Max. Marks: 25		
S. N.	Assessment Type	Max. Marks
1	Class Tests	
2	Online Quizzes/Objective Tests	10
3	Presentation	5
4	Assignment	5

Course prerequisites: To study this course, a student must have Diploma in Mathematics.

Suggested equivalent online courses:

Further Suggestions:

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B.A./B.Sc. III (SEMESTER-V) PAPER-II (i) Mathematical Methods and Graph Theory

Programme: Degree Class: BA/B.Sc.	Year: Third	Semester: Fifth
Course Code: UGMAT502T	Subject: Mathematics	
Course Title: Mathematical Methods and Graph Theory		
Course outcomes:		
CO1: The student will be able to find the integral transform, Laplace transform, inverse Laplace transform and Fourier transform. The course in mathematical methods basically develops a problem solving skill in the students.		
CO2: Upon successful completion, students will have the knowledge of various types of graphs, their terminology and applications.		
CO3: After Successful completion of this course students will be able to understand the isomorphism and homomorphism of graphs. This course covers the basic concepts of graphs used in computer science and other disciplines. The topics include path, circuits, adjacency matrix, tree, coloring. After successful completion of this course the student will have the knowledge graph coloring, color problem, vertex coloring.		
Credits: 5	Core Compulsory / Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 5-0-0		
PART-A		
Mathematical Methods		
Unit	Topic	No. of Lectures
I	Integral Transforms: Definition, Kernel.	8
II	Laplace Transforms: Definition, Existence theorem, Linearity property, Laplace transforms of elementary functions, Heaviside Step and Dirac Delta Functions, First Shifting Theorem, Second Shifting Theorem, Initial-Value Theorem, Final-Value Theorem, The Laplace Transform of derivatives, integrals and Periodic functions.	10
III	Inverse Laplace transforms: Inverse Laplace transforms of simple functions, Inverse Laplace transforms using partial fractions, Convolution, Solutions of differential and integro-differential equations using Laplace transforms. Dirichlet's condition,	10
IV	Fourier Transforms: Fourier Complex Transforms, Fourier sine and cosine transforms, Properties of Fourier Transforms, Inverse Fourier transforms.	9
PART-B		
Graph Theory		
Unit	Topic	No. of Lectures
V	Introduction to graphs, basic properties of graphs, Simple graph, multi graph, graph terminology, representation of graphs, Bipartite, regular, planar and connected graphs, connected components in a graph, Euler graphs, Directed, Undirected, multi-graph, mixed graph.	10
VI	Walk and unilateral components, unicursal graph, Hamiltonian path and circuits, Graph coloring, chromatics number, isomorphism and homomorphism of graphs, Incidence relation and degree of the graph.	10

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B.A./B.Sc. III (SEMESTER-V) PAPER-II (ii) Number Theory and Relativity

Programme: Degree Class: BA/B.Sc.	Year: Third	Semester: Fifth
Subject: Mathematics		
Course Code: UGMAT502T	Course Title: Number Theory and Relativity	
Course outcomes:		
CO1: The student will be able to solve problems in elementary number theory and also apply elementary number theory to cryptography.		
CO2: Upon successful completion, students will be able to describe the basic concepts of the theory of relativity.		
CO3: After Successful completion of this course students will be able to discuss postulates of the special theory of relativity and their consequences.		
Credits: 5	Core Compulsory / Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 5-0-0		
PART-A		
Number Theory		
Unit	Topic	No. of Lectures
I	Prime Numbers, Unique Factorization theorem, Farey series, Irrational numbers, Congruences, Residues, Quadratic Reciprocity Law, Primitive roots.	16
II	Fermet's theorem, Wilson's theorem, Continued fractions, Approximation of irrational of rationals, Hurwitz theorem.	11
III	The fundamental theorem of arithmetic in $K(1)$, $K(i)$, $K(\rho)$, Diophantine equation $X^2 + Y^2 = Z^2$, $X^4 + Y^4 = Z^4$, $ax^2 + by^2 + cz^2 = 0$, Quadratic fields, The arithmetic functions: $d(n)$, $\sigma(n)$, $\mu(n)$ and $\phi(n)$ including elementary result on their order and average order.	12
PART-B		
Relativity		
Unit	Topic	No. of Lectures
IV	Special Relativity: Inertial Frames of reference, Michelson-Morley experiment, Doppler effect, Stellar aberration, Simultaneity, Postulates of special relativity, Lorentz transformation, Length contraction, Time dilation, Clock paradox, Addition of velocities and accelerations, Four- dimensional space time, Light cone, Mass variation, Velocity four vector, Momentum and force, Mass-Energy relationship.	14
V	General Relativity: Geodesics, Geodesic coordinates, Curvature tensor and its algebraic properties, Bianchi's identities, Contracted curvature tensor, Conditions for a flat space time, Displacement of space-time, Killing equations, Groups of motion, Space-time of constant curvature.	12
VI	Principal of covariance, Non-inertial frames of reference, Principal of equivalence, Weak field approximation of geodesic equations, Law of gravitation in empty space-time, Canonical coordinates, Schwarzschild solutions.	10

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Suggested Readings (Part-A Number Theory):

1. G. H. Hardy and E. M. Wright: Introduction to the theory of numbers, Oxford University Press, 4th Edition.
2. D. M. Burton: Elementary Number Theory, 6th Edition, Tata McGraw Hill.
3. Thomas Koshy: Elementary Number Theory with Applications, Academic Press, 2nd Edition.
4. Kenneth H. Rosen: Elementary Number Theory and its Applications, Addison-Wesley Publishing Company, 1986.
5. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Readings (Part-B Relativity):

1. D. F. Lawden: An Introduction to tensor calculus and relativity.
2. J. V. Narlikar: General relativity and cosmology.
3. R. H. Good: Basic concept of relativity, 1978.
4. A. S. Eddington: Mathematical theory of relativity, 1981.
5. Suggested digital platform: NPTEL/SWAYAM/MOOCs

This course can be opted as an elective by the students of following subjects: Engg. and Tech. (UG), BCA, B.Sc. (C.S.)

Suggested Continuous Evaluation Methods: Max. Marks: 25

S.No	Assessment Type	Max. Marks
1	Class Tests	10
2	Online Quizzes/Objective Tests	5
3	Presentation	5
4	Assignment	5

Course prerequisites: To study this course, a student must have Diploma in Mathematics.

Suggested equivalent online courses:

Further Suggestions:

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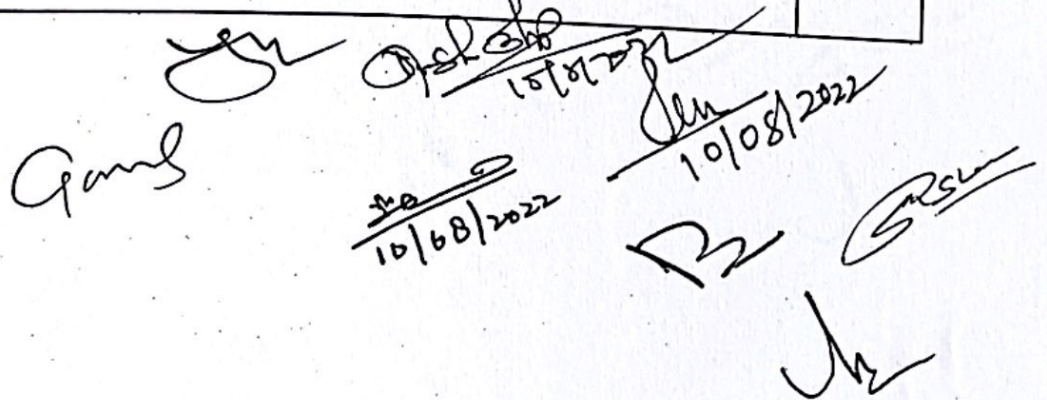
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B.A./B.Sc. III (SEMESTER-V) PAPER-II (iii) Numerical Analysis and Operations Research

Programme: Degree	Year: Third	Semester: Fifth
Class: B.A./B.Sc.		
Course Code: UGMATS02T	Subject: Mathematics	
Course outcomes:	Course Title: Numerical Analysis and Operations Research	
CO1: After Successful completion of this course the student will be able to perform error analysis for arithmetic operations.		
CO2: Upon successful completion, students will be able to understand the use of interpolation and curve fitting and finite differences.		
CO3: After Successful completion of this course students will be able to use some solution methods for solving the linear programming problems.		
Credits: 5		
Max. Marks: 25+75	Core Compulsory / Elective	
Min. Passing Marks:		
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 5-0-0		
PART-A		
Numerical Analysis		
Unit	Topic	No. of Lectures
I	Errors in numerical Calculations: Absolute, Relative and Percentage errors, General Error, Error in series approximation.	9
II	Solutions of Algebraic and Transcendental Equations: Bisection method, False position method, Newton-Raphson Method, Picard's iteration method.	9
III	Linear systems of equations: Consistency of Linear System of equations, Solutions of Linear Systems by direct method: Guassian elimination and computation of inverse of a matrix, Method of Factorization, Solutions of linear systems by iterative methods: Jacobi method, Gauss-Siedel method.	10
IV	Interpolation and curve fitting: Errors in Polynomial interpolation, Finite differences, Differences of a polynomial, Newton's forward and backward interpolation, Central differences, Gauss, Stirling, Bessel's and Everett's Formulae, Lagrange's Interpolation formula.	10
V	Numerical differentiation and integration: Numerical differentiation, Newton-Cotes Integration formula, Numerical integration by Trapezoidal rule, Simpson's 1/3, Simpson's 3/8, and Romberg Integration.	9
PART-B		
Operations Research		
Unit	Topic	No. of Lectures
VI	Basics of OR and LPP: Development of OR, Definition, characteristics, scope, objectives and limitations of OR, convex sets, Basic feasible solutions, Formulation of LPP, Graphical Method to solve LPP, General LPP, Canonical and Standard forms, Properties of Solutions and Theory of Simplex method, Big M Method and Two phase simplex method, Degeneracy in LPP, Duality in LPP, Duality and simplex method, Dual simplex method.	16



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VII	Transportation and assignment Models: Formulation of TP, Transportation Table, Finding initial basic feasible solution, Test of optimality, Degeneracy, MODI method, Stepping Stone method, Solutions of Assignment problems, Hungarian method.	12
Suggested Readings (Part-A Numerical Analysis):		
1. S. S. Sastry: Introductory Methods Numerical Analysis, Prentice- Hall of India.		
2. C.F. Gerald and P. O. Wheatley: Applied Numerical Analysis, Addison- Wesley, 1998.		
3. Konte and Debour: Numerical Analysis.		
4. Suggested digital platform: NPTEL/SWAYAM/MOOCs		
Suggested Readings (Part-B Operations Research):		
1. G. Hadley, Linear Programming, Narosa Publishing House, 1995.		
2. S. I. Gass, Linear Programming: Methods and Applications (4th edition) McGraw-Hill, New York, 1975.		
3. Kanti Swaroop, P.K. Gupta and Man Mohan, Operations Research, Sultan Chand & Sons, New		
4. Hamdy A. Taha, Operations Research, Prentice-Hall of India, 1997.		
5. Suggested digital platform: NPTEL/SWAYAM/MOOCs		
This course can be opted as an elective by the students of following subjects: Engg. and Tech. (UG), Economics(UG/PG), BBA/BCA, B.Sc.(C.S.)		
Suggested Continuous Evaluation Methods: Max. Marks: 25		
S.No	Assessment Type	Max. Marks
1	Class Tests	10
2	Online Quizzes/Objective Tests	5
3	Presentation	5
4	Assignment	5
Course prerequisites: To study this course, a student must have Diploma in Mathematics.		
Suggested equivalent online courses:		
Further Suggestions:		

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B.A./B.Sc. III (SEMESTER-VI) PAPER-I Complex Analysis and Mechanics

Programme: Degree Class: B.A./B.Sc.	Year: Third	Semester: Sixth
Course Code: UGMAT601T	Subject: Mathematics	
Course Title: Complex Analysis and Mechanics		
Course outcomes:		
CO1: The course is aimed at exposing the students to foundations of analysis which will be useful in understanding various physical phenomena and gives the student the foundation in mathematics.		
CO2: Upon successful completion, students will be able to understand the complex variables, analytic functions, complex integration and residues.		
CO3: The object of the paper is to give students knowledge of basic mechanics such as simple harmonic motion, motion under other laws and forces.		
CO4: The student, after completing the course can go for higher problems in mechanic such as hydrodynamics, this will be helpful in getting employment in industry.		
Credits: 5	Core Compulsory / Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 5-0-0		
PART-A		
Complex Analysis		
Unit	Topic	No. of Lectures
I	Complex Variables: Functions of a complex variable, Limit, continuity and differentiability.	9
II	Analytic functions: Analytic functions, Cauchy and Riemann equations, Harmonic functions.	9
III	Complex Integration: Complex integrals, Cauchy's theorem, Cauchy's integral formula, Morera's Theorem, Liouville's Theorem, Taylor's series, Laurent's series, Poles and singularities.	10
IV	Residues: Residues, the Residue theorem, the principle part of a function, Evaluation of Improper real integrals.	9

PART-B		
Mechanics		
Unit	Topic	No. of Lectures
V	Rectilinear motion: Newton's Laws of Motion, velocity and acceleration, motion under constant acceleration, motion under inverse square law, rectilinear motion with variable acceleration, Simple Harmonic Motion.	10

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VI	Kinematics in two dimension: Angular velocity and angular acceleration, Components of velocity and acceleration along coordinate axes, Radial and transverse components of velocity and acceleration, tangential and normal components of velocity and acceleration.	10
VII	Motion in resisting medium, constrained motion and Central orbits: Terminal Velocity, Motion in resisting medium in a straight line, Motion on vertical circle, Cycloidal motion, Central Force, Central orbit, Intrinsic equation, Pedal form, apse and apsidal distance.	9
VIII	Statics: Coplanar Forces, Equilibrium of forces in three dimensions, Common catenary, Catenary of uniform strength, Virtual work.	9

Suggested Readings (Part-A Complex Analysis):

1. J. B. Conway: Functions of One Complex Variable, Narosa Publishing House, 1980.
2. E. T. Copson: Complex Variables, Oxford University Press.
3. L. V. Ahlfors: Complex Analysis, McGraw-Hill, 1977.
4. D. Sarason: Complex Function Theory, Hindustan Book Agency, Delhi, 1994..
5. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Readings (Part-B Mechanics):

1. M. Ray: A Textbook on Dynamics, S. Chand.
2. M. Ray: A Textbook on Statics, S. Chand.
3. A. S. Ramsay: Dynamics, Cambridge University Press.
4. S. L. Loney: Dynamics of a particle and of rigid bodies, Cambridge University Press.
5. Suggested digital platform: NPTEL/SWAYAM/MOOCs

This course can be opted as an elective by the students of following subjects: Engg. and Tech. (UG), B.Sc.(C.S.)

Suggested Continuous Evaluation Methods: Max. Marks: 25

S. No	Assessment Type	Max. Marks
1	Class Tests	10
2	Online Quizzes/Objective Tests	5
3	Presentation	5
4	Assignment	5

Course prerequisites: To study this course, a student must have Diploma in Mathematics.

Suggested equivalent online courses:

Further Suggestions:

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B.A./B.Sc. III (SEMESTER-VI) PAPER-II Linear Algebra and Metric Spaces

Programme: Degree	Year: Third	Semester: Sixth
Class: B.A./B.Sc.		
Subject: Mathematics		
Course Code: UGMAT602T	Course Title: Linear Algebra and Metric Spaces	
Course outcomes:		
CO1: Linear algebra is a basic course in almost all branches of science. The objective of this course is to introduce a student to the basics of linear algebra and some of its applications.		
CO2: After Successful completion of this course, students should be able to understand the concept of linear transformation.		
CO3: On successful completion of the course students should have knowledge about metric spaces, connectedness and compactness.		
Credits: 5	Core Compulsory / Elective	
Max. Marks: 25+75	Min. Passing Marks:	
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 5-0-0		
PART-A		
Linear Algebra		
Unit	Topic	No. of Lectures
I	Vector space: Introduction, subspaces, Linear combinations, linear spans, Sums and direct sums, Linear dependence and independence, Bases and dimensions, Dimensions and subspaces, Coordinates and change of bases.	10
II	Linear transformations: Linear transformations, rank and nullity, Linear operators, Algebra of linear transformations, Invertible linear transformations, isomorphism.	9
III	Matrix and linear transformation: Matrix of a linear transformation, Matrix of the sum and product of linear transformations, Change of basis, similarity of matrices.	9
IV	Linear functional: Linear functional, Dual space and dual basis, Double dual space, Annihilators, Hyperspace, Transpose of a linear transformation.	9
V	Eigen values and Eigen vectors: Eigen vectors and Eigen values of a matrix, product of characteristic roots of a matrix and basic results on characteristic roots, nature of the characteristic roots of Hermitian, skew-Hermitian, unitary and orthogonal matrices, characteristic equation of a matrix, Cayley-Hamilton theorem and its use in finding inverse of a matrix.	9
PART-B		
Metric Spaces		
Unit	Topic	No. of Lectures

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VI	Definition and examples of metric space, pseudo metric, discrete and usual metric space, diameter of a set	6
VII	Open and closed sets in a metric space, Interior point, Limit point, Adherent point, Closed set, Neighbourhood, Closure of a set, Interior of a set, Bolzano-Weirstrass theorem, Complete metric space, Cauchy sequence, Convergent sequence, Bounded Sequence	11
VIII	Separated sets, Connected and disconnected sets, Continuity and connectedness, Compactness, Compactness and uniform continuity, Continuity and Uniform continuity in a metric space.	12

Suggested Readings (Part-A Linear Algebra):

1. Hadley: Linear Algebra.
2. Hoffman and Kunze: Linear Algebra, Prentice Hall of India, New Delhi, 1972.
3. H. Helson: Linear Algebra, Hindustan Book Agency, New Delhi, 1994.
4. K. B. Dutta: Matrix and Linear Algebra, Prentice Hall of India.
5. S. Lang: Linear Algebra, Springer.
6. Suggested digital platform: NPTEL/SWAYAM/MOOCs.

Suggested Readings (Part-B Metric Spaces):

1. Dhananjay Gopal, An Introduction to Metric Spaces, Chapman and Hall/CRC, 1st edition 2020.
2. Satish Shirali & H. L. Vasudeva, Metric Spaces, Springer, First Indian Print, 2009
3. S. Kumaresan, Topology of Metric Spaces Narosa Publishing House, 2014
4. Suggested digital platform: NPTEL/SWAYAM/MOOCs.

This course can be opted as an elective by the students of following subjects: Engg. and Tech. (UG), B.Sc.(C.S.)

Suggested Continuous Evaluation Methods: Max. Marks: 25

S. No	Assessment Type	Max. Marks
1	Class Tests	10
2	Online Quizzes/Objective Tests	5
3	Presentation	5
4	Assignment	5

Course prerequisites: To study this course, a student must have Diploma in Mathematics.

Suggested equivalent online courses:

Further Suggestions:

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Minor/Additional/Interdisciplinary subject/Multidisciplinary First/Second Semester

Differential Calculus		
Unit	Topics	No. of Lectures
I	Functions of one variable, Limit of a function (ϵ - δ Definition), Continuity of a function, Properties of continuous functions, Intermediate value theorem, Classification of discontinuities, Differentiability of a function, Jacobians, maxima and minima of single variable function, Rolle's Theorem, Mean value theorems and their geometrical interpretations, Applications of mean value theorems.	
II	Successive Differentiation, n^{th} Differential coefficient of functions, Leibnitz Theorem, Taylor's Theorem, Maclaurin's Theorem, Taylor's and Maclaurin's series expansions.	
III	Geometrical meaning of tangent, Definition and equation of Tangent, Tangent at origin, Angle of intersection of two curves, Definition and equation of Normal, Cartesian sub tangent and subnormal, Tangents and normals of polar curves, Angle between radius vector and tangent, Perpendicular from pole to tangent, Pedal equation of curve, Polar sub tangent and polar subnormal, Derivatives of arc (Cartesian and polar formula).	
IV	Curvature, Radius of curvature, Cartesian, Polar and pedal formula for radius of curvature, Tangential polar form, Centre of curvature, Asymptotes of algebraic curves, Methods of finding asymptotes, Parallel asymptotes, existence and classification of singular points, points of inflection.	

Suggested Readings

1. R. G. Bartle & D. R. Sherbert, Introduction to Real Analysis, John Wiley & Sons, 1999
2. T. M. Apostol, Calculus Vol. I, John Wiley & Sons Inc., 1974
3. Ajit Kumar and S. Kumaresan, A Basic Course in Real Analysis, CRC Press, 2019
4. S. Balachandra Rao & C. K. Shantha, Differential Calculus, New Age Publication, 1992
5. H. Anton, I. Birens and S. Davis, Calculus, John Wiley and Sons, Inc. 2007
6. G. B. Thomas and R. L. Finney, Calculus, Pearson Education, 2010
7. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Continuous Evaluation Methods: Max. Marks: 25

S.N.	Assessment Type	Max. Marks
1	Class Tests	
2	Online Quizzes/Objective Tests	10
3	Presentation	5
4	Assignment	5
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Minor/Additional/Interdisciplinary subject/Multidisciplinary

Third/Fourth Semester

Analytical Geometry

Unit	Topics	N ^o . of Lectures
I	Polar Equation of conics, Polar coordinate system, Distance between two points, Polar equation of a Straight line, Polar equation of a circle, Polar equation of a cone, Chords, Tangent and Normal to a cone	
II	Curvilinear coordinates, Spherical and Cylindrical coordinates, Definition and equation of a sphere, Plane section of a sphere, Intersection of two spheres, Intersection of a sphere and a line, Power of a point, tangent plane, Plane of contact, Polar plane, Pole, Angle of Intersection of two spheres, Radical plane, Co-axial system of spheres.	
III	Definition and equation of a cone, Vertex, Guiding curve, Generators, Three mutually perpendicular generators, Intersection of a line with a cone, Tangent line and tangent plane, Reciprocal cone, Right circular cone, Definition and equation of a cylinder, Right circular cylinder, Enveloping cylinder.	
IV	General equation of second degree, Tangent plane, Director sphere, Normal, Plane of contact, Polar plane, Conjugate plane and conjugate points	

Suggested Readings :

1. Robert J.T Bell, An Elementary Treatise on Coordinate Geometry of three dimensions, Macmillan India Ltd., 1923
2. P.R. Vittal, Analytical Geometry 2d & 3D, Pearson, 2013
3. S.L. Loney, The Elements of Coordinate Geometry, McMillan and Company, London. 2018
4. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Continuous Evaluation Methods: Max. Marks: 25

S.N.	Assessment Type	Max. Marks
1	Class Tests	
2	Online Quizzes/Objective Tests	10
3	Presentation	5
4	Assignment	5

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Skill/Vocational Course-I

First Semester

Matrices		
Unit	Topics	No. of Lectures
I	Matrix introduction, matrix operations with their properties, symmetric, skew-symmetric, Hermitian and skew-Hermitian matrices, idempotent, nilpotent, involutory, orthogonal and unitary matrices, singular and non-singular matrices, elementary operations on matrices, adjoint and inverse of a matrix, singular and non-singular matrices, negative integral powers of a non-singular matrix, Trace of a matrix.	
II	Rank of a matrix, elementary transformations of a matrix and invariance of rank through elementary transformations, normal form of a matrix, elementary matrices, rank of the sum and product of two matrices, inverse of a non-singular matrix through elementary row transformations, equivalence of matrices.	
III	Solutions of a system of linear equations, condition of consistency and nature of the general solution of a system of linear non-homogeneous equations.	

Suggested Readings :

1. Hari Kishan, A Textbook of Matrices, Atlantic Publishers, 2008
2. Fuzhen Zhang, Matrix Theory - Basic Results and Techniques, Springer, 1999
3. Shanti Narayan, P.K. Mittal, A Textbook of Matrices, S Chand & Company, 2010
4. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Continuous Evaluation Methods: Max. Marks: 25		
S.N.	Assessment Type	Max. Marks
1	Class Tests	
2	Online Quizzes/Objective Tests	10
3	Presentation	5
4	Assignment	5

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Skill/Vocational Course-I

Second Semester

PART-A		
Integral Calculus		
Unit	Topics	No of Lectures
I	Integral as a limit of sum, Properties of Definite integrals, Fundamental theorem of integral calculus, Summation of series by integration, Infinite integrals, Differentiation and integration under the integral sign.	
II	Beta function, Properties and various forms, Gamma function, Recurrence formula and other relations, Relation between Beta and Gamma function, Evaluation of integrals using Beta and Gamma functions.	
III	Double integrals, Repeated integrals, Evaluation of Double integrals, Double integral in polar coordinates, Change of variables, Change of order of integration in Double integrals, Triple integrals, Evaluation of Triple integrals, Dirichlet's theorem and its Lioville's extension.	
IV	Area bounded by curves (quadrature), Rectification (length of curves), Volumes and Surfaces of Solids of revolution.	

