



# **S. S. JAIN SUBODH P.G. COLLEGE**

**[Affiliated to the University of Rajasthan, Jaipur]**

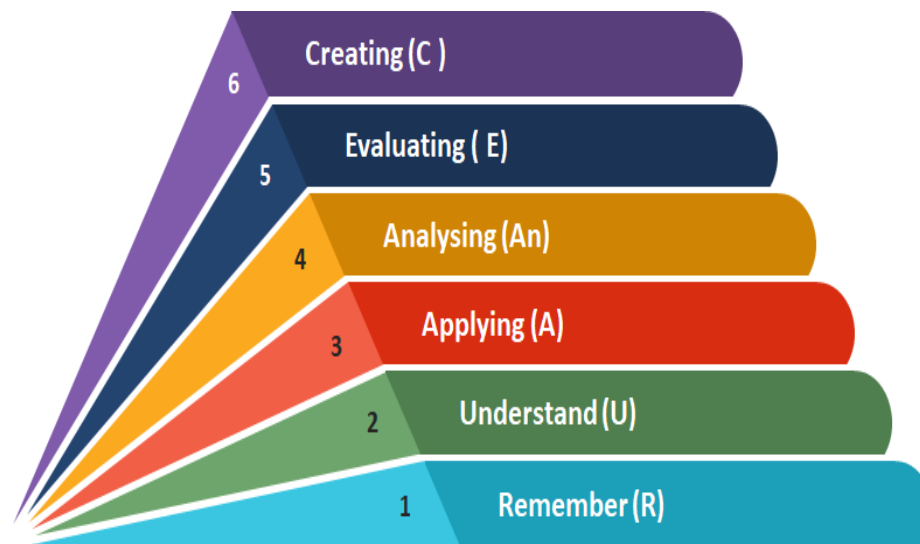
**P. G. Course 2022-23**  
**POs, PSOs, COs**

## PO's, PSO's, CO's as per Bloom's Taxonomy

Subodh College has adopted a comprehensive framework for educational outcomes, integrating Bloom's Taxonomy to ensure a structured and effective learning experience. Bloom's Taxonomy recently updated, categorizes learning into six levels. These levels guide the design of Programme Outcomes (PO), Programme Specific Outcomes (PSO), and Course Outcomes (CO) to enhance students' cognitive, affective, and psychomotor development.

Learning objectives discussed in the syllabus is observable, specific, and measurable as they are framed according to the recent bloom's taxonomy. The stepwise procedure followed is mentioned as follows:

- Programme outcomes (POs) for UG/PG and UG (Hons.) Courses and other professional courses are discussed.
- Programme specific outcomes (PSOs) are briefly described.
- Course outcomes of offered papers are written by mentioning which particular PSOs it is addressing in learning process.
- Cognitive attributes, on the basis of bloom's taxonomy, are further mentioned. These are **Remember** (recall facts and basic concept), **Understand** (explains idea or concept), **Apply** (use information in new situations), **Analyse** (draw connections among ideas), **Evaluate** (Justify a stand or decision), **Create** (produce new or original work). All are observable, specific, and measurable in terms of cognitive analysis



<b>S. No.</b>	<b>Post-Graduation Programme (PO's, PSO's,CO's)</b>
1.	M.Sc. Physics
2.	M.Sc. Chemistry
3.	M.Sc. IT
4.	M.Sc. Botany
5.	M.Sc. Biotechnology
6.	M.Sc. Microbiology
7.	M.Sc. Mathematics
8.	M.Sc. Environmental Science
9.	M.Sc. Geography
10.	M.Sc. Psychology
11.	M. Sc. Zoology
12.	M.Com. Economic Administration and Financial Management (EAFM)
13.	M.Com. Accounting and Business Statistics (ABST)
14.	M.Com. Business Administration (BADM)
15.	M. A. History
16.	M. A. Geography
17.	M.A. Political Science
18.	Master in Social Work (M.S.W.)
19.	M.A. Sociology
20.	M.A. Journalism and mass communication (JMC)
21.	M. A. Maths
22.	M. A. Psychology
23.	M. A. Hindi
24.	M. A. Public Administration
25.	M. A. English
26.	M. A. Economics
27.	Master in Computer Application (MCA)

# M.Sc.

## Programme Outcomes (POs)

<b>PO1:</b> Capable of delivering basic disciplinary knowledge gained during the programme. Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry.
<b>PO2:</b> Students will be able to think creatively (divergently and convergent) to propose novel ideas in explaining facts and figures or providing new solution to the real life problems in society.
<b>PO3:</b> Students will imbibe ethical, moral and social values in personal and social life leading to highly cultured and civilized personality. They will communicate scientific information in a clear and concise manner both orally and in writing.
<b>PO4:</b> Students will learn important aspects associated with environmental issues, global warming, climate change, acid rain, ozone depletion and will create awareness in society.
<b>PO5:</b> Students will able to gain knowledge with the holistic and multidisciplinary approach across the field.
<b>PO6:</b> Students will able to learn and work in a group and capable of leading a team even.
<b>PO7:</b> Inculcate the professional and ethical attitude and find out the green route of chemical reaction for sustainable development.
<b>PO8:</b> Students will able to develop a research aptitude and apply knowledge to find the solution of burning research problems in the concerned and associated fields at global level.

## M.Sc. Physics (PSO's)

<b>Programme Specific Outcomes (PSOs) M. Sc. Physics</b>	
<b>PSO 1</b>	Developing proficiency in scientific principles & fundamentals.
<b>PSO 2</b>	Development of analytical and critical thinking.
<b>PSO 3</b>	Development of quantitative & computational skills.
<b>PSO 4</b>	Development of problem-solving skills.
<b>PSO 5</b>	Exposure to experimental & laboratory skills.
<b>PSO 6</b>	Development of interdisciplinary understanding with crossover to Physics, Chemistry & Mathematics.
<b>PSO 7</b>	Development of effective communication skills, team work & collaborative skills.
<b>PSO 8</b>	Development of ethical & professional responsibility, lifelong learning.

Semester	Course Code	Course Title	Course Outcomes	PSO's Addressed	Cognitive Levels
<b>I</b>	<b>MSPH 101</b>	<b>Classical Mechanics</b>	<b>CO1:</b> Understand the concept of holonomic & non-holonomic constraints.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understanding of theory of Lagrangian formulation, its applications, and Lagrange's multipliers.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understanding of theory of Hamilton's principle and its extensions.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Basic theoretical formulation of conservation theorems, conservation of energy, Noether's theorem.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understanding of linear & angular momentum, Theories of cyclic coordinates, Hamiltonian formulation of relativistic mechanics, Hamilton's canonical equation, Theory of principle of least action, Lagrange's and Poisson brackets as canonical invariants, Liouville's theorem, Explanation of Hamilton-Jacobi equation and applications, Theory of action angle variable, adiabatic invariance of action variable.	1,2,3,4	U, R, A, An
			<b>CO6:</b> Formulation of Kepler problem in action angle variables.	1,2,3,4	U, R, A, An

<b>I</b>	<b>MSPH 102</b>	<b>Quantum Mechanics</b>	<b>CO1:</b> Deep understanding of states, amplitude & operators.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understanding of observables & description of quantum system.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understanding of Hamiltonian matrix & time evolution of quantum mechanical states.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understanding of transition between stationary states.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understanding of symmetries & angular momentum.	1,2,3,4	U, R, A, An
<b>I</b>	<b>MSPH 103</b>	<b>Classical Electrodynamics-I</b>	<b>CO1:</b> Understand the concept of advanced electrostatics in the framework of Poisson & Laplace equations, Green's theorem, Dirichlet or Neumann boundary conditions.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of boundary value problems in electrostatics.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Grasping the concept of electrostatics to develop capability to solve problems.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of multipoles, electrostatics of macroscopic media & dielectrics, Boundary value problems in dielectrics.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of advanced magnetostatics, Boundary value problems in magnetostatics.	1,2,3,4	U, R, A, An

<b>I</b>	<b>MSPH 104</b>	<b>Mathematical Methods In Physics</b>	<b>CO1:</b> Understand the concept of coordinate transformation in $N$ -dimensional space.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of group transformation.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of Fourier transforms with special reference to applications in physical theories.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of Laplace transforms.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of associated properties of Laplace transformation <b>CO6:</b> Understand the concept of Laplace transformation with special reference to applications in physical theories.	1,2,3,4	U, R, A, An
<b>I</b>	<b>MSPH-151</b>	<b>Electronics/Advanced Optics/General Laboratory</b>	<b>CO1:</b> Through these experiments, students will develop practical skills in experimental techniques, data collection, analysis, and interpretation	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO2:</b> They will also enhance their understanding of fundamental concepts and principles in advanced electronics & optics	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO3:</b> The lab experiences will foster critical thinking, problem-solving abilities, and the application of theoretical knowledge to real-world scenarios.	1,2,3,4,5,6,7,8	U, R, A, An, E, C



<b>I</b>	<b>MSPH-152</b>	<b>Seminar-I/ Lab Project Work</b>	<b>CO1:</b> The students will learn about the method of preparing a powerpoint presentation.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO2:</b> Students will be significantly updating their soft & communication skills.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
<b>II</b>	<b>MSPH 201</b>	<b>Electronics</b>	<b>CO1:</b> Understand the concept of operational amplifiers.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of oscillators & wave-shaping circuits.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of characteristics of digital electronics of combinatorial circuits.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of sequential logic.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of optoelectronic devices & sequential logic.	1,2,3,4	U, R, A, An
<b>II</b>	<b>MSPH 202</b>	<b>Atomic &amp; Molecular Physics</b>	<b>CO1:</b> Understanding of energy spectrum of hydrogen atom.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understanding of effects of atoms in an electric field and a magnetic field.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understanding of Stark effect & Zeeman effect, Understanding of Hydrogen molecule, Heitler London method for hydrogen molecule.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understanding of WKB method for 1D-problem, application to bound states (Bohr Sommerfeld quantization) and the barrier penetration.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understanding of qualitative features of spectroscopy.	1,2,3,4	U, R, A, An
			<b>CO6:</b> Understanding of Laser Cooling And Trapping of Atoms.	1,2,3,4	U, R, A, An

<b>II</b>	<b>MSPH 203</b>	<b>Classical Electrodynamics-II</b>	<b>CO1:</b> Understand the concept of plane electromagnetic wave & development of wave equations.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of magnetohydrodynamics & plasma physics.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of covariant form of electrodynamic equations.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of Thomson scattering, radiation & Cherenkov radiation.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of Radiation Damping, Self-Fields of A Particle, Scattering & Absorption of Radiation by a bound system	1,2,3,4	U, R, A, An
			<b>CO6:</b> Understanding of these advanced concepts with the ability to solve correlated problems.	1,2,3,4	U, R, A, An
<b>II</b>	<b>MSPH 204</b>	<b>Numerical Methods</b>	<b>CO1:</b> Understand the concept of errors in numerical analysis.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of nonlinear equations and solution methodology in special reference to Newton's method.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of integration of ordinary differential equation.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of Runge-Kutta method.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of probability theory, Poisson & normal distribution	1,2,3,4	U, R, A, An
			<b>CO6:</b> Understand the concepts of numerical analysis in physical theories.	1,2,3,4	U, R, A, An

<b>II</b>	<b>MSPH-251</b>	<b>Electronics/Advanced Optics/General Laboratory</b>	<b>CO1:</b> Through these experiments, students will develop practical skills in experimental techniques, data collection, analysis, and interpretation.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO2:</b> They will also enhance their understanding of fundamental concepts and principles in advanced electronics & optics.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO3:</b> The lab experiences will foster critical thinking, problem-solving abilities, and the application of theoretical knowledge to real-world scenarios.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
<b>II</b>	<b>MSPH-252</b>	<b>Seminar (II)/Lab Project Work</b>	<b>CO1:</b> The students will learn about the method of preparing a powerpoint presentation.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO2:</b> Students will be significantly updating their soft & communication skills.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
<b>III</b>	<b>MSPH 301</b>	<b>Advanced Quantum Mechanics</b>	<b>CO1:</b> Deep understanding of scattering in the non-relativistic domain, Understanding of applications of scattering and associated physics.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understanding of Breit-Wigner formula, quasi stationary states, The Lippman-Schwinger equation & the Green's functions approach for scattering problem, Born-approximation and its validity for scattering problem, Coulomb scattering problem under first Born approximation in elastic scattering.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of relativistic formulation of quantum theory.	1,2,3,4	U, R, A, An

			<b>CO4:</b> Understand the concept of The Klein-Gordon equation & solution free particle K.G. equation in momentum representation, interpretation of negative probability density and negative energy solutions.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of Dirac equation for a free particle & properties of Dirac matrices, Understand the concept of nonrelativistic correspondence of the Pauli equation.	1,2,3,4	U, R, A, An
			<b>CO6:</b> Understand the concept of Dirac spinors, Symmetries of Dirac equation, Klein paradox	1,2,3,4	U, R, A, An
			<b>CO7:</b> Understand the concept of quantum theory of radiation, Rayleigh scattering, Thomson scattering and the Raman effect, radiation damping and resonance fluorescence.	1,2,3,4	U, R, A, An
<b>III</b>	<b>MSPH 302</b>	<b>Statistical &amp; Solid State Physics</b>	<b>CO1:</b> Explanation of thermodynamics in the framework of statistical approach.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Formulation of classical statistics to form phase space, micro- and macro-spaces, thermodynamic probability, monoatomic ideal gas & heat capacity of solids. Understand classical statistics and its validity. Study phase space, microstates, macrostates, thermodynamic probability, and entropy.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Formulation of quantum statistics & explanations.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of theory of metallic solids in Fermi-Dirac distribution function approach.	1,2,3,4	U, R, A, An

			<b>CO5:</b> Understanding of band theory of solids, Bloch's theorem & Kronig-Penny model, Winger-Sietz approximation, NFE model, tight-binding method.	1,2,3,4	U, R, A, An
<b>III</b>	<b>MSPH 303</b>	<b>Nuclear Physics-I</b>	<b>CO1:</b> Understand the concept of two-nucleon system, deuteron system for explanation of nuclear properties.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of nuclear forces and properties.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of nucleon-nucleon scattering theory & potentials.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Explanation of the concept of interaction of radiation and charged particle with matter.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Explanation of different types of experimental techniques in nuclear physics of detectors, counters, synchrotrons & accelerators.	1,2,3,4	U, R, A, An
<b>III</b>	<b>MSPH 304A</b>	<b>Microwave Electronics-I</b>	<b>CO1:</b> Understand the concept of microwaves & waveguides.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of different types of waveguides, TE & TM modes & attenuation.		
			<b>CO3:</b> Understand the concept of resonators & ferrites.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of ferrites in microwave technology.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of microwave measurement in form of various microwave detectors & measurement of complex permittivity of a material	1,2,3,4	U, R, A, An

			<b>CO6:</b> Understand the concept of microwave tubes, Klystrons, magnetrons & gyrotrons	1,2,3,4	U, R, A, An
<b>III</b>	<b>MSPH 304B</b>	<b>Condensed Matter Physics-I</b>	<b>CO1:</b> Understand the concept of phase transformation in compounds & alloys.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of high temperature superconductors & GMR/CMR materials.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of novel organic materials, Fullerenes & tubules.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of polymeric materials pertaining to different applications in physics	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of characterization techniques of X-ray diffraction, neutron diffraction, X-ray absorption spectroscopy (XAS) & positron annihilation technique	1,2,3,4	U, R, A, An
<b>III</b>	<b>MSPH 304C</b>	<b>Nanotechnology -I</b>	<b>CO1:</b> Understand the concept of nanomaterials & nanotechnology, Physics of 0D, 1D, 2D & 3D confined nanomaterials.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of MOSFETs.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of various chemical synthesis methods of nanomaterials & films.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of XRD for structural analysis of a material, SEM & AFM for imaging & TEM, STM for imaging of conductive samples	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of various spectroscopies of XPS, AES, UV-Visible, PL & CL spectroscopies	1,2,3,4	U, R, A, An

<b>III</b>	<b>MSPH 304D</b>	<b>Basics of Astronomy &amp; Astrophysics-I</b>	<b>CO1:</b> Understand the concept of astronomy & astrophysics.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of stellar systems.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of universe, its components and related physics.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of stellar dynamics.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of galaxies & cosmology.	1,2,3,4	U, R, A, An
<b>III</b>	<b>MSPH 304E</b>	<b>Massive Coursework (MOOC)/Swayam Based Course-I</b>	<b>CO1:</b> The option of online course aims to develop knowledge & skills in students pertaining to internet based studies. It will prepare students with advanced level fundamentals to enable them understanding complex physical theories.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Students will also be testing their capabilities through intermediary exams & end-term exams which will be reflected in the grade-sheets and earned credits.	1,2,3,4	U, R, A, An
<b>III</b>	<b>MSPH 351</b>	<b>Advanced Physics Laboratory</b>	<b>CO1:</b> Through these experiments, students will develop practical skills in experimental techniques, data collection, analysis, and interpretation.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO2:</b> They will also enhance their understanding of fundamental concepts and principles in advanced solid state physics & microwave electronics.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO3:</b> The lab experiences will foster critical thinking, problem-solving abilities, and the application of theoretical knowledge to real-world scenarios.	1,2,3,4,5,6,7,8	U, R, A, An, E, C

<b>III</b>	<b>MSPH-352</b>	<b>Project Work/Summer Training Project (STP)/ Dissertation(D)</b>	<b>CO1:</b> The objective of the course is to provide students with a practical knowledge of working on a real-time system.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO2:</b> The course aims to develop their knowledge and skills in developing experimental skills at the postgraduate level and to endow them with a zeal for experimental physics. This will help nurture their interests in experimental domain to enable them to take-up research in physics as well in addition to preparing their experimental attitude for future careers in physics in both academia and industry.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO3:</b> The course also aims to develop soft- and transferrable skills in students in form of concise report writing, presenting work performed in form of a powerpoint presentation, effective communication skills, time-bound production of results, data analysis in addition to theoretical and experimental development of students in physics.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
<b>IV</b>	<b>MSPH 401</b>	<b>Introductory Quantum Field Theory</b>	<b>CO1:</b> Understand the concept of quantum field theory at an introductory level.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of fermions in quantum field theory.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of S-matrix formalism, Wick's theorem & Feynman representations & rules.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the applications of S-matrix formalism.	1,2,3,4	U, R, A, An



<b>IV</b>	<b>MSPH 402</b>	<b>Solid State Physics</b>	<b>CO1:</b> Understand the concept of lattice dynamics & anharmonicity.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of inelastic neutron scattering, Mossbauer effect, Debye-Waller factor.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of optical properties of solids, Semiconductors in detail.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of Shockley-Read theory & F-centres, Magnetic theories in detail, Spin-waves and experimental determination by inelastic neutron scattering.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of nuclear magnetic resonance (NMR) spectroscopy.	1,2,3,4	U, R, A, An
			<b>CO6:</b> Understand the concept of superconductors in detail.	1,2,3,4	U, R, A, An
<b>IV</b>	<b>MSPH 403</b>	<b>Nuclear Physics-II</b>	<b>CO1:</b> Understand the concept of nuclear shell model in detail.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of collective nuclear model in detail and understand the concept of nuclear gamma & beta decay in detail.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of nuclear reactions in detail.	1,2,3,4	U, R, A, An
<b>IV</b>	<b>MSPH 404A</b>	<b>Microwave Electronics- II</b>	<b>CO1:</b> Understand the concept of avalanche transit time device, & passive devices.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of transferred electron device.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of passive devices.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of parametric amplifier.	1,2,3,4	U, R, A, An

			<b>CO5:</b> Understand the concept of microwave antennas and microwave communication.	1,2,3,4	U, R, A, An
<b>IV</b>	<b>MSPH 404 B</b>	<b>Condensed Matter Physics-II</b>	<b>CO1:</b> Understand the concept of disordered systems, meta-glasses.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of electric, magnetic and mechanical properties.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of nanomaterials and concept of XRD for nanomaterials structural analysis.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of chemical synthesis of nanomaterials.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of surface topography measurements of thin films, electrical conductivity of thin films.	1,2,3,4	U, R, A, An
			<b>CO6:</b> Understand the concept of SEM, TEM & field emission for electron imaging, STM for imaging of conductive samples, AFM for surface topography & grain-size distribution	1,2,3,4	U, R, A, An
<b>IV</b>	<b>MSPH 404 C</b>	<b>Nanotechnology-II</b>	<b>CO1:</b> Understand the concept of magnetism & the concept of magnetic nanostructures.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of spintronics & the concept of spin metal oxide field effect transistors	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of thin film deposition techniques and their differences in terms of product specification.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of large-area growth, epitaxy.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of various lithographic techniques.	1,2,3,4	U, R, A, An

<b>IV</b>	<b>MSPH 404 D</b>	<b>Basics of Astronomy &amp; Astrophysics-II</b>	<b>CO1:</b> Understand the concept of positional astronomy.	1,2,3,4	U, R, A, An
			<b>CO2:</b> Understand the concept of telescopes.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Understand the concept of instrumentation in relation to astronomy.	1,2,3,4	U, R, A, An
			<b>CO4:</b> Understand the concept of modern astronomy in the perspective of an overview.	1,2,3,4	U, R, A, An
			<b>CO5:</b> Understand the concept of statistical & mathematical methods in astronomy.	1,2,3,4	U, R, A, An
<b>IV</b>	<b>MSPH 404 E</b>	<b>MOOC/ Swayam Based Course-II</b>	<b>CO1:</b> The option of online course aims to develop knowledge & skills in students pertaining to internet based studies.	1,2,3,4	U, R, A, An
			<b>CO2:</b> It will prepare students with advanced level fundamentals to enable them understanding complex physical theories.	1,2,3,4	U, R, A, An
			<b>CO3:</b> Students will also be testing their capabilities through intermediary exams & end-term exams which will be reflected in the grade-sheets and earned credits.	1,2,3,4	U, R, A, An
<b>IV</b>	<b>MSPH-451</b>	<b>Advanced Physics Laboratory</b>	<b>CO1:</b> Through these experiments, students will develop practical skills in experimental techniques, data collection, analysis, and interpretation.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO2:</b> They will also enhance their understanding of fundamental concepts and principles in solid state physics & microwave electronics.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO3:</b> The lab experiences will foster critical thinking, problem-solving abilities, and the application of theoretical knowledge to real-world scenarios.	1,2,3,4,5,6,7,8	U, R, A, An, E, C

<b>IV</b>	<b>MSPH-452</b>	<b>Project Work/Summer Training Project(STP) /Dissertation(D)</b>	<b>CO1:</b> The objective of the course is to provide students with a practical knowledge of working on a real-time system.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO2:</b> The course aims to develop their knowledge and skills in developing experimental skills at the postgraduate level and to endow them with a zeal for experimental physics. This will help nurture their interests in experimental domain to enable them to take-up research in physics as well in addition to preparing their experimental attitude for future careers in physics in both academia and industry.	1,2,3,4,5,6,7,8	U, R, A, An, E, C
			<b>CO3:</b> The course also aims to develop soft- and transferrable skills in students in form of concise report writing, presenting work performed in form of a powerpoint presentation, effective communication skills, time-bound production of results, data analysis in addition to theoretical and experimental development of students in physics.	1,2,3,4,5,6,7,8	U, R, A, An, E, C

## M.Sc (Chemistry) PSO's

	<b>Programme Specific Outcomes (Organic Special) Chemistry</b>
<b>PSO 1.</b>	To understand the background of organic reaction mechanisms, complex chemical structures, instrumental method of chemical analysis and separation techniques.
<b>PSO 2.</b>	To learn about the potential uses of analytical industrial chemistry, medicinal chemistry and green chemistry.
<b>PSO 3.</b>	To apply various aspects of chemistry in natural products isolations, pharmaceuticals, dyes, textiles, polymers, petroleum products, forensic etc. An also to develop interdisciplinary approach of the subject.
<b>PSO 4.</b>	To gain a thorough knowledge in the subject to be able to work in projects at different research as well as academic institutions.
<b>PSO 5.</b>	To gain insights into generation, stability and reaction of organic intermediates and derive the structure of some typical alkaloids and terpenoids.
<b>PSO 6.</b>	To develop the knowledge for sustainable and eco-friendly technology in industrial chemistry.
<b>PSO 7.</b>	To acquire knowledge of chemical thermodynamics, kinetics, electrochemistry, atomic structure, photochemistry, organic chemistry, spectroscopy and skill in industrial chemistry.
<b>PSO 8.</b>	To remember the basic concept of Organic Chemistry and will be able to acquire knowledge about the fundamentals and applications of chemical theories.

	<b>Programme Specific Outcomes (Physical Special) Chemistry</b>
<b>PSO 1.</b>	To demonstrate comprehensive knowledge and skill in Physical Chemistry along with different areas of chemistry.
<b>PSO 2.</b>	To apply knowledge and experiment skill to synthesis and analyse chemicals or materials of immediate need for society and relevance to chemical and allied industry.
<b>PSO 3.</b>	To critical evaluate practices, rules and theories based on empirical evidence, by following the scientific approach to knowledge development in Physical Chemistry.
<b>PSO 4.</b>	To develop research oriented learning in Physical Chemistry and analytical integrating problem solving approach.
<b>PSO 5.</b>	To understand the technical aspects of modern nano level technology in Physical Chemistry that help in addressing the biological and medical challenges faced by human kind.
<b>PSO 6.</b>	To get aware and handle the sophisticated instrument i.e. spectrophotometer, polarimeter etc and develop research oriented skills.
<b>PSO 7.</b>	To remember the experimental techniques and methods of analysis appropriate for the area of specialization.

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	Attributes	
				PSO's addressed	Cognitive levels
I	MSCH 101	Inorganic Chemistry-I	CO1: Analyze the basics of stereochemistry of various inorganic complexes.	1,2	U, R, A
			CO2: Illustrate limitations of CFT and evaluate the structure of complexes on the basis of MOT.	2,8	U, R
			CO3: Understand electronic spectra of complexes with reference to spin and orbital selection rules.	1,2,8	E, U, R
			CO4: Understand charge transfer spectra and implement knowledge in assigning absolute configuration of optically active chelates.	1,2,8,	U, R
I	MSCH102	Organic Chemistry-I	CO1: Analyse and evaluate the most commonly encountered reaction mechanism in organic chemistry.	1,3,5,8	E, A, U, R
			CO2: Able to evaluate the reactivity of aliphatic and aromatic nucleophilic substitution reactions.	1,5,8	E, U, R
			CO3: Develop knowledge of electrophilic substitution of aliphatic and aromatic compounds and understand concept of free radical mechanism.	6,8	U, R, A
			CO4: Understand and differentiate the mechanism of E1, E2, E1CB and E2CB reactions.	1,2,5	U, R, A
I	MSCH103	Physical Chemistry-I	CO1: Analyse and apply the fundamental concepts of quantum mechanics to illustrate some model systems	1,3	U, R, A, A
			CO2: Analyse the approximation methods and its applications on Huckel theory for conjugated $\pi$ -electron system.	1,3,8	U, R, A, A
			CO3: Evaluate kinetics of chemical reaction	5,8	E, A, U, R
			CO4: Analyze advanced electrochemical concepts and modern theories.	7,8	A, U, R

<b>I</b>	<b>MSCH104</b>	<b>Spectroscopy-I</b>	<b>CO1:</b> Recognize spectroscopy in microwave, rotational spectra of rigid diatomic molecules, selection rules & interaction of spectral lines.	1	A, U, R
			<b>CO2:</b> Analyse and gain knowledge of vibrating diatomic molecule, energy levels of a diatomic molecules, harmonic & anharmonic oscillator, rotational & vibrational raman spectra.	1,4	A, U, R
			<b>CO3:</b> Learn electronic spectra of diatomic molecules, born Oppenheimer approximations	2,8	U, R
			<b>CO4:</b> Understand concept of ESR and Mossbauer spectroscopy.	1,3,8	U, R
<b>I</b>	<b>MSCH105</b>	<b>Bioinorganic Chemistry</b>	<b>CO1:</b> Apply importance of inorganic elements in vital systems	3,8	A,U, R
			<b>CO2:</b> Recognize the fundamental principles of inorganic chemistry apply to bioinorganic systems and interpret the role of photosynthetic pigment.	1,3,8	U, R, A, A
			<b>CO3:</b> Analyse and logical interpretation of biological activity of a metal complex.	1,3,8	U, R, A
			<b>CO4:</b> Evaluate the role of nitrogen fixing bacteria and interpret situations that may occur in the absence of minerals.	5,8	E,U, R
<b>I</b>	<b>MSCH106</b>	<b>Introduction to Analytical Techniques and Nanochemistry</b>	<b>CO1:</b> Develop critical thinking for interpreting data using analytical techniques viz. coulometry, conductometry, anodic stripping voltammetry, TGA, DTA and chromatography.	6,8	A, A, U, R
			<b>CO2:</b> Understanding of electroanalytical methods like electrochromatography, Gas chromatography, HPLC and developing the concepts of AAS.	1,8	U, R
			<b>CO3:</b> Deep knowledge of the optical properties of nano materials and illustrate the classification of nano material.	4,8	U, R
			<b>CO4:</b> Synthesize and characterize nanomaterials using, TEM, SEM, SPM and XRD.	6,8	A, U, R



<b>I</b>	<b>MSCH151A</b>	<b>Inorganic Chemistry Practical</b>	<b>CO1:</b> Facilitate laboratory training and skills necessary for scientific or technological research.	1,8	A, U, R
			<b>CO2:</b> Demonstrate identification and qualitative-quantitative separation techniques of organic and inorganic compounds.	3,8	A, A, U, R
<b>I</b>	<b>MSCH151 B</b>	<b>Physical Chemistry Practical</b>	<b>CO1:</b> Familiarize with the principles underlying the concepts of physical chemistry by experimental measurements	1,8	A, A, U, R
			<b>CO2:</b> Appreciate the central role of chemistry in the society and use this as a tool for addressing social, economic and environmental problems.	3,5,8	A, A, U, R
<b>II</b>	<b>MSCH 201</b>	<b>Inorganic Chemistry-II</b>	<b>CO1:</b> Analyse symmetry in molecules and understand its role in chemistry.	1,8	A, U, R
			<b>CO2:</b> Understand the compound from a molecular level to a crystal structure level.	1,8	U, R
			<b>CO3:</b> Discuss the salient features of metal carbonyls.	5,7,8	U, R
			<b>CO4:</b> Evaluate the methods of preparation of solids, understanding the structure property relationship and their possible application.	1,8	E, U, R
<b>II</b>	<b>MSCH 202</b>	<b>Organic Chemistry-II</b>	<b>CO1:</b> Apply theoretical knowledge of advanced stereo chemistry	3,6,8	A, U, R
			<b>CO2:</b> Investigate geometry of organic compounds and design structure, reactivity and stability of new compounds.	1,3,8	A, U, R
			<b>CO3:</b> Get the knowledge of important molecular rearrangements	6,8	U, R
			<b>CO4:</b> Implement different approaches of pericyclic reactions in designing new synthetic routes for stereo specific compounds.	3,6	A, U, R

<b>II</b>	<b>MSCH 203</b>	<b>Physical Chemistry- II</b>	<b>CO1:</b> Discuss and validate experimentally the concepts and theories of classical thermodynamics.	5,7,8	U, R
			<b>CO2:</b> Understand the application of statistical thermodynamics	1,8	U, R
			<b>CO3:</b> Analyze and interpret adsorption phenomenon in natural, physical, biological and chemical system & its industrial applications.	1,8	A, U, R
			<b>CO4:</b> Analyze and apply various aspects of macro molecules	3,6	A, A, U, R
<b>II</b>	<b>MSCH 204</b>	<b>Spectroscopy-II</b>	<b>CO1:</b> Analyse the factors that govern electronic transition and implement this knowledge to interpret UV spectroscopy	6,7,8	A, A, U, R
			<b>CO2:</b> Determine the absorption frequencies of major functional groups in IR spectra	1,6,8	A, U, R
			<b>CO3:</b> Understand how to interpret nuclear magnetic spectrum	1,3,8	U, R
			<b>CO4:</b> Know application of mass spectrometry in determination of structure	1,3,8	A, U, R
<b>II</b>	<b>MSCH 205</b>	<b>Biophysical Chemistry</b>	<b>CO1:</b> Illustrate the concept of bio energetics and employ how living organism acquire and transform energy in order to perform biological work, structure, hydrolysis and synthesis of ATP molecules.	1,5,8	A, U, R
			<b>CO2:</b> Evaluate mechanism involved in biopolymer interactions	1,3,8	E, U, R
			<b>CO3:</b> Explain structure of cell membrane, its functions, active and passive transport mechanisms.	5,6,8	U, R
			<b>CO4:</b> Evaluate the molecular weight of bio-polymers by various experimental techniques	2,5,8	E, U, R

<b>II</b>	<b>MSCH 206</b>	<b>Environmental Chemistry-I</b>	<b>CO1:</b> Apply knowledge of Chemistry to find the most suitable measures, management methods and industrial solutions to ensure a sustainable use of the earth's resources and ecosystem services	2,7,8	A, U, R
			<b>CO2:</b> Identify and understand mechanistic pathways for tropospheric cycles.	1,4,8	U, R
			<b>CO3:</b> Classify and identify the sources of air pollutants and predict its effects on human health and environment.	1,2,8	A, U, R
			<b>CO4:</b> Learn special aspects associated with water pollution and human health and develop eco-friendly technologies.	2,6,8	U, R
<b>II</b>	<b>MSCH 251A</b>	<b>Organic Chemistry Practical</b>	<b>CO1:</b> Perform laboratory work using standard safety procedures and interpret the results of the experiment.	3, 7, 8	A, A, U, R
			<b>CO2:</b> Solve quantitative chemistry problems and devise synthetic approaches to relatively simple organic compounds using the one and two step synthesis.	3, 7, 8	A, A, U, R
<b>II</b>	<b>MSCH 251B</b>	<b>Physical Chemistry Practical</b>	<b>CO1:</b> Expertize in problem solving, critical thinking and analytical reasoning as applied to natural and scientific phenomenon.	1,3,8	A, A, U, R
			<b>CO2:</b> Analyze and apply chemical kinetics, potentiometry, pH metry and adsorption phenomenon in real life problems.	1, 3, 8	A, A, U, R
<b>III</b>	<b>MSCH 301</b>	<b>Photochemistry</b>	<b>CO1:</b> Interpret and distinguish between photochemical and photo physical processes using Jablonskii diagram and their quantum yield expressions.	1,7,8	U, R
			<b>CO2:</b> Validate the role of norrish type reactions for carbonyl compounds.	1,7,8	U, R
			<b>CO3:</b> Perceives the concept of photochemistry in alkene and aromatic compounds.	1,7,8	U, R
			<b>CO4:</b> Design the mechanisms of natural photochemical processes viz. ozone formation in atmosphere, action of enzymes, etc.	1,7,8	A, U, R

III	MSCH 302	Bioorganic Chemistry	CO1: Understand the basics of enzyme reactions.	1,2,8	U, R
			CO2: Encompasses the utility of enzyme in various catalytical reactions.	1,2,6	U, R
			CO3: Illustrate and create novel enzyme models and evaluate their role in biological systems.	1,3,8	C, E, A, U, R
			CO4: Implement knowledge of biotechnological applications of enzymes in day to day life.	3,8	A, U, R
III	MSCH 303	Environmental Chemistry-II	CO1: Visualizes the uses and effects of toxic heavy metals in environment.	3,4,8	U, R
			CO2: Create models of advanced analytical tools to predict consequences of the environmental challenges.	2,3,8	C, U, R
			CO3: Validated the role of waste material in environmental chemistry.	3,8	U, R
			CO4: Acquire knowledge for the sustainable use of resources.	3,4,8	U, R
III	MSCH 304A	Organic Synthesis-I	CO1: Design the novel synthesis processes to organic compounds drugs etc. using enolate chemistry	6,7,8	A, U, R
			CO2: Perceives the concepts of metal and non metal mediated oxidation	6,7,8	U, R
			CO3: Enumerate and apply metallic and non metallic reducing reagent in organic synthesis.	1,3,8	A, U, R
			CO4: Learn the importance of metallocenes, non-benzenoid and polycyclic aromatic compounds.	2,7,8	U, R
III	MSCH 304B	Natural Product-I	CO1: Have basic knowledge of natural sources and implement isolation and structure elucidation techniques for natural products.	3,4,8	A, U, R
			CO2: Learns the fundamentals of terpenoids and carotenoids.	2,7,8	U, R
			CO3: Gain the potential about alkaloids	3,4,8	U, R
			CO4: Predict the path for characterization and synthesis of naturally occurring organic Compounds.	1,3,8	A, U, R

III	MSCH 304C	Heterocyclic Chemistry-I	CO1: Compose the nomenclature, structure, synthesis, physical properties and chemical reactions of heterocyclic compounds.	1,8	U, R
			CO2: Appreciate the fundamentals of non aromatic heterocycles.	2,3,8	U, R
			CO3: Encompasses the structure of small ring heterocyclic compounds.	2,6,8	E, U, R
			CO4: Identify and deduce organic chemistry problems and explore new areas of research.	1,3,8	A, U, R
III	MSCH 305A	Advanced Electrochemistry -1	CO1: Develop the test methods for measurement and monitoring of corrosion.	2, 4, 7	U, R
			CO2: Demonstrate electricity storage for the future	3, 7	U, R
			CO3: Generalize the role of electrochemistry in biology	1, 3, 7	U, R
			CO4: Demonstrate the systematic approach in reinforcing various types of fuel cells.	1, 3, 7	U, R
III	MSCH 305B	Phase Rule and Surface Phenomenon	CO1: Acquire the knowledge of various property of liquid state and the study of X-ray diffraction of liquids	1,2,7	A, U, R
			CO2: Apply an idea about the different phases of matter and their equilibria from which the stability and sustainability can be easily predicted.	2, 7	U, R
			CO3: Demonstrate the applications of colloidal state.	1,7	U, R
			CO4: Extrapolate the application of surface chemistry in industries and environment.	1,4,7	U, R
III	MSCH 305C	Advanced Chemical Kinetics-I	CO1: Have detailed knowledge about induced and kinetic phenomena	3, 7	U, R
			CO2: Able to get acquainted with various types of reaction mechanism and their kinetics	1,4,7	A, A, U, R
			CO3: Explain Oscillatory Reactions and catalytic process	1,5,7	A, U, R
			CO4: Learn about Electron transfer reactions in metal complexes and their kinetics in liquid solution	1,5,7	U, R

III	MSCH 351A	Inorganic Chemistry Practical	CO1: Expertise in quantitative analysis of metal ions using volumetric, gravimetric and chromatographic methods.	1,6,8	A, A, U, R
			CO2: Design and carry out organic synthesis and implement skill in new areas of research in both chemistry and allied fields of science and technology.	1,8	A, A, U, R
III	MSCH 351B	Organic Chemistry Practical	CO1: Analyze and investigate qualitatively binary mixture of organic compounds and prepare their derivatives.	1,2,7,8	A, A, U, R
			CO2: Construct a new pathway for organic synthesis and apply different purification techniques.	1,2,7,8	A, A, U, R
III	MSCH 351C	Inorganic Chemistry Practical	CO1: Expertise in quantitative analysis of metal ions using volumetric, gravimetric and chromatographic methods.	1,6,8	A, A, U, R
			CO2: Design and carry out organic synthesis and implement skill in new areas of research in both chemistry and allied fields of science and technology.	1,8	A, A, U, R
III	MSCH 351D	Physical Chemistry Practical	CO1: Analyze the molecular weight, upper consolute point and distribution coefficient by phase equilibrium.	1,5,7	A, U, R
			CO2: Evaluate Hardy – Schulze's rule for arsenious sulphide / Ferric hydroxide sols.	1,5,7	E, U, R
IV	MSCH 401A	Green Chemistry	CO1: Design and implement cleaner production of suitable energy efficient processes.	2,3,8	A, U, R
			CO2: Realise the importance of green technologies in sustainable growth of industries and society.	1,3,8	U, R
			CO3: Analyze microwave and Ultrasound assisted green synthesis.	1,7,8	A, U, R
			CO4: Illustrate benign solution to organic solvent and review the electrochemical synthesis	1,2,7,8	U, R

IV	MSCH 401B	Nanochemistry and Nanocatalysis	CO1: Develop basic knowledge of nanoscience and technology.	3, 4, 7	U, R
			CO2: Understand the synthesis of nanomaterials, their applications and the impact on environment.	4, 5, 7	U, R
			CO3: Learn about structure and property of carbon cluster and their synthetic strategies	4, 5, 7	U, R
			CO4: Categorize and identify the different types of nanomaterials for catalysis.	5,7	U, R
IV	MSCH 402A	Organic Synthesis-II	CO1: Apply the principle of protecting groups and understand the term chemoselectivity, reversal of polarity and cyclization.	3,7,8	A, U, R
			CO2: Familiarize with carbonyl condensation, Diels Alder reaction and reduction of aromatic compounds.	1,7,8	U, R
			CO3: Understand the synthesis, reactivity and importance of systems like 3-membered, 4-membered rings.	1,3,8	U, R
			CO4: Understand the synthesis, reactivity and importance of systems like 5-membered rings.	1,7,8	U, R
IV	MSCH 402B	Polymer Chemistry	CO1: Understand the study of methods of polymerization reactions	5,7	U, R
			CO2: Understand the properties, advantages, disadvantages of polymer.	5,7	U, R
			CO3: Develop application approach and modification of polymer.	1,5,7	C, U, R
			CO4: Develop specific skills, competencies and thought processes sufficient to support further study or work in this field of Polymer Chemistry.	1,5,7	C, U, R
IV	MSCH 403A	Medicinal chemistry and Natural Product-II	CO1: Understand nomenclature, classification and structure elucidation of haemoglobin, chlorophyll and prostglandins	1,7,8	U, R
			CO2: Develop the knowledge of vitamins, pyrethroids and rotenoids	6,7,8	U, R
			CO3: Explore the biological activity of steroids	2,7,8	A, U, R
			CO4: Analyse the mode of action of different chemotherapeutic agents (anti-histamines, analgesics, antimalarial and anti-viral drugs etc.)	1,2,7,8	A, U, R

IV	MSCH 403B	Chemistry of Materials	CO1: Develop the knowledge about liquid crystal behaviour and their applications.	4, 5, 7	C, U, R
			CO2: Describe the physical properties and structure of superconductor material	1, 5, 7	A, U, R
			CO3: Provide intellectual foundation to design, create understand new forms of matter.	5,7	U, R
			CO4: Acquire knowledge for the preparation of range of materials such as glass, plastic and liquid crystals.	5,7	U, R
IV	MSCH 404A	Heterocyclic Chemistry-II	CO1: Gain knowledge about the structure, synthesis, reactions and properties of mesoionic compounds.	4,6,8	U, R
			CO2: Learn about the synthesis of new heterocyclic compounds according to the required pharmacological activity like diazines, triazines and tetrazines.	2,8	U, R
			CO3: Analyze the structure of seven membered heterocyclic compounds.	1,7,8	A, U, R
			CO4: Analyse the structure of bicyclic ring system derived from heterocyclic compound.	1,6,7,8	A, U, R
IV	MSCH 404B	Advanced Electrochemistry-II	CO1: Learn quantum aspect of electrode and electrochemical method	3, 4, 7	U, R
			CO2: Describe kinetic approach of various electrode process	3, 4, 7	A, U, R
			CO3: Apply the acquired knowledge to various electrochemical aspects for social benefits.	5,7	A, U, R
			CO4: Acquaint with the advanced aspects of electrochemistry as to understand the mechanism and processes by advanced Electrolysis Methods.	5,7	U, R
IV	MSCH 451A	Inorganic Chemistry Practical	CO1: Analyze mixture of three organic compounds and use various techniques like TLC, IR, PMR for their purity check and chemical analysis.	1, 3, 8	A, A, U, R
			CO2: Characterization of various compound by spectroscopic methods.	1, 3, 8	A, A, U, R
IV	MSCH 451B	Organic Chemistry Practical	CO1: Analyze various samples containing metal ions through Flame Photometer and Spectrophotometer.	1, 3, 8	A, A, U, R
			CO2: Demonstrate volumetric analysis of some samples like telcum powder, hydrogen peroxide, Boric acid and antacid.	1, 3, 8	A, A,U, R



IV	MSCH 452A	Organic Chemistry Practical	CO1: Analyze various samples containing metal ions through Flame Photometer and Spectrophotometer.	1, 3, 8	A, A, U, R
			CO2: Demonstrate volumetric analysis of some samples like telcum powder, hydrogen peroxide, Boric acid and antacid.	1, 3, 8	A, A, U, R
IV	MSCH 452B	Physical Practical	CO1: Evaluate fundamentals of electrochemistry using potentiometer, pH meter and spectrophotometer.	4, 6, 7	E, U, R
			CO2: Investigate conductometric titrations using concept of physical chemistry.	4, 6, 7	E, U, R
IV	MSCH 453A	Seminar/Project	CO1: The objective of the course is to provide students with a practical knowledge of organic chemistry for industry and academia	3, 4, 7	U, R
			CO2: The course aims to develop soft- and transferrable skills in students in form of concise report writing, presenting work performed in form of a power-point presentation, effective communication skills, time-bound production of results	3, 4, 7	U, R
IV	MSCH 453B	Seminar/Project	CO1: The objective of the course is to provide students with a practical knowledge of advanced physical instruments	3, 4, 7	U, R
			CO2: The course aims to develop their knowledge and skills in developing experimental skills at the postgraduate level and to endow them with a zeal for experimental chemistry. This will help nurture their interests in experimental domain to enable them to take-up research in chemistry as well in addition to preparing their experimental attitude for future careers in chemistry in both academia and industry.	3, 4, 7	U, R

## M. Sc. I.T. (PSO's)

<b>PSO 1</b>	The program equips students with essential domains of computer science and Information Technology (IT). It empowers them to apply core concepts in the development of domain-specific applications.
<b>PSO 2</b>	The program fosters critical thinking, cultivates problem-solving skills, encourages evaluative learning of various techniques, and deepens comprehension of problem essence.
<b>PSO 3</b>	The program educates students about the latest industry technologies. The continuous review of syllabi adds value to graduates, preparing them to address dynamic industry demands.
<b>PSO 4</b>	The program instructs students in applying advanced tools to address real-world challenges.
<b>PSO 5</b>	The program trains students in designing and conceptualizing software architecture, managing complex product development processes, and making informed decisions for project management selection.
<b>PSO 6</b>	Real-world projects expose students to challenging industry environments, making them employable and industry-ready through hands-on project development training.
<b>PSO 7</b>	The program hones students' teamwork skills and nurtures their ability to lead project management teams.