Suggested Readings :

1. T.M. Apostol, Calculus Vol. I, John Wiley & Sons Inc., 1974
2. H. Anton, I. Birens and S. Davis, Calculus, John Wiley and Sons, Inc, 2007
3. G.B. Thomas and R.L. Finney, Calculus, Pearson Education, 2010
4. Suggested digital platform: NPTEL/SWAYAM/MOOCs

Suggested Continuous Evaluation Methods: Max. Marks: 25

S.N.	Assessment Type	Max. Marks
1	Class Tests	10
2	Online Quizzes/ Objective Tests	5
3	Presentation	5
4	Assignment	5

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Skill/Vocational Course-I

Third Semester

Part-A		
Group Theory		
Unit	Topics	No. of Lectures
I	Cartesian product of Sets, Functions or mappings, Binary operations, Relation, Equivalence relations and partitions, Congruence Modulo n , Definition of a group with examples and simple properties, Abelian group, Finite and infinite group, Order of a finite group, General properties of groups, Composition table for finite groups	
II	An Alternative set of postulates of groups, Subgroups, Permutations, Cyclic Permutations, Even and odd permutations, group of Permutations alternating group, Integral power of an element of a group, Order of an element of a group, Group homomorphism, Isomorphism on groups, the relation of isomorphism in the set of all groups Complexes and subgroup of a group, theorems on subgroups, Coset decomposition, Lagrange's theorem and its consequences, Cayley's theorem, Cyclic group, generating system of group	
III	Normal subgroups, Simple group, Conjugate elements, Normalizer of an element of a group, Class equation of a group, Centre of a group, Conjugate subgroups, Invariant sub groups, Quotient group, Homomorphism and Isomorphism on groups, Kernel of a Homomorphism and related theorems.	
Suggested Readings :		
<ol style="list-style-type: none"> 1. J. B. Fraleigh, A first course in Abstract Algebra, Addison-wiley, 2003 2. I. N. Herstein, Topics in Algebra, John Wiley & Sons, 2006 3. Thomas W Hungerford, Abstract Algebra—An Introduction, Saunders College Publishing, 1990 4. Joseph A Gallian, Contemporary Abstract Algebra, Brooks/Cole Cengage Learning, 2016 5. V. K. Khanna and S. K. Bhambri, A course in Abstract Algebra, Vikas Publishing House Pvt (Ltd), 2014. 6. Suggested digital platform: NPTEL/SWAYAM/MOOCs 		
Suggested Continuous Evaluation Methods: Max. Marks: 25		
S.N.	Assessment Type	Max. Marks
1	Class Tests	
2	Online Quizzes/Objective Tests	10
3	Presentation	5
4	Assignment	5

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Skill/Vocational Course-I Fourth Semester

Ordinary Differential Equations		
Unit	Topics	No. of Lectures
I	Introduction of Differential equations, Order and Degree of Differential Equations, Complete primitive (general solution, particular solution and singular solutions), Existence and uniqueness of the solution $dy/dx = f(x,y)$.	
II	Differential equations of first order and first degree, Separation of variables, Homogeneous linear Equations, Exact Equations, Integrating Factor, Linear Equation, Equation of First order but not of first degree, Various methods of solution, Clairaut's form, Singular solutions. Trajectory, Orthogonal Trajectory, Self-Orthogonal family of Curves.	
III	Linear differential equations with constant coefficients, Complementary function, Particular integral, Working rule for finding solution of linear differential equations with constant coefficients, Homogeneous linear equations or Cauchy-Euler equations.	
IV	Simultaneous differential equations, Differential equations of the form $dx/P = dy/Q = dz/R$ where P, Q, R are functions of x, y, z. Exact differential equations, Total differential equations, Series solutions of differential equations, Linear differential equations of second order with variable coefficients, Initial and boundary value problems.	
Suggested Readings:		
<ol style="list-style-type: none"> 1. G.F. Simmons, Differential Equations with Application and Historical Notes, Tata – McGraw Hill, 2002 2. B. Rai, D.P. Choudhary & H. J. Freedman, A Course of Ordinary Differential Equations, Narosa, 2002 3. Ian N. Snedden, Elements of Partial Differential Equations, Dover Publication, 2013 4. L.E. Elsgolts, Differential Equation and Calculus of variations, University Press of the Pacific. 1970 5. M. D. Raisinghania, Ordinary and Partial Differential Equations, S Chand, 2018. 6. Suggested digital platform: NPTEL/SWAYAM/MOOCs 		
Suggested Continuous Evaluation Methods: Max. Marks:25		
S.N.	Assessment Type	Max. Marks
1	Class Tests	
2	Online Quizzes/Objective Tests	10
3	Presentation	5
4	Assignment	5

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Department of Political Science

Sri Dev Suman Uttarakhand University

Badshahithaul, Tehri



SYLLABUS of POLITICAL SCIENCE

**for
First Three Years of Higher Education**

**Major, Minor Elective and Vocational/ Skill
Enhancement Course**

**Under
National Education Policy, 2020**

SRI DEV SUMAN UTTARAKHAND UNIVERSITY

Badshahithaul, Tehri Garhwal (Uttarakhand)

List of Members of Board of Studies

Sl. No.	Name of the Members	Designation	Nominated as
1	Prof. Dinesh Chandra Goswami	Dean of Arts	Chairman
2	Prof. Muktinath Yadav	Professor	Member
3	Prof. Hemant Kumar Shukla	Professor	Member
4	Prof. Sangeeta Mishra	Professor	Member
5	Prof. Preeti Kumari	Professor	Member
6	Prof. Anand Prakash Singh	Professor	Member
7	Prof. Pushpanjali Arya	Asso. Professor	Member
8	Prof. D K P. Choudhury	Professor	Member
9	Dr. Poonam Pathak	Professor	Member
10	Dr. Atal Bihari Tripathy	Asst. Professor	Member
11	Dr. Pushkar Gaur	Asst. Professor	Member
12	Dr. Shikha Mamgai	Asst. Professor	Member
13	Prof. M. S, Mawri	Professor	Member
14	Dr. Preeti Gupta	Asst. Professor	Member
15	Dr. Narmadeshwar Shukla	Professor	Member
16	Dr. Poonam Pandey	Asst. Professor	Member
17	Dr. Vandana Sharma	Principal	Member
1	Prof, Janki Panwar	Principal	GPGC Kotdwar
2	Prof. Lovely Rajvanshi LOVNEY	Principal	GPGC, Jaiharikhal
3	Prof. K. L. Talwar	Principal	GDC, Chakrata
4	Dr. Himanshu Das	Director	NIVH, Rajpur Road
5	Prof. M. S. M. Negi	Professor	SRT Campus, HNBSGU, Srinagar
6	Prof. M. C. Sati	Professor	HNBSGU, Srinagar
7	Prof. S. L. Bhatt	Ex. Principal	GPGC, Kotdwar
8	Dr. P.C. Painuli	Asst. Professor	GPGC, New Tehri
9	Dr. Asha Devi	Asso. Prof.	GPGC, Kotdwar

Dy. Secy. H. Secy.

Syllabus Drafting and Modification Committee

S.N.	Name	Designation	Department	Affiliation
1.	Prof. Neeta Bora Sharma	Professor and Head	Political Science	Kumaun University, Nainital
2.	Prof. Madhurendra Kumar	Professor	Political Science	Kumaun University, Nainital
3.	Prof. Meena Pathani	Professor and Head	Political Science	S.S.J. University, Almora
4.	Prof.D.K.P.Chaudhary	Professor and Head	Political Science	Sri Dev Suman University, Badshahithaul
5.	Prof.Kalpana Agrahari	Professor	Political Science	Kumaun University, Nainital
6.	Dr. Surya Bhan Singh	Assistant Professor and Head	Political Science	Uttarakhand Open University
7.	Dr. Haradesh Kumar	Guest Faculty	Political Science	Kumaun University, Nainital
8.	Dr. Bhumika Prasad	Guest Faculty	Political Science	Kumaun University, Nainital
9.	Dr. Ruchi Mittal	Guest Faculty	Political Science	Kumaun University, Nainital

Syllabus finalized by

Sl. No.	Name	Designation	Affiliation
01	Prof. D.K.P.Chaudhary	Professor and Head	Sri Dev Suman Uttarakhand University Pt.L.M.S.Campus, Rishikesh
02	Prof. Hemlata Mishra	Professor	Sri Dev Suman Uttarakhand University Pt.L.M.S.Campus, Rishikesh
03	Prof. Dinesh Sharma	Professor	Sri Dev Suman Uttarakhand University Pt.L.M.S.Campus, Rishikesh
04	Prof. Janki Panwar	External Expert	Principal, Govt.Post Graduate College, Kotdwar

List of Papers for the Degree of B.A in Political Science
Semester-wise Titles of the Papers in Political Science

Year	Sem.	Course Code	Paper Title	Theory/ Practical	Credits
<i>Certificate Course in FUNDAMENTALS OF POLITICAL SCIENCE</i>					
FIRST YEAR	I	PS101MT	Basic Concepts of Political Science (Compulsory)	Theory	6
	I	PS101ME	Awareness with Civic Rights (Minor Elective)	Theory	4
	II	PS102MT	Comparative Political Systems: Major constitutions of the World (Compulsory)	Theory	6
<i>Diploma in POLITICAL THEORY AND PRACTICE</i>					
SECOND YEAR	III	PS201MT	Foundations of Western Political Thought (Compulsory)	Theory	6
	III	PS201ME	Issues of Women Empowerment (Minor Elective)	Theory	4
	IV	PS202MT	Indian Political System (Compulsory)	Theory	6
<i>Bachelor of POLITICAL SCIENCE</i>					
THIRD YEAR	V	PS301MT	Major Theories of International Politics (Compulsory)	Theory	5
		PS302MT	Elements of Public Administration (Compulsory)	Theory	5
		PS301PJ	*Research Project 1		QF (4)
	VI	PS303MT	Contemporary Issues in International Politics (Compulsory)	Theory	5
		PS304MT	Foundation of Indian Political Thought (Compulsory)	Theory	5
		PS302PJ	*Research Project 2		QF (4)

* Qualifying only





CERTIFICATE COURSE IN FUNDAMENTALS OF POLITICAL SCIENCE**Programme:** *Certificate Course in FUNDAMENTALS OF POLITICAL SCIENCE***Year:** I **Semester:** I
Paper-I**Subject: Political Science****Course Code:**
PS101MT**Course Title:** Basic Concepts of Political Science

Course Outcomes: Understanding Politics is integral and indispensable for a comprehensive and critical study of political science. The course is designed to train a student in the foundational issues of political science, which is relevant for any in depth study and research.

Credits: 6**Core:** Compulsory**Max. Marks:** 100**Min. Passing Marks:** 33**Total No. of Lectures-Tutorials-Practical (in hours per week):** 4-0-0

Unit	Topic	No. of Lectures
Unit I	Concepts: Politics, Political Philosophy, Political Thought, Political Theory and Political Science	10
Unit II	State, Nation, Political System, Civil Society: Definitions, Elements	10
Unit III	Theories of the Origin and Functions of the State: Divine, Social Contract, Evolutionary, Liberal, Welfare, Socialist	10
Unit IV	Sovereignty; Austin's Theory, Pluralist Theory	10
Unit V	Power, Authority, Legitimacy	10
Unit VI	Liberty, Equality, Justice, Law	10
Unit VII	Rights, Duties, Political Obligation	10
Unit VIII	Democracy: Types, Representation and Participation	10
Unit IX	Political Parties, Pressure Groups and Public opinion	10



Suggested Reading:

1. A. C. Kapoor- An Introduction to Political Science (Hindi and English)
2. Andrew Heywood- Political Theory
3. Bhargav Rajeev , Acharya Ashok : Political Theory | An Introduction to Political science, Pearson Education India, 2008, (1st edition)
4. E. Ashirvadam- Political Theory (Hindi and English)
5. H. J. Laski- Grammar of Politics (Hindi and English)
6. Madan Gandhi- Modern Political Theory
7. O P Gauba- An Introduction to Political Theory (Hindi and English)
8. Roskin, Michael G., Robert L. Cord, James A. Medeiros and Walter S. Jones : "Political Science: An Introduction", Pearson Education uk, 2019, (14th edition)
9. Sushila Ramaswamy- Political Theory
10. वीरकेश्वर प्रसाद सिंह - विश्व के प्रसिद्ध संविधान

Suggested Online Link:

- <https://ndl.iitkgp.ac.in/>
- <http://epgp.inflibnet.ac.in/>
- <http://egyankosh.ac.in/>
- <https://www.ncertbooks.guru/english-skills/>
- <https://epathshala.nic.in/>
- <https://www.digitalindia.gov.in/services>
- <https://rtionline.gov.in/>
- <https://www.india.gov.in/topics/law-justice>



Subject: Political Science

Course Code: PS101VM	Course Title: Awareness with Civic Rights	Year:1	Semester: I
Course Outcomes: This paper intends to provide; the basic digital and legal awareness. The student can leverage this in the job market. To make aware the students of their basic legal rights which would help them to stand up and help others.			
Credits: 4		Core: Minor Elective	
Max. Marks: 100		Min. Passing Marks: 33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic	No. of Lectures	
Unit I	Right: Concept, Definitions and Theories	12	
Unit II	Preamble, Fundamental Rights	12	
Unit III	Human Rights, Karma Theory of Right, Rights and Obligations	12	
Unit IV	Right to Information, Right to Service and Right to Education	12	
Unit V	Rights of Women, Children, Depressed classes and Rights against Cyber Crime	12	

Suggested Reading:

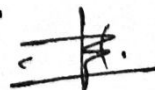
1. Khosla, Madhav, et al. 2016. The Oxford Handbook of the Indian constitution. New delhi: OUP
2. Benegal, Shyam. 2014. Samvidhan. Rajya Sabha TV

Suggested Online Link:

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

Suggested equivalent online courses:

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- <https://epathshala.nic.in/>
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- <https://rtionline.gov.in/>
- <https://www.india.gov.in/topics/law-justice>



CERTIFICATE COURSE IN FUNDAMENTALS OF POLITICAL SCIENCE		
Programme: <i>Certificate Course in FUNDAMENTALS OF POLITICAL SCIENCE</i>		Year: I Semester: II Paper-I
Subject: Political Science		
Course Code: PS102MT	Course Title: Comparative Political Systems: Major Constitutions of the World	
Course Outcomes: Politics is the mirror of the society. This paper will help the student in furthering his understanding of the world around. Comparison is widely used method of scientific knowledge This would help to critical analysis.		
Credits: 6		Core: Compulsory
Max. Marks: 100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Comparative Politics: Meaning and Nature, Political Systems: Unitary, Federal, Parliamentary and Presidential, Constitution & Constitutionalism	15
Unit II	UK: Historical Background, Main Features, The Crown, Executive, Legislature, Party System	15
Unit III	USA: Historical Background, Main Features, Executive (President) Legislature (Congress) Judiciary and Judicial Review. Separation of Power and Theory of Check and Balance	15
Unit IV	Russia: Historical Background, Main Features, Rights and Duties, Executive, Legislature, Judiciary, Russian Federation	15
Unit V	Switzerland: Historical Background, Main Features, Executive, Legislature, Council of State, Federal Court, Direct Democracy	15
Unit VI	Australia: Historical Background, Main Features, Executive, Legislature, Judiciary, The Australian Federation.	15

Suggested Reading:

1. A.C. Kapoor and K.K. Mishra- Select Constitution (English and Hindi)
2. B. Shiva Rao- Select constitutions of the World
3. B.C. Rai- The World Constitution: A Comparative Study
4. D.D. Basu- Select Constitutions of the World
5. G. Almond - Comparative Politics Today : A World View
6. J.C. Johari- Select World Constitutions (English and Hindi)

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7. M. Y. Pylee- Constitutions of the world, 2nd Volume
8. R. Hague & M. Harrop- Comparative Government and Politics: An Introduction
9. Robert Maddex- Constitution of the World
10. S. N. Dubey- Narains World Constitutions
11. Vidya Bhusan- World Constitutions: A Comparative Study
12. Vishnoo Bhagwan – World Constitutions
13. वीरकेश्वर प्रसाद सिंह - विश्व के प्रसिद्ध संविधान

Suggested Online Link:



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- <https://rtionline.gov.in/>
- <https://www.india.gov.in/topics/law-justice>



DIPLOMA IN <i>POLITICAL THEORY AND PRACTICE</i>		
Programme: <i>Certificate Course in POLITICAL THEORY AND PRACTICE</i>		Year: II Semester: III Paper-I
Subject: Political Science		
Course Code: PS201MT	Course Title: Foundations of Western Political Thought	
Course Outcomes: This course the ancient and modern political thinking in the West. This would help to understand the idea of state, rights, liberty, equality, and justice which have evolved over a period of time.		
Credits: 6		Core Compulsory
Max. Marks: 100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Ideas and Ideologies- Meaning and Relevance	10
Unit II	Conservatism, Liberalism, Socialism, Feminism, Environmentalism	15
Unit III	Greek Thought: Early Greek Political Thought, Plato, Aristotle	14
Unit IV	Political thought during the Medieval Period, Initiation of Modern Thought: Machiavelli	08
Unit V	Concept of Social Contract: Hobbes, Locke, Rousseau	10
Unit VI	Utilitarian Thought: Bentham	05
Unit VII	Foundations of Liberal Thought: J.S. Mill, T.H. Green	10
Unit VIII	Idealism: Hegel	08
Unit IX	Foundations of Marxism: Karl Marx	10

Suggested Reading:

1. Brian R. Nelson- Western Political Thoughts
2. C.C. Wayper- Political Thought
3. George H. Sabine- A History of Political Theory
4. J. S. McClellan- A History of Western Political Thought
5. O. P. Gauba- Western Political Thought
6. Shefali Jha- Western Political Thought

7. Subratra Mukherjee and Sushila Ramaswamy- A History of Political Thought: Plato to Marx
8. Sukhbeer Singh – A History of Political Thought (Vol. 1 and Vol. 2)
9. W.H. Spellman- A Short History of Western Political Thought
10. चंद्रदेव प्रसाद- महान राजनीतिक विचारक.
शृंखला (कुल आठ पुस्तकें)
11. ब्रजकिशोर झा- प्रमुख राजनीतिक विचारक

Suggested Online Link:

- <https://ndl.iitkgp.ac.in/>
- <http://epgp.inflibnet.ac.in/>
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- <https://rtionline.gov.in/>
- <https://www.india.gov.in/topics/law-justice>



Subject: Political Science**Course Code:**
PS202ME**Course Title: Issues of Women Empowerment****Year: II Semester: III**
Paper-I

Course Outcomes: Women empowerment in India is required to overcome situations of such types and to provide them with their independent role in Indian society. Empowering women is a necessary right of women. They should have proportional rights to contribute to society, economics, education, and politics.

Credits: 4**Core: Minor Elective****Max. Marks: 100****Min. Passing Marks: 33****Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0**

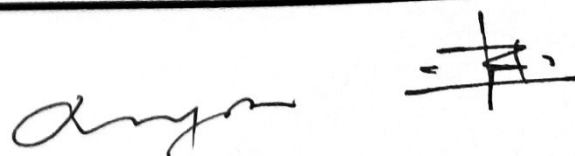
Unit	Topic	No. of Lectures
Unit I	Gender Issues and Perspectives, Strategies for Women's Empowerment	12
Unit II	Women and Development Organisation and Development, Legal Rights for Women	12
Unit III	Work and Entrepreneurship Credit and Finance, Marketing and role of NGOs	12
Unit IV	Women and Society, Women's Health and Local Issues	12
Unit V	Importance of Education in Women Empowerment, Role of Government in the development of Women	12

Suggested Reading:

- 1) Women in Indian Society by Neera Desai
- 2) Women and Empowerment in Contemporary India by Barati Baswas

Suggested equivalent online courses:

- <https://ndl.iitkgp.ac.in/>
- <http://epgp.inflibnet.ac.in/>
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- <https://rtionline.gov.in/>
- <https://www.india.gov.in/topics/law-justice>

This course can be opted as an elective by the students of following subjects:

This course can be opted as an elective by the student of any subject.

Suggested Continuous Evaluation (25 Marks):

Course Prerequisites:

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Diploma in POLITICAL THEORY AND PRACTICE		
Programme: Diploma in POLITICAL THEORY AND PRACTICE		Year: II Semester: IV Paper-I
Subject: Political Science		
Course Code: PS202MT	Course Title: Indian Political System	
Course Outcome: Acquaintance to Indian National Movement & Constitution is indispensable for a student to make a sense of Indian Political System. The course is designed to provide an overview of Indian freedom Struggle and key concepts of the Indian constitution to the student, which would evolve him into a conscientious citizen.		
Credits: 6		Core Compulsory
Max. Marks: 100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Basic Features of Indian Constitution: Preamble, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy	15
Unit II	The Indian Parliament : Lok Sabha and Rajya Sabha	10
Unit III	The Executive: The President, The Prime Minister and The Cabinet	15
Unit IV	Indian Judicial System: Supreme Court, Judicial Review and Judicial Activism.	10
Unit V	Federal System, Centre-State Relations	10
Unit VI	Party System in India and Electoral Behavior	10
Unit VII	Issues: Caste, Class, Gender, Region in Indian Politics	10
Unit VIII	Problems of Nation Building: Terrorism, Insurgency, National Integration in Indian Politics	10

Suggested Reading:

1. J.C. Johari- Indian Government and Politics (English and Hindi)
2. Bidyut Chakrabarti and Rajendra Kumar Pandey- Indian Government and Politics (English and Hindi)
3. Niraja Gopala Jayal and Pratap Bhanu Mehta- The Oxford Companion to politics in India
4. Rajni Kothari - Politics In India (English and Hindi)
5. B. K. Sharma- Politics and The State in India

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6. R. Sudarshan, Zoya Hasan and Eswaran Sridharan- India's Living Constitution, Ideas, Practices, Controversies
7. Balveer Arora, Fancis Frankel and Rajeev Bhargava – Transforming India Social and Political Dynamics of Democracy

Suggested Online Link:

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- <https://www.digitalindia.gov.in/services>
- <https://rtionline.gov.in/>
- <https://www.india.gov.in/topics/law-justice>

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<i>Bachelor of POLITICAL SCIENCE</i>		
Programme: <i>Bachelor of POLITICAL SCIENCE</i>		Year: III Semester: V Paper-I
Subject: Political Science		
Course Code: PS301MT	Course Title: Major Theories of International Politics	
Course Outcomes: This course seeks to equip students the basic tools for understanding International relations. It also introduces major events and developments that have shaped the contemporary international system. It aims to capture the changing dynamics of the international politics by taking up burning and relevant issues which have potential to alter its contours.		
Credits: 5		Core: Compulsory
Max. Marks: 100		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	International Politics: Definition, Scope and Relevance	10
Unit II	Theories of International Politics: Idealism, System Theory, Realism, Neo-Realism Game theory, Decision making theory and Constructivism	15
Unit III	National Interest: Concept and its Role in the Foreign Policy	10
Unit IV	National Power: Definitions and Elements	10
Unit V	Foreign Policy : Determinants of Foreign Policy	10
Unit VI	United Nations: Objectives, Structure And Working Of UNO, Relevance	10
Unit VII	Regional Organizations: SAARC, ASEAN and European Union	10

Suggested Reading:

1. John Baylis – The Globalisation of World Politics
2. Piu Ghosh- International Relations, 2017
3. Jim George and Anthony D. Burke – An Introduction to International Relations 2017
4. Timothy Dunne, Milla Karki, Steve Smith – International Relations Theories 2017
5. Robert Jackson- Introduction to International Relations Theories
6. Jenny Edkins and Maja Zehtuss –Global Politics: A New Introduction, 2009
7. Tapan Biswal – International Relations (English and Hindi)
8. Pushpesh Pant – International Relations in the 21st Century

9. कल्पना अग्रहरि अंतर्राष्ट्रीय संबंध
10. Hans Morgenthau- Politics among Nations
11. A.C. Roy- International Relations since 1919
12. S. Mukherjee – International Relations
13. Rumki Basu- International Politics

Suggested Online Link:

- <https://ndl.iitkgp.ac.in/>
- <http://epgp.inflibnet.ac.in/>
- <http://egyankosh.ac.in/>
- <https://www.ncertbooks.guru/english-skills/>
- <https://epathshala.nic.in/>
- <https://www.digitalindia.gov.in/services>
- <https://rtionline.gov.in/>
- <https://www.india.gov.in/topics/law-justice>

Dr. Arun

[Signature]



Bachelor of POLITICAL SCIENCE

Programme: Bachelor of POLITICAL SCIENCE

Year: III **Semester:** V
Paper-II

Subject: Political Science

Course Code:
PS302MT

Course Title: Elements of Public Administration

Course Outcomes: Administration being essential to every organization, this course aims to acquaint a student with fundamentals of public administration too. This would provide him an insight regarding the principles of administration in general and help him to bring out the best from existing set up. This would help him to prepare for administrative examinations too.