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSO's Addressed	Cognitive levels
I	MSIT101	Programming Fundamentals	CO1: Understand the concept of Algorithms and different symbols used in flowcharts.	1,2	E, U, R
			CO2: Develop conditional and iterative statements to write C programs.	2,3	E, U, R
			CO3: Utilize user-defined functions to solve real-time problems.	1,2	E, U, R
			CO4: Create C programs that utilize pointers to access arrays, strings, and functions	1,3	E, U, R
			CO5: Apply user-defined data types, including structures and unions, to solve problems.	1,2	E, U, R
			CO6: Demonstrate the concept of file handling to showcase input and output operations in C programs.	2,3	E, U, R
I	MSIT102	Database Management System	CO1: Gain a solid understanding of the fundamental concepts of database management systems, including data models, data independence, database architecture, and components.	1,5,6	E, U, R
			CO2: Learn the principles and techniques involved in relational database management systems.	1,5	E, U, R
			CO3: Ability to transform user requirements into efficient and well-structured database schemas.	1,6	E, U, R
			CO4: Develop proficiency in SQL.	1,5,6	E, U, R
I	MSIT103	Fundamentals of Information Technology	CO1: Gain a comprehensive understanding of the working principle of computers and their memory systems.	1	U, R
			CO2: Acquire knowledge about the functions and uses of input and output devices.	1,3	E, U, R
			CO3: Differentiate between software types and hardware components and comprehend their interaction.	1,2	E, U, R
			CO4: Understand various mediums of data transmission and evaluate their respective advantages and disadvantages.	2,3	E,U, R
			CO5: Comprehend the internet, its applications, and the importance of internet security.	1,5,6	E,U, R

<b>I</b>	<b>MSIT104</b>	<b>Computer Architecture</b>	<b>CO1:</b> Gain a comprehensive understanding of the components of a digital computer system	1,5	E, U, R
			<b>CO2:</b> Proficient in converting data between different digital number systems (binary, octal, decimal, hexadecimal)	1,3	E, U, R
			<b>CO3:</b> Design and analyze combinational circuits, such as multiplexers, demultiplexers, encoders, and decoders.	1,2,5	E, U, R
			<b>CO4:</b> Familiar with the anatomy of a computer system, including components like motherboards, microprocessors (CISC and RISC), different types of memory modules (RAM, Cache), and expansion slots.	2,3	E, U, R
			<b>CO5:</b> Develop a strong grasp of input and output devices, including printers, plotters, and voice output devices.	1,5,6	E, U, R
<b>I</b>	<b>MSIT105</b>	<b>Operating System</b>	<b>CO1:</b> Analyze various scheduling algorithms.	1,5	E, U, R
			<b>CO2:</b> Understand deadlock, prevention and avoidance algorithms.	2,3	E, U, R
			<b>CO3:</b> Compare and contrast various memory management schemes.	1,5,6	E, U, R
			<b>CO4:</b> Understand the functionality of file systems.	1,5	E, U, R
			<b>CO5:</b> Understand the Open source operating system and basic Linux commands	1,3	E, U, R
<b>I</b>	<b>MSIT151A</b>	<b>'C' Programming Lab</b>	<b>CO1:</b> Develop a C program based on a given task or algorithm.	1,2	A, An, C
			<b>CO2:</b> Read, comprehend, and trace the execution of C programs.	2,3	E, U, R
			<b>CO3:</b> Implement C programs using arrays, pointers, decision-making statements, and looping statements.	1,5,6	E, U, R
			<b>CO4:</b> Write programs that perform operations utilizing derived data types.	1,5	E, U, R
			<b>CO5:</b> Develop and implement modular applications in C by effectively utilizing functions.	1,3	E, U, R
			<b>CO6:</b> Develop applications in C that leverage structures and pointers.	1,5,6	E, U, R

<b>I</b>	<b>MSIT151B</b>	<b>DBMS Lab</b>	<b>CO1:</b> Write both simple and complex SQL queries to retrieve information from databases with many tables to support business decision making.	1,5,6	A, An, C
			<b>CO2:</b> Write SQL DDL to create, modify and drop objects within a relational database.	1,5	E, U, R
			<b>CO3:</b> Retrieve and store information in a relational database using SQL in a multi-user environment.	1,3	E, U, R
<b>I</b>	<b>MSIT151C</b>	<b>Office Management Lab</b>	<b>CO1:</b> Able to use MS Office (word processor, spreadsheet and power point) professionally.	1	A, C, E
			<b>CO2:</b> Develop understanding about the writing of effective business letters in computer through word processing.	1,5,6	A, An, C
			<b>CO3:</b> Able to use spreadsheet program for business data processing.	1,5	E, U, R
			<b>CO4:</b> Acquire skills for development and presentation of power point report.	1,3	E, U, R
<b>II</b>	<b>MSIT201</b>	<b>Object Oriented Programming Concepts using Java</b>	<b>CO1:</b> Understand the concepts of OOPs	1,2	A, An, C
			<b>CO2:</b> Knowledge of basic programming constructs of Java	1,5	E, U, R
			<b>CO3:</b> Understand and Implement the concepts of Classes and Objects.	2,3	E, U, R
			<b>CO4:</b> Implement Polymorphism, Inheritance, and Multithreading.	1,5,6	E, U, R
			<b>CO5:</b> Enlighten the use of Interfaces, Packages and Exception Handling.	1,3	E, U, R
			<b>CO6:</b> Perform Database Connectivity through JDBC	1,3	E, U, R
			<b>CO7:</b> Understand String & Math Classes and their functions	1,2	E, U, R

<b>II</b>	<b>MSIT202</b>	<b>Data Structure and Algorithms</b>	<b>CO1:</b> Analyze the concepts of algorithm evaluation and find time and space complexities for searching and sorting algorithms.	1,2,3	U, A, E,
			<b>CO2:</b> Implement linear data structure such as stacks, queues, linked lists and their applications.	1,5	E, U, R
			<b>CO3:</b> Implement basic operations on binary trees	2,3	E, U, R
			<b>CO4:</b> Demonstrate the representation and traversal techniques of graphs and their applications	1,2,4	E, U, R
<b>II</b>	<b>MSIT203</b>	<b>Web Designing and Development</b>	<b>CO1:</b> Understand the fundamentals of Internet, and the principles of web design.	1,2,3	U, A, C
			<b>CO2:</b> Able to construct websites using HTML and Cascading Style Sheets.	1,2,4	E, U, R
			<b>CO3:</b> Able to build dynamic web pages with validation using Java Script objects <b>CO4:</b> Implement the event handling mechanisms.	1,4	E, U, R
<b>II</b>	<b>MSIT204</b>	<b>Management Information System</b>	<b>CO1:</b> To understand the basic principles and working of information Technology	1,3,4	U, R, E
			<b>CO2:</b> Describe the role of information technology and information systems in business.	1,3	E, U, R
			<b>CO3:</b> To contrast and compare how internet and other information technologies support business processes.	1,3,4	E, U, R
			<b>CO4:</b> To give an overall perspective of the importance of application of internet technologies in business administration.	1,3,4	E, U, R
<b>II</b>	<b>MSIT205</b>	<b>Data Communication and Networking</b>	<b>CO1:</b> Able to understand network communication using the layered concept, Open System Interconnect (OSI) and TCP/IP Model.	1,3	U, An, E
			<b>CO2:</b> Understand various types of transmission media, network devices; and parameters of evaluation of performance for each media and device.	1,3,4	U, R, E
			<b>CO3:</b> Understand the concept of flow control, error control and LAN protocols	1,3	E, U, R
			<b>CO4:</b> Understand the working principles of LAN and the concepts behind physical and logical addressing, subnetting and supernetting.	1,2,4	E, U, R

			<b>CO5:</b> Understand the functions performed by a Network Management System and to analyze connection establishment and congestion control with respect to TCP Protocol.	1,2,3,4	U, R, E
<b>II</b>	<b>MSIT251A</b>	<b>Java Programming Lab</b>	<b>CO1:</b> Able to implement the basic concepts such as function Overloading, array and string manipulation in Java.	1,2,4	E, U, R
			<b>CO2:</b> Use utility classes in the real time applications.	1,2,3	U, A, C
			<b>CO3:</b> Understand the types of inheritance	1,2,4	E, U, R
			<b>CO4:</b> Implement packages, manipulate threads and exception handling techniques	1,4	E, U, R
			<b>CO5:</b> Connect databases with Java	1,3,4	U, R, E
<b>II</b>	<b>MSIT251B</b>	<b>Data Structure Lab</b>	<b>CO1:</b> Understand the concept of data structures, and apply algorithm for solving problems like Sorting, searching, insertion and deletion of data through C language.	1,2	U, C, A
			<b>CO2:</b> Understand linear data structures for processing of ordered or unordered data.	1,2,4	E, U, R
			<b>CO3:</b> Implement various operations in C program on dynamic data structures like single linked list, circular linked list and doubly linked list.	1,2,3	U, A, C
			<b>CO4:</b> Explore the concept of nonlinear data structures such as trees and graphs through C programming.	1,2,4	E, U, R
<b>II</b>	<b>MSIT251C</b>	<b>Web Designing Lab</b>	<b>CO1:</b> Creating webpages using basic HTML tags	1,2,3,5	U, C, A, E, An
			<b>CO2:</b> Styling Webpages using CSS	1,2,4	E, U, R
			<b>CO3:</b> Creating dynamic web pages using Javascript	1,2,3	U, A, C
			<b>CO4:</b> Implementation of DOM objects	1,2,4,6	E, U, R
			<b>CO5:</b> Creating web pages implementing event handling, form Validation etc.	1,4, 6,7	E, U, R

<b>III</b>	<b>MSIT301</b>	<b>.Net Technologies</b>	<b>CO1:</b> Understand how to create dynamic web pages using ASP.NET.	1,2,3,5,6	U, A, C
			<b>CO2:</b> Configure an ASP.NET application using .config files.	1,2,4	E, U, R
			<b>CO3:</b> Create a user interface on an ASP.NET page using standard and advanced web server controls.	1,2,3	U, A, C
			<b>CO4:</b> Add a user control and a custom server control to an ASP.NET page.	1,2,4	E, U, R
			<b>CO5:</b> Create and enhance websites with master pages and themes.	1,2,3,5	U, C, A, E, An
			<b>CO6:</b> Identify and fix bugs in an ASP.NET application.	1,2,4	E, U, R
			<b>CO7:</b> Display dynamic data from a data source using ADO.NET and data binding.	1,2,4	E, U, R
			<b>CO8:</b> Deploy an ASP.NET application to a production web server.	1,2,3	U, A, C
<b>III</b>	<b>MSIT302</b>	<b>Python Programming</b>	<b>CO1:</b> Understand and use Python control flow statements with ease, as well as the language's basic syntax and semantics.	1,3,4,6	U, C, A, E
			<b>CO2:</b> Ability to understand of how to handle strings and functions.	1,2,4	E, U, R
			<b>CO3:</b> Learn how to use data structures like lists, dictionaries, tuples, and sets to develop and manipulate Python programs.	1,2,3,5	U, C, A, E, An
			<b>CO4:</b> Determine the regular expression and file system operations that are most frequently used.	1,2,4	E, U, R
			<b>CO5:</b> Understand the Python-specific terms for Object-Oriented Programming, such as encapsulation,	1,2,4	E, U, R
<b>III</b>	<b>MSIT303</b>	<b>PHP</b>	<b>CO1:</b> Understand the differences between Server-side and Client-Side Scripting	1,2,3,6	U, A, C
			<b>CO2:</b> Learn basic programming constructs of PHP	1,2,4	E, U, R
			<b>CO3:</b> Understand differences between get and post methods and use of superglobal variables	1,2,3	U, A, C
			<b>CO4:</b> Able to implement cookies and manage session	1,2,4,6	E,U, R



			<b>CO5:</b> Understand various functions of arrays and strings	1,2,4	E, U, R
			<b>CO6:</b> Able to understand Database handling concepts	1,2,3	U, A, C
<b>III</b>	<b>MSIT304</b>	<b>E-Commerce Application Development</b>	<b>CO1:</b> Determine the constituent elements of electronic commerce.	1,3	U, R, E
			<b>CO2:</b> Recognize the advantages of conducting online sales.	1,2,4,6	E, U, R
			<b>CO3:</b> Acquire knowledge on optimizing and ensuring safety during online selling.	1,2,4	E, U, R
			<b>CO4:</b> Develop a comprehensive e-commerce strategy tailored to your business.	1,2,4,5	E, U, R
			<b>CO5:</b> Comprehend the risks associated with cyber security in online trading and business transactions.	1,2,3,7	U, A, C
			<b>CO6:</b> Familiarize yourself with methods to safeguard your online business, including securing your accounts and being vigilant about cybercrime.	1,2,4,6	E, U, R
<b>III</b>	<b>MSIT305</b>	<b>Software Engineering and Testing</b>	<b>CO1:</b> Ability to break down a given project into multiple phases within its lifecycle.	1, 4, 6	U, R, E
			<b>CO2:</b> Select the most suitable process model based on user requirements.	1,2,4	E, U, R
			<b>CO3:</b> Demonstrate proficiency in executing diverse lifecycle activities, including analysis, design, implementation, testing, and maintenance.	1,2,3	U, A, C
			<b>CO4:</b> Acquire knowledge about the multitude of processes employed throughout each stage of product development.	1,2,4,6	E, U, R
<b>III</b>	<b>MSIT351A</b>	<b>.Net Lab</b>	<b>CO1:</b> Create a user interface on an ASP.NET page using standard and advanced web server controls.	1,2,3,5,6	A, An, C
			<b>CO2:</b> Add a user control and a custom server control to an ASP.NET page.	1,2,4,6	E, U, R
			<b>CO3:</b> Implementation of master pages and themes for enhancing websites	1, 4, 6	U, R, E

			<b>CO4:</b> Perform Database operations using ADO.NET and data binding.	1,2,4	E, U, R
			<b>CO5:</b> Deploy an ASP.NET application to a production web server.	1,2,4,6	E, U, R
<b>III</b>	<b>MSIT351B</b>	<b>Python Lab</b>	<b>CO1:</b> Understand core programming basics and program design using Python language.	1,3,4,6	A, An, C
			Understand the basic concepts of scripting and the contributions of scripting language.	1,2,4,6	E, U, R
			<b>CO2:</b> Write, Test and Debug Python Programs.	1, 4, 6	U, R, E
			<b>CO3:</b> Implement Conditionals and Loops for Python Programs.	1,2,4	E, U, R
			<b>CO4:</b> Use functions and represent Compound data using Lists, Tuples and Dictionaries.	1,2,4,6	E, U, R
			<b>CO5:</b> Understand a range of Object-Oriented Programming, as well as in-depth data and information processing techniques.	1,2,4	E, U, R
			<b>CO6:</b> Understand the high-performance programs designed to strengthen the practical expertise	1,2,4,6	E, U, R
			<b>CO7:</b> Understand the high-performance programs designed to strengthen the practical expertise	1,3,4,6	A, An, C
<b>III</b>	<b>MSIT351C</b>	<b>PHP Lab</b>	<b>CO1:</b> Learn installation of Xampp Server and execution of PHP scripts	1,2,3,6	A, An, C
			<b>CO2:</b> Implement different programming constructs of PHP	1,2,4	E, U, R
			<b>CO3:</b> Create PHP scripts for arrays and string handling	1,2,4,6	E, U, R
			<b>CO4:</b> Perform file and database handling in PHP	1,3,4,6	A, An, C
			<b>CO5:</b> Implement cookies through PHP scripts	1,2,4,6	E, U, R
			<b>CO6:</b> Manage sessions in PHP	1,2,4	E, U, R

IV	MSIT401	Data Warehousing and Data Mining	CO1: Develop an Introduction to Data Warehouse and OLAP.	1,2,4,5	E, U, R
			CO2: Understand the basic knowledge of Data Mining, KDD vs. DM, DBMS vs. DM, DM Techniques, Issues and Challenges in DM, DM Applications.	1,2,3,7	U, A, C
			CO3: Implement Association rules in Data Mining	1,2,4,6	E, U, R
			CO4: Take overview of Decision Trees.	1,2,4	E, U, R
			CO5: Develop and implement various techniques of Data mining.	1,2,4,5	E, U, R
			CO6: Develop web Data Mining software and applications.	1,2,3,7	U, A, C
IV	MSIT402	Artificial Intelligence and Expert Systems	CO1: Understanding of the concept of intelligence and how it relates to artificial intelligence (AI)	1,2,4	U, R, E
			CO2: Proficient in various search techniques used in AI, including depth-first and breadth-first search methods.	1,2,4,6	E, U, R
			CO3: Skilled in heuristic search methods such as hill climbing, best-first search, and graph search	1,2,4	E, U, R
			CO4: Acquire knowledge of various reasoning techniques used in AI and understand semantics nets, frames, conceptual dependency, scripts, and various forms of reasoning like monotonic reasoning, logical reasoning, default reasoning, and statistical reasoning.	1,2,4,6	E, U, R
			CO5: Well-versed in the concept of expert systems and their significance	1,2,4	E, U, R
IV	MSIT403	Information Protection and Security	CO1: Comprehensive understanding of the fundamental concepts in cryptography and security	4	U, R, E
			CO2: Proficient in conventional encryption algorithms, including Triple DES, Blowfish, IDEA, and RC algorithms.	1,2,4,5	E, U, R

			<b>CO3:</b> Have a strong grasp of public-key cryptography and its principles	1,2,3,7	U, A, C
			<b>CO4:</b> Understand the requirements and functions of authentication, message authentication codes, and security considerations of hash functions and MACs.	1,2,4	U, R, E
			<b>CO5:</b> Well-versed in network and system security concepts	1,2,4,5	E, U, R
<b>IV</b>	<b>MSIT404</b>	<b>Open Source Operating System</b>	<b>CO1:</b> Possess a comprehensive understanding of Linux system architecture, including the kernel and shell components.	1,2,4,5	U, R, C
			<b>CO2:</b> Grasp the concepts of process management, signal handling, and system calls.	1,2,4,5	E, U, R
			<b>CO3:</b> Able to create shell scripts, utilize control statements such as if-then-else, case-switch, loops (while, until, for), and handle variables effectively.	1,2,3,7	U, A, C
			<b>CO4:</b> Gain familiarity with various types of shells in Linux and understand the basics of the vi editor.	1,2,4	U, R, E
			<b>CO5:</b> Have a solid understanding of system administration tasks on Linux system.	1,2,4,5	E, U, R
<b>IV</b>	<b>MSIT405</b>	<b>Mobile Application Development</b>	<b>CO1:</b> Understanding of the history of mobile software development and the emergence of the Android platform.	2,3,6	U, R, E, C
			<b>CO2:</b> Proficient in comprehending the components of Android applications, including Activities, Services, and Intents.	1,2,4,5	E, U, R
			<b>CO3:</b> Identify and utilize various UI screen elements and create layouts that enhance the user experience.	1,2,3,7	U, A, C
			<b>CO4:</b> Possess the skills to work with common Android APIs related to data management and networking.	1,2,4	U, R, E
			<b>CO5:</b> Able to leverage various Android APIs to add functionality to their applications.	1,2,4,5	E, U, R