Credits: 5

Core: Compulsory

Max. Marks: 100

Min. Passing Marks: 33

Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0

Unit	Topic	No. of Lectures
Unit I	Meaning, Nature and Scope of Public Administration and difference with Private Administration	10
Unit II	Comparative Public Administration, Evolution of Public Administration as a Discipline and Development Administration, New Public Administration, New Public Management.	10
Unit III	Principles of Organisation: Hierarchy, Span of Control, Unity of Command, Delegation, Supervision and Coordination.	10
Unit IV	Structure of Organisation: Staff, Line and Auxiliary Agencies, Department, Public Corporations	10
Unit V	Planning (With special reference to planning in India)	05
Unit VI	Personnel Administration : Recruitment, Training and Promotion,	08
Unit VII	Bureaucracy and Civil Service; Generalist vs. Specialist Debate, Civil Service Neutrality	08
Unit VIII	Financial Administration: Budget, and Budgetary Processes	06
Unit IX	Legislative, Executive and Judicial Control over Administration, Ombudsman (with reference to Lokayukta and Lokpal in India)	08





Suggested Reading:

1. Avasthi and S. Maheshwari- Public Administration & Theories.
2. M. Bhattacharya- Public Administration
3. F. M. Marx- Elements of Public Administration
4. Felix Nigro-Modern Public Administration
5. M. P. Sharma- Theory & Practice of Public Administration
6. A. R. Tyagi- Public Administration
7. L.D. White- Introduction to the Study of Public Administration

Suggested Online Link:

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<i>Bachelor of POLITICAL SCIENCE</i>				
Programme: <i>Bachelor of POLITICAL SCIENCE</i>			Year: III	Semester: V
Subject: Political Science				
Course Code: PS301PJ	Course Title: PROJECT WORK (I)			
Course Outcomes: This paper intends to develop a comprehensive insight in the students so that given an opportunity they can initiate a minor research proposal or attempt a minor dissertation on their area of interest				
Credits: Qualifying (4)			Core: Research Project	
Max. Marks: 100			Min. Passing Marks: 33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-3				
Suggested Topics			No. of Lectures (1 hr. each)	No. of Lectures (2 hr. each)
A project on the Political Process in India.			15	15

Note: The topics are to be decided in consultancy with the faculty and the above are only suggestions. Any topic of socio political economic significance can be taken up as a project.




Bachelor of POLITICAL SCIENCE

Programme: *Bachelor of POLITICAL SCIENCE* Year: III Semester: VI
Paper-I

Subject: Political Science

Course
Code:
PS301MT

Course Title: Contemporary Issues in International Politics

Course Outcomes: This course seeks to equip students the basic tools for understanding International relations. It also introduces major events and developments that have shaped the contemporary international system. It aims to capture the changing dynamics of the international politics by taking up burning and relevant issues which have potential to alter its contours.

Credits: 5

Core Compulsory

Max. Marks: 100


Min. Passing Marks: 33

Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0

Unit	Topic	No. of Lectures
Unit I	Cold War, Detente and New Cold War. Unipolarity in the post cold war period	10
Unit II	Non Aligned Movement: Emergence, role and relevance	10
Unit III	The world of Nuclear politics: Nuclear race, PTBT/CTBT, NPT, expansion of the nuclear world	10
Unit IV	Bretton woods system, GATT, Liberalisation and Globalisation, WTO	10
Unit V	International Environmental Concerns: Major Treaties and role of UNO, Global Warming	15
Unit VI	Human Rights: UN Declaration and Issues	10
Unit VII	Post Cold war issues: Democracy, Clash of Civilisation, End of History, Non State Actors, International Terrorism. and Emerging Power Axis	10

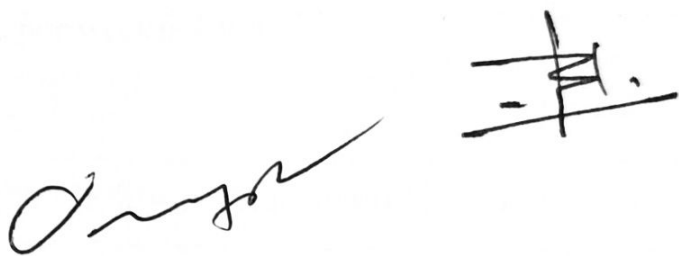
Suggested Reading:

1. Andrew Heywood- Global Politics
2. Globalisation of World Politics : An Introduction to International Relations by John Baylis, Smith and Owen
3. Vinod Sharma- Human Rights violation – A Global Phenomenon
4. M.S. Agwani- Détente: Perspectives and Repercussions
5. Paul Kennedy- Preparing for the Twenty-First Century
6. S. Mukherjee – International Relations
7. Pushpesh Pant- International Relations in 21st Century



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- <https://rtionline.gov.in/>
- <https://www.india.gov.in/topics/law-justice>

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<i>Bachelor of POLITICAL SCIENCE</i>		
Programme: <i>Bachelor of POLITICAL SCIENCE</i>		Year: III Semester: VI Paper-II
Subject: Political Science		
Course Code: PS304MT	Course Title: Foundations of Indian Political Thought	
Course Outcomes: This course is to familiarize the students with the larger political and social thinking and ideas in Ancient, medieval and Modern India. Designed in a way to help students engage with various ideological dispensations that came to shape the normative thinking on India.		
Credits: 5		Core: Compulsory
Max. Marks: 100		Min. Passing Marks:33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Ancient Indian Political Thought Tradition: Manu and Kautilya	08
Unit II	Indian Renaissance: Raja Ram Mohan Roy, Dayanand Saraswati, Swami Vivekanand	15
Unit III	Indian Integralism: Deendayal Upadhyay	05
Unit IV	Spiritual Nationalism: Aurobindo Ghosh,	05
Unit V	Theory of Non-Violence: Mohandas Karamchand Gandhi	05
Unit VI	Theory of Social Change: Dr. Bhimrao Ambedkar	05
Unit VII	Indian Nationalism: Savarkar, Gopal Krishna Gokhale, Bal Gangadhar Tilak, Rabindranath Tagore	12
Unit VIII	Builder of modern India: Pt. J.L. Nehru	05
Unit IX	Indian Humanism: M.N. Roy	05
Unit X	The Socialist Tradition: R.M. Lohia and J.P. Narayan	10

Suggested Reading:

1. Ramchandra Guha: The Makers of Modern India
2. Raghwar Iyer, Collected works of Gandhi
3. Raghwar Iyer, the Moral and Political Thought of Mahatma Gandhi

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4. Kalyan sen Gupta, the Philosophy of Rabindranath Tagore
5. V R Mehta, Political Ideas in Modern India
6. V R Mehta, Indian Political Thought
7. Raghuram Raju, Debating Gandhi
8. Deutsch Kenneth, Political Thought in Modern India
9. Sunil Khilnani, The Idea India
10. M K Gandhi, Hind Swaraj
11. Verma V. P. : " Modern Indian Political Thought", Lakshmi Narain Agarwal Educational Publishers, 2017(Hindi English both)

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Bachelor of POLITICAL SCIENCE

Programme: <i>Bachelor of POLITICAL SCIENCE</i>	Year: III	Semester: VI
Subject: Political Science		

Course Code:
PS302PJ

Course Title: PROJECT WORK (2)

Course Outcomes:

This paper intends to develop a comprehensive insight in the students so that given an opportunity they can initiate a minor research proposal or attempt a minor dissertation on their area of interest.

Credits: Qualifying (4)

Core: Research Project

Max. Marks: 100

Min. Passing Marks: 33

Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-3

Suggested Topics

No. of Lectures


No. of Lectures

A project on the formulation and execution of various governmental programs and schemes ranging from Beti Bachao Beti Padhao, Swachta Bharata Bhiyan, Ek Bharat Shreshth Bharat, Ujala, Skill India, Jandhan Yojna, Ayushman Bharat, Digital India Mission, Namami Gange, etc.

15

15

Note: The topics are to be decided in consultancy with the faculty and the above are only suggestions. Any topic of socio political economic significance can be taken up as a project.



VOCATIONAL COURSES

Subject: Political Science

Subject: Political Science			
Course Code: PS101VM	Course Title: Issues of Rural Government	Year:	Semester:
Course Outcomes: Rural development is important not only for the majority of the population residing in rural areas, but also for the overall economic expansion of the nation.			
Credits: 3		Core: Vocational	
Max. Marks: 100		Min. Passing Marks: 33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic	No. of Lectures	
Unit I	Rural Development: Indian Context Rural Development Programs	10	
Unit II	Rural Development Planning and Management Research Methods in Rural Development	10	
Unit III	Rural Health Care: Rural Social Development and Health Issues Water Sanitation	10	
Unit IV	Land Reforms and Rural Development	07	
Unit V	Entrepreneurship and Rural Development Components of Social Security	08	

Suggested Reading:

- 1) Environmental Law and Policy in India by Shyam Divan
- 2) Environmental Law by Dr. J.J Upadhyaya
- 3) Environmental Law and Policy by Aruna Venkat

Suggested Online Link:

- <https://ndl.iitkgp.ac.in/>
- <http://epgp.inflibnet.ac.in/>
- <http://egyankosh.ac.in/>
- <https://www.ncertbooks.guru/english-skills/>
- <https://epathshala.nic.in/>
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- <https://rtionline.gov.in/>
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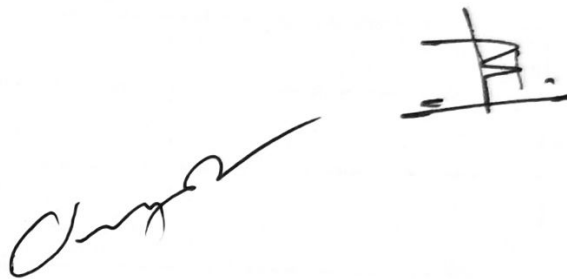
Suggested equivalent online courses:

This course can be opted as an elective by the students of following subjects:

This course can be opted as an elective by the student of any subject.

Suggested Continuous Evaluation (25 Marks):

Course Prerequisites:

A handwritten signature in cursive script is written over a horizontal line. To the right of the signature is a rectangular stamp with a grid pattern, possibly a date stamp or an official seal.

Course Code:	Course Title: Study of Voting Pattern and Voting Behaviour		
Course Outcomes: Voting behavior is a form of electoral behavior. Understanding voter's behavior can explain how and why decisions were made either by public decision makers, which has been central concern for political scientists. Political science student students study ways in which affective influence may help voters make more informed voting choices, with some proposing that affect may explain how the electorate makes informed political choices, with some proposing that affect may explain how the electorate makes informed political choices in spite of low overall levels of political attentiveness and sophistication.			
Credits: 3			Core: Vocational
Max. Marks: 100			Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
Unit I	Nature of Political Democracy in India		10
Unit II	People's Representation Act		10
Unit III	Role of Caste and Religion in Electoral Politics		10
Unit IV	Analyzing Voting Pattern with field survey		15

Suggested Reading:

- 1- How India votes and what it means by Pradeep Gupta
- 2- The Game of Votes by Farhat Basir Khan
- 3- Measuring Voting Behaviour In India by Sanjay Kumar and Praveen Rai

Suggested Online Link:

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

Suggested equivalent online courses:

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- <https://epathshala.nic.in/>

- <https://www.digitalindia.gov.in/services>
- <https://rtionline.gov.in/>
- <https://www.india.gov.in/topics/law-justice>

This course can be opted as an elective by the students of following subjects:

This course can be opted as an elective by the student of any subject.

Suggested Continuous Evaluation (25 Marks):

Course Prerequisites:



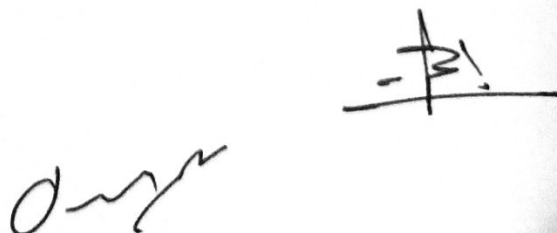
Subject: Political Science			
Course Code: PS201VC	Course Title: Issues of Urban Government		Year: Semester:
Course Outcomes: Urban governance: plays a critical role in shaping the physical and social character of urban regions; influences the quantity and quality of local services and efficiency of delivery; determines the sharing of costs and distribution of resources among different groups.			
Credits: 3		Core: Vocational	
Max. Marks: 100		Min. Passing Marks: 33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic	No. of Lectures	
Unit I	Introduction to Urban Government	10	
	Issues and Challenges in Urban Planning and Development		
Unit II	Dynamics of Urban Planning and Development	10	
	Monitoring and Evaluation of Projects and Programmes		
Unit III	Development Issues and Perspectives	10	
	Urban Governance and Finance		
Unit IV	Transportation Planning	08	
	Infrastructure, Network and Services		
Unit V	Climatic Change, Human Settlements and Urban Design	07	

Suggested Reading:

- 1- Urban Local Self Government in India by R.N.Prasad
- 2- Urban Local Government in India by Pankaj Singh
- 3- Urban Government and Politics in India Supersession of Municipal Bodies by L.N.P.Mohanty
- 4- Urban Local Self-Government in India by R.N.Prasads

Suggested Online Link:

- <https://ndl.iitkgp.ac.in/>
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- <https://www.india.gov.in/topics/law-justice>

Suggested equivalent online courses:

This course can be opted as an elective by the students of following subjects:

This course can be opted as an elective by the student of any subject.

Suggested Continuous Evaluation (25 Marks):

Course Prerequisites:

A handwritten signature in cursive script is followed by a rectangular stamp. The stamp contains a stylized, geometric design, possibly a logo or a signature, with horizontal and vertical lines.

Subject: Political Science			
Course Code: PS202VM	Course Title: Public Policy	Year:	Semester:
Course Outcomes: It aims to provide interface between public policy and administration in India. Students will be able to understand Political Process as well as Policy formulation process and the difficulties in implementation of Programmes and Policies promised in Manifestoes			
Credits: 3		Core: Vocational	
Max. Marks: 100		Min. Passing Marks: 33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic	No. of Lectures	
Unit I	Definition, Scope, Types & Significance of the Public Policy, Public Policy as an Emerging field of Study Major Determinants: Political Parties, Interest Groups, Pressure Groups, Mass Media, Non-Governmental Organization, Government Agencies, International Agencies NITI Aayog, Legislature, Executive, Judiciary, Bureaucracy, Techniques of Policy Implementation	12	
Unit II	Policy Making Process in India, Role of Parliament	10	
Unit III	Policy Evaluation: Concept, Criteria and Agencies	10	
Unit IV	Policy Intervention- Case Studies/Mock parliament: Panchayati Raj, NEP, MNREGA, Environmental Policies, Welfare Plans for Women & Weaker Sections, Feedback from Stake Holders.	13	

Suggested Reading:

1. Arora R.K. & Goyal R. 'Indian Public Administration', VishwaPrakashan 2008 New Delhi
2. Basu Rumki (ed.2015) 'Democracy and Good Governance: Reinventing the Public Service Delivery System in India' Bloomsbury, New Delhi
3. Basu Rumki (2015) 'Public Administration in India Mandates, Performance and Future Perspectives', Sterling Publishers, New Delhi

4. Chakrabarty Bidyut & Chand Prakash (2017) 'Public Administration: From Government to Governance' Orient Blackswan Pvt. Ltd. Hyderabad
5. Chakrabarty Bidyut & Chand Prakash (2017) 'Public Administration in a Globalizing World: Theories & Practices' SAGE, New Delhi
6. Jayal, N.G (1999) 'Democracy and The State: Welfare, Secular and Development in Contemporary India', Oxford, Oxford University Press, New Delhi
7. Sharma M.P., & Sadan B.L. 'LokPrashasan: Siddhantevam Vyavhar' Kitab Mahal, Allahabad
8. Singh H. & Singh M. 'Public Administration in India, Theory and Practice', Sterling Publication 1990 New Delhi

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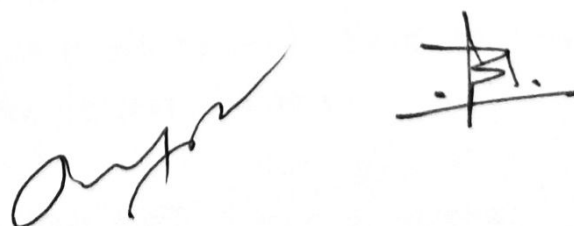
Suggested equivalent online courses:

This course can be opted as an elective by the students of following subjects:

This course can be opted as an elective by the student of any subject.

Suggested Continuous Evaluation (25 Marks):

Course Prerequisites:

Two handwritten signatures are present. The one on the left is a cursive signature, and the one on the right is a more stylized, blocky signature.

परीक्षा प्रणाली

श्री देव सुमन उत्तराखण्ड विश्वविद्यालय परिसर, ऋषिकेश में दिनांक 10 अगस्त 2022 को कला संकाय की अध्यापन समिति (Board of Studies) में लिए गए निर्णय के क्रम में श्री देव सुमन उत्तराखण्ड विश्वविद्यालय में संचालित स्नातक पाठ्यक्रमों के निम्न विषयों -

हिन्दी ,
अंग्रेजी ,
संस्कृत ,
इतिहास ,
गृह विज्ञान ,
भूगोल ,
राजनीति विज्ञान ,
समाज शास्त्र ,
अर्थशास्त्र ,
शिक्षा शास्त्र ,
शारीरिक शिक्षा ,
संगीत ,
चित्रकला ,
मानव शास्त्र ,
मनोविज्ञान ,
दर्शन शास्त्र तथा

सैन्य विज्ञान विषयों के स्नातक कक्षाओं के सेमेस्टर परीक्षा 2022-23 हेतु पारित निर्णय निम्नवत हैं :

राष्ट्रीय शिक्षा नीति 2020 के अंतर्गत प्रवर्तित पाठ्यक्रमों के प्रत्येक सेमेस्टर में प्रत्येक लिखित प्रश्न पत्र तीन घंटों का होगा तथा प्रत्येक प्रश्न पत्र अधिकतम 75 अंकों का होगा । प्रत्येक प्रश्न पत्र के दो खंड होंगे - खंड अ और खंड ब । खंड अ में 8 लघु उत्तरीय प्रश्न पूछे जाएंगे जिनमे से परीक्षार्थी को 5 प्रश्नों के उत्तर देना अनिवार्य होगा । खंड अ का प्रत्येक प्रश्न 6 अंकों का होगा । खंड ब में 5 प्रश्न दीर्घ उत्तरीय प्रकृति के होंगे जिनमें से परीक्षार्थी को 3 प्रश्नों के उत्तर देना अनिवार्य होगा । प्रत्येक दीर्घ उत्तरीय प्रश्न 15 अंकों का होगा ।

अध्यक्ष , अध्यापन समिति (Board of Studies)

कला संकाय, श्री देव सुमन उत्तराखण्ड विश्वविद्यालय , बादशाहीथाल

Sridev Suman Uttarakhand University, Tehri Garhwal, Uttarakhand



Faculty of Arts

SANSKRIT

Syllabus

**Undergraduate Courses for Sanskrit Programme
Under National Education Policy-2020**

(Major, Minor Elective & Vocational/Skill Enhancement Course)

B.A. – First Semester to Sixth Semester

(W.E.F. SESSION 2022-23)

Sridev Suman Uttarakhand University, Tehri Garhwal, Uttarakhand



Department of Sanskrit

Syllabus

Prepared by

Dr. Poonam Pathak

HOD, Sanskrit

Pt. Lalit Mohan Sharma Campus, Rishikesh

SRI DEV SUMAN UTTARAKHAND UNIVERSITY
Badshahithaul, Tehri Garhwal (Uttarakhand)

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3	Prof. Hemant Kumar Shukla	Professor	Member
4	Prof. Sangeeta Mishra	Professor	Member
5	Prof. Preeti Kumari	Professor	Member
6	Prof. Anand Prakash Singh	Professor	Member
7	Prof. Pushpanjali Arya	Asso. Professor	Member
8	Prof. D K P. Choudhury	Professor	Member
9	Dr. Poonam Pathak	Professor	Member
10	Dr. Atal Bihari Tripathy	Asst. Professor	Member
11	Dr. Pushkar Gaur	Asst. Professor	Member
12	Dr. Shikha Mangai	Asst. Professor	Member
13	Prof. M. S. Mawri	Professor	Member
14	Dr. Preeti Gupta	Asst. Professor	Member
15	Dr. Narmadeshwar Shukla	Professor	Member
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8	Dr. P.C. Painuli	Asst. Professor	GPGC, New Tehri
9	Dr. Asha Devi	Asso. Prof.	GPGC, Kotdwar

संस्कृत अध्ययन/पाठ्य समिति की बैठक

श्रीदेव सुमन उत्तराखण्ड विश्वविद्यालय टिहरी गढ़वाल के पत्रांक: 61/एसडीएसयूवी/ प्रशासन/ 2022, दिनांक 06 अगस्त 2022 के क्रम में राष्ट्रीय शिक्षा नीति 2020 के तहत नवीन शिक्षा पाठ्यक्रम के समायोजन तथा परिवर्तन एवं परिवर्धन हेतु दिनांक-10.08.2022 को प्रातः 10 बजे से विश्वविद्यालय के ऋषिकेश परिसर में अध्ययन/पाठ्य समिति की बैठक आहूत की गयी जिसमें निम्नलिखित बाह्य विषय विशेषज्ञों एवं आमन्त्रित सदस्यों की उपस्थिति रही-

1. प्रो० जानकी पँवार
प्राचार्या, राजकीय स्नात० महाविद्यालय, कोटद्वार
2. प्रो० लवली राजवंशी,
प्राचार्या, राजकीय स्नात० महाविद्यालय, जयहरीखाल
3. प्रो० के० एल० तलवार
प्राचार्य, राजकीय महाविद्यालय, चकराता, देहरादून
4. डॉ० हिमांशु दास
निदेशक, राष्ट्रीय दृष्टि बाधितार्थ संस्थान, देहरादून
5. प्रो० एम० एस० एम० नेगी, एस आर टी कैंपस, टिहरी-गढ़वाल
6. प्रो० एम० सी० सती, हे० न० ग० वि० श्रीनगर, गढ़वाल
7. प्रो० एस० एल० भट्ट, पूर्व प्राचार्य राजकीय स्नात० महाविद्यालय, कोटद्वार
8. प्रो० दिनेश चन्द्र गोस्वामी, संकायाध्यक्ष-कला,
पं० ल० मो० श० परिसर, ऋषिकेश, श्रीदेव सुमन उत्तराखण्ड विश्वविद्यालय
9. डॉ० पूनम पाठक, संयोजिका, पाठ्य समिति,
पं० ल० मो० श० परिसर, ऋषिकेश, श्रीदेव सुमन उत्तराखण्ड विश्वविद्यालय

DRAFT
National Education
Policy-2020

Common Minimum Syllabus for all Uttarakhand State Universities and Colleges for First Three Years of Higher Education

PROPOSED STRUCTURE OF UG SANSKRIT SYLLABUS

Syllabus Prepared, checked and modified by:

S.N.	Name	Designation	Department	Affiliation
1.	PROF. PUSHPA AWASTHI	PROFESSOR	SANSKRIT	SOBAN SINGH JEENA, ALMORA UNIVERSITY
2.	PROF. JAYA TIWARI	PROFESSOR	SANSKRIT	D.S.B. CAMPUS KUMAUN UNIVERSITY, NAINITAL
3.	PROF. SHALIMA TABASUM	PROFESSOR	SANSKRIT	SOBAN SINGH JEENA, ALMORA UNIVERSITY
4.	PROF. KAMALA PANT	PROFESSOR	SANSKRIT	MBPG COLLEGE HALDWANI
5.	PROF. SHALINI SHUKLA	PROFESSOR	SANSKRIT	PG COLLEGE PITHORAGAR
6.	DR. POONAM PATHAK	ASSOCIATE PROFESSOR	SANSKRIT	SHRIDEV SUMANA UNIVERSITY, RISHIKESH
7.	DR. LAJJA BHATT	ASSISTANT PROFESSOR	SANSKRIT	D.S.B. CAMPUS KUMAUN UNIVERSITY, NAINITAL
8.	DR. NEETA ARYA	ASSISTANT PROFESSOR	SANSKRIT	D.S.B. CAMPUS KUMAUN UNIVERSITY, NAINITAL
9.	DR. NEERAJ JOSHI	ASSISTANT PROFESSOR	SANSKRIT	UTTARAKHAND OPEN UNIVERSITY, HALDWANI
10.	DR. RAGHAVA JHA	ASSISTANT PROFESSOR	SANSKRIT	PG COLLEGE KASHIPUR
11.	DR. MOOLA CHANDRA SHUKLA	ASSISTANT PROFESSOR	SANSKRIT	PG COLLEGE RAMNAGR
12.	DR. PRADEEP KUMAR	ASSISTANT PROFESSOR (CONTRACT)	SANSKRIT	D.S.B. CAMPUS KUMAUN UNIVERSITY, NAINITAL

अध्ययन/पाठ्य समिति द्वारा संस्तुत संस्कृत पाठ्यक्रम

10 अगस्त 2022

List of all Papers in all Six Semesters

Semester-wise Titles of the Papers in Sanskrit
(National Education Policy- 2020)

Subject: Sanskrit								
Course /Entry –Exit Levels	Year	Sem.	Paper 1 Major Course (course code)	Credit/ hrs	Paper 2 Minor/ Elective	Credit/ hrs	Research Project	Credit
Certificate Course In Arts- Sanskrit	I	I	संस्कृत नीति साहित्य एवं व्याकरण (SANCC101)	6	संस्कृत भाषा अध्ययन (SANME103)	4		
		II	संस्कृत महाकाव्य, छन्दोऽलंकार एवं नाटक (SANCC102)	6				
Diploma in Art- Sanskrit	II	III	संस्कृत साहित्य, भारतीय संस्कृति एवं व्याकरण (SANCC201)	6	श्रीमद्भगवद्गीता का अध्ययन (SANME203)	4		
		IV	संस्कृत साहित्य, साहित्यकार परिचय एवं निबन्ध (SANCC202)	6				
Bachelor of Arts- Sanskrit	III	V	साहित्य शास्त्र, दर्शन एवं व्याकरण (SANCC301)	5			*संस्कृत साहित्य की विविध विधाओं में लघुशोध कार्य (SANRP303)	4
			उपनिषद्, पुराण एवं स्तोत्रकाव्य (SANCC302)	5				
		VI	वैदिक वाङ्मय (SANCC304)	5			*वैदिक वाङ्मय पर आधारित लघुशोध कार्य (SANRP306)	4
			धर्मशास्त्र : स्मृति एवं अर्थशास्त्र (SANCC305)	5				

* Qualifying Only

COURSE INTRODUCTION

Programme outcomes (POs):

PO1	साहित्य मानव संवेदना की अभिव्यक्ति का प्रमुख स्रोत रहा है। कलाओं में यह सम्पूर्ण कला है। साहित्य- समाज का दर्पण है। स्नातक उपाधि में इस विषय के चयन से विद्यार्थी साहित्य के अध्ययन से तात्कालिक समाज एवं संस्कृति से अवगत होगा।
PO2	सहज एवं स्वाभाविक रूप से भाषा-कौशल प्राप्त कर उनमें प्रभावशाली अभिव्यक्ति की क्षमता उत्पन्न होगी।
PO3	आत्मविश्वास से युक्त एवं नेतृत्व क्षमता प्राप्त होगी।
PO4	मूल्यपरक व्यक्तित्व से युक्त होकर भारतीयता के बोध के साथ वैश्विक नागरिक के रूप में भावी चुनौतियों का सामना करने में सक्षम होंगे।
PO5	विद्यार्थी संघ लोक सेवा आयोग एवं प्रादेशिक लोक सेवा आयोगों के परीक्षा पाठ्यक्रम में सम्मिलित संस्कृत साहित्य की आधार एवं अनिवार्य शिक्षा प्राप्त कर सकेंगे।
PO6	विद्यार्थियों को लेखन, वाचन एवं अध्ययन की दृष्टि से भाषागत दक्षता प्राप्त हो सकेगी।

Programme specific outcomes (PSOs):

UG I Year / Certificate cours Arts with Sanskrit

- 1.सर्वाधिक वैज्ञानिक भाषा के रूप में संस्कृत भाषा के प्राचीन महत्व एवं उसकी वर्तमान प्रासंगिकता को जानने-समझने योग्य होंगे।
- 2.संस्कृत साहित्य के विभिन्न विषयों यथा नीतिसाहित्य,, व्याकरण, महाकाव्य, छन्द, अलङ्कार एवं नाटक इत्यादि से सुपरिचित होकर संस्कृत विषय के महत्व का बोध होगा।
- 3.संस्कृत भाषा अध्ययन, सम्भाषण, से जीविकोपार्जन के योग्य हो जायेंगे।

Programme specific outcomes (PSOs):

UG II Year/ Diploma in Arts with Sanskrit

1. संस्कृतसाहित्य, भारतीय संस्कृति ,व्याकरण का बोध हो सकेगा।
2. श्रीमद्भगवद्गीता के अध्ययन से आत्मप्रबन्धन में कुशल होंगे।
3. धर्म-दर्शन, आचार-व्यवहार, नीतिशास्त्र के मूलतत्त्वों को जानकर उत्तम चरित्रवान् मानव एवं कुशल नागरिक बनेंगे।
4. संस्कृत साहित्य के अन्तर्गत प्राचीन-अर्वाचीन संस्कृत साहित्यकारों की कृतियों में निबद्ध समसामयिक विषय का बोध होगा।

Programme specific outcomes (PSOs):

UG III Year / Bachelor of Arts with Sanskrit

PSO1	विद्यार्थी स्नातक उपाधि पाठ्यक्रम के अन्तर्गत मुख्य विषय के रूप में साहित्य शास्त्र, दर्शन एवं व्याकरण का आधारभूत ज्ञान प्राप्त करेंगे।
PSO2	पाठ्यक्रम के अन्तर्गत, उपनिषद् पुराण एवं स्तोत्रकाव्य से परिचित होंगे।
PSO3	स्नातक उपाधि के पाठ्यक्रम में विद्यार्थी वैदिकवाङ्मय ,एवं धर्मशास्त्र का ज्ञान प्राप्त करेंगे।
PSO4	पाठ्यक्रम के अन्तर्गत भारतीय ज्ञानपरम्परा के अन्तर्गत भारतीय दर्शन, एवं नीतिकथाओं के अध्ययन से विद्यार्थी का चारित्रिक उन्नयन होगा।
PSO5	पाठ्यक्रम के अन्तर्गत स्मृति साहित्य का अध्ययन कर उसके महत्व से परिचित होंगे।
PSO6	कौटिलीय अर्थशास्त्र के अध्ययन से विद्यार्थी परिचित होंगे। इस प्रकार धर्म-दर्शन, आचार-व्यवहार, नीतिशास्त्र के मूल तत्त्वों को जानकर उत्तम चरित्रवान् मानव एवं कुशल नागरिक बनेंगे। प्रस्तावित विषय-संस्कृत साहित्य की विविध विधाओं एवं वैदिक वाङ्मय पर आधारित विषय पर लघु शोध कार्य से विद्यार्थियों की शोधपरक बुद्धि का विकास होगा। सर्वेक्षण, अन्वेषण एवं मनन-चिन्तन से उनका बौद्धिक स्तर बढ़ेगा साथ ही समसामयिक समस्या के निदान का मार्ग भी प्रशस्त होगा।

CERTIFICATE COURSE IN UG		
Programme: <i>Certificate Course in Arts- Sanskrit</i>		Year: I Semester:I Paper-I
Subject: Sanskrit		
CourseCode: SANCC101	Course Title: संस्कृत नीति साहित्य एवं व्याकरण	
Course Outcomes: अधिगम उपलब्धि		
1. विद्यार्थी संस्कृत नीति साहित्य से परिचित हो सकेंगे। 2. संस्कृत नीतिसाहित्य की सुगीतात्मकता का सौंदर्यबोध कर सकेंगे। 3. नीति साहित्य में प्रयुक्त नैतिक शिक्षा का बोध कर सकेंगे। 4. संस्कृत व्याकरण का सामान्य ज्ञान प्राप्त कर उसकी वैज्ञानिकता से सुपरिचित हो सकेंगे। 5. संस्कृत वर्णों के शुद्ध उच्चारण कौशल का विकास होगा। 6. स्वर एवं व्यंजन के मूल भेद को समझ कर पृथक् अर्थावगमन की क्षमता उत्पन्न होगी। 7. स्वर, व्यंजन एवं विसर्ग संधि का विशिष्ट ज्ञान एवं उनके अनुप्रयोग का कौशल विकसित होगा।		
Credits: 6		Core Compulsory
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0		
Unit	Topic	No. of Lectures
Unit I	नीतिशतकम्— भर्तृहरि (प्रारम्भ की दो पद्धतियाँ)—संस्कृत नीति साहित्य का परिचय, भर्तृहरि का जीवनवृत्त एवं नीति साहित्य को योगदान, मूर्ख पद्धति एवं विद्वत्पद्धति, के श्लोकों का अर्थ एवं व्याकरणात्मक टिप्पणी।	16
Unit II	हितोपदेश—मित्रलाभ (प्रारम्भिक दो कथायें)—नीति कथाओं का विकास एवं महत्त्व, श्री नारायण पण्डित का जीवन वृत्त एवं कृतियों का परिचय, हितोपदेश की प्रथम दो कथाओं का सारांश (वृद्धव्याघ्रपथिकयोः कथा एवं मृगजम्बुकयोः कथा), अनुवाद एवं व्याकरणात्मक टिप्पणी।	17
Unit III	व्याकरण— संज्ञाप्रकरणम्—माहेश्वरसूत्राणि, लघुसिद्धान्तकौमुदी के संज्ञाप्रकरण से सूत्र संख्या— 1/3/3, 1/1/60, 1/3/9, 1/1/71, 1/2/27, 1/2/29, 1/2/30, 1/2/31, 1/1/8, 1/1/9, 1/1/69, 1/4/109, 1/1/7 एवं 1/4/14।	17

Unit IV	व्याकरण— शब्दरूप लेखन मात्र— राम, रमा, फल, हरि, नदी, गुरु, अस्मद् एवं युष्मद् ।	10
Unit V	धातुरूप— पठ्, गम्, भू, कृ, लिख्— पाँचों लकारों में लेखन मात्र— लट्, लृट्, लोट्, लङ् एवं विधिलिङ् ।	10
	Class Room Lectures	70
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	20
		Total- 90

Suggested Reading:

1. नीतिशतकम्— जनार्दन शास्त्री पाण्डेय, मोतीलाल बनारसीदास दिल्ली ।
2. भर्तृहरि कृत नीतिशतकम्, मनोरमा हिन्दी व्याख्या सहित, ओम प्रकाश पाण्डेय, चौखम्बा अमरभारती प्रकाशन, वाराणसी ।
3. हितोपदेश— सम्पादक डॉ० प्रभुनाथ द्विवेदी, चौखम्बा अमरभारती प्रकाशन, वाराणसी ।
4. हितोपदेश (मित्रलाभ)— डॉ० कविता गौतम, युवराज प्रकाशन, आगरा ।
5. हितोपदेश सं० जीवानन्द विद्यासागर, कोलकता ।
6. भर्तृहरिविरचितम् नीतिशतकम्, भर्तृहरि (व्या०) राकेश शास्त्री, परिमल पब्लिकेशन, दिल्ली 2003 ।
7. भर्तृहरिविरचितम् नीतिशतकम्, बाबूराम त्रिपाठी (सम्पादक), महालक्ष्मी प्रकाशन, आगरा ।
8. लघुसिद्धान्तकौमुदी— श्री वरदराजाचार्य कृत— 'ललिता'— संस्कृत— हिन्दी टीकोपेता— डॉ० कौशल किशोर पाण्डेय— चौखम्बा संस्कृत संस्थान, वाराणसी ।
9. लघुसिद्धान्तकौमुदी— श्री वरदराजाचार्य कृत— व्याख्याकार श्रीधरानन्द शास्त्री— चौखम्बा संस्कृत संस्थान, वाराणसी ।

This course can be opted as an elective by the students of UG .

CERTIFICATE COURSE IN UG		
Programme: <i>Certificate Course in Arts- Sanskrit</i>		Year: I Semester:I or II
Subject: Sanskrit		
CourseCode: SANME103	Course Title: संस्कृत भाषा अध्ययन	
Course Outcomes: अधिगम उपलब्धि 1. संस्कृतभाषा का अध्ययन करने से विद्यार्थियों में व्याकरण के प्रति रुचि उत्पन्न हो सकेंगी। 2. संस्कृतभाषा को स्नातक—कलावर्ग के अतिरिक्त वाणिज्य एवं विज्ञानवर्ग के विद्यार्थी भी पढ़ सकते हैं। 3. संस्कृतभाषा के ज्ञान से नैतिकमूल्यों, आध्यात्मिकमूल्यों से युक्त ग्रन्थों के अध्ययन में सुगमता प्राप्त होगी। मूल्यपरक ग्रन्थों के बोध से अपने जीवन का लक्ष्य पूर्ण करने समर्थ होंगे। 4. संस्कृतभाषा के अध्ययन से विद्यार्थी अन्य भाषा के स्रोत को सरलता से समझ सकते हैं। 5. संस्कृतसम्भाषण से विद्यार्थियों की वाक्शक्ति का विकास होगा।		
Credits:4		Minor/ Elective Paper
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	संज्ञा प्रकरण—माहेश्वर सूत्र, प्रत्याहार, संस्कृत वर्णमाला परिचय एवं वर्णों के उच्चारण स्थान। संन्धि प्रकरण—अच् सन्धि —दीर्घ सन्धि, गुण सन्धि, यण् सन्धि, वृद्धि सन्धि, अयादि सन्धि, पूर्वरूप सन्धि एवं पररूप सन्धि। हल् सन्धि —श्चुत्व, ष्टुत्व, जश्त्व,, चर्त्व, अनुस्वार, लत्व सन्धि। विसर्ग सन्धि — सत्व, उत्त्व, रुत्व, लोप।	15
Unit II	शब्दरूप — राम, हरि, रमा, फल लेखनमात्र एवं शब्दरूपों में प्रयुक्त होने वाले सुप् प्रत्यय बोध। धातुरूप — पठ्, गम्, भू, दा।(पंचलकार— लट्, लृट्, लोट्, लङ्, विधिलिङ्) लेखनमात्र एवं धातुरूप में प्रयुक्त होने वाले तिप् प्रत्यय बोध। सर्वनाम रूप लेखनमात्र— तत्, एतत् (पु०, स्त्री० एवं नपुं० लिङ्ग) अस्मद्, युष्मद्।	05

Unit III	01 से 100 तक संख्या लेखन तथा संख्या विशेषण— यथा— एकधा, द्विधा, त्रिधा आदि, प्रथमा, द्वितीया आदि, दैनिक व्यावहारिक प्रचलित प्रशासनिक अंग्रेजी शब्दों का संस्कृत रूप एवं संस्कृत में वाक्य रचना अभ्यास। शब्दावली— शरीर वर्ग, परिवार वर्ग एवं भोज्य पदार्थ शब्दावली एवं संस्कृत में वाक्य रचना अभ्यास।	05
Unit IV	कारकप्रयोग, प्रत्यय परिचय, उपसर्गपरिचय, अव्ययपरिचय, वाच्यपरिवर्तन बोध एवं संस्कृत में वाक्यरचना अभ्यास।	15
Unit V	पत्रलेखन— शासकीय पत्र एवं अशासकीय पत्र। हिन्दी वाक्यों का संस्कृत भाषा में अनुवाद, संस्कृत भाषा के वाक्यों का हिन्दी में अनुवाद का अभ्यास।	10
	Class Room Lectures	50
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	10
		Total- 60

Suggested Reading:

- 1— रचनानुवादकौमुदी— डॉ० कपिलदेव द्विवेदी, विश्वविद्यालय प्रकाशन, वाराणसी।
- 2— प्रौढ रचनानुवादकौमुदी— डॉ० कपिलदेव द्विवेदी, विश्वविद्यालय प्रकाशन, वाराणसी।
- 3— संस्कृत भाषा— अंकित प्रकाशन, हल्द्वानी।
- 4— लघुसिद्धान्तकौमुदी— धरानन्द शास्त्री(व्या०), मूल एवं हिन्दी व्याख्या, मोतीलाल बनारसीदास, दिल्ली।
- 5— बृहद् अनुवाद चन्द्रिका— चक्रधर नौटियाल हंस, मोतीलाल बनारसीदास, दिल्ली।
- 6— भाषा प्रवेशः—प्रथमः भागः सम्पादकाः— डॉ० चाँदकिरण सलूजा, डॉ० विश्वास, गिरिश चन्द्र तिवारी—संस्कृतभारती नवदेहली
- 7— वाच्य परिवर्तन — डॉ० मधुर लता द्विवेदी— युवराज पब्लिकेशन्स, आगरा
- 8— प्रारम्भिक संस्कृत वाक्य संग्रह— सार्वभौम संस्कृत प्रचार संस्थानम्, वाराणसी।

This course can be opted as an elective by the students of following subjects:

अन्य सभी विभाग एवं संकाय

CERTIFICATE COURSE IN UG		
Programme: <i>Certificate Course in Arts- Sanskrit</i>		Year: I Semester:II Paper-I
Subject: Sanskrit		
CourseCode: SANCC102	Course Title: संस्कृतमहाकाव्य, छन्दोऽलंकार एवं नाटक	
Course Outcomes: अधिगम उपलब्धि		
<div>1. विद्यार्थी संस्कृत साहित्य का सामान्य परिचय प्राप्त कर काव्य के विभिन्न भेदों से परिचित हो सकेंगे।</div> <div>2. संस्कृत महाकाव्य के अध्ययन से उनमें निहित महान् चरित्रों का अध्ययन कर आत्मसात् करेंगे।</div> <div>3. विद्यार्थी संस्कृत महाकाव्य में प्रयुक्त रस, छन्द, अलंकारों को समझने की क्षमता प्राप्त करेंगे।</div> <div>4. संस्कृत महाकाव्यों में निहित सूक्तों एवं सुभाषित वाक्यों के माध्यम से विद्यार्थियों का नैतिक एवं चारित्रिक उन्नयन होगा।</div> <div>5. संस्कृत नाटक के अध्ययन से विद्यार्थी संस्कृत नाट्य साहित्य को सामान्य रूप से समझने में सक्षम होंगे।</div> <div>6. नाटक की पारिभाषिक शब्दावली से सुपरिचित होंगे तथा संवाद एवं अभिनय कौशल में पारंगत होंगे।</div>		
Credits:6		Core Compulsory
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0		
Unit	Topic	No. of Lectures
Unit I	रघुवंशम्—कालिदासकृत, द्वितीय सर्ग— 01 से 25 श्लोक पर्यन्त— सस्कृत महाकाव्य का सामान्य परिचय, महाकवि कालिदास का परिचय, रचनाएं, रघुवंशपरिचय, श्लोकों की व्याख्या एवं काव्यगत विशेषताएं।	12
Unit II	रघुवंशम्— कालिदासकृत, द्वितीय सर्ग— 26 से 50 श्लोक पर्यन्त—श्लोकों की व्याख्या, काव्यगत विशेषताएं एवं समीक्षात्मक प्रश्न।	10
Unit III	छन्द परिचय—लक्षण एवं उदाहरण—अनुष्टुप्, आर्या, इन्द्रवज्रा, वंशस्थ, बसन्ततिलका, शिखरिणी, शादूर्लविक्रीडित, मालिनी, भुजङ्गप्रयात एवं मन्दाक्रान्ता। अलंकार परिचय—लक्षण एवं उदाहरण—अनुप्रास, श्लेष, यमक, उपमा, रूपक, उत्प्रेक्षा, व्यतिरेक, विभावना, विशेषोक्ति, अतिशयोक्ति।	12
Unit IV	अभिज्ञानशाकुन्तलम्—कालिदासकृत, 1—4 अंक—श्लोकों की व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न।	26
Unit V	नाट्य साहित्य का सामान्य परिचय एवं नाट्यशास्त्रीय पारिभाषिक शब्दावली (दशरूपक के आधार पर)— नान्दी, प्रस्तावना, सूत्रधार, आकाशभाषित, विष्कम्भक, प्रवेशक, जनान्तिक, अपवारित, स्वगतकथन, एवं भरतवाक्य।	10

	Class Room Lectures	70
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	20
		Total- 90

Suggested Reading:

1. राघुवंशम् महाकाव्यम्—सम्पा० महावीर शास्त्री— प्रकाशन साहित्यभण्डार, सुभाष बाजार, मेरठ—250002 ।
- 2— छन्दोऽलंकार ज्ञान— डॉ किरण टण्डन ।
- 3— अलंकार शास्त्र का इतिहास— डॉ० कृष्ण कुमार ।
- 4— वृत्तरत्नाकर— पं० केदारभट्ट— व्याख्या प० बलदेव उपाध्याय, चौखम्बा सुरभारती प्रकाशन, वाराणसी ।
- 5— साहित्यदर्पण— नवम्—दशम परिच्छेद ।
- 6— छन्दोऽलंकार परिचय— डॉ० लज्जा भट्ट, लक्ष्मी प्रकाशन ।
- 7— छन्दोऽलंकार सौरभम्— डॉ० सावित्री गुप्ता, विद्यानिधि प्रकाशन, दिल्ली ।
- 8— अभिज्ञानशाकुन्तलम्— डॉ० कपिलदेव द्विवेदी, साहित्य संस्थान इलाहाबाद ।
- 9— अभिज्ञानशाकुन्तल एक विश्लेषण— डॉ० देवीदत्त शर्मा ।
- 10— संस्कृत साहित्य का इतिहास— डॉ० कपिलदेव द्विवेदी, ज्ञान प्रकाशन भदौही ।
- 11— संस्कृत साहित्य का इतिहास— डॉ० बलदेव उपाध्याय, चौखम्बा प्रकाशन, वाराणसी ।
- 12— महाकवि कालिदास— रमाशंकर तिवारी ।
- 13— संस्कृत नाटक— ए.बी. कीथ ।
- 14— संस्कृत नाटक— रामजी उपाध्याय ।

This course can be opted as an elective by the students of UG

DIPLOMA COURSE IN UG		
Programme: Diploma Course in Arts- Sanskrit		Year: II Semester:III Paper-I
Subject: Sanskrit		
CourseCode: SANCC201	Course Title: संस्कृत साहित्य, भारतीय संस्कृति एवं व्याकरण	
Course Outcomes: अधिगम उपलब्धि 1. विद्यार्थी संस्कृत साहित्य का सामान्य परिचय प्राप्त कर काव्य रचनाओं से परिचित हो सकेंगे। 2. भारतीय संस्कृति के अध्ययन से विद्यार्थी संस्कृति की विशेषताओं से परिचित होंगे जिससे उनका नैतिक एवं चारित्रिक उत्कर्ष होगा। 3. भारतीय सांस्कृतिक तत्त्वों एवं मूल्यों को आत्मसात् कर भारतीयता के गर्व बोध से युक्त उत्तम नागरिक बनेंगें। 4. संस्कृत व्याकरण का ज्ञान प्राप्त कर उसकी वैज्ञानिकता से सुपरिचित हो सकेंगे।		
Credits: 6		Core Compulsory
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0		
Unit	Topic	No. of Lectures
Unit I	किरातार्जुनीयम्— भारवि कृत— प्रथम सर्ग—01 से 50 श्लोक पर्यन्त— महाकाव्य का परिचय, कवि परिचय, श्लोकों की व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न।	15
Unit II	शिवराजविजयम्— अम्बिकादत्त व्यास कृत प्रथम विराम से प्रथम निःश्वास, ग्रन्थ परिचय, कवि परिचय, व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न।	15
Unit III	भारतीय संस्कृति— भारतीय संस्कृति की विशेषताएँ, पंच महायज्ञ, संस्कार, पुरुषार्थ चतुष्टय, वर्णाश्रम व्यवस्था।	10
Unit IV	सन्धिप्रकरणम्—(लघुसिद्धान्तकौमुदी से) अच् सन्धि (सूत्रव्याख्या एवं सूत्र निर्देशपूर्वक सन्धि एवं सन्धि विग्रह)। हल् सन्धि (सूत्रव्याख्या एवं सूत्र निर्देश पूर्वक सन्धि एवं सन्धि विग्रह)। विसर्ग सन्धि (सूत्रव्याख्या एवं सूत्र निर्देश पूर्वक सन्धि एवं सन्धि विग्रह)।	18

Unit V	कारक प्रकरण, लघुसिद्धान्तकौमुदी से— सूत्रसंख्या— 2/3/46, 2/3/47, 1/4/49, 2/3/2, 1/4/51, 1/4/54, 1/4/42, 2/3/18, 1/4/32, 2/3/13, 2/3/16, 1/4/24, 2/3/28, 2/3/50, 1/4/45 एवं 2/3/36 सूत्रों की व्याख्या एवं उदाहरण।	12
	Class Room Lectures	70
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	20
		Total- 90

Suggested Reading:

- 1—किरातार्जुनीयम् (भारविकृत)— जनार्दन शास्त्री पाण्डेय, मोतीलाल बनारसी दास पब्लिकेशन, दिल्ली।
- 2— शिवराजविजयः (अम्बिकादत्त व्यास) प्रथम विराम —डॉ० रमाशंकर मिश्र।
- 3— भारतीय संस्कृति— डॉ० किरन टण्डन, ईस्टर्न बुक लिंकर्स, नई दिल्ली।
- 4— भारतीय संस्कृति का इतिहास— डॉ० नरेन्द्र देव सिंह शास्त्री।
- 5— भारतीय संस्कृति— डॉ० इन्दुमती मिश्र।
- 6— आधुनिक गद्यसाहित्य का इतिहास— कलानाथ शास्त्री।
- 7— लघुसिद्धान्तकौमुदी (समास प्रकरण)— डॉ० सूरेंद्र देव शास्त्री।
- 8— लघुसिद्धान्तकौमुदी (समास प्रकरण)— श्री धरानन्द शास्त्री, चौखम्बा सुरभारती, बनारस।
- 9— शिवराजविजय— डॉ० बाबूरामत्रिपाठी, महालक्ष्मी प्रकाशन, आगरा।
- 10— लघुसिद्धान्तकौमुदी— महेश सिंह कुशवाहा।

This course can be opted as an elective by the students of UG.