<b>IV</b>	<b>MSIT406</b>	<b>Project (Project Report/Viva)</b>	<b>CO1:</b> Apply acquired technical skills to real-world IT or CS projects effectively.	1,4,6,7	A, An, E, C
			<b>CO2:</b> Demonstrate proficiency in project planning, organization, and execution, including setting milestones	1,2,4,5	E, U, R
			<b>CO3:</b> Work collaboratively with professionals in an industrial setting, showcasing strong communication and	1,2,3,7	U, A, C
			<b>CO4:</b> Analyze complex problems, apply critical thinking skills, and develop innovative solutions in the IT or CS	1,2,4	U, R, E
			<b>CO5:</b> Gain hands-on experience in the complete software development lifecycle, from requirements gathering to	1,2,4,5	E, U, R
<b>IV</b>	<b>MSIT451A</b>	<b>Linux Lab</b>	<b>CO1:</b> Execution of basic Linux commands system	1,2,3,6	A, An, C
			<b>CO2:</b> Execution of shell programming on LINUX OS.	1,2,4,5	E, U, R
			<b>CO3:</b> Understand and handle UNIX system calls.	1,2,3,7	U, A, C
			<b>CO4:</b> Execution of C / C++ programs on LINUX.	1,2,4	U, R, E
<b>IV</b>	<b>MSIT451B</b>	<b>Mobile Application Lab</b>	<b>CO1:</b> Develop mobile applications using GUI and Layouts.	1,2,3,6	A, An, C
			<b>CO2:</b> Develop mobile applications using Event Listener, Databases.	1,2,4,5	E, U, R
			<b>CO3:</b> Analyze and discover own mobile app for simple needs.	1,2,3,7	U, A, C

## M. Sc. Botany (PSO's)

<b>PSO 1</b>	Develop a conceptual understanding of principles and importance of Botany. Students would be benefited with knowledge of core subjects like plant diversity, physiology and biochemistry, molecular cytogenetic and application of statistics etc. which are offered in these subjects Modules on analytical techniques, plant tissue culture and photochemistry would make them obtain skills that help in doing research.
<b>PSO 2</b>	Learn about practical technique in lab for detail study of plant cell structure, reproduction, anatomy, breeding procedures for hybridization. Maintain a high level of scientific excellence in botanical research with specific emphasis on the role of plants. Create, select and apply appropriate techniques, resources and modern technology in multidisciplinary way. Practice of subject with knowledge to design experiments, analyze and interpret data to reach to an effective conclusion
<b>PSO 3</b>	They would identify, formulate and analyze the complex problems with reaching a substantiated conclusion. Logical thinking with application of biological, physical and chemical sciences. Learning that develops analytical and integrative problem-solving approaches.
<b>PSO 4</b>	Students would perform functions that demand higher competence in national/international organizations with sporty and helping spirits. Prepare the students for many competitive exams like RPSC, UPSC NET SET GATE
<b>PSO 5</b>	Best problem-solving skills in students would encourage them to carry out, experiments and innovative research projects thereby making them to use knowledge creation in depth.
<b>PSO 6</b>	Prepare the students for many competitive exams like RPSC, UPSC NET SET GATE

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MSBO101	Cell Biology and Evolution	CO1: Course provide knowledge of structural organization and function of Organelles, Cell division and cell cycle	1,2,6	U, R
			CO2: Elucidate the significance of compartmentalization and signaling in cellular biology	1,2,4,6	U, R
			CO3: Cell signaling hormones and their receptors, Cellular communication, Mechanism of apoptosis (Programmed Cell Death), Paleontology and Evolution, History and concepts of Population Genetics.	1,2,4,6	U, R
			CO4: Paleontology and Evolution, History and concepts of Population Genetics.	1,2,6	U, R
I	MSBO102	Morphology and Diversity of Non vascular Plants	CO1: Students will gain understanding of morphology of thallus structure, reproduction and economic importance of algae.	1,2,	U, R
			CO2: Students will gain understanding of the classification, cell structure, reproduction of fungal species and evolutionary tendencies among them. The characters, distribution, classification and reproduction in Bryophytes.T	1,2	U, R
			CO3: They will know economic importance of fungi. Student will also know and learn classification and phylogenetic relationship in fungi.	1,2	U, R
			CO4: The characters, distribution, classification and reproduction in Bryophytes. The characteristics of different orders in reference to different genera Bryophytes.	1,2	U, R

<b>I</b>	<b>MSBO103</b>	<b>Biology Diversity and of Microbes</b>	<b>CO1:</b> To study diversity of microorganisms, Students will be able to understand the structure, type and identification of Bacteria cell structure and function. Comprehend the Bacterial Microbial Genetics and Recombination.	1,2,4	U, R
			<b>CO2:</b> Understand the microbial growth and metabolism, and the ways to control their growth by physical and chemical means.	1,2,4	U, R
			<b>CO3:</b> Students will be able to understand the structure, type and identification of Virus, Mycoplasma and cyanobacteria	1,2,4	U, R
			<b>CO4:</b> Students will be able to understand the microbial Technology, food microbiology, environmental microbiology and Immunology.	1,2,4	U, R, A
<b>I</b>	<b>MSBO104</b>	<b>Plant Ecology and Environment</b>	<b>CO1:</b> Students will be able to understand the structure and function of ecosystem Characteristics of community, succession and mechanism of succession. Biodiversity conservation, its policies, act and conservation strategies.	1,2,4	U, R
			<b>CO2:</b> Concept of Homeo stasis and cybernetics. Population characteristics, dynamics, species interaction ,	1,2,4	U, R
			<b>CO3:</b> concept of community, Characteristics of community, succession and mechanism of succession.	1,2,4	U, R
			<b>CO4:</b> Biodiversity conservation, its policies, act and conservation strategies.	1,2,4	U, R
<b>I</b>	<b>MSBO151</b>	<b>Botany Practical I</b>	Practicals related to Theory-I & II	5	U, A, E
<b>I</b>	<b>MSBO152</b>	<b>Botany Practical II</b>	Practicals related to Theory-III & IV	5	U, A, E



<b>II</b>	<b>MSBO201</b>	<b>Genetics and Plant Breeding</b>	<b>CO1:</b> Understanding of the history of gene from something,"factor"; and gene and one gene one enzyme one characters hypothesis. Student will also know the interaction of gene, genetic recombination. Understanding of the structure of chromosome and how the packaging of DNA occurs.	1,2,4,6	U, R
			<b>CO2:</b> Student will also know the interaction of gene, genetic recombination. Understanding of the structure of chromosome and how the packaging of DNA occurs.	1,2,4,5,6	U, R
			<b>CO3:</b> Student can differentiate Euchromatin and heterochromatin region of chromosome on the basis of staining properties. Student can draw a good karyotype and Idiograms of Karyotype, and also how the evolution of Karyotype takes place. Understanding of the different structural and numerical changes why? And how?	1,2,4,5,6	U, R
			<b>CO4:</b> Understanding the role and process of mutation and different mutagenic agent which brings about mutation in the organism and molecular cytogenetics. Students will also understand the role of mutation in crop improvement with plant breeding methods.	1,2,4,5,6	U, R, A
<b>II</b>	<b>MSBO202</b>	<b>Morphology and Diversity of Vascular Plants</b>	<b>CO1:</b> Students understand morphology, anatomy and life cycle of Pteridophytes with special reference to Genera different classes. Students understand various extinct members of different orders.Students can critically differentiate fossil and living fossil.Students will also understand the evolutionary tendencies and comparative morphology of Cycadales, Cycadeodales and Pteridospermales. Students can compare the characters of different orders &relationship of each order from Cordaitales to Gnetales.. Student can critically differentiate the characters of three orders of Gymnosperm i.e., Ginkogales, Coniferales, and Taxales.	1,2	U, R

			<b>CO2:</b> Students understand morphology, anatomy and life cycle of Gymnosperm with special reference to Genera of different classes.	1,2	U, R
			<b>CO3:</b> To understand various extinct members of different orders. Students can critically differentiate fossil and living fossil. Students will also understand the evolutionary tendencies.	1,2	U, R
			<b>CO4:</b> Comparative morphology, anatomy and life cycle of Cycadales, Cycadeodales Pteridospermales, Ginkogales, Coniferales, and Taxales.	1,2	U, R
<b>II</b>	<b>MSBO203</b>	<b>Phytopathology</b>	<b>CO1:</b> Course provide knowledge about mechanism of infection and defence mechanism,	1,2	U, R
			<b>CO2:</b> symptomology, toxins and enzyme secreted by plants	1,2	U, R
			<b>CO3:</b> Students gain knowledge about some disease caused by different Pathogens.	1,2	U, R
			<b>CO4:</b> Factors affecting diseases	1	U, R
<b>II</b>	<b>MSBO204</b>	<b>Plant Physiology and Metabolism</b>	<b>CO1:</b> Understanding of water relations, transport of minerals, their role, transport of ion, transpiration and closing and opening of stomata. Course gain knowledge of Biochemistry of primary and secondary metabolites viz. carbohydrate, fat, protein. Detail mechanism of Respiration and photosynthesis Physiology of growth, growth hormones their role, physiology of flowering, vernalisation and senescence.	1,2,3,5,6	U, R
			<b>CO2:</b> Course gain knowledge of Biochemistry of primary and secondary metabolites viz. carbohydrate, fat, protein.	1,2,3,5,6	U, R, A, E
			<b>CO3:</b> Mechanism of Respiration and photosynthesis	1,2,3,5,6	U, R

			<b>CO4:</b> Physiology of growth, growth hormones their role, physiology of flowering, vernalisation and senescence.	1,2,3,5,6	U, R, A, E
<b>II</b>	<b>MSBO251</b>	<b>Botany Practical I</b>	Practical related to theory I&II	5	U, R, A, E
<b>II</b>	<b>MSBO252</b>	<b>Botany Practical II</b>	Practical related to theory III &IV	5	U, R, A, E
<b>III</b>	<b>MSBO301</b>	<b>Molecular Biology</b>	<b>CO1:</b> the students will be able to: develop an understanding of key events of molecular biology comprising of Mechanism of DNA Replication,	1,2,4,6	U, R, A, E
			<b>CO2:</b> Transcription and Translation in Prokaryotes and Eukaryotes.	1,2,4,6	U, R, A, E
			<b>CO3:</b> Regulation of gene expression in Prokaryotes and Eukaryotes	1,2,4,6	U, R, A, E
			<b>CO4:</b> Regulation of gene expression in Prokaryotes and Eukaryotes	1,2,4,6	U, R, A, E
<b>III</b>	<b>MSBO302</b>	<b>Taxonomy of Angiosperms</b>	<b>CO1:</b> Course is best in understanding biosystematics methods, concept of species, genera, family, Taxonomic hierarchy.	1	U, R
			<b>CO2:</b> Taxonomic Evidence	1	U, R
			<b>CO3:</b> ICBN, Latest systems of Classifications	1	U, R
			<b>CO4:</b> Distinguishing characters of families of major classes of Dicot and Monocot and theories of origin of angiosperms	1	U, R
<b>III</b>	<b>MSBO303</b>	<b>Morphology and Developmental Anatomy of Angiosperms</b>	<b>CO1:</b> Student understands various theories of SAM and RAM, development of primary and secondary tissues of root, stem, leaf and flower with their genetics and primary & secondary abnormalities.	1,2	U, R
			<b>CO2:</b> Development of primary and secondary tissues of root ,stem, leaf	1,2	U, R

			<b>CO3:</b> Development of flower	1,2	U, R
			<b>CO4:</b> Genetics and primary & secondary abnormalities.	1,2	U, R
<b>III</b>	<b>MSBO304A</b>	<b>Advance Plant Pathology -I</b>	<b>CO1:</b> Course provides detail knowledge of Plant disease caused by different pathogen with their disease cycles.	1,5	U, R
			<b>CO2:</b> Bacterial disease	1,5	U, R
			<b>CO3:</b> Viral disease	1,5	U, R
			<b>CO4:</b> Nematodes disease	1,5	U, R
<b>III</b>	<b>MSBO304B</b>	<b>Seed Science and Technology -I</b>	<b>CO1:</b> Gross architecture of seed structure of angiosperms, identification and structure of seeds of important crop plants and with special reference to Rajasthan, seed testing	1,4,5	U, R
			<b>CO2:</b> Seed testing, seed germination and seed certification standards and quarantine regulations.	1,4,5	U, R
			<b>CO3:</b> International cooperation, International Seed Testing Association	1,4,5	U, R
			<b>CO4:</b> rules and recommendations.	1,4,5	U, R
<b>III</b>	<b>MSBO351</b>	<b>Botany Practical-I</b>	Practical related to Theory I&II	5	U, R, A, E
<b>III</b>	<b>MSBO352</b>	<b>Botany Practical-II</b>	Practicals related to Theory III&IV	5	U, R, A, E
<b>IV</b>	<b>MSBO401</b>	<b>Embryology of Angiosperms</b>	<b>CO1:</b> Student gain knowledge of structure and development of Microspore,male gametophytes	1,2	U, R
			<b>CO2:</b> Student gain knowledge of structure and development of megaspore, female gametophytes, types of embryo sac and abnormalities.	1,2	U, R
			<b>CO3:</b> Mode of pollination ,self incompatibility, barrier of fertilisation, types of embryo and endosperm,	1,2	U, R

			<b>CO4:</b> Apomixisi, parthenocarpy and poly embryony in detail.	1,2	U, R
<b>IV</b>	<b>MSBO402</b>	<b>Plant Resource Utilisation and Ethnobotany</b>	<b>CO1:</b> Course is better in understanding primary centre and secondary centre of origin of cultivated crops, and wild crops, Conservation:-In -situ and Ex -situ, National and International organisations of Conservation.Course provide brief account of ethnobotany.	1,2	U, R
			<b>CO2:</b> Economic botany of cereal food, fodder, spice and condiments, fibres, essential oil. Dyes and pigments, gum and resin	1,2,4,5	U, R
			<b>CO3:</b> Economic botany of non wood and wood ,bamboo, rattans and medicinal plants Processing of beverages, Rubber, sugarcane etc.	1,2,4,5	U, R
			<b>CO4:</b> Conservation:-In -situ and Ex -situ, National and International organisations of Conservation. Course provides brief account of ethnobotany.	1,2,4,5	U, R
<b>IV</b>	<b>MSBO403</b>	<b>Plant Biotechnology and Genetic Engineering</b>	<b>CO1:</b> Student understand tissue culture in detail, molecular farming of carbohydrates, fat and proteins and basic of bioinformatics.	1,2,3,4,5,6	U, R, A
			<b>CO2:</b> metabolic engineering and industrial products Technique of plant transformation,	1,2,3,4,5,6	U, R, A
			<b>CO3:</b> molecular farming of carbohydrates, fat and proteins	1,2,3,4,5	U, R, A
			<b>CO4:</b> Basic of bioinformatics.	1,2,3,4,5,6	U, R, A
<b>IV</b>	<b>MSBO403A</b>	<b>Advance Plant Pathology II</b>	<b>CO1:</b> Course is best to understand -Plant disease epidemiology and plant disease forecasting	1,5	U, R, A
			<b>CO2:</b> Disease management	1,5	U, R, A
			<b>CO3:</b> Breeding for disease resistance	1,5	U, R, A

			<b>CO4:</b> Molecular pathology	1,5	U, R, A
<b>IV</b>	<b>MSBO403B</b>	<b>Seed Science and Technology II</b>	<b>CO1:</b> course is best in understanding seed borne diseases	1,4,5	U, R
			<b>CO2:</b> seed pathology in Viral disease	1,4,5	U, R
			<b>CO3:</b> Seed pathology of Bacterial disease	1,4,5	U, R
			<b>CO4:</b> seed pathology of Nematodal and mycoplasma diseases	1,4,5	U, R
	<b>MSBO451</b>	<b>Botany Practical-I</b>	Practicals related to Theory I&II	5	U, R, A, E
	<b>MSBO452</b>	<b>Botany Practical-II</b>	Practicals Related to Theory III&IV	5	U, R, A, E

## M. Sc. Biotechnology (PSO's)

<b>PSO 1</b>	Develop a foundational understanding of basic biological principles, genetics, microbiology, biochemistry, molecular biology, and cell biology, as they relate to biotechnology.
<b>PSO 2</b>	Acquire practical laboratory skills in techniques commonly used in biotechnological research and applications, including DNA isolation and manipulation, protein purification, cell culture, and microbial techniques.
<b>PSO 3</b>	Gain proficiency in applying biotechnological tools and methodologies to solve problems in various fields such as agriculture, medicine, pharmaceuticals, environmental science, and industrial biotechnology.
<b>PSO 4</b>	Develop the ability to critically analyze scientific literature, experimental data, and biological systems to solve complex problems and make informed decisions in biotechnological research and industry.
<b>PSO 5</b>	Understand the principles of bioinformatics and utilize bioinformatics tools and databases to analyze biological data, predict protein structures, annotate genomes, and conduct sequence analysis.
<b>PSO 6</b>	Appreciate the ethical, legal, and societal implications of biotechnological advancements and adhere to ethical standards and regulatory guidelines in research and applications.
<b>PSO 7</b>	Demonstrate effective communication skills through written reports, oral presentations, and scientific discourse, to convey ideas, research findings, and conclusions to diverse audiences.
<b>PSO 8</b>	Work effectively as part of interdisciplinary teams, collaborate with peers, mentors, and professionals from diverse backgrounds, and contribute positively to group projects and research endeavors.
<b>PSO 9</b>	Develop a lifelong learning mindset, stay updated with advancements in biotechnology, engage in professional development activities, and pursue further education or careers in academia, industry, healthcare, or entrepreneurship.
<b>PSO 10</b>	Students will be able to develop aptitude for formulating research problem and experimental planning, data collection and statistical planning.

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MSBT101	Cell Biology	CO1: At the end of this course students are able to sensitize the fact that as we go down the scale of magnitude from cells to organelles to molecules, the understanding of various biological processes.	1,3,4	U, An, R
I	MSBT102	Genetics	CO1: Students can understand about Organization and measure of genetic variation and the understanding history of Classical and Modern Genetics.	1,2,3,5	U, An, R
I	MSBT103	Microbiology	CO1: After successful completion of this course, the students are expected to: Understand the basics of microbial culture preservation techniques etc. Know the concepts of inoculum development and media sterilization for fermentation process.	1,2,6	U, R, C
I	MSBT104A	Analytical Techniques	CO1: Students will understand the theory and principles of various instruments used in the Biotechnology laboratory.	1,2,3,5	U, An, C
I	MSBT151	Practical Based on Paper I, II	CO1: Gain a comprehensive understanding of fundamental laboratory techniques commonly used in biotechnology research and industry, including DNA extraction, PCR, gel electrophoresis, and recombinant DNA technology.	1,2,3,4,5,6,10	U, An, R
			CO2: Acquire practical skills through hands-on experience in performing various biotechnology experiments, including proper handling of equipment, reagents, and biological samples.	1,2,3,4,5,6,7,8	U, An, R
I	MSBT152	Practical Based on Paper III, IV	CO1: Develop proficiency in designing experiments by selecting appropriate techniques, optimizing reaction conditions, and troubleshooting experimental challenges to achieve desired outcomes.	1,2,3,4,5,6	U, An, R



			<b>CO2:</b> Learn to analyze experimental data generated from biotechnology experiments, including quantification of DNA/RNA samples, interpretation of gel electrophoresis results, and evaluation of PCR amplification efficiency.	1,2,3,4,5,6	U, An, R
<b>II</b>	<b>MSBT201</b>	<b>Molecular Biology</b>	<b>CO1:</b> Students would be able understand of key events of molecular biology comprising of mechanism of DNA Replication, Transcription, Translation and gene regulation in Eukaryotes.	1,2,5,6	U, R, A
<b>II</b>	<b>MSBT202</b>	<b>Enzymology</b>	<b>CO1:</b> Students will enhance the knowledge of biochemical principles with specific emphasis on Enzyme working and regulation.	1,2,3,8	U, R, A
<b>II</b>	<b>MSBT203</b>	<b>Immunology</b>	<b>CO1:</b> Students would be able to identify, access, and visualize immune system proteins playing key roles in innate and acquired immunity and describe how the structures of immune system molecules facilitate their functions.	1,2 3,8	An, U, R, A
<b>II</b>	<b>MSBT204A</b>	<b>Theory Elective-I (Virology)</b>	<b>CO1:</b> Students would be able distinguish characteristics of normal cells and virus-infected cells. Students would be able explain and apply methods used in research and diagnosis of viral diseases.	1,2,5,6	U, R, A
<b>II</b>	<b>MSBT251</b>	<b>Practical Based on Paper I, II</b>	<b>CO1:</b> Develop critical thinking skills by analyzing experimental data, identifying potential sources of error, and devising strategies to overcome challenges encountered during experimental procedures.	1,2,3,4,5,6	U, An, R
<b>II</b>	<b>MSBT252</b>	<b>Practical Based on Paper III, IV</b>	<b>CO1:</b> Bridge theoretical knowledge with practical applications by understanding the underlying principles behind biotechnology techniques and applying them to real-world research questions and problems.	1,2,3,4,5,6	U, An, R
<b>III</b>	<b>MSBT301</b>	<b>Genetic Engineering &amp; System Biology</b>	<b>CO1:</b> Students will understand the 'genetic engineering' explain the process of gene manipulation to produces GM food and applications of genetic engineering.	1,2,3,5	U, A, C
<b>III</b>	<b>MSBT302</b>	<b>Animal Biotechnology</b>	<b>CO1:</b> Student will learn that how explain and apply methods in Animal Cell/Tissue Culture, and how antibodies and vaccines will produce.	1,2,3,6,8	An, A, C

III	MSBT303	Seminar & Presentation	CO1: Students will be able to learn Searching and reviewing scientific articles and will get knowledge about the Art of scientific presentations. PowerPoint presentations. Student will also have gained insight on Making Posters. Presenting a poster in record time, understand scientific texts in science.	3,4,8	U, A, C
III	MSBT304A	Theory Elective-I (Bioinformatics and Biostatistics)	CO1: Students will get introduced to the basic concepts of Bioinformatics and its significance in Biological data analysis and Explain about the methods to characterize and manage the different types of Biological data.	2,3,8	An, U, A, C
III	MSBT351	Practical Based on Paper I, II	CO1: Gain a comprehensive understanding of fundamental laboratory techniques commonly used in biotechnology research and industry, including DNA extraction, PCR, gel electrophoresis, and recombinant DNA technology.	1,2,3,4,5,6	U, An, R
III	MSBT352	Practical Based on Paper III, IV	CO1: Acquire practical skills through hands-on experience in performing various biotechnology experiments, including proper handling of equipment, reagents, and biological samples.	1,2,3,4,5,6	U, An, R
IV	MSBT401	Plant Biotechnology	CO1: Students will understand of the basic principles of the plant sciences and molecular biology, as well as the integration of these disciplines, to provide healthy plants in a safe environment for food, non-food, feed and health applications.	1,3,6,8	U, A, C
IV	MSBT402	IPR and Bioethics	CO1: Students would be able to understand about the ethical and safety concerns in the Biotechnology field with respect to Global and Indian standards and to highlight the current trends and issues of intellectual property rights.	1,5,6,8	R, A, C
IV	MSBT403	Dissertation and Industrial training	CO1: Students will be able to understand the knowledge of biotechnology and identify, formulate, review research literature, and analyze complex genetic engineering problems reaching substantiated conclusions using first principles of biotechnology, natural sciences, and plant and animal sciences. Students will use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and Synthesis of the information to provide valid conclusions.	3,4	U, A, C

IV	PGBT404A	Theory Elective-I (Bio-processing and Engineering)	CO1: Students will get the strong foundation in the areas of food engineering, post-harvest practices and value addition of food materials.	2,5,6	U, A, C
IV	MSBT451	Practical Based on Paper I, II	CO1: Gain a comprehensive understanding of fundamental laboratory techniques commonly used in biotechnology research and industry, including DNA extraction, PCR, gel electrophoresis, and recombinant DNA technology.	1,2,3,4,5,6	U, An, R
			CO2: Acquire practical skills through hands-on experience in performing various biotechnology experiments, including proper handling of equipment, reagents, and biological samples.	1,2,3,4,5,6	U, An, R
IV	MSBT452	Practical Based on Paper III, IV	CO1: Develop proficiency in designing experiments by selecting appropriate techniques, optimizing reaction conditions, and troubleshooting experimental challenges to achieve desired outcomes.	1,2,3,4,5,6	U, An, R
			CO2: Learn to analyze experimental data generated from biotechnology experiments, including quantification of DNA/RNA samples, interpretation of gel electrophoresis results, and evaluation of PCR amplification efficiency.	1,2,3,4,5,6	U, An, R

## M. Sc. Microbiology (PSO's)

<b>PSO 1</b>	Knowledge of broad microbiology, molecular biology, and biochemical techniques- both theoretical and practical- is the foundation for developing scientific understanding and insight into the field.
<b>PSO 2</b>	To prepare students for future career opportunities in academia, industry, and research by exposing them to the topic of microbiology and other related life science courses.
<b>PSO 3</b>	With an emphasis on improving environmental sustainability and human health, knowledge of the cytology, biochemistry, growth, and role of microorganisms in geochemical processes, as well as applications of ecologically and industrially important microorganisms, is gained.
<b>PSO 4</b>	Explain and evaluate the fundamental ideas and theories of microbiology and related fields (biostatistics, genetic engineering, immunology, biochemistry, medical microbiology, molecular biology, and medical systematics).
<b>PSO 5</b>	Use the fundamental ideas and concepts of the life sciences to address contemporary scientific and societal problems in important domains like plant disease management, transgenic animals, agriculture, the environment, and human health.
<b>PSO 6</b>	Solve scientific and technological difficulties by demonstrating your knowledge and comprehension of microbiological issues.
<b>PSO 7</b>	Organise and create methodical research projects in the fields of microbiology and related sciences, incorporating the knowledge and abilities required to gather, analyse, and interpret data and make sense of the results.
<b>PSO 8</b>	The programme places a strong emphasis on applying knowledge gained about the cellular processes of prokaryotic and eukaryotic organisms, the interactions between microorganisms, physical and chemical agents, higher order species in the environment, and biological systems under varied conditions.
<b>PSO 9</b>	In addition to theory, laboratory training is provided so that students can gain the necessary skills for a variety of careers in public administration, teaching, research, industry, and consulting, as well as for graduate-level study.
<b>PSO 10</b>	Encourages the use of scientific methods and a research mindset in the creation of ecologically sustainable bioproducts by utilising statistical methods suitable for the biological sciences.

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MSMB101	General Microbiology	CO1: Students will be able to understand the evolution, diversity, and history of the microbial world and fundamental properties of microorganisms for classical and molecular characterization using current methods.	1,2	R, U
			CO2: Understanding the fundamentals of microbial structure, as well as the similarities and differences between different types of microorganisms, such as bacteria, archaea, cyanobacteria, algae, fungi, and protozoans.	1,2	R, U
I	MSMB102	Bioinstrumentation and Microbial Techniques	CO1: In-depth knowledge of the microbiological techniques like microscopy, staining and microbial characterization by morphological, biochemical and molecular characters.	1,2	R, U
			CO2: Principles and instrumentation of centrifugation, chromatography, spectroscopy and electrophoresis	1,2,3,4	R, U
I	MSMB103	Microbial Biochemistry and Physiology	CO1: Conceptual knowledge of proteins, lipids, carbohydrates etc., Learn about microbe nutrition uptake and the numerous mechanisms utilised to transfer ions and chemicals in microbial cells. Understand microbial photosynthesis, aerobic, anaerobic, and fermentation respiration.	1,2,3,4	R, U
			CO2: Understand the fundamentals of microbial enzymology, such as the nature of enzymes, their nomenclature, working mechanism, classification based on action. Learn about the various parameters that influence enzyme activity.	1,2,3	R, U
I	MSMB104	Food and Dairy Microbiology	CO1: Understand the concepts of fermented foods, food deterioration, and foodborne infections. Learn about various food preservation options.	1,2,3	R, U

			<b>CO2:</b> Understand the concepts of popular milk products, milk examination, and spoiling and the usage and manufacturing of probiotics, prebiotics, and synbiotics, as well as the development and quality evaluation of starter cultures and fermented milk products.	1,2,6,7,8,9	R, U, A, An, E, C
<b>I</b>	<b>MSMB151</b>	<b>Microbiology Practical-I Based on Theory</b>	<b>CO1:</b> Able to describe isolation and enumeration of microorganisms from various samples. Able to prepare different types of growth media for microorganism both solid and broth medium. And their sterilization.	1,2,6,7,8,9	R, U, A, An, E, C
			<b>CO2:</b> Explain the procedure of pure culture preparation and different types of plating and streaking techniques. Deliver knowledge on microbial identification methods.	1, 6,7,8,9	R, U, A, An, E, C
			<b>CO3:</b> Understand various forms of microbes such as fungi, algae, protozoa etc by staining methods.	1, 6,7,8,9	R, U, A, An, E, C
			<b>CO4:</b> Understand chromatography and electrophoresis techniques and its usage in microbial application	1, 6,7,8,9	R, U, A, An, E, C
<b>I</b>	<b>MSMB152</b>	<b>Microbiology Practical-II Based on Theory</b>	<b>CO1:</b> Comprehend the major spectrophotometric and titrimetric approaches of quantification of biomolecules	1,2,3	R, U
			<b>CO2:</b> Understand the effects of UV, pH, temperature, disinfectants, and chemicals on microbial growth and their enzymes.	1,2,6,7,8,9	R, U, A, An, E, C
			<b>CO3:</b> Understand the concept of pH and buffers in biological system.	1,2,3	R, U
			<b>CO4:</b> Microbial techniques for isolation of pure cultures of microbes from milk and different types of food.	1,2,6,7,8,9	R, U, A, An, E, C
<b>II</b>	<b>MSMB201</b>	<b>Bacteriology</b>	<b>CO1:</b> Describe the features of bacterial cells, cell organelles, the structure of the cell wall, and different appendages such capsules, flagella, and pili. Differentiate bacteria into categories like Archaea, Cyanobacteria, Magnetotactic Bacteria, Bioluminescent Bacteria, Chemolithotrophic Bacteria, etc., based on their distinguishing traits.	1,2,3,4,8	R, U, A, An, E, C

			<b>CO2:</b> Describe the nutritional needs of bacteria for growth; gain knowledge of how bacteria reproduce and their economic significance.	1,2,3,4,8,9	R, U, A, An, E, C
<b>II</b>	<b>MSMB202</b>	<b>Molecular Biology and Microbial Genetics</b>	<b>CO1:</b> Students will have an overall understanding of the replication, transcription, and translation processes in prokaryotes and eukaryotes. They will study prokaryotic regulation of gene expression.	1,2	R,U
			<b>CO2:</b> Understanding of the transformation, transduction, and conjugation and are able to define various plasmid or extra chromosomal element types as well as the characteristics of transposable elements and about concepts of mutation.	1,2,3	R,U
<b>II</b>	<b>MSMB203</b>	<b>Microbial Ecology</b>	<b>CO1:</b> Understand the fundamental ideas behind microbial ecology, including biotic and abiotic influences, positive and negative microbial interactions, etc.	1,2	R,U
			<b>CO2:</b> Microbes involved and biochemical mechanisms of Carbon, Nitrogen, Phosphorus cycles etc. and to learn about the variety of microorganisms and their quantity, distribution, and importance in the ecology.	1,2,3,4,8,9	R, U, A, An, E, C
<b>II</b>	<b>MSMB204</b>	<b>Medical Microbiology</b>	<b>CO1:</b> Developed a thorough understanding of common bacterial, viral, and fungal diseases.	1,2,3	R, U
			<b>CO2:</b> Understood the basic and general concepts of causation of disease by the pathogenic microorganisms.	1,2	R, U
			<b>CO3:</b> To learn the epidemiology and pathogenesis, lab diagnosis and treatment of different infectious microbes.	1,2	R, U
<b>II</b>	<b>MSMB251</b>	<b>Microbiology Practical -I Based on Theory</b>	<b>CO1:</b> Understand various techniques of preservation of microbial cultures.	1, 2	R, U
			<b>CO2:</b> Able to quantify and measure bacterial cell	1, 2,5,6,8,9	R, U, A, An
			<b>CO3:</b> Understand different gene transfer techniques and methods in microorganisms	1, 2	R, U

			<b>CO4:</b> Capable of performing basic techniques of Molecular biology techniques	1, 2,5,6,8,9	R, U, A, An
<b>II</b>	<b>MSMB252</b>	<b>Microbiology Practical -II Based on Theory</b>	<b>CO1:</b> Learning methods for antimicrobial susceptibility testing	1, 2,3,4	R, U
			<b>CO2:</b> Understand soil properties and soil microbes interactions.	1, 2,3,4	R, U
			<b>CO3:</b> Isolation of microbes from rhizosphere, rhizoplane and roots of legumes	1, 2,5,6,7,8,9	R, U, A, An, E, C
			<b>CO4:</b> Able to identify bacteria using laboratory strains by their cultural, morphological and biochemical characteristics	6,7,8	A, An, E, C
			<b>CO5:</b> Gain knowledge of rules and regulation of pathological laboratories and methods of sample collection.	1,2,4,5,6	R, U, A, An, E, C
<b>III</b>	<b>MSMB301</b>	<b>Virology</b>	<b>CO1:</b> Students can learn about virus structure, nucleic acid, replication capsid symmetry, isolation, and cultivation.	1,2,4,5,6	R, U, A, An, E, C
			<b>CO2:</b> Understanding about the biology of bacteriophages and gained knowledge of some common plant and animal diseases caused by different viruses, viruse transmission and control.	1,2,3,4	R, U
			<b>CO3:</b> Understand about the viral diagnosis techniques	1,2,3,4	R, U
<b>III</b>	<b>MSMB302</b>	<b>Environmental and Agricultural Microbiology</b>	<b>CO1:</b> Developed a thorough grasp of the diverse roles of microorganisms in soil, when combined with plants, and hence in agriculture. Students will gain advanced knowledge on Waste Management treatment and to make students aware of the negative consequences of cultural heritage paper, leather, wood, textile etc.	1,2,3,4	R, U



			<b>CO2:</b> Completion of the course will give an overview of relevant use of microbial biofertilizers and biopesticides and sustainably minimize damage from pests or increase agricultural productivity and production.	1,2,4,5,6,8,9	R, U, A, An, E, C
<b>III</b>	<b>MSMB303</b>	<b>Genetic Engineering</b>	<b>CO1:</b> Will be familiar with the use of various cloning vectors, and methods of DNA, RNA and protein analysis and about the methods on gene transfer and screening of recombinants.	1,2,3,4	R, U
			<b>CO2:</b> Understand the principles and applications of advanced molecular technique.	1,2,3,4	R, U
<b>III</b>	<b>MSMB304</b>	<b>Pharmaceutical Microbiology</b>	<b>CO1:</b> Get hands-on knowledge of disinfection, sterilization, microbial assays, pharmacopoeia standards and antimicrobial agents with an overview of Microbial production and Spoilage of Pharmaceutical Products.	1,2,4,5,6	R, U, A, An, E, C
			<b>CO2:</b> Will have knowledge about Regulatory practices and applications in Pharmaceuticals and Antimicrobial chemotherapeutic Agents.	1,2,3,4	R, U
<b>III</b>	<b>MSMB351</b>	<b>Microbiology Practical -I Based on Theory</b>	<b>CO1:</b> Understand various types of plant viruses, animal viruses and bacteriophages and diseases caused by them	1,2,3,4	R, U
			<b>CO2:</b> Analyse Physico- chemical parameters of soil and wastewater	1,2,3,4,5,6	R, U, A, An, E
			<b>CO3:</b> Assessment of quality of water by coliform test	1,2,3,4,5,6	R, U, A, An, E
<b>III</b>	<b>MSMB352</b>	<b>Microbiology Practical -II Based on Theory/ Project/Synopsis</b>	<b>CO1:</b> Perform various techniques of recombinant DNA technology	1,2,3,4,5,6	R, U, A, An, E
			<b>CO2:</b> Determination of minimum inhibitory concentrations (MICs) of antimicrobial agents.	3,4,5,6	R, U, A, An, E, C
			<b>CO3:</b> Perform biostatistical analysis of biological data	1,2,4,5,6,7,8,9	R, U, A, An, E, C
			<b>CO4:</b> Understand various industrial applications of fungi and their products.	1,2,4,5,6	R, U, A, An, E, C

IV	MSMB401	Immunology	CO1: Learn about the source and method of infection. antigens, antibodies and their functions in the immune system, learn about the range of antibodies.	1,2,4	R, U
			CO2: Conceptualized the protective mechanisms underlying the immune system and its response to pathogenic microorganisms with theoretical knowledge of various diseased conditions generated due to interplay of immune system components.	1,2,4,5	R, U, A, An
IV	MSMB402	Industrial Microbiology	CO1: Students will learn about down-stream processing, solid-state and liquid-state fermentation, and other areas of industrial microbiology.	1,2,3,4	R, U
			CO2: Have acquired a detailed knowledge of number of products which are produced by industrial fermentation processes.	1,2,3,4	R, U
			CO3: Formulating immobilization techniques, benefits and applications, and extensive enzyme immobilisation applications.	2,5,6,7	R, U, A, An, E, C
IV	MSMB403A	Bioethics, Biosafety and IPR	CO1: Have knowledge pertaining to Intellectual Property Rights and their protection.	1,2,3,4	R, U
			CO2: Create a scientific mindset in students to help them become critical thinkers and curious about the purpose, operation and future of commercial microbiology.	2,5,6,7,9	R, U, A, An, E, C
IV	MSMB403B	Clinical Microbiology	CO1: Gather information as to how the infectious diseases may be diagnosed using newer diagnostic tools and what automated equipment are available for use in diagnostic microbiology laboratories.	1,2,3,4	R,U
			CO2: Methods of prevention and control- isolation of patients, quarantine and incubation period of various infectious diseases.	1,2,4,5,6,7	R, U, A, An, E, C

IV	MSMB403C	Bioinformatics and Nanotechnology	CO1: Understanding and uses of the common and essential bioinformatics tools.	2,5,6,7	R, U, A, An, E, C
			CO2: The student will be able to use fundamental biological, mathematical, and computer science ideas to solve complicated biological problems.	2,5,6,7	R, U, A, An, E, C
			CO3: The students have the basics of nanotechnology and their applications in various fields	1,2,3,4	R, U
IV	MSMB451	Microbiology Practical -I Based on Theory	CO1: Understand different types of antigen-antibody interaction with special methods in immunology	1,2,4	R, U
			CO2: To provide hands-on experience to basic immunological techniques for determination of microorganisms in biological fluids and other samples.	1,2,4,5,6,8,9	R, U, A, An, E, C
			CO3: Production of various industrially important microbial products	1,2,4,5,6,8,9,10	R, U, A, An, E, C
IV	MSMB452	Microbiology Practical -II Based on Theory/Project/Synopsis	CO1: know about IPR and its applications. Safety measures in microbiology laboratory	1,2,4,5,6,8,9	R, U, A, An, E, C
			CO2: various techniques in clinical microbiology	1,2,4,5,6,8,9	R, U, A, An, E, C
			CO3: Sequence analysis using NCBI database, BLAST and FASTA	1,2,4,5,6,8,9,10	R, U, A, An, E, C
			CO4: analyse bacterial genome by various molecular techniques	1,2,4,5,6,8,9,10	R, U, A, An, E, C

## M. Sc. Maths (PSO's)

<b>PSO 1</b>	Have a strong foundation in core areas of Mathematics, both pure and applied.
<b>PSO 2</b>	Be able to apply mathematical skills and logical reasoning for problem solving.
<b>PSO 3</b>	Communicate mathematical ideas effectively, in writing as well as orally.
<b>PSO 4</b>	Have sound knowledge of mathematical modeling, programming and computational techniques as required for employment in industry.
<b>PSO 5</b>	Pursue their research activities in mathematics and related field
<b>PSO 6</b>	Nurture problem solving skills, thinking, creativity through assignments, project work.
<b>PSO 7</b>	Ability to learn the fundamentals of computational thinking and Programming using mathematical tools.
<b>PSO 8</b>	Provide a systematic understanding of the concepts and theories of mathematics and their application in the real world.

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MSMA101	Algebra -I	CO1: Understand, explain in depth, and apply the fundamental concepts of Groups, Structure of Groups, isometries, Rings and integral domains.	3, 5	R, U, A, AN, C
			CO2: To introduce the concepts and to develop working knowledge on fundamentals of algebra.	3, 5	R, U, A, AN, C
			CO3: Identify and construct examples of fields, distinguish between algebraic and transcendental extensions, characterize normal extensions in terms of splitting fields and prove the existence of algebraic closure of a field.	3, 5	R, U, A, AN, C
			CO4: Characterize perfect fields using separable extensions, construct examples of automorphism group of a field and Galois extensions as well as prove the fundamental theorem of Galois theory.	3, 5	R, U, A, AN, C
			CO5: Classify finite fields using roots of unity and Galois theory and prove that every finite separable extension is simple.	3, 5	R, U, A, AN, C
			CO6: Use Galois Theory of equations to prove that a polynomial equation over a field of characteristic is solvable by radicals iff its group (Galois) is a solvable group and hence deduce that a general quintic equation is not solvable by radicals.	3, 5	R, U, A, AN, C
I	MSMA102	Real Analysis	CO1: Verify whether a given subset of a real valued function is measurable.	3, 5	U, A, E
			CO2: Understand the requirement and the concept of the Lebesgue integral (a generalization of the Reimann integration) along its properties.	3, 5	U, A, E

			<b>CO3:</b> Demonstrate understanding of the statement and proofs of the fundamental integral convergence theorems and their applications.	3, 5	U, A, E
			<b>CO4:</b> Know about the concepts of functions of bounded variations and the absolute continuity of functions with their relations.	3, 5	U, A, E
			<b>CO5:</b> Extend the concept of outer measure in an abstract space and integration with respect to a measure.	3, 5	U, A, E
			<b>CO6:</b> Learn and apply Fourier series and coefficients, Parseval's identity, Riesz-Fisher Theorem. in $L_p$ -spaces and understand completeness of $L_p$ -spaces and convergence in measures.	3, 5	U, A, E
<b>I</b>	<b>MSMA103</b>	<b>Differential Equations-I</b>	<b>CO1:</b> Students will have the knowledge and skills to solve various types of non-linear differential equations.	2,6,8	R, U, A
			<b>CO2:</b> Can solve total differential equation of the three and four variables and total differential equations of second degree.	2,6,8	R, U, A
			<b>CO3:</b> Describe solutions of differential equations using series solution method.	2,6,8	R, U, A
			<b>CO4:</b> Have skills to solve partial differential equations using Monge's method.	2,6,8	R, U, A
<b>I</b>	<b>MSMA104</b>	<b>Differential Geometry</b>	<b>CO1:</b> Understand the space curves, their curvature and torsion, Serret-Frenet's formulae and its applications	1,6	R, U, A
			<b>CO2:</b> Learn about envelopes and ruled surfaces with emphasis on the properties of developable and skew surfaces.	1,6	R, U, A
			<b>CO3:</b> Know about Asymptotic lines, Differential equation of an asymptotic line, Curvature and Torsion of an asymptotic line.	1,6	R, U, A

			<b>CO4:</b> Apply Gauss's formulae, Gauss's characteristic equation, Weingarten equations, Mainardi-Codazzi equations	1,6	R, U, A
<b>I</b>	<b>MSMA105</b>	<b>Dynamics Of Rigid Bodies</b>	<b>CO1:</b> Understand D'Alembert's Principle and its simple applications. Able to construct General equation of motion of a rigid body under fixed force, no force and impulsive force.	1,5,7,8	U, An
			<b>CO2:</b> Describe the concept of Motion of a rigid body in two dimensions, Rolling and sliding friction, rolling and sliding of uniform rod and uniform sphere.	1,5,7,8	U, An
			<b>CO3:</b> Understand to Describe Motion in three dimensions with reference to Euler's dynamical and geometrical equations, Motion under no forces, Motion under impulsive forces.	1,5,7,8	U, An
			<b>CO4:</b> Analyse the Derivation of Lagrange's Equations to holonomic Systems. Understand the motion of top.	1,5,7,8	U, An
			<b>CO5:</b> Distinguish the concept of the Hamilton Equations of Motion and the Principle of Least Action.	1,5,7,8	U, An
<b>I</b>	<b>MSMA106</b>	<b>Calculus of Variation and Special Function-I</b>	<b>CO1:</b> Solve the problem of brachistochrone, problem of geodesics, isoperimetric problem, Variation and its properties, functions and functionals,	1,5,7,8	U, An
			<b>CO2:</b> Solving Variational problems with the fixed boundaries.	1,5,7,8	U, An
			<b>CO3:</b> Variational problems involving higher order derivatives, constraints involving several variables and their derivatives.	1,5,7,8	U, An
			<b>CO4:</b> Explain the applications and the usefulness of these special functions.	1,5,7,8	U, An
			<b>CO5:</b> Analyse properties of special functions by their integral representations and symmetries.	1,5,7,8	U, An
			<b>CO6:</b> Identified the application of some basic mathematical methods via all these special functions.		