DIPLOMA COURSE IN UG		
Programme: <i>Diploma Course in Arts- Sanskrit</i>		Year: II Semester:III or IV
Subject: Sanskrit		
CourseCode: SANME203	Course Title: श्रीमद्भगवद्गीता का अध्ययन	
Course Outcomes: अधिगम उपलब्धि		
1. विद्यार्थी श्रीमद्भगवद्गीता के अन्तर्गत प्रतिपाद्य विषय से अवगत हो सकेंगे।		
2. श्रीमद्भगवद्गीता के माध्यम से कर्मसिद्धान्त एवं अध्यात्मज्ञान प्राप्त कर सकेंगे।		
3. मानवजीवन में ज्ञान के महत्त्व को आत्मसात करने में सक्षम होंगे।		
4. विद्यार्थी आत्मप्रबन्धन के क्षेत्र में दक्षता प्राप्त कर सकेंगे।		
Credits: 4		Minor/ Elective Paper
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	श्रीमद्भगवद्गीता— महाभारत का संक्षिप्त परिचय, महर्षि वेदव्यास का परिचय एवं श्रीमद्भगवद्गीता के अध्यायों का संक्षिप्त परिचय।	05
Unit II	श्रीमद्भगवद्गीता में सांख्ययोग— श्रीमद्भगवद्गीता के द्वितीय अध्याय के अन्तर्गत सांख्ययोग से सम्बन्धित विषय विवेचन।	10
Unit III	श्रीमद्भगवद्गीता में कर्मयोग— श्रीमद्भगवद्गीता के तृतीय एवं चतुर्थ अध्याय में निहित कर्म सिद्धान्त का विवेचन।	10
Unit IV	श्रीमद्भगवद्गीता में ज्ञानयोग— श्रीमद्भगवद्गीता के सम्पूर्ण अध्यायों में निहित ज्ञानयोग की विवेचना एवं महत्त्व।	14
Unit V	श्रीमद्भगवद्गीता में आत्मप्रबन्धन— श्रीमद्भगवद्गीता में वर्णित आत्मप्रबन्धन का विवेचन एवं मानवजीवन में आत्मप्रबन्धन की उपयोगिता।	10
	Class Room Lectures	49
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	11
		Total- 60

Suggested Reading:

1. श्रीमद्भगवद्गीता— गीता प्रेस गोरखपुर।
2. श्रीमद्भगवद्गीता हिन्दी टीकाकार— डॉ० श्रीकृष्ण त्रिपाठी।
3. श्रीमद्भगवद्गीता (मधुसूदनी संस्कृत टीका)— श्री सनातन देव।
4. श्रीमद्भगवद्गीता— डॉ० बाबूराम त्रिपाठी, महालक्ष्मी प्रकाशन, आगरा।
5. गीताविज्ञानभाष्यम्— डॉ० रामप्रकाश सारस्वत, महालक्ष्मी प्रकाशन, आगरा।
6. श्रीमद्भगवद्गीतारहस्य, बालगंगाधर तिलक

This course can be opted as an elective by the students of following subjects:

अन्य सभी विभाग एवं संकाय

DIPLOMA COURSE IN UG		
Programme: <i>Diploma Course in Arts- Sanskrit</i>		Year: II Semester:IV Paper-I
Subject: Sanskrit		
CourseCode: SANCC202	Course Title: संस्कृत साहित्य, साहित्यकार परिचय एवं निबन्ध	
Course Outcomes: अधिगम उपलब्धि		
1. विद्यार्थी संस्कृत साहित्य का सामान्य ज्ञान प्राप्त कर पद्यसाहित्य एवं गद्यसाहित्य से सुपरिचित हो सकेंगे। 2. सम्बन्धित साहित्य के अध्ययन से पद्यसाहित्य की सुगीतात्मकता का सौन्दर्य बोध कर सकेंगे। 3. सम्बन्धित साहित्य के माध्यम से उनका नैतिक एवं चारित्रिक उत्कर्ष होगा। 4. प्राचीन एवं अर्वाचीन संस्कृत साहित्यकारों के अध्ययन से प्रेरणा प्राप्त कर सकेंगे। 5. विद्यार्थियों में निबन्ध एवं अनुच्छेद लेखन क्षमता को विकास होगा।		
Credits: 6		Core Compulsory
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 6-0-0		
Unit	Topic	No. of Lectures
Unit I	शिशुपालवधम्—महाकाव्यम्—प्रथम सर्ग—01से 50 श्लोक पर्यन्त— संस्कृत साहित्य का संक्षिप्त परिचय, महाकाव्य का संक्षिप्त परिचय, शिशुपालवधम् के सर्गों का संक्षिप्त परिचय, कृतिकार का परिचय, श्लोकों की व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न।	17
Unit II	कादम्बरी— शुकनासोपदेश— गद्यसाहित्य का परिचय, कादम्बरी का संक्षिप्त परिचय, गद्यकार परिचय, शुकनासोपदेश के अनुच्छेदों की व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न।	16
Unit III	प्राचीन संस्कृत साहित्यकारों का परिचय एवं संस्कृत साहित्य में उनका योगदान यथा—वाल्मीकि, व्यास, भास, कालिदास, भवभूति, शूद्रक, बाणभट्ट, दण्डी, हर्षदेव, श्रीहर्ष।	10
Unit IV	अर्वाचीन संस्कृत साहित्यकारों का परिचय एवं संस्कृत साहित्य में उनका योगदान यथा— पण्डित अम्बिकादत्त व्यास, पण्डिता क्षमा राव, शिवप्रसाद भारद्वाज, मथुरा प्रसाद दीक्षित, हरिनारायण दीक्षित, अभिराजराजेन्द्र मिश्र, सदानंद डबराल, राधावल्लभ त्रिपाठी, रमाकांत शुक्ल, भास्कराचार्य त्रिपाठी,विश्वेश्वर पांडेय	15

Unit V	निबन्ध लेखन : संस्कृत भाषा में – संस्कृत भाषा, विद्या, उद्योगः, परोपकारः, स्त्री शिक्षा, अहिंसा, सत्संगतिः, पर्यावरणम्।	12
	Class Room Lectures	70
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	20
		Total- 90

Suggested Reading:

- 1– शिशुपालवधम्– डॉ० बाबूराम त्रिपाठी, महालक्ष्मी प्रकाशन, आगरा।
- 2– कादम्बरी : शुक्नासोपदेश
- 3– संस्कृत साहित्य का इतिहास– कपिलदेव द्विवेदी, चौखम्बा प्रकाशन वाराणसी।
- 4– संस्कृत साहित्य का इतिहास– आचार्य बलदेव उपाध्याय, चौखम्बा प्रकाशन, वाराणसी।
- 5– आधुनिक संस्कृत साहित्य– डॉ० हीरालाल शुक्ल।
- 6– संस्कृत साहित्य का अभिनव इतिहास– राधावल्लभ त्रिपाठी विश्वविद्यालय प्रकाशन वाराणसी।
- 7– आधुनिक संस्कृत साहित्य सन्दर्भ सूची (सम्पादक) राधावल्लभ त्रिपाठी राष्ट्रीय संस्कृत संस्थान, नई दिल्ली।
- 8– आधुनिक संस्कृत काव्य की परिक्रमा, मंजू लता शर्मा, राष्ट्रीय संस्कृत संस्थान नई दिल्ली।
- 9– संस्कृत वाङ्मय का बृहद् इतिहास– सप्तम खण्ड आधुनिक खण्ड, उत्तर प्रदेश राष्ट्रीय संस्कृत संस्थान, उत्तर प्रदेश।

This course can be opted as an elective by the students of UG.

DEGREE COURSE IN UG		
Programme: <i>Degree Course in Arts- Sanskrit</i>		Year: III Semester: V Paper-I
Subject: Sanskrit		
CourseCode: SANCC301	Course Title: काव्यशास्त्र, दर्शन एवं व्याकरण	
Course Outcomes: अधिगम उपलब्धि		
1. विद्यार्थी काव्यशास्त्र के उद्भव और विकास से सुपरिचित होकर काव्यशास्त्रीय तत्त्वों को समझने में सक्षम होंगे। 2. भारतीय दार्शनिक तत्त्वों का सामान्य ज्ञान प्राप्त होगा। 3. दार्शनिक तत्त्वों के प्रति विश्लेषणात्मक एवं तार्किक क्षमता का विकास होगा। 4. व्याकरणशास्त्र के ज्ञान के माध्यम से शुद्ध वाक्य विन्यास कौशल का विकास हो सकेगा।		
Credits:5		Core Compulsory
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0		
Unit	Topic	No. of Lectures
Unit I	साहित्यदर्पणः— षष्ठः परिच्छेदः— काव्य के अन्यनिमित्तक भेद : दृश्य काव्य, कारिका 1 से 19 कारिका पर्यन्त— साहित्यदर्पण का संक्षिप्त परिचय, आचार्य विश्वनाथ का परिचय, कारिकाओं का अर्थ एवं टिप्पणी।	15
Unit II	साहित्यदर्पणः— षष्ठः परिच्छेदः— काव्य के अन्यनिमित्तक भेद : श्रव्य काव्य, कारिका 313 से 337 कारिका पर्यन्त— कारिकाओं का अर्थ, टिप्पणी एवं समीक्षात्मक प्रश्न।	12
Unit III	तर्कसंग्रह, अन्नंभट्ट, प्रारम्भ से प्रत्यक्ष प्रमाण पर्यन्त— ग्रन्थ का परिचय, रचनाकार का परिचय, व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न।	14
Unit IV	तर्कसंग्रह, अन्नंभट्ट, अनुमान प्रमाण से समाप्ति पर्यन्त— व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न।	12
Unit V	व्याकरण— प्रत्यय (कृदन्त) तव्यत्, अनीयर्, ण्वुल्, तृच्, क्त, क्तवतु, क्तिन्, तुमुन् एवं घञ्। (लघुसिद्धान्तकौमुदी)— प्रत्यय परिचय, सूत्रों का व्याख्या, उदाहरण।	12
	Class Room Lectures	65
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	10
		Total- 75

Suggested Reading:

1. काव्यालंकार— शिवनारायण शास्त्री, परिमल प्रकाशन ।
2. साहित्यदर्पण— प्रो० सत्यव्रत सिंह, चौखम्बा सुरभारती प्रकाशन ।
3. तर्कसंग्रह (अन्नम् भट्ट)— डॉ० चन्द्रशेखर द्विवेदी ।
4. लघुसिद्धान्तकौमुदी— कृदन्त प्रकरण— महेश सिंह कुशवाहा ।
5. लघुसिद्धान्तकौमुदी— श्री धरानन्द शास्त्री, चौखम्बा सुरभारती, बनारस ।
6. लघुसिद्धान्तकौमुदी— डॉ० सुरेन्द्र देव शास्त्री ।
7. लघुसिद्धान्तकौमुदी— वरदराज, भैमी व्याख्या, भीमसेन शास्त्री (1—6 भाग) ।
8. लघुसिद्धान्तकौमुदी— गोविंद प्रसाद शर्मा एवं आचार्य रघुनाथ शास्त्री, चौखम्बा सुरभारती प्रकाशन ।
9. लघुसिद्धान्तकौमुदी— डॉ० उमेश चन्द्र पाण्डे, चौखम्बा प्रकाशन ।
10. कृदन्त प्रकरणम्— डॉ० लज्जा भट्ट— राधा पब्लिकेशन्स, नई दिल्ली ।
11. काव्यदीपिका— कान्ति चन्द्र भट्टाचार्य— मोती लाल बनारसी दास

This course can be opted as an elective by the students Who cleared their Diploma in sanskrit

DEGREE COURSE IN UG		
Programme: <i>Degree Course in Arts- Sanskrit</i>		Year: III Semester:V Paper-II
Subject: Sanskrit		
CourseCode: SANCC302	Course Title: उपनिषद्, पुराण एवं स्तोत्रकाव्य	
Course Outcomes: अधिगम उपलब्धि 1. उपनिषद् का सामान्य परिचय एवं निहित उपदेशों का अवबोध होगा। 2. पुराणों के परिचय से सांस्कृतिक एवं सामाजिक चेतना से परिचित होंगे। 3. स्तोत्र काव्य के परिचय से कल्याण परक तथ्यों से परिचित होकर आत्मोत्कर्ष की अभिप्रेरणा प्राप्त होगी। 4. स्तोत्र काव्य के रहस्य द्वारा सृष्टि कल्याणार्थ भाव विकसित होंगे।		
Credits: 5		Core Compulsory
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0		
Unit	Topic	No. of Lectures
Unit I	उपनिषदों का सामान्य परिचय— उपनिषद् का अर्थ, उपनिषदों की संख्या, उपनिषदों का प्रतिपाद्य विषय एवं महत्त्व।	12
Unit II	कठोपनिषद् : प्रथम अध्याय— प्रथमवल्ली – कठोपनिषद् का संक्षिप्त परिचय, महत्त्व, मन्त्रों की व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न।	15
Unit III	प्रमुख पुराणों का सामान्य परिचय— ब्रह्म पुराण, पद्म पुराण, विष्णु पुराण, अग्नि पुराण, मार्कण्डेय पुराण, वायु पुराण और स्कन्द पुराण।	14
Unit IV	श्रीमद्भागवदपुराण का “नारायण कवच”— श्रीमद्भागवदपुराण परिचय, एवं नारायण कवच का अर्थ एवं महत्त्व	12
Unit V	स्तोत्रकाव्य : आदित्यहृदयस्तोत्र— स्तोत्रकाव्य का परिचय, महत्त्व एवं आदित्यहृदयस्तोत्र का अर्थ एवं महत्त्व ।	12
	Class Room Lectures	65
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	10
		Total- 75

Suggested Reading:

- 1— कठोपनिषद्— सुरेन्द्र देव शास्त्री, चौखम्बा विद्या भवन, वाराणसी ।
- 2— पुराण विमर्श— पण्डित बलदेव उपाध्याय, मोतीलाल बनारसी दास, दिल्ली ।
- 3— श्रीमद्भागवद् पुराण— गीता प्रेस, गोरखपुर ।
- 4— वैदिक साहित्य का इतिहास— डॉ० कणसिंह ।
- 5— पुराण तत्त्व मीमांसा— डॉ० श्रीकृष्णमणि त्रिपाठी, चौखम्बा साहित्य, वाराणसी ।
- 6— श्रीमद्भागवतम्— सम्पा० रामतेज पाण्डेय शास्त्री, चौखम्बा साहित्य, वाराणसी ।

This course can be opted as an elective by the students Who cleared their Diploma in Sanskrit

DEGREE COURSE IN UG		
Programme: <i>Degree Course in Arts- Sanskrit</i>		Year: III Semester: V Project
Subject: Sanskrit		
CourseCode: SANRP303	Course Title: संस्कृत साहित्य की विविध विधाओं पर लघु शोध कार्य	
Course Outcomes: अधिगम उपलब्धि <div>1. विद्यार्थी लघुशोधात्मक अध्ययन एवं कार्य के माध्यम से संस्कृत साहित्य की विविध विधाओं से परिचित होंगे। 2. संस्कृत साहित्य के प्रसार के लिए संस्कृत साहित्य अध्ययन सहायक होगा। 3. विद्यार्थी संस्कृत साहित्य के अध्ययन के माध्यम से शोध कार्य में कुशलता प्राप्त कर सकेंगे।</div>		
Credits: 4		Project
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	लघुशोध कार्य की भूमिका, शोधशीर्षक, उद्देश्य, महत्व एवं शोध प्रविधि का संक्षिप्त परिचय।	20
Unit II	संस्कृतसाहित्य की विविध विधाओं का सामान्य परिचय।	20
Unit III	संस्कृत साहित्य की विविध विधाओं पर हुए शोधकार्यों का सर्वेक्षण। लघुशोधकार्य— पृष्ठ 30 से 50 तक।	20
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion etc विद्यार्थी द्वारा किये गये अपने लघुशोधकार्य का प्रस्तुतिकरण।	Total- 60

Suggested Reading:

1. संस्कृत साहित्य का इतिहास— आचार्य बलदेव उपाध्याय, चौखम्बा प्रकाशन, अथवा शारदा निकेतन, वाराणसी।
2. नाट्यशास्त्र— भरतमुनि, मोतीलाल बनारसी दास, दिल्ली।
3. संस्कृत वाङ्मय का बृहद् इतिहास— पं० बलदेव उपाध्याय, उत्तर प्रदेश अकादमीय लखनऊ।
4. साहित्यदर्पण— शालिग्रामशास्त्रीविरचित, मोतीलाल बनारसी दास, वाराणसी।
- 5—दशरूपकम्— धनञ्जय,मोतीलाल बनारसी दास, वाराणसी।
- 6—काव्यदीपिका— विद्यारत्न कान्तिचन्द्र भट्टाचार्य, मोतीलाल बनारसी दास,दिल्ली।
- 7—संस्कृत साहित्य का समग्र इतिहास—भाग 1—4,राधावल्लभ त्रिपाठी, न्यू भारतीय बुक कार्पोरेशन,दिल्ली
- 8—संस्कृत साहित्य का इतिहास, उमाशंकर शर्मा ऋषि,चौखम्बा भारती अकादमी,वाराणसी
- 9—संस्कृत साहित्य का अभिनव इतिहास, राधावल्लभ त्रिपाठी, विश्वविद्यालय प्रकाशन,वाराणसी।
- 10—काव्यदीपिका— सम्पादक प्रो० गिरीश चन्द्र पन्त, इन्दु प्रकाशन, दिल्ली।

This course can be opted as an elective by the students who cleared their Diploma in Sanskrit.

DEGREE COURSE IN UG		
Programme: <i>Degree Course in Arts- Sanskrit</i>		Year: III Semester:VI Paper-I
Subject: Sanskrit		
CourseCode: SANCC304	Course Title: वैदिकवाङ्मय	
Course Outcomes: अधिगम उपलब्धि 1. वैदिकवाङ्मय संस्कृत की समृद्ध परम्परा को समझने में पर्याप्त सहायक होगा। 2. वेदोक्त संदेशों एवं मूल्यों के माध्यम से आचरण का उदात्तीकरण होगा। 3. वैदिक सूक्तों के माध्यम से विद्यार्थी को तत्कालीन अध्यात्म, समाज एवं राष्ट्र का दिग्दर्शन होगा। 4. वेदाङ्ग के सम्यक्बोध से सर्वकल्याणार्थ उनका उपयोग करेंगे।		
Credits: 5		Core Compulsory
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0		
Unit	Topic	No. of Lectures
Unit I	वेद— ऋग्वेद— अग्निसूक्त— 1/1, विष्णुसूक्त— 1/154, पुरुषसूक्त— 10/90, वैदिक साहित्य का संक्षिप्त परिचय, महत्त्व, सूक्तों का संक्षिप्त परिचय, व्याख्या एवं टिप्पणी।	20
Unit II	यजुर्वेद— शिवसंकल्पसूक्त— सूक्त का संक्षिप्त परिचय, व्याख्या एवं टिप्पणी।	10
Unit III	अथर्ववेद— पृथिवीसूक्त (द्वादशकाण्ड) 1 से 10 मन्त्र पर्यन्त— सूक्त का संक्षिप्त परिचय, व्याख्या एवं टिप्पणी।	10
Unit IV	वेद, ब्राह्मण एवं आरण्यक ग्रन्थ परिचय— ऋग्वेद, यजुर्वेद, सामवेद एवं अथर्ववेद का सामान्य परिचय, ब्राह्मण एवं आरण्यक का सामान्य परिचय एवं वर्तमान परिप्रेक्ष्य में इनकी प्रासङ्गिकता।	15
Unit V	वेदाङ्ग—शिक्षा, कल्प, व्याकरण, ज्योतिष, छन्द एवं निरुक्त का सामान्य परिचय एवं वर्तमान परिप्रेक्ष्य में इनकी प्रासङ्गिकता।	10
	Class Room Lectures	65
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	10
		Total- 75

Suggested Reading:

- 1— वैदिक सूक्त चयनिका— डॉ० किरण टण्डन, डॉ० जया तिवारी, अंकित प्रकाशन, हल्द्वानी ।
- 2— वैदिक सूक्त संकलन— विजय शंकर पाण्डे ।
- 3— वैदिक सूक्त संग्रह— अयोध्या प्रसाद सिंह ।
- 4— वैदिक साहित्य का इतिहास— डॉ० कर्णसिंह ।
- 5— वैदिक साहित्य और संस्कृति का स्वरूप— डॉ० ओम प्रकाश पाण्डे ।
- 6— शिवसंकल्पसूत्रम्— संस्कृत हिन्दी टीका सहित— डॉ० त्रिलोकी नाथ द्विवेदी, चौखम्बा साहित्य प्रकाशन, वाराणसी ।
- 7—न्यू वैदिक सलेक्शन— भाग—1, 2 सम्पादक—ब्रजविहारी चौबे (तैलंग एवं चौबे)
- 8— ऋक्सूक्त मञ्जूषा— प्रो० महावीर अग्रवाल, सत्यप्रकाशन, नई दिल्ली ।

This course can be opted as an elective by the students who cleared their Diploma in Sanskrit.

DEGREE COURSE IN UG		
Programme: <i>Degree Course in Arts- Sanskrit</i>		Year: III Semester:VI Paper-II
Subject: Sanskrit		
CourseCode: SANCC305	Course Title: धर्मशास्त्र : स्मृतियों एवं अर्थशास्त्र	
Course Outcomes: अधिगम उपलब्धि		
1. स्मृति साहित्य का सामान्य परिचय प्राप्त कर सकेंगे। 2. मनुस्मृति के माध्यम से भारतीय संस्कृति एवं संस्कार का अवबोध कर सकेंगे। 3. याज्ञवल्क्य स्मृति के अध्ययन से आचार एवं व्यवहार का सम्यक् ज्ञान प्राप्त कर सकेंगे। 4. कौटिलीय अर्थशास्त्र के अध्ययन से राज्यव्यवस्था, कृषि, न्याय एवं राजनीति आदि के मूलभूत सिद्धान्तों का अवबोध कर सकेंगे।		
Credits: 5		Core Compulsory
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 5-0-0		
Unit	Topic	No. of Lectures
Unit I	स्मृति साहित्य का सामान्य परिचय— स्मृति साहित्य का परिचय, महत्त्व एवं प्रतिपाद्य विषय, प्रमुख स्मृतियों का परिचय।	09
Unit II	मनुस्मृति:— प्रथमः अध्यायः—संसारोत्पत्ति वर्णन से षड्मनूनां नामनिर्देशः तक (05 से 63 श्लोक तक)— मनुस्मृति का प्रतिपाद्य विषय, श्लोकों की व्याख्या एवं टिप्पणी एवं समीक्षात्मक प्रश्न।	14
Unit III	याज्ञवल्क्यस्मृति:— व्यवहाराध्यायः— साधारणव्यवहारमातृकाप्रकरणम् तथा दायविभागप्रकरणम्— याज्ञवल्क्य स्मृति का प्रतिपाद्य विषय एवं श्लोकों की व्याख्या एवं टिप्पणी।	14
Unit IV	कौटिलीय अर्थशास्त्र का सामान्य परिचय— कौटिल्य अर्थशास्त्र का प्रतिपाद्य विषय, आचार्य कौटिल्य परिचय, कौटिल्य अर्थशास्त्र का महत्त्व एवं समीक्षात्मक प्रश्न।	14
Unit V	कौटिलीय अर्थशास्त्र :- विनयाधिकारिक प्रथमाधिकरण—से आन्वीक्षिकीस्थापना, त्रयीस्थापना एवं वार्तादण्डनीतिस्थापना के अंशों की व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न।	14
	Class Room Lectures	65
	Tutorial, Assignment, Class Room Seminars, Group Discussion etc	10
		Total- 75

Suggested Reading:

- 1— मनुस्मृति— पण्डित रामेश्वरभट्ट कृत हिन्दी टीका सहित— चौखम्बा संस्कृत प्रतिष्ठान दिल्ली।
- 2— याज्ञवल्क्यस्मृति (हिन्दीव्याख्याकार)— डॉ० उमेश चन्द्र पाण्डेय, आचार्य कपिलदेव गिरि— चौखम्बा संस्कृत संस्थान, वाराणसी।
- 3— वैदिक साहित्य का इतिहास— डॉ० कर्ण सिंह।
- 4— विशुद्ध मनुस्मृति— डॉ० सुरेन्द्र कुमार।
- 5— मनुस्मृति हिन्दी व्याख्या सहित— डॉ० गजानन्द शास्त्री मुसलगौवकर, चौखम्बा प्रकाशन, वाराणसी।
- 6— याज्ञवल्क्यस्मृति:— मिताक्षरा— संस्कृत तथा हिन्दी टीका सहित— गंगासागर राय, चौखम्बा प्रकाशन, वाराणसी।

This course can be opted as an elective by the students who cleared their Diploma in Sanskrit.