<b>II</b>	<b>MSMA201</b>	<b>Algebra -II</b>	<b>CO1:</b> Explain demonstrate accurate and efficient use of Eigen values and eigen vectors.	3,5	R, U, E, C
			<b>CO2:</b> Understand application of Orthogonal Projection.	3,5	R, U, E, C
			<b>CO3:</b> Study the concept of dual spaces and dual basis, maps and annihilator.	3,5	R, U, E, C
			<b>CO4:</b> Understand the Real inner product space and Schwartzs inequality.	3,5	R, U, E, C
			<b>CO5:</b> Explain invertible matrices and similar matrices.	3,5	R, U, E, C
<b>II</b>	<b>MSMA202</b>	<b>Topology</b>	<b>CO1:</b> Determine interior, closure, boundary, limit points of subsets and basis and sub-basis of topological spaces.	3,5	R, A
			<b>CO2:</b> Check whether a collection of subsets is a basis for a given topological spaces or not, and determine the topology generated by a given basis.	3,5	R, A
			<b>CO3:</b> Identify the continuous maps between two spaces and maps from a space into product space and determine common topological property of given two spaces.	3,5	R, A
			<b>CO4:</b> Determine the connectedness and path connectedness of the product of an arbitrary family of spaces.	3,5	R, A
			<b>CO5:</b> Find Hausdorff spaces using the concept of Net and Filter in topological spaces and learn about 1st and 2nd countable spaces, separable, Lindelöf spaces and Tychonoff's theorem.	3,5	R, A
<b>II</b>	<b>MSMA203</b>	<b>Differential Equations-II</b>	<b>CO1:</b> Knowledge and skills to classify and reduce various types of linear partial differential equation of second order into Canonical forms.	2,4,5,6,8	U
			<b>CO2:</b> Understand with eigen values and eigen functions of Sturm–Liouville systems and the solutions of initial and boundary value problems.	2,4,5,6,8	U



<b>II</b>	<b>MSMA204</b>	<b>Riemannian Geometry And Tensor Analysis</b>	<b>CO1:</b> Study the most fundamental knowledge for understanding tensors were taught in the traditional way.	1,5,6,8	R, U, A, AN
			<b>CO2:</b> Prior to our applying tensor analysis to our research area of modern continuum mechanics.	1,5,6,8	R, U, A, AN
			<b>CO3:</b> Tensor analysis provides a kind of bridge between elementary aspects of linear algebra, geometry and analysis.	1,5,6,8	R, U, A, AN
<b>II</b>	<b>MSMA205</b>	<b>Hydrodynamics</b>	<b>CO1:</b> Understand the basic principles of ideal fluid, such as Lagrangian and Eulerian approach, conservation of mass etc.	5,6,8	U, A
			<b>CO2:</b> Use Euler and Bernoulli's equations and the conservation of mass to determine velocity and acceleration for incompressible and non-viscous fluid.	5,6,8	U, A
			<b>CO3:</b> Understand the concept of rotational and irrotational flow, stream functions, velocity potential, complex potential due to sink, source and doublets.	5,6,8	U, A
			<b>CO4:</b> Understand the motion of a fluid element, Vorticity, Body forces, Surface forces, Stress & Strain analysis, Flow and circulation, Connectivity, Irrotational motion in multiple connected space,	5,6,8	U, A
			<b>CO5:</b> Distinguish the concept of Irrotational motion of a cylinder in two dimensions, Motion of a circular cylinder in a uniform stream and two co-axial cylinders, Streaming and circulation for a fixed circular cylinder.	5,6,8	U, A
<b>II</b>	<b>MSMA206</b>	<b>Special Function-II</b>	<b>CO1:</b> Explain the applications and the usefulness of these special functions.	2,5,6,8	R, U, A, AN
			<b>CO2:</b> Classify and explain the functions of different types of differential equations.	2,5,6,8	R, U, A, AN
			<b>CO3:</b> Analyse properties of special functions by their integral representations and symmetries.	2,5,6,8	R, U, A, AN
			<b>CO4:</b> Identified the application of some basic mathematical methods via all these special functions.	2,5,6,8	R, U, A, AN
			<b>CO5:</b> Apply these techniques to solve and analyse various mathematical problems.	2,5,6,8	R, U, A, AN

<b>II</b>	<b>MSMA301</b>	<b>Functional Analysis-I</b>	<b>CO1:</b> Verify the requirements of a norm, completeness with respect to a norm, relation between compactness and dimension of a space, check boundedness of a linear operator and relate to continuity, convergence of operators by using a suitable norm, compute the dual spaces.	1,5,8	U, A, E
			<b>CO2:</b> Understand the concepts of metric spaces and continuous mapping.	1,5,8	U, A, E
			<b>CO3:</b> Solve problems based on Banach contraction theorem, Baire's category theorem and compact sets.	1,5,8	U, A, E
			<b>CO4:</b> Understand the concepts of Normed linear space of bounded linear transformations and boundness theorem.	1,5,8	U, A, E
<b>III</b>	<b>MSMA302</b>	<b>Viscous Fluid Dynamics-I</b>	<b>CO1:</b> Understand the concept of fluid and their classification, models and approaches to study the fluid flow.	3,5,6,8	R, U, A
			<b>CO2:</b> Understand the concept of stress and strain in viscous flow	3,5,6,8	R, U, A
			<b>CO3:</b> Formulate the Governing Equations for fluid motion.	3,5,6,8	R, U, A
			<b>CO4:</b> Know Buckingham theorem and its application, Non-dimensional parameters and their relationships	3,5,6,8	R, U, A
			<b>CO5:</b> Know flow near Stagnation point	3,5,6,8	R, U, A
<b>III</b>	<b>MSMA303</b>	<b>Mathematical Programming-I</b>	<b>CO1:</b> Understand the core principles of mathematical modelling. Apply precise and logical reasoning to problem solving.	4,5,8	U, A, C
			<b>CO2:</b> Frame quantitative problems and model them mathematically analyse the importance of differential equations in mathematical modelling.	4,5,8	U, A, C
			<b>CO3:</b> Formulate the observable real problem mathematically.	4,5,8	U, A, C
			<b>CO4:</b> Apply methods to solve Integer programming problems and examine the solutions.	4,5,8	U, A, C

<b>III</b>	<b>MSMA304</b>	<b>Integral Transforms</b>	<b>CO1:</b> Gain the idea that by applying the theory of Integral transform the problem from its original domain can be mapped into a new domain where solving problems becomes easier.	5,6,8	A, C
			<b>CO2:</b> Apply these techniques to solve research problems of signal processing, data analysis and processing, image processing, in scientific simulation algorithms etc.	5,6,8	A, C
			<b>CO3:</b> Develop the ability of using the language of mathematics in analysing the real-world problems of sciences and engineering.	5,6,8	A, C
			<b>CO4:</b> Think logically and mathematically and apply the knowledge of integral transform to solve complex problems.	5,6,8	A, C
<b>III</b>	<b>MSMA305</b>	<b>Relativistic Mechanics</b>	<b>CO1:</b> Understand the basics of principles of relativity and its postulates and their simple applications.	1,5,8	U, A, AN
			<b>CO2:</b> Apply the concepts of composition of parallel velocities and time dilation.	1,5,8	U, A, AN
			<b>CO3:</b> Describe the concepts of Simultaneity, Velocity of light as fundamental velocity, Relativistic aberration and its deduction to Newtonian theory clearly and solve basic problems based on these concepts.	1,5,8	U, A, AN
			<b>CO4:</b> Analyse the concepts of Relativistic Lagrangian and Hamiltonian and Minkowski space and describe the relation of time and space using the theorems of relativity.	1,5,8	U, A, AN
<b>III</b>	<b>MSMA306</b>	<b>Numerical Analysis -I</b>	<b>CO1:</b> Gain knowledge and skills to use different iterative methods and utilise them to solve equation and simultaneous and polynomial equations.	2,4,5,8	R, A
<b>IV</b>	<b>MSMA401</b>	<b>Functional Analysis-II and Advanced Calculus</b>	<b>CO1:</b> Explain the fundamental concepts of functional analysis in applied contexts.	1,5,8	R, U, A, C
			<b>CO2:</b> Use elementary properties of Banach space and Hilbert space.	1,5,8	R, U, A, C
			<b>CO3:</b> Identify normal, self-adjoint or unitary operators.	1,5,8	R, U, A, C
			<b>CO4:</b> Communicate the spectrum of bounded linear operator	1,5,8	R, U, A, C
			<b>CO5:</b> Construct orthonormal sets.	1,5,8	R, U, A, C

<b>IV</b>	<b>MSMA402</b>	<b>Viscous Fluid Dynamics-II</b>	<b>CO1:</b> Understand the properties of unsteady flow by using stokes' problems.	3,5,8	R, U, AN
			<b>CO2:</b> Understand the equation of energy and different types of temperature distribution.	3,5,8	R, U, AN
			<b>CO3:</b> Analyse suction and injection device in transpiration cooling	3,5,8	R, U, AN
			<b>CO4:</b> Illustrate the very slow motion by stokes' and Oseen's flow	3,5,8	R, U, AN
			<b>CO5:</b> Know the concept of Boundary layer.	3,5,8	R, U, AN
<b>IV</b>	<b>MSMA403</b>	<b>Mathematical Programming-II</b>	<b>CO1:</b> Understand the core principles of mathematical modelling.	4,5,6,8	U, C
			<b>CO2:</b> Frame quantitative problems and model them mathematically and solve them by different methods.	4,5,6,8	U, C
<b>IV</b>	<b>MSMA404</b>	<b>Integral Equations</b>	<b>CO1:</b> Acquire knowledge of different types of Integral equations: Fredholm and Volterra integral equations.	5,6,8	U, A
			<b>CO2:</b> Obtain integral equation from ODE arising in applied mathematics and different engineering branches and solve accordingly using various method of solving integral equation.	5,6,8	U, A
			<b>CO3:</b> Think logically and mathematically and apply the knowledge of transforms to solve complex problems.	5,6,8	U, A
			<b>CO4:</b> Understand the Conversion of Volterra Equation to ODE, IVP and BVP to Integral Equation.	5,6,8	U, A
			<b>CO5:</b> Understand the Fredholm's first, second and third theorem,	5,6,8	U, A
			<b>CO6.</b> Understand the Integral Equations with symmetric kernel, Eigen function expansion, Hilbert-Schmidt theorem.	5,6,8	U, A
<b>IV</b>	<b>MSMA405</b>	<b>General Relativity and Cosmology</b>	<b>CO1:</b> Formulate Einstein field equation for matter and empty space.	1,5,8	U, AN, C
			<b>CO2:</b> Understand the concept of clock paradox in general relativity.	1,5,8	U, AN, C
			<b>CO3:</b> Derive the differential equation for planetary orbit, analogues of Kepler's law.	1,5,8	U, AN, C

			<b>CO4:</b> Understand the properties of Einstein & de-Sitter cosmological models.	1,5,8	U, AN, C
<b>IV</b>	<b>MSMA406</b>	<b>Numerical Analysis -II</b>	<b>CO1:</b> Utilize the Numerical Methods to convert the scatter data into the equation and solutions of the ODE and BVP.	2,4,5,8	A
<b>IV</b>	<b>MSMA407</b>	<b>Project/Dissertation</b>	<b>CO1:</b> Ability to apply advanced mathematical theories and techniques	6	A, U
			<b>CO2:</b> Ability to identify and formulate a significant research problem	6	A, U

## M. Sc. Environmental Science (PSO's)

<b>PSO 1</b>	Environmental outcomes are the state of the environment at a point in time during implementation or after a proposal has been implemented. Residual impacts are “proposal-centric” whereas environmental outcomes are “environment-centric.
<b>PSO 2</b>	Ability to recognize the need for learning the topic and develop foundational knowledge on the topic environmental issues ability to develop critical thinking and problem solving knowledge of the environment and the role of human beings in shaping the environment.
<b>PSO 3</b>	This programme will make graduates ready to take up higher studies in environmental sciences and to take up career in the field of environmental research and learning.
<b>PSO 4</b>	Ability to understand the need to address current environmental issues Provide with a direction and technical capability to carry on lifelong learning and show teamwork and collaborative endeavour, and decision making.
<b>PSO 5</b>	Motivate students to appreciate that they are an integral stakeholder in the environmental management of India irrespective of their future jobs or working environment in accordance of the provisions vide Article 48A (Directive Principles of State Policy) and Article 51A(g) (Fundamental Duties) of the Constitution of India.
<b>PSO 6</b>	Help graduate students to understand the concerns related to Sustainable Development Goals (SDGs) and the Indian Obligations
<b>PSO 7</b>	Environmental Science enhances ability to recognize and address current environmental scenarios, scientific and technological progress, lifestyle change, and biophysical evolutions with a futuristic view; practicing intuitiveness and interest towards scientific prediction via application of basic knowledge of science especially with regard to India’s SDGs in terms of economic welfare, social equity and proactive long-term environment management.
<b>PSO 8</b>	To train students in laboratory skills and handling equipment along with soft skills needed for placement. Fundamental and Advanced knowledge of theory and practical courses in Environmental science.

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
<b>I</b>	<b>MSES101</b>	<b>Ecology and Ecosystem</b>	<b>CO1:</b> The study of Ecology and Ecosystem provides interactions among living things and their environment.	1,2,4,6,7	U, R, An, C
			<b>CO2:</b> It also provides new understanding of these vital systems as they are now, and how they may change in the future.	1,2,4,6,7	U, R, An, C
			<b>CO3:</b> It also helps to understand the ecosystem, population and community ecology, its relevance for the environmental segments and factors and how to apply the fundamentals of ecology for forming the foundation of ecological theories.	1,2,4,6,7	U, R, An, C
<b>I</b>	<b>MSES102</b>	<b>Biodiversity and Conservation</b>	<b>CO1:</b> It helps to understand about the variety of life on Earth at all its levels, from genes to ecosystems, and can encompass the evolutionary, ecological, and cultural processes that sustain life.	1,4,5,8	U, R, A, C
			<b>CO2:</b> Generate a skilled postgraduate who can research in the field of Biodiversity, Wildlife biology, and nature conservation.	1,4,5,8	U, R, A, C
			<b>CO3:</b> Develop critical and analytical thinking for decision-making in biodiversity and wildlife management.	1,4,5,8	U, R, A, C
<b>I</b>	<b>MSES103</b>	<b>Environmental Pollution and Health</b>	<b>CO1:</b> It provides a good approach to individuals to explore environmental issues related to climate changes, mass pollution of water, air and soil, and engage them in problem solving, and take action to improve the environment.	2,3,4,7	U, R, A, An, E, C
			<b>CO2:</b> Students can also understand present environmental pollution and their impact at national and international conventions. In addition, knowledge of various control measures adopted for the abatement of pollution.	2,3,4,7	U, R, A, An, E, C

<b>I</b>	<b>MSES104</b>	<b>Environmental Issues: Regional and Global</b>	<b>CO1:</b> It helps scholars to develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions. Provide an alternate avenue for students to specialize as “environmental entrepreneurs” in areas such as environmental audits, Environmental Education etc.	4,5,8	U, A, An, E
<b>I</b>	<b>MSES151</b>	<b>Internal Lab Work &amp; Seminar</b>	<b>CO1:</b> Practical coursework bridges the gap between theory and practice, enabling students to apply theoretical knowledge to real-world situations.	1,3,4,8	A, An, E
			<b>CO2:</b> The study enhances their ability to understand, analyze, and address environmental problems effectively.	1,3,4,8	A, An, E
<b>I</b>	<b>MSES152</b>	<b>External Lab Work</b>	<b>CO1:</b> Practical coursework bridges the gap between theory and practice, enabling students to apply theoretical knowledge to real-world situations.	1,3,4,8	A, An, E
			<b>CO2:</b> The study enhances their ability to understand, analyze, and address environmental problems effectively.	1,3,4,8	A, An, E
<b>II</b>	<b>MSES201</b>	<b>Waste Management</b>	<b>CO1:</b> It provides an understanding about the direct consequence of human activity, shortage of natural resources, and use of technology in waste management.	1,5,6,7	A, An, E
<b>II</b>	<b>MSES202</b>	<b>Environmental Policies, Legislation and Ethics</b>	<b>CO1:</b> It helps to learn laws related to protect land, air, water, and soil. Advocate a particular viewpoint to protect the environment and prevent environmental degradation.	1,3,5,7,8	A, An, E
<b>II</b>	<b>MSES203</b>	<b>Environmental Chemistry</b>	<b>CO1:</b> It involves the study of the effects that chemicals have on the air, water and soil and how they impact the environment and human health.	1,4,5,8	A, An, E, C
			<b>CO2:</b> Students gain knowledge about the theoretical basis and observational methods for the study of chemical species present in the environment and understand the interactions of varied spheres of environment	1,4,5,8	A, An, E, C



<b>II</b>	<b>MSES204</b>	<b>Environmental Disasters and Management</b>	<b>CO1:</b> It helps the students to understand how to anticipate, absorb and adapt to such events. <b>CO2-</b> This paper introduces the connections between the state of the environment and disaster risk, and identifies areas of action.	1,3,5,7	U, R, A, An, E
<b>II</b>	<b>MSES251</b>	<b>Internal Lab Work &amp; Seminar</b>	<b>CO1:</b> Through practical coursework, students encounter real Environmental challenges and learn to devise solutions. <b>CO2:</b> This cultivates critical thinking and problem-solving abilities, which are essential for addressing complex environmental issues.	1,2,5,7,8	A, An, E
<b>II</b>	<b>MSES252</b>	<b>External Lab Work</b>	<b>CO1:</b> Through practical coursework, students encounter real Environmental challenges and learn to devise solutions. <b>CO2:</b> This cultivates critical thinking and problem-solving abilities, which are essential for addressing complex environmental issues.	1,2,5,7,8	A, An, E
<b>III</b>	<b>MSES301</b>	<b>Instrumentation for Environmental Monitoring and Analysis</b>	<b>CO1:</b> It helps to learn measure of air, soil, noise, dust, vibration and water, establishing environmental parameters and determining whether the levels comply with those outlined in relevant legislation and guidance. <b>CO2:</b> Students learn the fundamental instrumental techniques and evaluation of data quality that are part of their environmental projects.	2,3,5,6,7 2,3,5,6,7	U, R, A, An, E, C U, R, A, An, E, C
<b>III</b>	<b>MSES302</b>	<b>Environmental Bioremediation Process and Technology</b>	<b>CO1:</b> It provides the knowledge about the use of living micro-organisms and technology to degrade the environmental contaminants into less toxic forms.	1,3,4,5,8	U, R, A, An, E, C
<b>III</b>	<b>MSES303</b>	<b>Pollution Control Technology</b>	<b>CO1:</b> It provides knowledge on specific methodology of the traditional sciences and their technological applications in order to describe and solve specific environmental problems.	2,3,4,6,7	U, R, A, An, E, C

<b>III</b>	<b>MSES304</b>	<b>Statistics, Environmental Modeling and Research Methodology</b>	<b>CO1:</b> It focuses on the application of statistics to the analysis and solution of environmental problems, and the development of technical designs for research studies.	4,5,6,7	U, R, A, An, E, C
			<b>CO2:</b> To deliver top-notch statistical information that enhances our understanding of the environment, aids evidence-based policy- and decision-making, and provides pertinent information to the general public and specific user groups.	4,5,6,7	U, R, A, An, E, C
<b>III</b>	<b>MSES351</b>	<b>Internal Lab &amp; Work Seminar</b>	<b>CO1:</b> Hands-on Learning: Practical coursework allows students to engage directly with environmental phenomena, equipment, and techniques. This hands-on approach fosters a deeper understanding of theoretical concepts by applying them in real-world scenarios.	3,4,8	A, An, E, C
			<b>CO2:</b> This experiential understanding goes beyond what can be learned from textbooks or lectures, leading to a more comprehensive grasp of environmental science concepts	3,4,8	A, An, E, C
<b>III</b>	<b>MSES352</b>	<b>Synopsis Presentation of Minor &amp; Major Research Work (External)</b>	<b>CO1:</b> Hands-on Learning: Practical coursework allows students to engage directly with environmental phenomena, equipment, and techniques. This hands-on approach fosters a deeper understanding of theoretical concepts by applying them in real-world scenarios.	3,4,8	A, An, E, C
<b>IV</b>	<b>MSES401</b>	<b>Environmental Impact Assessment and Sustainable Development</b>	<b>CO1:</b> It helps to enhance student's problem-solving and decision-making skills for the betterment of environment.	3,5,6,7,8	A, An, E, C
			<b>CO2:</b> Discuss the implications of current jurisdictional and institutional arrangements in relation to environmental impact assessment. Understand how to liaise with and the importance of stakeholders in the EIA process	3,5,6,7,8	A, An, E, C