DEGREE COURSE IN UG		
Programme: <i>Degree Course in Arts- Sanskrit</i>		Year: III Semester:VI Project
Subject: Sanskrit		
CourseCode: SANRP306	Course Title: वैदिक वाङ्मय पर आधारित लघु शोधकार्य	
Course Outcomes: अधिगम उपलब्धि 1.विद्यार्थी लघुशोधकार्य के माध्यम से शोधप्रविधि से सुपरिचित होंगे। 2.वैदिक वाङ्मय के विविध ग्रन्थों से परिचित होंगे। 3.वेद, वैदिक संहिता, ब्राह्मण ग्रन्थ, आरण्यक ग्रन्थ, उपनिषद् ,वेदाङ्ग एवं वैदिक साहित्य की पृष्ठभूमि में रचित ग्रन्थों से सुपरिचित होंगे। 4.लघुशोधकार्य के पश्चाद् बृहद्शोधकार्य के प्रति उत्साहित होंगे। 5.शोध सर्वेक्षण के माध्यम से अन्य विषयों में शोधकार्य की सम्भावनाओं से अवगत होंगे।		
Credits: 4		Project
Max. Marks: 25 (Internal)+ 75 (External)=100		
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	लघुशोधकार्य की भूमिका, उद्देश्य, महत्त्व, शोध सर्वेक्षण एवं शोध प्रविधि की उपादेयता।	20
Unit II	वैदिक वाङ्मय का परिचय।	20
Unit III	वैदिक वाङ्मय में किये गये शोधकार्य का सर्वेक्षण एवं शोधप्रविधि के अनुसार लघुशोधकार्य ।	20
	Class Room Lectures Tutorial, Assignment, Class Room Seminars, Group Discussion, Presentation etc	Total- 60

Suggested Reading:

1. वैदिक साहित्य का इतिहास—डॉ० कर्ण सिंह, साहित्य भण्डार मेरठ।
2. वैदिक साहित्य एवं संस्कृति— आचार्य बलदेव उपाध्याय, चौखम्बा प्रकाशन।
3. 108 उपनिषद्— ज्ञान खण्ड एवं साधना खण्ड— प्रकाशक युग निर्माण योजना विस्तार ट्रस्ट गायत्री तपोभूमि, मथुरा उत्तर प्रदेश।

SRI DEV SUMAN UTTARAKHAND UNIVERSITY, BADSHAHITHAUL, TEHRI GARHWAL

National Education Policy-2021

U G Syllabus

For

Vocational /Skill Development Minor Courses

(Session-2022-23)

SANSKRIT

S.I. No.	Year	Course Code	Paper Title	Theory/Practical	Credits
1		SAN/UGVM01	नित्यनैमित्तिक अनुष्ठान	Theory + Practical	2+0+1
2		SAN/UGVM02	ज्योतिष शास्त्र के मूलभूत सिद्धान्त	Theory + Practical	2+0+1

Vocational/Skill Development Minor Courses

Subject: Sanskrit		
Course Code:SAN/UGVM01		Course Title: ज्योतिष शास्त्र के मूलभूत सिद्धान्त
Course Outcomes: अधिगम उपलब्धि		
1. भारतीय प्राचीन ज्ञान के प्रति अभिरुचि उत्पन्न होगी। 2. भारतीय ज्योतिष शास्त्र का सामान्य ज्ञान प्राप्त कर सकेंगे। 3. ज्योतिष के विभिन्न सिद्धांतों के माध्यम से विश्लेषण क्षमता जागृत होगी। 4. पंचांग अवलोकन एवं निर्माण कौशल का विकास होगा।		
Credits:3		Vocational/Skill Development Courses
Max. Marks: 25 (Internal)+75 (External)= 100		
Total No. of Lectures-Tutorials-Practical (In hours per week): 3-0-0		
Unit	Topic	No. of Lectures
Unit I	ज्योतिष शास्त्र का सामान्य परिचय, उद्भव एवं विकास,वेदांग का परिचय, ज्योतिष शास्त्र का महत्व, ज्योतिषशास्त्र का इतिहास एवं ज्योतिष शास्त्र परम्परा एवं विकास।	12
Unit II	ज्योतिषचंद्रिका-संज्ञा प्रकरण श्लोक 01 से 40 पर्यन्त-ज्योतिष चंद्रिका परिचय,कृतिकार का परिचय, ज्योतिषचंद्रिका का महत्व एवं प्रतिपाद्य	12
Unit III	क-ज्योतिषचंद्रिका-संज्ञाप्रकरण श्लोक 41 से 80 पर्यन्त- श्लोकों की व्याख्या, टिप्पणी एवं समीक्षात्मक प्रश्न। ख-होडाचक्रम का सामान्य परिचय।	13
	Class Room Lectures	37
	tutorial, Assignment, Clas Room Seminars, Group Discussion etc.	08
		Total- 45

Suggested Readings:

1. ज्योतिषचंद्रिका, रेवतीरमण शर्मा, (संपा)कान्ता भाटिया, भारतीय बुक कॉरपोरेशन, दिल्ली।
2. ज्योतिर्विज्ञान सन्दर्भ समालोचनिका, प्रो० बृजेश कुमार शुक्ल, प्रतिभा प्रकाशन, दिल्ली।
3. बृहत्संहिता, अच्युतानंद झा(अनु०), चौखंबा विद्याभवन, वाराणसी।
4. बृहत् संहिता, राधाकृष्णन भट्ट(अनु०), मोतीलाल बनारसीदास वॉल्यूम 1 और 2, दिल्ली।
5. भारतीय ज्योतिष, शंकर बालकृष्ण दीक्षित शिवनाथ झारखंडी(अनु०), हिन्दीसमिति, उत्तरप्रदेश।
6. भारतीय ज्योतिष परिचय, सर्वनारायण झा, राष्ट्रीय संस्कृतसंस्थान, शास्त्री, नईदिल्ली।
7. ब्रह्मांड एवं सौर परिवार, त्रिपाठी देवीप्रसाद, दिल्ली।
8. भुवन कोश, त्रिपाठी देवीप्रसाद, दिल्ली।
9. ज्योतिष के आधारभूत सिद्धान्त एवं ज्योतिषचंद्रिका-सम्पादक व्याख्या० गिरीश चन्द्र पन्त, इन्दु प्रकाशन, दिल्ली।
10. होडाचक्रम, सम्पादक डॉ० हरिप्रसाद द्विवेदी

Vocational/Skill Development Minor Courses

Subject: Sanskrit		
Course Code: SAN/UGVM02		Course Title: नित्यनैमित्तिक अनुष्ठान
Course Outcomes: अधिगमउपलब्धि <ol style="list-style-type: none"> विद्यार्थी भारतीय पारंपरिक कर्म काण्ड एवं सांस्कृतिक मूल्यों से परिचित होंगे। नित्यनैमित्तिक अनुष्ठान विधि को जानकर जीवन को नियमबद्ध एवं आचरणशील बनाने में समर्थ होंगे। भारतीय कर्मकाण्ड के प्रामाणिक शास्त्रीय रूप से परिचित होकर उसकी व्यवहारिक उपयोगिता जानने योग्य बनेंगे। सामान्य अनुष्ठान संपन्न कराने योग्य कुशल और पौरोहित्य कर्म विशारद बनेंगे। आत्मनिर्भर भारत की संकल्पना को साकार करने में सक्षम एवं आत्मनिर्भर बनेंगे। 		
Credits: 3		Vocational/Skill Development Courses
Max. Marks: 25 (Internal)+75 (External)= 100		
Total No. of Lectures-Tutorials-Practical (In hours per week): 3-0-0		
Unit	Topic	No. of Lectures
Unit I	नित्य विधि (प्रातरुत्थान, स्नान, संध्या, तर्पण तथा पंचयज्ञ)से सम्बन्धित मन्त्रों अथवा श्लोकों का अध्ययन एवं अभ्यास	12
Unit II	षोडशोपचार पूजन, कुश कंडिका विधि, मंडप-कुंड निर्माण तथा होम विधि आदि मन्त्रों अथवा श्लोकों का अध्ययन एवं अभ्यास।	12
Unit III	नवग्रह शांति, प्राग्जन्म तथा जातकर्म संस्कार, अन्नप्राशन तथा चौलकर्म, यज्ञोपवीत, विवाह संस्कार, गृहारम्भ एवं गृहप्रवेश आदि मन्त्रों अथवा श्लोकों का अध्ययन एवं अभ्यास।	13
	Class Room Lectures	37
	tutorial, Assignment, Clas Room Seminars, Group Discussion etc.	08
		Total- 45

Suggested Readings:

- हिन्दू संस्कार, राजबली पांडे चौखंबा विद्याभवन, वाराणसी, 1995।
- धर्म शास्त्र का इतिहास, प्रथम भाग, अर्जुनचौबे, उत्तर प्रदेश हिंदी संस्थान, लखनऊ।
- संस्कारप्रकाश, भवानी शंकर त्रिवेदी, लालबहादुर शास्त्री केंद्रीय संस्कृतविद्यापीठ, दिल्ली।
- पौरोहित्य कर्म प्रशिक्षक, उत्तर प्रदेश संस्कृत संस्थान, लखनऊ।
- नित्यकर्म पूजा प्रकाश, गीताप्रेस गोरखपुर।
- धर्म शास्त्र का इतिहास, पांडुरंग वामन काणे, (अनु०) अर्जुन चौबे कश्यप, प्रथम भाग, उत्तर प्रदेश हिंदी संस्थान, लखनऊ, 1973।

NATIONAL EDUCATION POLICY-2020

Common Minimum Syllabus for University Campus and all Affiliated
College of
Sri Dev Suman Uttarakhand University for First Three Years of Higher
Education



STRUCTURE OF UG –GEOGRAPHY SYLLABUS-2022-2023

Course Name: B.A./B.Sc.

**Sri Dev Suman Uttarakhand University, Badshahithoul, Tehri Garhwal-
Uttarakhand**

Subject: Geography
Modification Expert Committee

S.N.	Name	Designation	Department	Affiliation
1.	Dr.D.C.Goswami	Professor, Head & Dean of Arts Faculty	Department of Geography	Sri Dev Suman Uttarakhand University, Campus- Rishikesh
2.	Dr. T.B.Singh	Professor	Department of Geography	Sri Dev Suman Uttarakhand University, Campus- Rishikesh
3.	Aruna P. Sutradhar	Associate Professor	Department of Geography	Sri Dev Suman Uttarakhand University, Campus- Rishikesh
4.	Dr.A.P.Dubey	Associate Professor	Department of Geography	Sri Dev Suman Uttarakhand University, Campus- Rishikesh

Expert Committee, Uttarakhand

S.N	Name	Designation	Department	Affiliation
1	Dr. R.K.Pande	Head & Dean of Arts Faculty	Department of Geography	D.S.B. Kumaun University, Nainital
2.	Dr.D.C. Goswami	Head & Dean of Arts Faculty	Department of Geography	Sri Dev Suman Uttarakhand University, Campus- Rishikesh
3	Dr. Jyoti Joshi	Asso. Professor & Head of the Department	Department of Geography	Soban Singh Jeena Almora University, Almora
4	Dr. R.C. Joshi	Professor	Department of Geography	D.S.B. Kumaun University, Nainital
5.	Dr.Anita Pande	Professor	Department of Geography	D.S.B. Kumaun University, Nainital

SRI DEV SUMAN UTTARAKHAND UNIVERSITY

Badshahithaul, Tehri Garhwal (Uttarakhand)


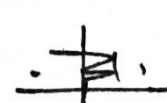
List of Members of Board of Studies

Sl. No.	Name of the Members	Designation	Nominated as
1	Prof. Dinesh Chandra Goswami	Dean of Arts	Chairman
2	Prof. Muktinath Yadav	Professor	Member
3	Prof. Hemant Kumar Shukla	Professor	Member
4	Prof. Sangeeta Mishra	Professor	Member
5	Prof. Preeti Kumari	Professor	Member
6	Prof. Anand Prakash Singh	Professor	Member
7	Prof. Pushpanjali Arya	Asso. Professor	Member
8	Prof. D K P. Choudhury	Professor	Member
9	Dr. Poonam Pathak	Professor	Member
10	Dr. Atal Bihari Tripathy	Asst. Professor	Member
11	Dr. Pushkar Gaur	Asst. Professor	Member
12	Dr. Shikha Mamgai	Asst. Professor	Member
13	Prof. M. S. Mawri	Professor	Member
14	Dr. Preeti Gupta	Asst. Professor	Member
15	Dr. Narmadeshwar Shukla	Professor	Member
16	Dr. Poonam Pandey	Asst. Professor	Member
17	Dr. Vandana Sharma	Principal	Member
1	Prof. Janki Panwar	Principal	GPGC Kotdwar
2	Prof. Lovely Rajvanshi LOVNEY	Principal	GPGC, Jaiharikhal
3	Prof. K. L. Talwar	Principal	GDC, Chakrata
4	Dr. Himanshu Das	Director	NIVH, Rajpur Road
5	Prof. M. S. M. Negi	Professor	SRT Campus, HNBGU, Srinagar
6	Prof. M. C. Sati	Professor	HNBGU, Srinagar
7	Prof. S. L. Bhatt	Ex. Principal	GPGC, Kotdwar
8	Dr. P.C. Painuli	Asst. Professor	GPGC, New Tehri
9	Dr. Asha Devi	Asso. Prof.	GPGC, Kotdwar

10.8.22

List of all Papers in Six Semester
Semester-wise Titles of the Papers in B.A./B.Sc. Geography
2022-2023 onwards

Year	Semester	Course Code	Paper Title	Theory/ Practical/Project	Credits
			<u>Certificate Course in Arts/Science</u>		
1	I	GEOG101T	Physical Geography	Theory	4
		GEOG102P	Basic Cartographic Techniques and Map Reading	Practical	2
	II	GEOG201T	Human Geography	Theory	4
		GEOG202P	Surveying Techniques	Practical	2
			<u>Diploma in Art/Sciences</u>		
2	III	GEOG301T	Tourism Geography	Theory	4
		GEOG302P	Thematic Cartography	Practical	2
	IV	GEOG401T	Regional Planning and Development	Theory	4
		GEOG402P	Statistical and Map Projection Techniques	Practical	2
			<u>Bachelor of Arts/Science</u>		
3	V	GEOG501T	Geography of India	Theory	4
		GEOG502T	Economic Geography	Theory	4
		GEOG503P	Educational Tour	Practical	2
		GEOG504R	Survey based Project -1	Project	3
	VI	GEOG601T	Evolution of Geographical Thoughts	Theory	4
		GEOG602T	Agricultural Geography	Theory	4
		GEOG603P	Remote Sensing & GIS Techniques	Practical	2
		GEOG604R	Survey based Project -2	Project	3
1-2		GEO- SKILL-101	Course Title: Field survey	Skill Enhancement	3
1-2		GEO-SKILL-202	Course Title: Element's of Map Readings	Skill Enhancement	3
1-2		GEO-ELECTIVE-T101	Course Title: Applied Geomorphology	Minor Elective	4
1-2		GEO-ELECTIVE-T201	Course Title: Social and Cultural Diversity in Uttarakhand	Minor Elective	4

Subject prerequisites:

Subject is open to all have passed 10+2 level in any stream

But, preference shall be given:

1. To study Geography, a student had the subject Geography learnt at 10+2 level.
2. Anyone who has mathematics, physics, biology as base subjects at 10+2 level.
3. Keen interest in Earth and its physical and social environment and maps.
4. Computer and drawing skills.
5. Creativity, sound observation and analytical aptitude while working on scientific procedures and research.

COURSE INTRODUCTION

Geography helps us to have an awareness of a place. All places and spaces have a history behind them, shaped by humans, earth, and climate. It also helps students with spatial awareness on the globe. Understanding direction and where things are in the world is still a vital skill, despite having easy access to this information online. **Physical Geography:** includes the study of the physical composition of a land which includes climate, landforms, soil and growth, bodies of waters, and natural resources. **Human Geography:** on the other hand, includes the study of people and culture and how they are distributed across the globe and are more likely to participate in the global community. Geography helps to develop factual reading skills — not only in the studying of maps, but also in the reading materials that are associated with geography. Geography often involves first-hand accounts, reading of research studies, and analysis of data sets. Geography puts history in context.

It helps us see the why, when, and how of what happened in history. One can learn History better by learning Geography.

Globalization is the process of cultures travelling globally and having an effect on others. Studying geography helps to understand where globalization might lead. Studying geography will make you better understand current events. Studying geography can enhance your navigation skills, no matter where you are. Studying geography will help you make sense of and appreciate different cultures around the globe. Learning about land, resource availability, and how that has shaped a culture to be the way it is today helps you understand the uniqueness of a culture. The study of geography helps us to understand relationships between cultures. Ultimately, this leads to a more accepting and culturally aware society.

Those who study geography have a unique outlook — one that comes with the knowledge of many cultures and spatial awareness that is not replicated in other disciplines. This mix of knowledge can help geographers come up with significant and unique solutions that others may not be able to see. Another way geography can have a positive influence in the world is by creating awareness of the effect of climate change. Geographers have intimate knowledge of weather patterns and climate changes throughout the course of history on areas of land. They also have studied how those changes have affected humans in those areas. That knowledge is shared with others to hopefully bring an understanding and global awareness of the effects of climate change on human society.

Geography will help you better understand news, help fight climate change, be a part of a global community, understand cultures, and learn history. At the end of the day, geography will help to become a better overall global citizen.

Asin

Programme outcomes (POs):

(After 3 Years of Study in Geography Under Graduate Programme)

PO 1	This course will provide students, the basic concepts of Physical & Human Geography.
PO2	It will help in developing analytical and critical thinking based on the themes and issues of Geography.
PO 3	Students will be able to analyze the problems of present physical as well as cultural world and they will try to find out the possible measures to solve those problems.
PO 4	Students will be able to understand applied and interdisciplinary aspects of Geography.
PO 5	Students will be able to design and conduct research projects in geography.
PO 6	Students will learn how to use various surveying instruments in the field.
PO 7	Students will be equipped with various statistical techniques and their uses.
PO 8	Students will learn how to prepare maps based on toposheets as well as GIS.
PO 9	Students will be able find out an original research question appropriate for geographic analysis.
PO10	Students will be able to design and implement legitimate geographic methodology.
PO 11	As a student of Geography, they will be capable to develop their observation power through field experience and to identify the socio-environmental problems of the areas and regions.
PO 12	Students will prepare themselves for professional careers in Geography.
PO 13	As a spatial science subject will train students to employ in the sectors of geospatial analysis, regional planning and development, tourism, mapping and surveying etc.
PO 14	Through this course students will be able to prepare themselves for Post Graduate and further Ph.D. programs in Geography.
PO 15	Students will be able to relate and use geographical knowledge and its practical aspects in their realistic life.

Programme specific outcomes (PSOs):
UG I Year / Certificate course Arts/Science



1. Student will gain the knowledge of Physical Geography. Student will have a general understanding about the geomorphological and geotechnical process and formation. They will be able to correlate the knowledge of physical geography with the human geography.
2. Imbibing knowledge, skills and holistic understanding of the Earth, atmosphere, oceans and the planet through analysis of landform development; crustal mobility and tectonics, climate change and dynamics; soil formation and classification; hydrological and oceanographic studies etc.
3. Associating landforms with structure and process; establishing man-environment relationships; and exploring the place and role of Geography vis-a-vis other social and earth sciences.
4. They will be able to acquire the knowledge of Human Geography and will correlate it with their practical life.
5. Student will be able to analyse the problems of physical as well as cultural environments of both rural and urban areas. Moreover they will try to find out the possible measures to solve those problems.
6. Students will be able to learn various Field Survey Techniques with diverse Survey Instruments.
7. Students will be able to learn the application of various modern instruments (GPS) and by these they will be able to collect primary data.
8. Applied geomorphologists working independently or serving on multidisciplinary advisory panels are well positioned to influence public policy to the benefit of society and the earth sciences.

Programme specific outcomes (PSOs):
UG II Year/ (Diploma in Arts/Science)

1. Student will have a general understanding about the Tourism Geography of any region. They will be able to correlate the knowledge of Tourism Geography with the Regional Development and Planning.
2. Students will be able analyze the prospects and potential of tourism in Uttarakhand State. Moreover they will try to find out the possible contribution of tourism development in regional development and planning.
3. Expertise in Statistical Techniques will be useful in quantitative assessment of the geographical data. The students can be able to justify their research outcomes which will ultimately contribute to the proper formulation of developmental plans.
4. The earth is three dimensional, and it is a challenge to show information in 3D to communicate with others. The map projection techniques will be helpful to put the earth on the flat surface which makes it easier for all to understand. The map projection techniques: the students will be able to map and communicate the geographical information of any region and any plans they have for solving problems that arise.

Programme specific outcomes (PSOs):
UG III Year / Bachelor of Arts/Science

(Signature) =

PSO 1	Inculcating a tolerant mindset and attitude towards the vast socio-cultural diversity of India by studying and discussing contemporary concepts of social and cultural geography. Understanding and accounting for regional disparities, poverty, unemployment and the impacts of globalization. Explaining and analyzing the regional diversity of India through interpretation of natural and planning regions.
PSO 2	Understanding the role and functioning of global economies, industrial locations; and the use and exploitation of resources with impacts.
PSO 3	Understanding the history of the subject; over viewing ancient and contemporary geographical thought and its relationship with modern concepts of empiricism, positivism, radicalism, behaviouralism, idealism etc.
PSO 4	Students correlate activity of agriculture and its determinants, Classify various types of agriculture in the world and differentiate, Discuss the problems and prospects of agriculture, Acquire new methods, techniques and trends used in agriculture, Understand the concept of sustainable agricultural development.
PSO 5	Conduct Social Survey Project: They will be eligible for conducting social survey project which is needed for measuring the status of development of a particular group or section of the society
PSO6	Training in practical techniques of mapping, cartography, softwares, interpretation of maps, photographs and images etc; so as to understand the spatial variation of phenomena on the Earth's surface.
PSO7	Students will learn how to prepare map based on GIS by using the modern geographical map making techniques.
PSO8	Development of Observation Power: As a student of Geography Course they will be capable to develop their observation power through field experience and in future they will be able to identify the socio-environmental problems of a locality.
PSO9	After the completion of the project they will be efficient in their communication skill as well as power of social interaction. Some of the students are being able to understand and write effective reports and design credentials, make effective demonstrations, and give and receive clear instructions.
PSO 10	Demonstrate knowledge and understanding of the management principles and apply these to their own work, as a member and leader in a team, to manage projects. They will perform effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PSO 11	Employment Opportunities: Many geography grads go into urban and regional planning, a field that is growing fast. Other geographers work in environmental management and consultation and can have a direct impact in the fight against climate change. Also, the skills learned during a geography degree, such as cartography, data representation, and research writing, transfer well into the workforce and can make you a standout applicant.
PSO12	Inculcating a tolerant mindset and attitude towards the vast socio-cultural diversity of Uttarakhand by studying and discussing contemporary concepts of social and cultural geography. Explaining and analyzing the regional diversity of Uttarakhand through interpretation of Physical regions.

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Subject: Geography										
Course/ Entry – Exit Levels	Year	Sem	Paper 1	Credit/ hrs	Paper 2	Credit/ hrs	Paper 3	Credit/ hrs	Research Project	Credit/ hrs
Certificate Course in Arts/Science	I	I	Physical Geography	4	Basic Cartographic Techniques and Map Readings	2	Applied Geomorphology	4	--	--
		II	Human Geography	4	Surveying Techniques	2	--	--	--	--
Diploma in Arts/Science	II	III	Tourism Geography	4	Thematic Cartography	2	Social and Cultural Diversity in Uttarakhand	4	--	--
		IV	Regional planning and Developme nt	4	Statistical and Map Projection Techniques	2	--	--	--	--
Bachelor of Arts/Science	III	V	Geography of India	4	Economic Geography	4	Educational Tour	2	Survey/ Research Project-1	4
		VI	Evolution of Geographical Thoughts	4	Agricultural Geography	4	Remote Sensing & GIS Techniques	2	Survey/ Research Project-2	4
Comments										
Internal Assessment					Marks	External Assessment				
Internal Assessment would be based on Written Test					25	External Assessment would be done on the Basis of University Examination System.				
Internal Assessment would be based on Attendance					05					

High - *11*

CERTIFICATE COURSE IN ARTS/SCIENCE

Programme: <i>Certificate Course in Arts/Science</i>	Year: I	Semester: I Paper-I
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Subject: Geography

Course Code: GEOG101T	Course Title: Physical Geography
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Course Outcomes:

1. Understand the origin of Universe, Earth and Solar system.
2. Learn about the Continents and Oceans.
3. Plate tectonics and related movements.
4. Origin and development of different Landforms on the Earth.
5. Earth's climate and factors influencing it.
6. Understand formation of Soil, types, profiles and biogeography.
7. Ocean systems of the world.

Credits: 04	Core Compulsory
Max. Marks: 25+75	Min. Passing Marks: 33

Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0

Unit	Topic	No. of Lectures
Unit I	Meaning, Scope and Branches of Physical Geography, Origin of Universe, Solar system and Earth. Geological Time Scale, Theories of Laplace, Chamberlin, James Jeans, Jeffreys, and Hoyle & Lyttleton, Interior of the earth, Rocks: origin and classification.	12
Unit II	Origin of continents and ocean basins: Continental drift and convectional current theories, Plate Tectonics, Isostasy, Earth movements, Endogenetic forces, landforms: Mountains, Plateau and Plains, Gradational processes, Weathering and Erosion, normal cycle of erosion, Arid, Glacial, Marine and Karst topographies, Vulcanicity and Earthquakes.	15
Unit III	Soil as a basic component of environment, Soil profile (Soil horizon): Characteristics and Significance, Processes and factors of soil formation. Biodiversity and Biosphere, Biotic succession, Biomes and their types. Biodiversity conservation.	10
Unit IV	Composition and structure of atmosphere, Insolation, Vertical and Horizontal Distribution of temperature, Pressure and pressure belts, Winds: Planetary, Periodic and Local. Humidity, Clouds and Precipitation, Cyclones and Anticyclones.	14
Unit V	Ocean bottom topography, Ocean deposits, Salinity, Temperature, Ocean currents, Tides and Coral reefs.	09




Suggested Reading:

1. Barry, R.G. and Chorley, R.J. (1998). Atmosphere, Weather and Climate. Routledge, London.
2. Bryant, H. Richard (2001). Physical Geography Made Simple. Rupa and Co., New Delhi.
3. Bunnett, R.B. (2003). Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Pvt Ltd.
4. Garrison T (1998). Oceanography. Wordsworth Cp, Bedmont.
5. Lake, P. (1979). Physical Geography (English & Hindi Edition) Cambridge Univ. Press, Cambridge.
6. Monkhouse, F I (1979). Physical Geography, Methuen, London.
7. Singh, S. (2003). Physical Geography (English and Hindi Editions) Prayag Pustak Bhawan, Allahabad.
8. Singh, M.B. (2001) Bhoutik Bhoogol, Tara Book Agency, Varanasi.
9. Strahler, A.N. and Strahler A.M. (1992). Modern Physical Geography, John Wiley and Sons, New York
10. Wooldridge, S.W. and Morgan, R.S. (1959). The Physical Basis of Geography: An Outline of Geomorphology. Longman, London.

Suggested equivalent online courses:

https://onlinecourses.swayam2.ac.in/cec21_hs03/preview

https://onlinecourses.swayam2.ac.in/nos20_sc25/preview

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Assignment / Class Test / Quiz (MCQ) / Seminar/ Presentations

CERTIFICATE COURSE IN ARTS/SCIENCE		
Programme: <i>Certificate Course in Arts/Science</i>		Year: I Semester: I Paper-II
Subject: Geography		
Course Code: GEOG102P	Course Title: Basic Cartographic Techniques and Map Readings	
Course Outcomes:		
1. Learn basics of Cartography and Map making.		
2. Understand and interpret toposheets and weather maps.		
3. Draw maps with the help of toposheets.		
4. Learn function and use of meteorological instruments.		
Credits: 2	Core Compulsory	
Max. Marks: 25+75 (75=60+10+5 Lab exercise-+Record File+Viva-Voce)	Min. Passing Marks:33	
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P:0-0-2		

Unit	Topic	No. of Lectures
Unit I	Meaning, importance and types of Scale, Conversion of Scale, Construction of Plain, Comparative and Diagonal Scale. Methods of enlargement and reduction of maps.	14
Unit II	Definition, nature and scope of cartography, Globe and maps, Essentials of maps, History of map making, Types and uses of maps, Elements of map reading.	8
Unit III	Cartographic representation of relief: Hachures, Contours, Form line, Spot height, Bench mark, Trig point, Layer tint; Interpolation of contours.	10
Unit IV	Indian topographical map system: Their classification and types. Interpretation of topographical maps and preparation of base map, index map, drainage map, topographic map, land use map, settlement map and transportation network map.	16
Unit V	Indian weather maps: Interpretation and preparation of weather report, Meteorological instruments; Barometer, Thermometer (Minimum, Maximum, Dry and Wet bulb), Rain gauge, Wind vane and Anemometer.	12

Suggested Reading:

1. Monkhouse, F.J. & Wilkinson, F.J. (1985). Maps and Diagrams. Methuen, London.
2. Raisz, E (1962). General Cartography. John Wiley & Sons, New York.
3. Sharma, J.P. (2001). Prayogik Bhoogol. Rastogi Pub, Meerut.
4. Singh, R. L. & Singh, Rana PB (1993). Elements of Practical Geography (Hindi & English Editions). Kalyani Publishers, New Delhi.
5. Singh, L. R. (2006). Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.

Suggested equivalent online courses:

This course can be opted as an elective by the students: Open to all.

Suggested Continuous Evaluation (25 Marks): Assignment / Class Test / Quiz (MCQ) / Seminar/ Presentations

CERTIFICATE COURSE IN ARTS/ SCIENCE		
Programme: <i>Certificate Course in Arts/Science</i>	Year: I	Semester: II Paper-I
Subject: Geography		
Course Code: GEOG201T	Course Title: Human Geography	

Singh - H.

Course Outcomes:

1. Learn Meaning, Concept, Nature, Scope and development of Human Geography.
2. Understand Cultural Changes in and around the world.
3. Learn about the different races, religions, tribes, their culture and cultural development.

Credits: 04	Core Compulsory
Max. Marks: 25+75	Min. Passing Marks:33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0	

Unit	Topic	No. of Lectures
Unit I	Definition and scope of Human Geography; human versus physical geography; branches of Human Geography; Development of Human Geography; Contributions of German and French Geographers. Contribution of Indian Geographers.	12
Unit II	Schools: Determinism, possibilism, welfare or humanistic and positivism; Approaches: ecological, landscape, locational, welfare and humanistic.	12
Unit III	Elements of environment; physical and human environment; constraints and opportunities of the environment; impact of environment on man; impact of man on environment; environmental problems; pollution, Hazards, and climate change.	12
Unit IV	Evolution of man: Classification of races, Characteristics of races and their world distribution, Human adaptation to the environment: Eskimo, Bushman and Masai. Tribes of India; habitat, economy and culture with special reference to Naga, Bhil, Santhal, Gaddi, Bhotia, Jounsari and Tharu tribes.	14
Unit V	Human Settlements: Origin, types and patterns (Rural and Urban) characteristics, House types and their distribution with special reference to India.	10

Suggested Reading:

1. Singh, L.R. (2005). Fundamentals of Human Geography. Sharda Pustak Bhawan, Allahabad.
2. DeBlij, H.J. Human Geography: Culture, Society and Space. John Wiley, New York.
3. Haggett, P. (2004). Geography: A Modern Synthesis. Harper & Row, New York
4. Hussain, M. (1994). Human Geography. Rawat Publication, Jaipur.
5. Norton W. (1995). Human Geography. Oxford University Press, New York.
6. Singh, K. N. & Singh J. (2001). Manviya Bhoogol. Gyanodaya Prakashan, Gorakhpur
7. Kaushik, S.D. & Sharma, A.K. (1996). Principles of Human Geography (in Hindi), Rastogi Pub. Meerut

Suggested equivalent online courses:

Courses on Swayam / MOOCs https://onlinecourses.swayam2.ac.in/nou20_hs18/preview

This course can be opted as an elective by the students: Open to all.

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations



CERTIFICATE COURSE IN ARTS/SCIENCE			
Programme: <i>Certificate Course in Arts/Science</i>		Year: I	Semester: II Paper-II
Subject: Geography			
Course Code: GEOG202P		Course Title: Surveying Techniques	
Course Outcomes:			
1. Understand importance of Surveying.			
2. Learn to use Different Surveying instruments including GPS.			
Credits: 2		Core Compulsory	
Max. Marks: Max. Marks: 25+75 (75=60+10+5 Lab exercise-+Record File+Viva-Voce)		Min. Passing Marks:33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-2			
Unit	Topic	No. of Lectures	
Unit I	Fundamentals of Surveying: Objects, Primary divisions of survey, Classification.	4	
Unit II	Plane Table Surveying: Radiation, Intersection, Close Traverse, Open Traverse, Resection by two point and three-point problems.	18	
Unit III	Surveying by Prismatic Compass: Close Traverse, Open Traverse, and Correction of bearing.	18	
Unit IV	Measurement of height and depth by Indian Pattern Clinometer.	10	
Unit V	Use and Applications of GPS in surveying	10	

Suggested Reading:

1. Monkhouse, F.J. & Wilkinson, F.J. (1985). Maps and Diagrams. Methuen, London.
2. Raisz, E. (1962). General Cartography. John Wiley & Sons, New York.
3. Sharma, J.P. (2001). Prayogik Bhoogaol. Rastogi Pub, Meerut.
4. Singh, R.L. & Singh, Rana P.B. (1993) Elements of Practical Geography (Hindi & English Editions), Kalyani Publishers, New Delhi.
5. Singh, L. R. (2006). Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.

Suggested equivalent online courses:

This course can be opted as an elective by the students: Open to all.
Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/Present

DIPLOMA IN ARTS/SCIENCE		
Programme: <i>Diploma in Arts/Science</i>	Year: II	Semester: III Paper-I

Signature

Subject: Geography		
Course Code: GEOG301T		Course Title: Tourism Geography
Course Outcomes: <ol style="list-style-type: none"> 1. Understand the concept and importance of tourism and tourism Geography. 2. Infrastructure required by the tourism services. 3. Learn impacts on Environment, economy and society. 4. Tourism prospects and challenges in Uttarakhand. 		
Credits: 4		Core Compulsory
Max. Marks: 25+75		Min. Passing Marks:33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Concept of Leisure and Tourism; Development of Tourism; Types of Tourism; Definition, Scope and Significance of Geography of Tourism; Geographical Basis of Tourism; Resources and Infrastructure for Tourism: Transportation, Accommodation and Basic Infrastructure.	12
Unit II	Impact of Tourism: Physical, Economic, Social and Cultural Impacts; Concept of Ecotourism; New Emerging Trends in Tourism. Statistics of tourism and data collection.	12
Unit III	Tourism Marketing: Marketing Concepts and Marketing in Tourism; The Tourist Product; Segmentation- A Priori Segmentation; Tourism Circuits; Tour Agencies. Components of a Tourism Plan, The Tourism Planning Process.	12
Unit IV	Globalization and Tourism; Tourism in India; Resource and Growth; National Tourism Policy in India; Tourism Organizations. Role of WTO, IATA, UPTAA, AI, IATO, etc. in promotion and development of tourism	12
Unit V	Sustainable Tourism Development in Uttarakhand: Policies and Planning for Tourism Development; Tourism Carrying Capacity and Limits of Acceptable Change; Pro-Poor Tourism (PPT); Environmental, Cultural, Social and Historical Attractions with special reference to Uttarakhand Himalaya; Framework for Monitoring Sustainability of Tourism in Uttarakhand.	12

Suggested Reading:

1. Bhatia A.K. (1978). Tourism in India. Sterling pub. New Delhi.
2. Burkarl, A.J. (1974). Tourism, Past, present and future Heineman London.
3. Gearing Charles, E (1976). Planning for Tourism development Praeger Pub, New York
4. Lawbon, F & Bauet B. (1977) Tourism and recreation Development mass, CBI pub.
5. Robinson H. (1976). A Geography of Tourism. MacDonald and Evans Ltd; London.
6. Douglas Pearce (1981). Topics in Applied Geography, Tourist Development. Longman London New York.

Pragati  

7. Stephen L.J. Smith (1989). Tourism Analysis: A Handbook-Longman Scientific and Technical.
8. Ministry of Tourism Govt. of India (1999): Report on National Tourism.
9. Pande, G.C. and D.C. Pandey (1999). Environmental Development and Management: Strategies and Policies, New Delhi.

Suggested equivalent online courses:

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations

DIPLOMA IN ARTS/SCIENCE		
Programme: <i>Diploma in Arts/Science</i>		Year: II
		Semester: III Paper-II
Subject: Geography		
Course Code: GEOG302P	Course Title: Thematic Cartography	
Course Outcomes:		
1. Learn theme-based cartography.		
2. Able to represent geographical data of different types using diagrams,graphs and maps.		
Credits: 2		Core Compulsory
Max. Marks: 25+75 (75=60+10+5 Lab exercise-+Record File+Viva-Voce)		Min. Passing Marks:33
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-2		
Unit	Topic	No. of Lectures
Unit I	Cartography: Meaning, Rules and Methods of Geographical data representation, Types of Diagrams, Graph, Distribution maps and cartogram. Isopleth and choropleth maps.	12
Unit II	Cartographic representation of geographical data by (a) dot method (b) proportional sphere method and circle method. Representation of economic data: Agricultural, land use, production and industrial data.	12
Unit III	Representation of population data: Growth, distribution and employment.	12
Unit IV	Representation of climatic data: Climatograph, Climograph and Hythergraph.	12
Unit V	Drainage ordering, Slope analysis: Wentworth's and Smith's methods.	12

Suggested Reading:

[Signature]

1. Monkhouse, F.J. & Wilkinson, F.J. (1985) Maps and Diagrams. Methues, London.
2. Raisz, E (1962) General Cartography. John Wiley & Sons, New York.
3. Sharma, J.P. (2001) Prayogik Bhoogol. Rastogi Pub, Meerut.
4. Singh R.L. & Singh, Rana P B (1993) Elements of Practical Geography (Hindi & English Editions), Kalyani Publishers, New Delhi.
5. Singh, L R (2006) Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.

Suggested equivalent online courses:

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks):. Assignment / Test / Quiz (MCQ) / Seminar/ Presentations

DIPLOMA IN ARTS/SCIENCE		
Programme: <i>Diploma in Arts/Science</i>		Year: II Semester: IV Paper-I
Subject: Geography		
Course Code:GEOG401T	Course Title: Regional Planning and Development	
Course Outcomes:		
1. Understand the concept of region, planning and development		
2. Understand the importance of Regional planning.		
3. Learn the process and strategies of planning.		
4. Understand the theories of regional planning.		
5. Problems of planning and causes of regional disparities.		
Credits: 4		Core Compulsory
Max. Marks:25+75		Min. Passing Marks:33
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Regional concept in geography: Concept, Scope & purpose of regional planning, Types of regions: Formal and functional; uniform and nodal, single purpose and composite region.	10
Unit II	Regional Planning: Planning process - sectoral, temporal and spatial dimensions; short-term and long-term perspective planning, Indicators of development and their data sources, measuring levels for regional development and disparities. Planning for regional development and multi-	14

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	regional planning in national context	
Unit III	Regional development strategies: Concentration vs. dispersal, Case studies for plans of developed and developing countries, Regional planning and development in India through Five year plans, problems and prospects. Regional disparities: causes and consequences.	13
Unit IV	Concept of Multi-level planning: Decentralized planning; peoples participation in the planning process, Concept and approaches of urban development, Landscape ecology and sustainable urban development, Application of remote sensing and Geographic Information System in Development Planning.	13
Unit V	Theories and Models for Regional Planning: Growth Pole Model of Perroux; Myrdal, Hirschman, Rostow and Friedmann.	10

Suggested Reading:

1. Chitambar, J.B. (1993) Introductory Rural Sociology, Wiley Eastern, New Delhi.
2. Goomen, M.A. and Datta, A. (1995) Panchayats and their Finance, Rawat Pub. Co., New Delhi.
3. Matthews G. (editor) (1995) Status of Panchayati Raj: 1994, Institute of Social Sciences / Rawat Pub. Co., New Delhi.
4. Matthews A. (1994) Panchayati Raj: From Legislation to Movements, Rawat Pub. Co., New Delhi.
5. Misra, H.M. (ed) (1987) Contributions to Indian Geography, Volume 9: New Delhi.
6. De Blij, H.J. and Muller, P.O. (1997) Geography: R.R.C, 8th edition, J. W. & S. Ltd., New York.
7. Dickinson, J., Gould, B., Clarke, C., Mather, S., Prothero, M., Siddle, D., Smith, C. and Thomas-Hope, E. (1996) A Geography of the Third World, 2nd edition, Routledge, London
8. Bhat, L.S. (1972) Regional Planning in India, Indian Statistical Institute, Calcutta.
9. Bhat, L.S. (2003) Micro Planning: A Case Study of Karnal Area, KB Publications, New Delhi.
10. Chand, M. and Puri, V.K. (2004) Regional planning in India; Allied Publishers, New Delhi.
11. Chandana, R. C. (2005) Regional Development and Planning. Kalyani Publishers, New Delhi.
12. Dube, K.K. and Singh, M.B. (1986): Pradeshik Niyojan. Tara Book Agency, Varanasi.
13. Friedman, J. & Alonse, W. (1968) Regional Development & Planning, M.I.T. Press, Cambridge-Massachusetts.
14. Kuklinski, A.R. (ed.) (1975) Regional Development & Planning: International Perspectives.
15. Kuklinski, A.R. (1972) Growth Centres in Regional Planning. Mouton and Company, Paris.
16. Mishra, R.P, Sundaram, K.V., and Prakasarao, V.L.S. (1976) Regional Development Planning in India, Vikas Publishers., New Delhi.
17. Mishra, R.P. (1969) Regional Planning. University of Mysore, Mysore.
18. Mishra, R.P. (2002) Regional Planning, Concepts, Techniques, Policies and Case Studies, Concept Publishing Company, New Delhi.
19. Pandey, D.C. and P.C. Tiwari (1989) Dimensions of Development Planning, Volumes I and II, New Delhi.
20. Singh O.P. and D.C. Pandey (1986) Development Planning: Theory and Practice, Nainital.
21. Sharma, P.R. (ed.) (1993) Regional Policies and Development in the Third World. Rishi Publication., Varanasi.
22. Sundaram, K.V. (1977) Urban and Regional Planning in India, Vikas Publishers. New Delhi.
23. Sundaram, K.V. (1997) Decentralized Multilevel Planning: Principles and Practice. Asian and African Experience. Concept Publishing Company, New Delhi.

Suggested equivalent online courses: https://onlinecourses.swayam2.ac.in/aic19_ge05/preview

This course can be opted as an elective by the students: Open to all.

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations

Course Prerequisites:

DIPLOMA IN ARTS/SCIENCE			
Programme: <i>Diploma in Arts/Science</i>		Year: II	Semester: IV Paper-II
Subject: Geography			
Course Code: GEOG402P		Course Title: Quantitative Techniques and Map Projections	
Course Outcomes:			
1. Understand the importance of statistical methods in Geographical studies.			
2. Learn data collection, tabulation, analysis and prediction.			
3. Understand the need of projection and construction methods.			
Credits: 2		Core Compulsory	
Max. Marks: 25+75 (75=60+10+5 Lab exercise-+Record File+Viva-Voce)		Min. Passing Marks:33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-2			
Unit	Topic		No. of Lectures
Unit I	Data: Meaning, and Types, Collection of data, Sampling Techniques and Methods, Measures of central tendency: Mean, Mode, and Median.		14
Unit II	Measures of dispersion; Mean Deviation, Quartile Deviation and Standard deviation, Correlation: Karl Pearson's and Spearman's methods.		10
Unit III	Definition, Necessity and Classification of map projection, Mathematical method of drawing projections, Construction of map projections: Simple conical projection with one and two standard parallels, Bonne's projection, Polyconic projection.		14
Unit IV	Cylindrical projections: Equidistant and Equal area cylindrical projections, Mercator's, Gall's stereographic projection.		12
Unit V	Zenithal Projections: Polar zenithal equidistant, Equatorial zenithal equidistant, Polar zenithal equal-area, Equatorial zenithal equal-area.		10

Suggested Readings:

1. Monkhouse, F.J. & Wilkinson, F.J.(1985)Maps and Diagrams. Methues, London.
2. Raisz, E. (1962). General Cartography. John Wiley & Sons, New York.
3. Sharma, J.P. (2001). Prayogik Bhoogaol. Rastogi Pub, Meerut.

4. Singh, R.L. & Singh, Rana P.B. (1993). Elements of Practical Geography (Hindi & English Editions), Kalyani Publishers, New Delhi.
5. Singh, L. R. (2006). Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations
Course Prerequisites:

DEGREE IN ARTS/SCIENCE			
Programme: <i>Degree in Arts/Science</i>		Year: III	Semester: V Paper-I
Subject: Geography			
Course Code: GEOG501T		Course Title: Geography of India	
Course Outcomes:			
1. Help students to know the Uniqueness of India in the world.			
2. Learn about the physical and cultural diversities and interrelationships of India.			
3. Understand the agricultural, industrial and trade aspects of India.			
Credits: 4		Core Compulsory	
Max. Marks: 25+75		Min. Passing Marks:33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
Unit I	India- A subcontinent, Physical features, Geologic structure, Drainage system, Climate, Natural vegetation, Soils, Natural regions.		16
Unit II	Agriculture, Crops (Food, plantation and commercial), Agriculture production, Agriculture regions, Irrigation, Livestock raising and Fishery.		10
Unit III	Industries: Metallurgical, Textile, Engineering, Chemical, Food, Leather, Forest and Agro-industries, Industrial regions, Minerals and Power resources.		10
Unit IV	Population (density, distribution and urbanization), Multipurpose projects. Regional development and planning, Regional disparities, Five-year plans, Integrated rural development programme, Panchayati raj, Command area and watershed management.		14
Unit V	Transportation: Roads and railways, air transportation and pipeline transportation. Trade: Internal and External (Trend, composition and direction); SEZ (Special Economic Zones).		10

Suggested Reading:

1. Chauhan B.S. & Gautam Alka (2011) Bharat (Geography of India), Rastogi Publication, Meerut.
2. Chauhan B.S. & Gautam Alka (2013) Bharatvarsh ka Vistrat Bhogool, Rastogi Publication, Meerut.
3. Hussain, Majid (2015) Geography of India, McGraw Hill Education, New Delhi.
4. Mamoria, C.B. (2007) Bharat Ka Bhoogol. Sahitya Bahwan, Agra.
5. Sharma, Y.K. (2009) Geography of India, Lakshmi Narayan, Agra.
6. Sharma, M.L. & Sharma H.S. (2011) Bharatka Bhogool, Rastogi Publication, Meerut.
7. Sharma, J.K. & Kalwar, S.C. (2011) Bharat ka Bhogool, Rastogi Publication, Meerut.
8. Singh R. L. (1993) Regional Geography of India, National Geographic Society of India, Varanasi.

Suggested equivalent online courses:

Courses on Swayam / MOOCs https://onlinecourses.swayam2.ac.in/nou20_ag10/preview

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations

DEGREE IN ARTS/SCIENCE			
Programme: <i>Degree in Arts/Science</i>		Year: III	Semester: V Paper-II
Subject: Geography			
Course Code: GEOG502T		Course Title: Economic Geography	
Course Outcomes:			
1. Understand broad meaning and scope of Economic Geography.			
2. Understand Economic landscape.			
3. Learn world production of crops, industries, resources, and petroleum etc.			
4. Learn theories of industrial location and factor responsible.			
5. Understand trade and transportation scenario of the world.			
Credits: 4		Core Compulsory	
Max. Marks: 25+75		Min. Passing Marks:33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic		No. of Lectures
Unit I	Meaning, aim and scope of economic geography, Resources: Meaning, classification, conservation and concepts, Economic landscapes.		14
Unit II	Primary production, Vegetation & forest economy, Soil resources, Mineral resources (Iron ore and bauxite), Power resources (Coal, Petroleum and Hydro-electricity), Resource conservation.		12

Unit III	Main crops in the world: Wheat, paddy, sugarcane, coffee and tea. industries: Iron & steel, textiles, petro-chemical and sugar.	12
Unit IV	Theory of industrial location: Weber and Losch, Industrial regions of India and World.	10
Unit V	World transportation: trans-continental railways, sea and air routes, international trade, patterns and trends, trade blocks: NAFTA, EEC, ASEAN, G7 and G20, Globalization and developing countries.	12

Suggested Reading:

1. Alexander, I W (1988) Economic Geography. Prentice Hall, New Delhi.
2. Boesch, H (1964) A Geography of World Economy. Von Nostrand, New York.
3. Gautam, A (2006) Arthik Bhugol ke Mool Tatve. Sharda Pustak Bhawan, Allahabad.
4. Hartshorne, TA & Alaxender IW (1988) Economic Geograohy. Englewood Cliff, New Jersey.
5. Singh, KN and Singh I (2003) Arthik Bhugol ke Mool Tatve. Gyanodaya Prakashan, Gorakhpur.

Suggested equivalent online courses:

Courses on Swayam / MOOCs https://onlinecourses.nptel.ac.in/noc21_hs50/preview

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations

DEGREE IN ARTS/SCIENCE			
Programme: <i>Degree in Arts/Science</i>		Year: III	Semester: V Paper-III
Subject: Geography			
Course Code: GEOG503P		Course Title: Field Excursion	
Course Outcomes:			
1. Understand different physio-cultural settings of the visited region or area.			
2. Understand the geographical differences among regions and areas and their causes.			
3. Learn to interact with peoples of different culture.			
4. Learn to Prepare tour report			
Credits: 2		Core Compulsory	

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Max. Marks: 25+75 (75=60+15 Tour report+Viva-Voce)		Min. Passing Marks:33
Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-2		
Unit	Topic	No. of Lectures
Unit I	How to prepare Field Manuscript, Steps and methods of preparing Tour report, Methodology adopted for Research in Field Trip, Various other aspects of study in Field Trip, Preparation of Surveying in Field Trip. Prerequisites of field trip. Conducts during field visit. (Different lectures would be taken before and during field visit).	60

Suggested Continuous Evaluation Methods:

The following shall be the guidelines and structure of Educational tour;

Geographical Excursion Committee

1. All faculty members shall organize geographical excursion as 'tour in-charge' in rotation according to departmental seniority list.