IV	MSES402	<b>Environmental Clearance and Environmental Audit</b>	<b>CO1:</b> Identification of Potential Environmental Impacts: EIA helps to identify potential environmental impacts of a project, such as air and water pollution, soil erosion, deforestation, and biodiversity lo	1, 3,5,6,7,8	U, R, A, An, E, C
			<b>CO2:</b> The main purpose is to assess impact of the planned project on the environment and people and to try to abate/minimize the same.	1, 3,5,6,7,8	U, R, A, An, E, C
			<b>CO3:</b> The purpose of an environmental audit is to: assess the nature and extent of the risk of harm to human health or the environment.	1, 3,5,6,7,8	U, R, A, An, E, C
IV	MSES403	<b>Remote sensing &amp; GIS for Environmental Science</b>	<b>CO1:</b> It Exposing the knowledge of satellite data utilization via GIS and image processing software in environmental studies.	2,3,5,7	U, R, A, An, E, C
			<b>CO2:</b> Train the students in practical and executable solutions to the challenges of the emergent field of Remote Sensing and GIS.	1, 3,5,6,7,8	U, R, A, An, E, C
			<b>CO3:</b> Apply the fundamental principles for a successful profession and/or for higher technical education based on mathematical, scientific and engineering principles, to solve realistic and field problems that arise in engineering and non-engineering sectors.	1, 3,5,6,7,8	U, R, A, An, E, C
			<b>CO4:</b> Students will be installed with ethical feeling, encouraged to make decisions that are safe and environmentally-responsible and also innovative for societal improvement.	1, 3,5,6,7,8	U, R, A, An, E, C
IV	MSES404	<b>Energy and Environment</b>	<b>CO1:</b> It helps to create public awareness and knowledge about renewable energy resources and their benefits	1, 4,6,7,8	U, R, A
			<b>CO2:</b> Understand the effect of the implementation of environmental technologies and policies on sustainable energy usage. Learn related global and national issues and to recognize suitable energy resources.	1, 4,6,7,8	U, R, A

<b>IV</b>	<b>MSES451</b>	<b>Internal Work Seminar</b>	<b>Lab &amp;</b>	<b>CO1:</b> Engagement and Motivation: Practical coursework tends to be more engaging and motivating for students compared to traditional lectures or readings.	1,3,8	A, An, E, C
<b>IV</b>	<b>MSES452</b>	<b>Dissertation Based Industrial Training/ Research (External)</b>	<b>on Work</b>	<b>CO2:</b> Field Experience: Practical coursework often includes field trips and fieldwork, providing students with valuable outdoor experiences and exposure to diverse ecosystems. Field experiences offer unique learning opportunities and foster appreciation for the natural world.	1,3,8	A, An, E, C

## M. Sc. Geography (PSO's)

<b>PSO 1</b>	The students may be able to read and understand maps and topographic features to look at the various aspects on the spatial and temporal phenomenon. It also describe the physiography,geological processes, distribution of resources, ecume and non-ecumene regions of the world with settlement patterns and type and dynamism of phenomena over time
<b>PSO 2</b>	Evaluate critical aspects of spatial phenomenon from global to local level on various time scales.
<b>PSO 3</b>	Analyse co-relationship of physical condition, cultural condition, population, efficiency, education, science, policy, religion, health, ethics, various philosophical schools and related theories paradigm shift in geographical studies , contemporary issues, environmental concers and policies etc.
<b>PSO 4</b>	Understand the basic statistical analysis, cartography, representation of data and its application in geography.
<b>PSO 5</b>	The students learn about different geographical, geomorphological, climatic and hydrological Processes and therefore can study interrelated phenomenon

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
<b>I</b>	<b>MSGE101</b>	<b>Geographical Thought–I (up to Medieval Period)</b>	<b>CO1:</b> Acquire the knowledge about the development of Philosophical and Theoretical aspect of geography by studying the various thinkers.	1,2,3	U, R
			<b>CO2:</b> Learn the chronological development of geography from the ancient to medieval and from medieval to modern/post-modern.	1,2,3	U, C, R, A
			<b>CO3:</b> Evaluate Vedic age and puranas.	1,2	U, C, E
			<b>CO4:</b> Compare the ideas and Philosophies of scholars of modern school of thought and Paradigm shift.	1,2,3	U, C, E, An
<b>I</b>	<b>MSGE102</b>	<b>Dynamic Geomorphology</b>	<b>CO1:</b> Understand earth's form and relationships between its physical components.	1, 2	U, An, A
			<b>CO2:</b> Learn the fundamentals of physical aspects of the Earth, Earth's structure and dynamic processes.	1,2,5	U ,An
			<b>CO3:</b> Understand about the earth's physical environment and to comprehend the relationships between geomorphologic landforms, concepts, and processes.	1,2,3,4,5	U, An, E, A
<b>I</b>	<b>MSGE103</b>	<b>Economic Geography</b>	<b>CO1:</b> Understand nature scope and types of Agriculture in the modern economic world	2,3	U, R, A
			<b>CO2:</b> Acquire knowledge of energy sources and industries	1,2,3	U, C, R, A
			<b>CO3:</b> Conceptualize, demarcate and analyze the geographical determinates of agriculture and manufacturing activities	2	U, C, E
			<b>CO4:</b> Evaluate the importance of economic regions, economic man, and decision theories.	3	U, R
			<b>CO5:</b> Visualize and analyze data on flows, networks of transportation, and economic indices	3	U, R

<b>I</b>	<b>MSGE104A</b>	<b>Man &amp; Natural Environment-I</b>	<b>CO1:</b> understand concept of relationship between man and environment	1,2	R, U, E, A, An
			<b>CO2:</b> Understand environmental crises and problems	1	U, R
			<b>CO3:</b> Investigate the contemporary global environmental issues	1,2	U, R, A, An
<b>I</b>	<b>MSGE104B</b>	<b>Quantative Techniques in Geography-I</b>	<b>CO1:</b> Understand concept of Probability	1,2	U, E, A, An
			<b>CO2:</b> Evaluate Theory of Sampling, need and testing.	1,2	U, E, A, An
			<b>CO3:</b> Learn about bivariate analysis Regression analysis.	1,2,3	U, E, A, An
			<b>CO4:</b> Understand multivariate analysis ANOVA -testing	1,2	U, E, A, An
<b>I</b>	<b>MSGE151</b>	<b>Geography Practical-I</b>	<b>CO1:</b> Learn the art of making Maps	2,3,5	U, C, An, A
			<b>CO2:</b> Calculate the distances on the Map by knowing about the different types of the scale	2,3,5	U, C, An, A
			<b>CO3:</b> Learn the Methods of depiction of the relief	2,3,5	U, C, An, A
			<b>CO4:</b> Evaluate the data of climate on the Map	2,3,5	U, C, An, A
<b>II</b>	<b>MSGE201</b>	<b>Geographical Thought-II (Modern)</b>	<b>CO1:</b> Students can enhance the knowledge about temporal succession of geographical views from ancient times to the 20 <sup>th</sup> century so that they are able to know the development of thought in the field of geography in India as well as the world.	1,2	U, R
			<b>CO2:</b> Explain and identify the characteristics and attributes of Regional Development and Planning Multi-level planning, Analyze Planning for backward areas. Identify local to global perspectives	2,3	U, C, R, A
			<b>CO3:</b> Analyzing modern and contemporary principles of Empiricism, Positivism, Structuralism, Human and Behavioral Approaches in Geography.	1,2,3	U, C, E
			<b>CO4:</b> Understand different approaches in Geography and recent trend in geography.	1,2,3	C, U, E, An

<b>II</b>	<b>MSGE202</b>	<b>Climatology &amp; Oceanography</b>	<b>CO1:</b> Understand various elements of Climate and the factors influencing the distribution of temperature and pressure	1,2	C, U, E, An
			<b>CO2:</b> learn about the Heat budget, Insolation, Air masses, Fronts, cyclones and weather phenomenon.	1,2,4	U, C, E
			<b>CO3:</b> Study world climate types and evaluate co-relationship between various weather elements.	1,2	C, U, E, An, A
			<b>CO4:</b> Evaluate the utilities of marine resources and significance of corals in marine ecology.	1,2,3	C, U, E
<b>II</b>	<b>MSGE203</b>	<b>Principles and Theory of Economic Geography</b>	<b>CO1:</b> Acquire the Theoretical aspect of Economic geography -Simple model & structure of economy	1,2	U, R
			<b>CO2:</b> Understand the fundamental theories in economic geography.	1	U, C, R, A
			<b>CO3:</b> Students will be familiarized with economic processes such as globalization, trade and transportation and their impacts on economic, cultural and social activities.	1,2	U, C, E
			<b>CO4:</b> Analyze the factors of location of agriculture and industries.	1,2	C, U, E, An
<b>II</b>	<b>MSGE204A</b>	<b>Man &amp; Natural Environment-II</b>	<b>CO1:</b> Understand and evaluate the global scale of environmental problems	1,2	C, U, E, An
			<b>CO2:</b> Learn the importance and strategies of Resource management and conservation.	1,2,3	U, C, E
			<b>CO3:</b> Study about natural hazards and food security.	1,2	C, U, E, An, A
			<b>CO4:</b> Develop the ability to evaluate the environment degradation, Sustainable development – concept and goals	1,2,3	U, C, E
<b>II</b>	<b>MSGE204B</b>	<b>Quantitative Techniques in Geography-II</b>	<b>CO1:</b> Understand Hypothesis, need, types.	1,2	U, R, A, An, E
			<b>CO2:</b> Students can enhance the knowledge about Correlation and regression.	2,3	U, C, R, A
			<b>CO3:</b> Understand surface models and their application.	1,2,4,5	U, C, E, A
			<b>CO4:</b> Gain knowledge about Simulation models.	1,3	C, U, E, An



<b>II</b>	<b>MSGE251</b>	<b>Geography Practical-II</b>	<b>CO1:</b> Read and interpret the weather Maps	2,3,5	U, C, An, A
			<b>CO2:</b> Learn to draw isotherm and isobar maps	2,3,5	U, C, An, A
			<b>CO3:</b> Sketch the land use Maps by using different methods of surveying	2,3,5	U, C, An, A
			<b>CO4:</b> Create a plan for a small area	2,3,5	U, C, An, A
<b>III</b>	<b>MSGE301</b>	<b>Advanced Geography of India</b>	<b>CO1:</b> Understand about the Geology, physiography, climate, drainage, soils of India	1,2,4	C, U, E, An
			<b>CO2:</b> They understand the economic resources of India.	1,2,4	U, C, E
			<b>CO3:</b> Understand about Resource development and regional problems of India.	1,2,3	C, U, E, An, A
			<b>CO4:</b> Learn and discuss about the International, national trade, transport, regional planning in India.	1,2,3	C, U, E, An, A
<b>III</b>	<b>MSGE302A</b>	<b>Agricultural Geography-I</b>	<b>CO1:</b> Introduced the students to the basic principles and concepts in Agriculture Geography, Origin and dispersal of agriculture.	1,2	C, U, E, An
			<b>CO2:</b> Understand about Land use survey and agriculture types agriculture regions of world	1,2,3	U, E, An
			<b>CO3:</b> Students can enhance the knowledge about crop combination, Crop Diversification, Agricultural Efficiency	1,2	U, E, An, A
			<b>CO4:</b> Students will be familiarized with Sustainable development of agriculture, problems of agriculture, agricultural Policy of India.	1,2,3	C, U, E, An, A
<b>III</b>	<b>MSGE302B</b>	<b>Disaster Perception and Management</b>	<b>CO1:</b> Understand about Concept of disaster management, its importance, hazards and disaster.	1,2	U, C, E, An
			<b>CO2:</b> Information about Disaster perceptions and mitigation and response.	1,2	U, E, An, A
			<b>CO3:</b> Know about Disaster Management mechanism in India, Public awareness, plans, policies.	1,3	U, E, An, A, C

<b>III</b>	<b>MSGE303A</b>	<b>Urban Geography</b>	<b>CO1:</b> Understand the nature, scope, approaches and recent trends in Urban Geography.	1,2	U, E, An
			<b>CO2:</b> Comprehend the fundamentals of urbanization, morphology and hierarchy theories that explain the process of urban development.	1,2	U, E, An, A, C
			<b>CO3:</b> Analyze the theories of urban evolution and growth, Hierarchy of urban settlements.	1,2,3	U, E, An, C
			<b>CO4:</b> Analyze the models on city structure, Understand the ecological processes of urban growth; urban fringe; city-region	1,2,3	U, E, An, A
			<b>CO5:</b> Information about Principles of Town planning, Preparation of a Master plan, National Urban Policy and Urban Land use.	1,2	U, E, An, A
<b>III</b>	<b>MSGE303B</b>	<b>Regional Planning</b>	<b>CO1:</b> Understand the Scope and objective, Principles of Regional Planning.	1,2	U, E, An
			<b>CO2:</b> Students can enhance the knowledge about Significance of the term Political, Economic, social and spatial Integration in regional planning.	1,2	U, E, An
			<b>CO3:</b> Acquire the knowledge about Methods of Regional planning, Factor Analysis, Comparative Cost-analysis, Industrial complex and analysis, Shift analysis, Types of Planning, Multi-levels Planning. .	1,2,3	U, E, An, A
			<b>CO4:</b> Know about Regional and Sectoral Policy in India. Problems and Planning of Tribal and hill areas.	1,2	U, E, An
<b>III</b>	<b>MSGE304A</b>	<b>Political Geography</b>	<b>CO1:</b> Understand the Definition, Scope and Development of Political Geography & Geopolitics.	1,2	U, E, An
			<b>CO2:</b> Understand about State: Definition, importance, core areas, Capital.	1	U, An
			<b>CO3:</b> Students can enhance the knowledge about Frontiers and Boundaries	1,2	U, An
			<b>CO4:</b> Acquire the knowledge about Conceptual Model of the Voting Decision.	1,2	U, An

<b>III</b>	<b>MSGE304B</b>	<b>Water Resource and their Management-I</b>	<b>CO1:</b> Students will be familiarized with distribution of world's water resources, world hydrologic cycle.	1,3	U, E, An
			<b>CO2:</b> Understand about Precipitation: potential evapo-transpiration. Water demand and use.	1,2,3	U, E, An, A
			<b>CO3:</b> Information about Soil-water- crop relationships & soil water conservation.	1,2	U, E, An
			<b>CO4:</b> Students can enhance the knowledge about water logging, salinity and alkalinity of soil, over exploitation of ground water. Water quality parameters, surface and ground water pollution	1,2,3	U, E, An, A
<b>III</b>	<b>MSGE304C</b>	<b>Research Methodology</b>	<b>CO1:</b> Acquire the knowledge of concept of research and research methodology	2,3	U, R, A, An, E, C
			<b>CO2:</b> Acquire the knowledge about Selected techniques of spatial analysis, Methods of delimiting regions	2,3	U,R,A,An,E,C
			<b>CO3:</b> Understand the application of statistical techniques in geographical studies.	1,2,3	U, C, E
			<b>CO4:</b> Gain knowledge about the applied aspect research methodology in spatial analysis.	4, 5	U, C, E, An
<b>III</b>	<b>MSGE351</b>	<b>Geography Practical/ Project Work-III</b>	<b>CO1:</b> Represent data using different types of Diagrams	2,3,5	U, C, An, A
			<b>CO2:</b> Acquire the knowledge of different types of Maps and cartography techniques to represent the data	2,3,5	U, C, An, A
			<b>CO3:</b> Apply the statistical techniques to the data for further analysis	2,3,5	U, C, An, A
			<b>CO4:</b> Learn the basic concept of application of statistical tools in geographical analysis	2,3,5	U, C, An, A
<b>IV</b>	<b>MSGE401</b>	<b>Geography of Rajasthan</b>	<b>CO1:</b> Learn the Geographical features, climate, water, soil and human, resources and other significant regional features of Rajasthan	2	U, R
			<b>CO2:</b> Examine the comprehensive over view of economic and socio-cultural features of arid and semi-arid region	2,5	U, C, R, A
			<b>CO3:</b> Gain essential knowledge about Rajasthan, which will prove beneficial for State level and other competitive exams, helping them to familiarize themselves with the state's fundamental information.	2,4,5	U, C, E

<b>IV</b>	<b>MSGE402A</b>	<b>Agriculture Geography-II</b>	<b>CO1:</b> Introduced the students to the basic principles and concepts in Agriculture Geography, Origin and dispersal of agriculture.	1,2	C, U, E, An
			<b>CO2:</b> Understand about Land use survey and agriculture types agriculture regions of world	1,2,3	U, E, An
			<b>CO3:</b> Students can enhance the knowledge about crop combination, Crop Diversification, Agricultural Efficiency	1,2	U, E, An, A
			<b>CO4:</b> Students will be familiarized with Sustainable development of agriculture, problems of agriculture, agricultural Policy of India.	1,2,3	U, C, E, An, A
<b>IV</b>	<b>MSGE402B</b>	<b>Climatology</b>	<b>CO1:</b> Understand various elements of Climate and the factors influencing the distribution of temperature and pressure, air circulation.	1,2	C, U, E, An
			<b>CO2:</b> Evaluate the world climate and climatic classification based on climatic factors	2,5	U, C, R, A
			<b>CO3:</b> Learn the fundamentals of Applied climatology.	1,2,3,5	U, An, E, A
			<b>CO4:</b> Understand about issues of environment related with climate.	1,2,	U, An, E, A
<b>IV</b>	<b>MSGE403A</b>	<b>Industrial Geography</b>	<b>CO1:</b> Understand the fundamental theories in economic geography.	1,2	U, C, R, A
			<b>CO2:</b> Understand new trends of Industrial world.	1,3	U, An, E, A
			<b>CO3:</b> Gain essential knowledge about delimitation of industrial regions.	1,2,3	C, U, E, An
			<b>CO4:</b> Evaluate the regional and regionalization pattern of industries	1,2	U, E, An
<b>IV</b>	<b>MSGE403B</b>	<b>Fundamentals of Remote Sensing</b>	<b>CO1:</b> Understand new technology of Remote sensing. Concepts of Remote Sensing.	1,2,3	U, E, An
			<b>CO2:</b> Learn basics of Air photography and photogrammetry.	1,2,3	U, An, E, A
			<b>CO3:</b> Understand about Satellite Remote sensing platforms, applications, microwave sensing.	1,2	U, An, E, A

			<b>CO4:</b> Learn about Applications of Air and Image interpretations and mapping land use and land cover, Land evaluation.	1,2,3,5	U, An, E, A
<b>IV</b>	<b>MSGE404A</b>	<b>Biogeography</b>	<b>CO1:</b> Gain essential knowledge about Bio-geography, Zoo-geography and plant geography, Plant and Animal Ecology.	1,2,3	U, E, An
			<b>CO2:</b> Study the natural habitat –Biome and community	2,3	U, E, An
			<b>CO3:</b> Evaluate the process of distribution , origin, and spread of biological diversity	1,2	U, An, E, A
			<b>CO4:</b> study of the patterns of geographic distribution of organisms and the factors that determine those patterns.	1,2	U, An, E, C
<b>IV</b>	<b>MSGE404B</b>	<b>Water Resource and their Management-II</b>	<b>CO1:</b> Students can enhance the knowledge about use of water.	1,2	U, An, E, A
			<b>CO2:</b> Evaluate problems of water & floods.	1,2	U, An, E, A
			<b>CO3:</b> Understand concept of soil conservation, land use.	1,2,4	U, An, E, C
			<b>CO4:</b> Learn about drought management, water resource development planning, water shed management, river water issues.	1,2,4	U, An, E, C, A
<b>IV</b>	<b>MSGE404C</b>	<b>Applied Geography</b>	<b>CO1:</b> Understand about Application aspects of Geography	1,2	U, An, E
			<b>CO2:</b> Learn about application of surveying and mapping.	1,2,4	U, An, E, C, A
			<b>CO3:</b> Examine the comprehensive over view of Human resource development and man power planning.	1,2	U, An, E, C
<b>IV</b>	<b>MSGE451</b>	<b>Geography Practical/ Field Survey/ Dissertation IV</b>	<b>CO1:</b> Get the knowledge of the co-ordinate system and its applicability	2,3,5	U, C, An, A
			<b>CO2:</b> Learn to prepare the grids pattern for various regions of the world	2,3,5	U, C, An, A
			<b>CO3:</b> Select appropriate maps for specific purpose	2,3,5	U, C, An, A
			<b>CO4:</b> Prepare map according to the region or purpose	2,3,5	U, C, An, A

## M. Sc. Psychology (PSO's)

<b>PSO 1</b>	Develop sound knowledge about the fundamental concepts in Psychology related to various sub fields of Psychology.
<b>PSO 2</b>	Develop critical thinking skills and distinguish between concepts studied in different courses.
<b>PSO 3</b>	Apply appropriate concepts and methods of Psychology to solve problems.
<b>PSO 4</b>	Develop positive attributes such as empathy, compassion, effective communication skills like listening, speaking and observational skills.
<b>PSO 5</b>	Be committed towards the health and wellbeing of different stakeholders.
<b>PSO 6</b>	Appreciation and tolerance towards different behavioural patterns.
<b>PSO 7</b>	Analyze social problems, social dynamics and create solutions to manage them effectively.