2. There shall be Geographical Excursion Committee headed by HOD in University and Principal in colleges. Tour in-charge shall act as convener of committee and shall convene a meeting at the beginning of session or semester. All other teachers of department shall be member of committee. Four/Five meritorious students based on last available examination result shall be invited by the tour in-charge to participate in meeting as members of committee.

3. Committee shall:

- Review the tour plan.
- Confirm that all arrangements shall be made in advance before tour departure.
- Listen to the opinion of students and give recommendations to tour in-charge accordingly.
- Review academic nature of tour and evaluate day wise tour plan and academic activity as submitted by Tour in-charge.

Structure of the tour party

1. For 20 or less than 20 students one faculty member with one non teaching staff shall accompany the Tour party. For 21 to 50 students two faculty members with one non teaching staff shall accompany the Tour party. If two faculty members are required for tour, second faculty member shall be selected on the recommendation of tour in-charge. If students are more than 50 then a separate tour batch shall be constituted in same manner.




2. If female students are also participating in tour and tour in-charge, accompany other faculty member or Non teaching staff none are female then one female attended (Female faculty member from Geography or any other departments/female non teaching staff) shall accompany with tour party.

Responsibility of tour in-charge

1. Tour shall at least of 6 days stay at location with inter region variation.
2. Tour in-charge shall submit tentative day wise activity report in advance to HOD in University and Principal in colleges.
3. Tour in-charge shall coordinate with Institutes/Colleges/ Universities/Research institutes etc in location where tour is being planned for following activities like;
 - a) Interaction of students.
 - b) Lectures on various local physical and cultural attributes of the area by the experts.
 - c) Local visit with faculty members having academic understanding of the area.
4. Lectures by tour in-charge on physical and human characteristics of area being visited for educational tour.
5. Survey with students with at least one instrument like Dumpy Level, Sextant, Theodolite, GPS etc.
6. Questionnaire survey on various socio-cultural or any other aspects. Questionnaire must be prepared in advance and shall be shared during Geographical Excursion Committee meeting.
7. Tour in-charge shall collect undertaking from all students which shall be counter signed by their guardian.
8. Tour in-charge will prepare list of students accompanying the tour with their information like mobile number, address, guardian contact information and one recent color photo. One copy will also be submitted to the head in universities and Principal in colleges.
9. Teacher shall always try to minimize tour expenditure of students by;
 - a) Using concession train reservation and avoiding buses if possible.
 - b) Making stay arrangements of students in advance in youth hostels/lodges/guest house etc.
 - c) Try to visit few important locations only with objective of spot study and avoiding unnecessary travel for sightseeing.
10. After the completion of tour there shall be presentation by students regarding learning outcomes and experiences under the supervision of tour in-charge. Presentation shall be attended by Geographical Excursion Committee members along with other faculty members, staff, students etc.
11. All students shall submit tour report under supervision of Tour in-charge for evaluation. Tour report shall portray all activities conducted and places visited for the purposes of study.
12. In case of any incident/injury where one or more than one student can't join tour party in return journey. One teaching/non teaching staff member shall stay with student until student's guardian arrives or alternative arrangement is not made by the college. In case tour in-charge stays the other teacher/staff member shall act as tour in-charge for remaining tour period according to seniority.

Exemption of Students from Tour

1. Tour can be exempted in very special circumstances on recommendation of tour incharge and head (in University) or Principal (in Colleges). Exempted students will prepare local tour report based on his/her own local tour visits. Report shall be prepared under supervision of tour in-charge.

TA, DA and other expenses

1. The TA, DA and other expenses of teachers and attendants shall be met out by college as admissible to their cadre as per government rules.



DEGREE IN ARTS/SCIENCE		
Programme: <i>Degree in Arts/Science</i>		Year: III Semester: V Paper-IV
Subject: Geography		
Course Code: GEOG504R	Course Title: Survey/ Research Project -I	
Course Outcomes:		
1. Understand the importance of research and research methodology.		
2. Learn how to conduct research project.		
3. Learn to prepare project report.		
Credits: 4 (3 credits for Theory and 1 credit for preparation of field survey)		Core Compulsory
Max. Marks: 100		Min. Passing Marks:40
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 0-0-P		
Unit	Topic	No. of Lectures
Unit I	Meaning, types and significance of Research, Literature review and formulation of research design, research problem, objectives, hypothesis, Research materials and methods, Sampling. Techniques of writing scientific reports: Preparing notes, references, bibliography, abstract and keywords etc.	45
Unit II	Selection of research problem and study area.	15
Note	1. Each faculty member shall teach these topics of research to his/her Group of students independently. 2. Student shall choose supervisor according to his/her research interest and specialisation of Faculty member.	

Suggested equivalent online courses:

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Seminar/ Presentations

DEGREE IN ARTS/SCIENCE		
Programme: <i>Degree in Arts/Science</i>	Year: III	Semester: VI Paper-I
Subject: Geography		
Course Code: GEOG601T	Course Title: Evolution of Geographical Thoughts	

Dr. Arif

Course Outcomes:

1. Understand the development of Geography as a scientific discipline.
2. Learn the basic concepts of Geography.
3. Know the impact of expedition, discoveries and exploration on Geographical knowledge.
4. Contributions of Indian, Arab, Greek, Roman, and modern geographers.

Credits: 4**Core Compulsory****Max. Marks: 25+75****Min. Passing Marks:33****Total No. of Lectures-Tutorials-Practical (in hours per week):L-T-P: 4-0-0**

Unit	Topic	No. of Lectures
Unit I	Definition and purpose of Geography, Science and philosophy of Geography, The basic concepts of Geography, Techniques and tools in Geography, Different branches of Geography, Relationship of Geography with other Sciences.	12
Unit II	Geography in classical times: Greek and Roman Geographers, Contribution by Arab Geographers.	12
Unit III	Renaissance, Eighteenth century Geography, Development of Geographical Thought in India: Ancient and Modern. Contribution of Important Indian Geographers.	12
Unit IV	Formulation of scientific Geography, Schools of thoughts; German, French, British, American and former Soviet Union. Environmental determinism, possibilism, Neo-determinism and probabilism.	12
Unit V	Dualism in Geography, Dichotomy of scientific and regional Geography; Unity in Geography, Concept of Regions and regionalization, Quantitative Geography, Recent Trends in Geography.	12

Suggested Reading:

1. Abler, Ronald; Adams John S. Gould, Peter (1971) Spatial Organization: The Geographer's View of the world. Prentice Hall.N.I.
2. Ali.S.M: The Geography of Puranas (1996) People of Publishing House, Delhi.
3. Amedeo, Douglas (1971) An Introduction to scientific Reasoning in Geography, John Wiley, USA.
4. Dikshit, R.D. (ed): The Arts and science of Geography integrated readings, P.H.I, New Delhi.
5. Hartshorne, R. (1959) Perspectives on Nature of Geography, Rand McNally &co.
6. Husain, M. (1984) Evaluation of Geographical thought, Rawat Publication, Jaipur.
7. Johnston, R.J. (1983) Philosophy and Human Geography, Edward Arnold London, Johnston,
8. R.H. (1988) The future of Geography, Methuen, London.
9. Mishull, R. (1970) The Changing Nature of Geography, Hutchinson University library, London.
10. Adhikari S. (1992): Geographical Thought, Chiatanya Pub. House, Allahabad.
11. Chorley, R.J. & Hagget.P. (1965) Frontier in Geographical Teaching, Oxford University Press.

Suggested equivalent online courses:

Courses on Swayam / MOOCs https://onlinecourses.swayam2.ac.in/cec21_lg06/preview

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations

DEGREE IN ARTS/SCIENCE			
Programme: <i>Degree in Arts/Science</i>		Year: III	Semester: VI Paper-II
Subject: Geography			
Course Code: GEOG602T		Course Title: Agricultural Geography	
Course Outcomes:			
1. Understand the meaning, scope and approaches of Agricultural Geography.			
2. Learn factors influencing Agriculture.			
3. Learn techniques and methods of agricultural regionalization.			
4. Come to know the agricultural location theory.			
5. Understand the agricultural scenario of India.			
Credits: 4		Core Compulsory	
Max. Marks: 25+75		Min. Passing Marks:33	
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 4-0-0			
Unit	Topic		No. of Lectures
Unit I	Nature, scope, significance and development of Agriculture Geography, Approaches to the study of Agricultural Geography: Commodity, systematic, regional, behavioral and recent approaches etc., Origin and dispersal of agriculture.		12
Unit II	Determinants of agricultural land use: Physical, economic, social and technological factors, Land holding and land tenure systems in India, Land use and land capability.		12
Unit III	Agricultural efficiency Concepts, Techniques and Methods of measurements; Methods of delimiting crop combination region, cropping pattern, crop concentration, intensity of cropping, degree of commercialization, diversification and specialization.		12
Unit IV	Theories of Agriculture Geography, Von Thunen's theory (model) of agricultural location and its recent modifications, Demarcation of Agricultural regions, Whittlesey's classification of agricultural regions.		12



Unit V	Regional pattern of productivity in India, Green Revolution, White Revolution, Food deficit and food surplus regions; World pattern of Agriculture: Subsistence agriculture, Commercial farming, Plantation agriculture, Mixed agriculture, State, collective and cooperative farming.	12
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Suggested Reading:

1. Bhalla, G.S. and Alagh, Y.K. (1979). Performance of Indian Agriculture: A District-wise Study, Sterling, New Delhi.
2. Das, M.M. (1982) Peasant Agriculture in Assam, Inter India, New Delhi.
3. Gobind, N. (1986) Regional perspective in agriculture, concept, New Delhi.
4. Hussain, M. (1979) Agricultural Geography, Inter India, New Delhi.
5. Mergra, W.B. & Munton, R.J.C. (1971) Agricultural Geography, Methuen, London.
6. Mitchel, P. (1979) Agro-ecosystem, Inter India Publication, New Delhi.
7. Shafi, M. (1984) Agricultural productivity and regional imbalance, concept, New Delhi.
8. Singh J. and Dhillon, S.S. (1985) Agricultural Geography, Tata McGraw Hill, New Delhi.
9. Singh, J. (1974) Agricultural Atlas of India: A Geographical perspective, Vishal Publications, Kurukshetra.
10. Kumar, Pramila, Krishi Bhoogol, Madhya Pradesh Hindi Granth Academi, Bhopal, MP.

Suggested equivalent online courses:

This course can be opted as an elective by the students : Open to all

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations

DEGREE IN ARTS/SCIENCE		
Programme: <i>Degree in Arts/Science</i>	Year: III	Semester: VI Paper-III
Subject: Geography		
Course Code: GEOG603P	Course Title: Basics of Remote Sensing and GIS	
Course Outcomes:		
1. Understand the meaning and importance of Remote Sensing and GIS.		
2. Learn to map making by using RS and GIS.		
Credits: 2	Core Compulsory	
Max. Marks: 25+75	Min. Passing Marks:33	
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 0-0-2		

Unit	Topic	No. of Lectures
Unit I	Remote Sensing: Components of Remote Sensing, Thermal and Radar Remote Sensing; Image Processing Techniques: Visual and Digital, Classification: Supervised and Unsupervised.	12
Unit II	GIS: Geographic Data Types; Spatial and Non-Spatial Data; Raster and Vector Data, Linkages and Matching, Principal Functions of GIS; Data Capture; Geographic Analysis; Scanning System; Data Conversion, Data Base Management System (DBMS), Data Base and Spatial Data Management; Geo-Relational Data Model; Topological Data Structure; Attribute Data Management; Relational Database-Concepts & Model, Digital Elevation Model (DEM): Process, Derivatives and applications.	12
Unit III	Geo-Referencing and Its Importance. Spatial Data Integration (Digitization) – Point, Line, Polygon. Map Design or Layout, Map Production. Import And Export of Map in Various Formats.	10
Unit IV	Satellite Data and its type. Downloading Sources of Satellite Data (Google Earth, USGS, GLCF Etc.). Download Process Satellite Imagery. Remote Sensing data download from open sources.	10
Unit V	GIS Software (Including Open-Source Softwares). Creation of Shape files in GIS Softwares. Geo-Referencing and Digitization in GIS Software. Attribute Data Entry, Manipulation of Fields and Attribute Data.	16

Suggested Reading:

1. Curran, P.J. (1985): Principles of Remote Sensing, Longman, London
2. Chaunial, D. D. (2004): Remote Sensing and Geographical Information System (in Hindi), Sharda Pustak Bhawan, Allahabad
3. Cracknell, A. and Ladson, H. (1990): Remote Sensing Year Book. Taylor and Francis, London.
4. Curran, P.J. (1985): Principles of Remote Sensing. Longman, London.
5. Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984): Remote Sensing. Indian Academy of Science, Bangalore.
6. Floyd, F. and Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation. W.H. Freeman, New York.
7. Gautam, N.C. and Raghavswamy, V. (2004). Land Use/ Land Cover and Management Practices in India. B.S. Publication., Hyderabad.
8. Jensen, J.R. (2004): Remote Sensing of the Environment: An Earth Resource Perspective. Prentice Hall, Englewood Cliffs, New Jersey. Indian reprint available.
9. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation. John Wiley and Sons, New York.
10. Nag, P. (ed.) (1992): Thematic Cartography and Remote Sensing. Concept Publishing Company, New Delhi.
11. Rampal, K.K. (1999): Handbook of Aerial Photography and Interpretation. Concept Publishing. Company, New Delhi.
12. Campell, J. B. (2003): Introduction to Remote Sensing. 4th edition. Taylor and Francis, London.

Suggested equivalent online courses:

Courses on Swayam / MOOCs https://onlinecourses.swayam2.ac.in/aic20_ge05/preview

This course can be opted as an elective by the students: Open to all
Suggested Continuous Evaluation (25 Marks): N.A.

DEGREE IN ARTS/SCIENCE		
Programme: <i>Degree in Arts/Science</i>		Year: III Semester: VI Paper-IV
Subject: Geography		
Course Code: GEOG604R	Course Title: Survey/ Research Project-2	
Course Outcomes:		
1. Implementation of Research Methodology.		
2. Field Survey and Data collection and Data Analysis.		
3. Report Writing.		
Credits: 4		Core Compulsory
Max. Marks: 100		Min. Passing Marks:40
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 0-0-4		
Unit	Topic	No. of Lectures
Unit I	Project should be based on problem oriented research using quantitative techniques and appropriate graphical representation of Data.	60
Note	1. Each faculty member shall teach and guide to his/her Group of students independently. 2. Student shall choose supervisor according his/her research interest and specialisation of Faculty member.	

Suggested Readings:

Suggested equivalent online courses:

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Presentation

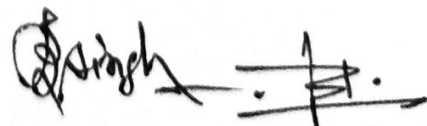
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Sri Dev Suman Uttarakhand University
Badshahithoul, Tehri Garhwal

Subject: Geography

Under Graduate Syllabus
For
Minor Elective Course

(Session 2022-23 onwards)

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ELECTIVE COURSE IN ARTS/SCIENCE

Programme: <i>Elective Course in Arts/Science</i>		Year: I	Semester: I Paper: III
Subject: Geography			
Course Code: GEOGME103		Course Title: Applied Geomorphology	
Course Outcomes: 1. To understand the impact of landforms on various spheres of human life. 2. To analyse the role of human being in mitigating the geomorphic hazards. 3. The applied geomorphological knowledge is useful to scientists, engineers, consultants, and decision-makers involved with hazards, land-use planning, natural resources, environmental management, and global environmental change.			
Credits: 4		Minor Elective	
Max. Marks: 25+75		Min. Passing Marks: 33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0			
Unit	Topic	No. of Lectures	
Unit I	Introduction : Definition, Nature and scope of Applied Geomorphology	10	
Unit II	Geomorphic Hazards and Mitigation Measures: Landslides Flash Floods and Flood Hazards, Avalanches, Earthquakes and Tsunamis, Volcanic Eruptions.	15	
Unit III	Geomorphology in Civil Engineering: Dam Construction, Road construction, Site selection for the construction of Airport	15	
Unit IV	Geomorphology and Natural Resources: Geomorphology and Groundwater Studies; Soil and Geomorphology; Application of Geomorphology in agriculture and resource management.	20	

Suggested Readings:

1. Coats, D.R. (1981. edt.). Geomorphology and Engineering, George Allen and Unwin, London.
2. Cooke, R.U. and J.C. Doornkamp (1974) : Geomorphology in Environmental Management, Oxford University Press.
3. Hart, M.G. (1986) : Geomorphology : Pure and Applied, George Allen and Unwin, London.
4. Gares, P.A, D.J. Sherman, and K.F. Nordstrom. 1994. Geomorphology and natural hazards. Geomorphology 10: 1-18.
5. Panizza, M. 1987. Geomorphological hazard assessment and the analysis of geomorphological risk. In V. Gardiner (ed.), International Geomorphology 1986, pp. 225-229. Part I. New York: Wiley.
6. Slaymaker, O. 1996. Introduction. In: Slaymaker, O. (Ed.), Geomorphic Hazards. Wiley, Chichester, pp. 1-7.
7. Craig, R.G. and Craft, J.L. 1982 Applied Geomorphology Allen & Unwin, London



8. Verstappen, H. Th. 1983 Applied Geomorphology: Geomorphological Surveys for Environmental Development Elsevier, Amsterdam
9. Cooke, R.U. and Doornkamp, J.C. 1974 Geomorphology in Environmental Management ,Oxford University Press, Oxford
10. Singh, S. 1998: Geomorphology,(Hindi and English Editions), Prayag Publications, Allahabad.

Suggested equivalent online courses:

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations

ELECTIVE COURSE IN ARTS/SCIENCE		
Programme: <i>Elective Course in Arts/Science</i>		Year: II Semester: III Paper-III
Subject: Geography		
Course Code:GEOGME303	Course Title: Social and Cultural Diversity in Uttarakhand	
Course Outcomes:		
1. To understand the physical and cultural diversity within the state.		
2. To identify the impact of physical diversity in determining the Socio-Cultural diversity of the state.		
Credits: 4	Minor Elective	
Max. Marks: 25+75	Min. Passing Marks:33	
Total No. of Lectures-Tutorials-Practical (in hours per week): 4-0-0		
Unit	Topic	No. of Lectures
Unit I	Fundamental Base: Location and Extent; Geology; Physiography; Climate and Drainage System; Demographic and Socio-cultural Characteristics.	10
Unit II	Socio-cultural Milieu: Ethnic/tribal Groups and their Spatial Distribution, Fairs, Festivals and Languages and Dialects, Settlements: Types and Patterns.	15
Unit III	Socio-cultural Diversity: Components of social diversity; tribes and their distribution; Tribal region; Cultural regions: elements of cultural regionalization: race, caste, dance, music, cuisine, costumes, dialect, language, religion.	20
Unit IV	Regional perspectives: Socio-cultural diversity in the tribal groups of mountains and foothills; Changing cultural adaptations.	15

Singh

Suggested Readings:

1. Singh O.P. (ed.). (1983): The Himalaya: Nature, Man and Culture
2. Joshi, S.C. (2001): Uttaranchal: Environment & Development
3. Planning Commission (1981) : Report on Development of Tribal Areas, Government of India.
4. Srivastava, S.K.(1958): The Tharus, A study of Culture Dynamics, Agra
5. Walton, H.G. (1921) British Garhwal: A Gazetteer, Vol. xxxvi, District Gazetteer of the United Provinces of Agra and Awadh, Allahabaad
6. Singh, L.R. (1965): The Tarai Region of U.P., Allahabad
7. Guha, B.S.: Racial Elements in India's Population.

Suggested equivalent online courses:

This course can be opted as an elective by the students: Open to all

Suggested Continuous Evaluation (25 Marks): Assignment / Test / Quiz (MCQ) / Seminar/ Presentations

**SRI DEV SUMAN UTTARAKHAND
UNIVERSITY
BADSHAHITHOUL (TEHRI GARHWAL) UTTARAKHAND**

**U.G. SYLLABUS
GEOGRAPHY
FOR**

VOCATIONAL/SKILL ENHANCEMENT COURSE

SESSION-2022-23 (ONWARDS)

Prepared

BY:

DEPARTMENT OF GEOGRAOPHY

**PT. L.M.S SRI DEV SUMAN UTTARAKHAND UNIVERSITY,
CAMPUS, RISHIKESH**

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Programme: Certificate in Faculty	Year: First	Semester: Paper: I
Subject: Geography		
Course Code: GEO-SKILL-101	Course Title: Field survey	
Course outcomes: 1. Understand importance of Surveying. 2. Learn to use Different Surveying instruments including GPS		
Credits: 3	Vocational /Skill Enhancements	
Max. Marks: 25+75(40+20+10+5)	Min. Passing Marks: 33	
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P:4-0-0		
Unit	Topics	No. of Lectures
I	Definition and types of serving	10
II	Plane Table Survey -Radiation & Intersection Methods.	15
III	Methods' of GPS Survey & Remote Sensing	15
IV	Field Excursion	05
Suggested Readings: 6. Monkhouse,F.J.&Wilkinson,F.J.(1985) 7. MapsanDiagrams.Methues,London.Raisz, E(1962)GenerlCartography.JohnWiley& Sons,NewYork. 8. Sharma, J.P. (2001) PrayogikBhoogaolk. Rastogi Pub, Meerut. 9. SinghR.L.&Singh,RanaPB(1993)ElementsofPractical Geography(Hindi&EnglishEditions), Kalyani Publishers, NewDelhi. 10. Singh, L R (2006) Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.		
This course can be opted as an elective by the students : Open to all		
Suggested Continuous Evaluation Methods: Assignment / Test / Quiz (MCQ) /		

Seminar/ Presentations		
Suggested equivalent online courses:		
Programme: Certificate in Faculty	Year: Second	Semester: Paper: II
Subject: Geography		
Course Code: GEO-SKILL-T202	Course Title: Element's of Map Readings	
Course outcomes: 1. Learn basics of Cartography and Map making 2. Understand and interpret toposheets and weather maps 3. Draw maps with the help of toposheets..		
Credits: 3		Vocational /Skill Enhancements
Max. Marks: 25+75(60+10+5)		Min. Passing Marks: 33
Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P:0-0-4		
Unit	Topics	No. of Lectures
I	Meaning, importance and types of Scale, Conversion of Scale, Interpretation of topographical maps	12
II	Interpretation of Indian Weather maps	10
III	India -Locational aspects -An outline map of India will be provided to the students and they will have to mark location on it. Physical & political Aspect -mountains, river, lakes, capitals, etc.	13
IV	Arial photography & satellite Imagery.	10
Suggested Readings: 1.Monkhouse,F.J.& Wilkinson,F.J.(1985)Maps and Diagrams.Methues,London.Raisz,E(1962)General Cartography.John Wiley& Sons,New York. 2.Sharma, J.P. (2001) Prayogik Bhoogaolk. Rastogi Pub, Meerut.		

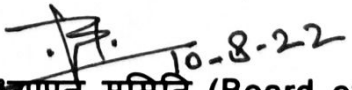
परीक्षा प्रणाली

श्री देव सुमन उत्तराखण्ड विश्वविद्यालय परिसर, ऋषिकेश में दिनांक 10 अगस्त 2022 को कला संकाय की अध्यापन समिति (Board of Studies) में लिए गए निर्णय के क्रम में श्री देव सुमन उत्तराखण्ड विश्वविद्यालय में संचालित स्नातक पाठ्यक्रमों के निम्न विषयों -

हिन्दी ,
अंग्रेजी ,
संस्कृत,
इतिहास ,
गृह विज्ञान ,
भूगोल,
राजनीति विज्ञान ,
समाज शास्त्र,
अर्थशास्त्र ,
शिक्षा शास्त्र ,
शारीरिक शिक्षा ,
संगीत ,
चित्रकला ,
मानव शास्त्र ,
मनोविज्ञान ,
दर्शन शास्त्र तथा

सैन्य विज्ञान विषयों के स्नातक कक्षाओं के सेमेस्टर परीक्षा 2022-23 हेतु पारित निर्णय निम्नवत हैं :

राष्ट्रीय शिक्षा नीति 2020 के अंतर्गत प्रवर्तित पाठ्यक्रमों के प्रत्येक सेमेस्टर में प्रत्येक लिखित प्रश्न पत्र तीन घंटों का होगा तथा प्रत्येक प्रश्न पत्र अधिकतम 75 अंकों का होगा । प्रत्येक प्रश्न पत्र के दो खंड होंगे - खंड अ और खंड ब । खंड अ में 8 लघु उत्तरीय प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थी को 5 प्रश्नों के उत्तर देना अनिवार्य होगा । खंड अ का प्रत्येक प्रश्न 6 अंकों का होगा । खंड ब में 5 प्रश्न दीर्घ उत्तरीय प्रकृति के होंगे जिनमें से परीक्षार्थी को 3 प्रश्नों के उत्तर देना अनिवार्य होगा । प्रत्येक दीर्घ उत्तरीय प्रश्न 15 अंकों का होगा ।


अध्यक्ष , अध्यापन समिति (Board of Studies)

कला संकाय, श्री देव सुमन उत्तराखण्ड विश्वविद्यालय , बादशाहीथाल