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MSPY101	Theoretical Approaches in Psychology	CO1: Apply theories that explain ways of understanding and thinking about human thought processes.	1,2	R, U, A, An, E
			CO2: Understand theories that can provide a new perspective regarding human behaviours and an understanding of how humans think, learn and find motivation.	5,6	R, U, A, An, E
I	MSPY102	Research Methods	CO1: Recognize the elements of research and determine the importance of sampling.	8	R, U, A, An, E
			CO2: Understand the distinctive features of experimental and non-experimental methods.	1,8	R, U, A, An, E
			CO3: Inferring various true and quasi experimental strategies with their strengths and limitations.	2,8	R, U, A, An, E
			CO4: Inferring various styles and formatting and demonstrating and understanding of writing a research report.	3,4	R, U, A, An, E
I	MSPY103	Advanced Social Psychology	CO1: Apply social psychology in work settings.	1,3	R, U, A, An, E
			CO2: Differentiate different kinds of relationship patterns of interpersonal attraction.	6,7	R, U, A, An, E
			CO3: Examine different theories of aggression	6,7	R, U, A, An, E
			CO4: Analyze different causes of attitude and prejudice and accordingly suggest appropriate measures to reduce them.	3,6,,7	R, U, A, An, E
			CO5: Understand gender differences.	1,5	R, U, A, An, E
I	MSPY104	Psychopathology	CO1: Understand various manifestation of Psychopathology.	1,2	R, U, A, An, E
			CO2: Understand the criteria to diagnose various disorders using ICD and DSM classification system.	1,7	R, U, A, An, E
			CO3: Understand the prevention of mental disorders, various causal factors and etiology of disorders.	5,6	R, U, A, An, E

<b>I</b>	<b>MSPY151</b>	<b>General Lab</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E
<b>II</b>	<b>MSPY201</b>	<b>Developmental Psychology</b>	<b>CO1:</b> Understand the methods of studying developmental behavior.	1,2	R, U, A, An, E
			<b>CO2:</b> Explain the cognitive, cultural, environmental and social factors that influence development throughout the life span.	7	R, U, A, An, E
			<b>CO3:</b> Understand the influence on identity development.	6,7	R, U, A, An, E
			<b>CO4:</b> Compare and contrast the foundational theories of developmental psychology.	4	R, U, A, An, E
			<b>CO5:</b> Understand the theoretical aspects of emotional and moral development.	4,5	R, U, A, An, E
<b>II</b>	<b>MSPY202</b>	<b>Biopsychology</b>	<b>CO1:</b> Understand the fundamental physiological process, evolution of the brain and scientific method underlying human behavior.	5,6	R, U, A, An, E
			<b>CO2:</b> Understand the role of nerve cell and central nervous system in governing human behavior.	1,2	R, U, A, An, E
			<b>CO3:</b> Understand the fundamental physiological process underlying human behavior like learning and memory.	4,6	R, U, A, An, E
			<b>CO4:</b> Understand the biological causes of psychiatric disorders.	1,3	R, U, A, An, E



<b>II</b>	<b>MSPY203</b>	<b>Statistics in Psychology</b>	<b>CO1:</b> Define and identify basic concepts inferential and descriptive statistics.	3	R, U, A, An, E
			<b>CO2:</b> Describe and utilize principals of normal probability.	2	R, U, A, An, E
			<b>CO3:</b> Explain and apply the concepts and procedure of descriptive statistics.	8	R, U, A, An, E
			<b>CO4:</b> Apply and interpret correlation methods.	1,8	R, U, A, An, E
			<b>CO5:</b> Understand the utility application and interpretation of parametric and non-parametric tests.	8	R, U, A, An, E
			<b>CO6:</b> Understand and apply regression and factor analysis.	8	R, U, A, An, E
<b>II</b>	<b>MSPY204</b>	<b>Foundation of Counselling Psychology</b>	<b>CO1:</b> Distinguish between guidance, psychotherapy and counselling	1,3	R, U, A, An, E
			<b>CO2:</b> State the historical background and development of counselling psychology	2,3	R, U, A, An, E
			<b>CO3:</b> Critically analyze ethical issues and debate in counselling psychology.	4	R, U, A, An, E
			<b>CO4:</b> Assess boundaries of the different types of counselling	6,7	R, U, A, An, E
<b>II</b>	<b>MSPY251</b>	<b>General Lab</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E
<b>III</b>	<b>MSPY301</b>	<b>Cognitive Psychology</b>	<b>CO1:</b> Gain knowledge about the historical development of Cognitive Psychology and understand the complexity of cognitive processes underlying behaviour.	4,5	R, U, A, An, E
			<b>CO2:</b> Appreciate the complexity of cognitive processes underlying people's behaviour from a life span perspective.	4,5,6	R, U, A, An, E
			<b>CO3:</b> Understand basic cognitive functions like attention and memory through different theoretical approaches.	2,3	R, U, A, An, E

			<b>CO4:</b> Acquire knowledge regarding higher order cognitive processes	4,6	R, U, A, An, E
			<b>CO5:</b> Understand cognitive functioning involved in language, decision making & problem solving through different perspective.	2,4	R, U, A, An, E
<b>III</b>	<b>MSPY302</b>	<b>Research Designs</b>	<b>CO1:</b> Describe the research designs.	1	R, U, A, An, E
			<b>CO2:</b> Differentiate between the need to use within group, between group and multiple group design.	8	R, U, A, An, E
			<b>CO3:</b> Identify the use of qualitative methodology to research problem	8	R, U, A, An, E
			<b>CO4:</b> Understand and apply quasi experimental designs	8	R, U, A, An, E
<b>III</b>	<b>MSPY303A</b>	<b>Foundations of Clinical Psychology</b>	<b>CO1:</b> Understand about the field of clinical psychology, its nature and scope.	1,2	R, U, A, An, E
			<b>CO2:</b> Understand the role of clinical psychologists in clinical and research settings.	2,3	R, U, A, An, E
			<b>CO3:</b> Understand various methods used in the assessment of abnormal behavior and examine the applicability of these methods to different clinical situations	3,	R, U, A, An, E
			<b>CO4:</b> Understand the legal and ethical issues in clinical psychology and ethical dilemmas concerning rights and related social issues of patients	2	R, U, A, An, E
<b>III</b>	<b>MSPY303B</b>	<b>Clinical Disorders</b>	<b>CO1:</b> Understand psychopathologies of anxiety and stress related disorders.	2,3	R, U, A, An, E
			<b>CO2:</b> Understand psychopathologies of somatoform disorders, schizophrenia, personality disorders and substance related and addictive disorders.	6,7	R, U, A, An, E
			<b>CO3:</b> Understand psychopathologies of intellectual disabilities and specific learning disorders.	5,7	R, U, A, An, E
<b>III</b>	<b>MSPY304A</b>	<b>Counselling Psychology</b>	<b>CO1:</b> Demonstrate skills and techniques to deal with various issues related to counselling.	1,2	R, U, A, An, E
			<b>CO2:</b> Identify the social and cultural aspects of counselling programs.	7	R, U, A, An, E

			<b>CO3:</b> Identify community and institutional opportunities that enhance as well act as barriers that impede the academics	6,7	R, U, A, An, E
<b>III</b>	<b>MSPY304B</b>	<b>Child and Adolescent Counselling</b>	<b>CO1:</b> Demonstrate skills and techniques to deal with various issues related to children and adolescents.	3,4	R, U, A, An, E
			<b>CO2:</b> Identify community and institutional opportunities that enhance, as well as barriers that impede academics, career and personal or social and overall development of children and adolescents.	3,4	R, U, A, An, E
			<b>CO3:</b> To know about the intervention and policies of the school.	5	R, U, A, An, E
<b>III</b>	<b>MSPY305</b>	<b>Project Work (PRJ)</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E
			<b>CO4:</b> Collecting data (qualitative or quantitative) and using appropriate statistical or qualitative analysis techniques to interpret the results.	1,2,5	R, U, A, An, E
			<b>CO5:</b> Effectively communicate findings through written reports, presentations, or other mediums suitable for the project.	3,4,7	R, U, A, An, E
			<b>CO6:</b> Demonstrate an understanding of ethical principles in research, including obtaining informed consent, protecting participant confidentiality, and minimizing harm.	1,2,4,6	R, U, A, An, E
<b>III</b>	<b>MSPY351</b>	<b>General Lab</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E

			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E
<b>IV</b>	<b>MSPY401</b>	<b>Indian Psychology</b>	<b>CO1:</b> Understand the theoretical models based on classical Indian psychological thoughts.	1,2	R, U, A, An, E
			<b>CO2:</b> Understand psychology being deep rooted in the consciousness-based Indian worldview, yoga and a life-affirming spirituality	1,3	R, U, A, An, E
			<b>CO3:</b> Understand various Indian models of mind and personality	5	R, U, A, An, E
			<b>CO4:</b> Understand Sri Aurobindo's reflection on Knowledge	1	R, U, A, An, E
			<b>CO5:</b> Understand Psychotherapy and Indian Thought.	1,2,5	R, U, A, An, E
<b>IV</b>	<b>MSPY402</b>	<b>Applied Psychology</b>	<b>CO1:</b> Appraise the field role of forensic psychologists in the legal world.	1,2,4,6	R, U, A, An, E
			<b>CO2:</b> Understand about the dynamics of sports life and enhance the performance by applying Psychology.	1,2	R, U, A, An, E
			<b>CO3:</b> Understand the mental health issues of army personnel.	1,3	R, U, A, An, E
			<b>CO4:</b> Understand the role of media and the issues related to cyber crime.	1,2,4,6	R, U, A, An, E
			<b>CO5:</b> Understand the psychology of gender and various aspects of social change	1,2	R, U, A, An, E
<b>IV</b>	<b>MSPY403A</b>	<b>Psychodiagnostics</b>	<b>CO1:</b> Understand the initial assessment process of disorders.	1	R, U, A, An, E
			<b>CO2:</b> Use of different tools For Personality Assessment and Ability Testing.	3	R, U, A, An, E
			<b>CO3:</b> Understand about different tests and rating scales used in clinical settings.	3	R, U, A, An, E
			<b>CO4:</b> Use of neuropsychological tests in clinical settings	3,8	R, U, A, An, E

<b>IV</b>	<b>MSPY403B</b>	<b>Therapeutic Approaches</b>	<b>CO1:</b> Develop insight about basics of therapeutic approaches	1,2	R, U, A, An, E
			<b>CO2:</b> Understand about psychoanalytic and psychodynamic therapies.	2,3	R, U, A, An, E
			<b>CO3:</b> Understand about humanistic, existential and gestalt psychotherapies	2,3	R, U, A, An, E
			<b>CO4:</b> Understand couple therapy, family therapy & group therapy	2,3,5	R, U, A, An, E
<b>IV</b>	<b>MSPY404A</b>	<b>Counselling Theories and Techniques</b>	<b>CO1:</b> Trace the historical development of family therapy.	1	R, U, A, An, E
			<b>CO2:</b> Assess family dynamics in a structured manner.	1,2	R, U, A, An, E
			<b>CO3:</b> Apply concepts from family system theories to understand family dynamics and thereby develop treatment plans for couples and families	3,6	R, U, A, An, E
<b>IV</b>	<b>MSPY404B</b>	<b>Vocational Psychology</b>	<b>CO1:</b> Demonstrate knowledge of the vocational theories and issues.	1,2	R, U, A, An, E
			<b>CO1:</b> Demonstrate knowledge of the vocational sessions with special clients.	5,6	R, U, A, An, E
<b>IV</b>	<b>MSPY405</b>	<b>Project Work</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E
			<b>CO4:</b> Collecting data (qualitative or quantitative) and using appropriate statistical or qualitative analysis techniques to interpret the results.	1,2,5	R, U, A, An, E

<b>IV</b>	<b>MSPY451</b>	<b>General Lab</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E

## M. Com. (PO's)

<b>PO1</b>	Provide a systematic and rigorous learning and practical exposure to Banking and Finance related disciplines.
<b>PO2</b>	Train (Applicability) the student to develop conceptual, applied and research skills as well as competencies required for effective problem solving and right decision making in routine and special activities relevant to financial management and Banking Transactions of a business.
<b>PO3</b>	Acquaint a student with conventional as well as contemporary areas in the discipline of Commerce.
<b>PO4</b>	Enable a student well versed in national as well as international trends.
<b>PO5</b>	Acquire knowledge & skills for conducting business, accounting and auditing practices, role of regulatory bodies in corporate and financial sectors nature of various financial instruments.
<b>PO6</b>	Comprehend core areas specifically Advanced Accounting, International Accounting, Management, Security Market Operations and Business Environment and Research Methodology.
<b>PO7</b>	Create and develop new business ideas complying with the government policies.
<b>PO8</b>	Develop a sense of analyzing and evaluating.

## M. Com. E.A.F.M. (PSO's)

<b>PSO 1</b>	The students completing their Master's degree in E.A.F.M. will get the specialization in Economic Administration & Financial Management along with the following benefits:
<b>PSO 2</b>	They will be able to analyze economic trends, assess market conditions, and make informed decisions based on economic factors and may work as the Business forecasting manager, Market Analyst and Business Analyst.
<b>PSO 3</b>	The students acquire advanced financial management skills and techniques.
<b>PSO 4</b>	They learn to prepare and analyze budgets, evaluate financial performance, and develop effective financial strategies for organizations and thus become the Business propagators.
<b>PSO 5</b>	The students learn about financial regulations and compliance requirements.
<b>PSO 6</b>	They gain the practical knowledge of research methods thus to carry the research projects and to make the data-driven decisions.
<b>PSO 7</b>	The students acquire the skills and knowledge to crack the NET, SET, SLET and other competitive examinations and become the Assistant professors, Bank Managers, Business Analyst etc.
<b>PSO 8</b>	The students get their communication & presentation skills brushed specially for business and administrative purpose



Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MCEF101	Economic Analysis	CO1: Understand the meaning of Economics Analysis, Economic Problem & functions of Economic System.	1,2,3,4	R, U
			CO2: Analyze firm objectives and various theories related to the firm.	2,3,4,5	An
			CO3: Evaluate the relevance of profit maximization in the modern context.	5,6,7	U, E
			CO4: Apply concepts of Consumer Behavior including indifference curve analysis and demand functions.	1,4,8	A
I	MCEF102	Financial Management	CO1: Understand the fundamentals of Financial Management including its meaning, scope, importance, and the responsibilities of a financial manager.	1, 2,4	U, R
			CO2: Analyze and interpret financial statements to evaluate the financial health and performance of an organization.	2,3,4,	An, C
			CO3: Apply ratio analysis techniques to assess liquidity, profitability, leverage, and activity ratios for making informed financial decisions.	5,6,7	U, A, C
			CO4: Demonstrate proficiency in fund flow analysis, cost-volume profit analysis, capitalization, management of working capital, and understanding financial leverage.	1,4,7,8	A
I	MCEF103	Business Budgeting	CO1: Understand the concepts, objectives, advantages, and limitations of business budgets and budgeting, including various types and preparation methods.	1,2,3,5,6	U, R
			CO2: Analyze the significance of different types of budgets in both public and private sector institutions, along with their framing processes and effectiveness in corporate planning.	2,3,4	U, An
			CO3: Apply forecasting techniques and tools to predict future business trends and evaluate the performance of an organization using performance budgeting methods.	2,5,6,8	U, A
			CO4: Demonstrate proficiency in budgetary control methods, including variance analysis and cash budgeting, to effectively manage financial resources and make informed investment decisions.	3,4,4,5	An, A

<b>I</b>	<b>MCEF104</b>	<b>Public Finance</b>	<b>CO1:</b> Understand the concepts and Significance of Public Finance, including its role in enhancing allocative efficiency, distributive justice, and economic stability	1, 2,4	U
			<b>CO2:</b> Analyze the theories and principles of public expenditure, revenue, and taxation, along with their effects on production, distribution, and economic progress.	2,3,4,	A
			<b>CO3:</b> Evaluate the theory of Federal Finance, financial relations between Central and State Governments in India.	1,2,5,6,7	E
			<b>CO4:</b> Demonstrate comprehension of the Indian tax system, including major taxes at various levels, revenue trends of the Central and State Governments, and State Finance in Rajasthan since 1956.	1,4,7,8	U,E
<b>II</b>	<b>MCEF201</b>	<b>Managerial Economics</b>	<b>CO1:</b> Understand the meaning, nature, and scope of Managerial Economics, as well as the role and responsibilities of managerial economists.	1,2,3,5,6	U
			<b>CO2:</b> Analyze the fundamental concepts of Managerial Economics, including the theory of the firm, the role of profit, and the importance of demand forecasting.	1,2,3,4,5	An
			<b>CO3:</b> Evaluate the impact of the new economy on managerial decision-making, fiscal policy, inflation, and the concepts, components, and measurement of national income and economic welfare.	2,5,6,8	U, E
			<b>CO4:</b> Demonstrate proficiency in understanding the concept of linear programming and its applicability in the theory of employment and income.	3,4,4,5	U, An
<b>II</b>	<b>MCEF202</b>	<b>Financial Analysis &amp; Control</b>	<b>CO1:</b> Understand the concepts and significance of financial analysis, including its objectives, importance, and limitations, as well as sources of funds in India across different time horizons.	1, 2,4	U
			<b>CO2:</b> Analyze the preparation and interpretation of cash flow statements, cost-volume profit analysis, and management techniques for inventories, receivables, cash, and securities.	2,3, 4,5,6	An
			<b>CO3:</b> Evaluate the cost of capital and its computation, along with the management of income through retained earnings, dividend policies, and bonus issues.	1,2,5,6,7,8	U, E

			<b>CO4:</b> Demonstrate proficiency in financial planning, forecasting, and understanding the effects of new financing on shareholder income, risk, and control.	1,4,7,8	U, A
<b>II</b>	<b>MCEF203</b>	<b>Project Planning &amp; Control</b>	<b>CO1:</b> Understand the concept, function, and evolution of Project Management, comparing traditional management with project management, and defining project objectives and classification.	1,2,3,5,6	R, U
			<b>CO2:</b> Analyze the principles and techniques of project planning, including planning fundamentals, project life cycle, project contracting, and the essentials of good project planning.	2,3,4,5	An
			<b>CO3:</b> Evaluate production decisions, risk and uncertainty analysis, and value analysis techniques in project management, along with their implications for decision-making.	1,2,6,	E
			<b>CO4:</b> Demonstrate proficiency in project control methods, including information monitoring, internal and external project control, network techniques for projects, and controlling in-progress projects.	3,4,5	U, A
<b>II</b>	<b>MCEFM204</b>	<b>Financial System in India</b>	<b>CO1:</b> Understand the concept, significance, and organization of the financial system, including its role in economic development and the impact of liberalization on the Indian financial system.	1,2,3,5,6	U, A
			<b>CO2:</b> Analyze the emerging structure and instruments of the Indian money market, the role of commercial banks in industrial and working capital finance.	1,2	An
			<b>CO3:</b> Evaluate the concept, structure, and functions of the capital market, including the primary and secondary market.	2,5,8,	R, E
			<b>CO4:</b> Demonstrate proficiency in understanding the organization, management, functions, and working of international financial institutions such as the IMF, IBRD, IDA, and ADB.	3,5,7	U, E

<b>III</b>	<b>MCEF301</b>	<b>Indian Economy</b>	<b>CO1:</b> Compare India's economic development since independence; Population and Economic Development in India; Growth and Distributional issues.	1,2,4	R, An
			<b>CO2:</b> Analyze the fundamental concepts of Indian Economy, including the theory, Agriculture price Policies, Performances and Role of Indian Agriculture.	2,4,5	An, E
			<b>CO3:</b> Evaluate the new industrial patterns, small-scale and cottage industry and the concepts, components, and measurement of Industrial Finance	4,6,7	U, E
			<b>CO4:</b> Understand the Public sector and private sector in the Indian economy including New Industrial Policy.	1,2,4	R, U
<b>III</b>	<b>MCEF302</b>	<b>Indian Banking System</b>	<b>CO1:</b> Understand the concept, significance, Structure, Role and organization of the Indian Banking System, including Commercial banks. Co-operative banks – Regional Rural Banks-Local Area Banks:	1,2,3,5	R, E
			<b>CO2:</b> Evaluate the Role of banking system in the economic growth	4,5,7,8	E
			<b>CO3:</b> Evaluate the relationship, Functions and Working of State Bank of India & Reserve Bank of India (RBI) in different sectors of Indian Economy.	1,2	U, E
			<b>CO4:</b> Provide a comprehensive understanding of the Indian banking sectors reform including recommendations of Narasimham Committee.	4, 6	R, An
<b>III</b>	<b>MCEF303</b>	<b>International Banking</b>	<b>CO1:</b> Develop a solid understanding of the global banking landscape, the challenges and opportunities in international banking by understanding International Trade Theories, and Balance of Trade V/s Balance of payments,	1,2,4,5	U, R
			<b>CO2:</b> Comprehend a detailed study of International Monetary financial institutions like I.M.F., World Bank and its affiliates, The Asian Development Bank. The Central Bank of London.	4,7,8	R, A
			<b>CO3:</b> Evaluate the concept, structure, and functions of the Documentary Credit (L.Cs.) and Euro-Currency Markets.	2,5,6	U, E
			<b>CO4:</b> To Evaluate Foreign Exchange Rate Mechanism: Fixed and Flexible Trade Restrictions:	1,5,7,	U, E

<b>III</b>	<b>MCEF304</b>	<b>Research Methodology and Statistics</b>	<b>CO1:</b> Develop Understanding of the fundamentals of Research.	1,6,7,8	U, R
			<b>CO2:</b> Helps in Understanding the Types of Research Designs	1,5,3,4	U, R
			<b>CO3:</b> Apply Data Collection Techniques Primary and Secondary Data and Types of Sampling: Probability, non-Probability Sampling.	1,2,5	E, A
			<b>CO4:</b> Apply and Understand the Concept of Hypothesis and Hypothesis Testing	1,5,8,	R, An, A
<b>IV</b>	<b>MCEF401</b>	<b>Cooperative Sector Management</b>	<b>CO1:</b> Understand the meaning, Concept and Principles of Co-operation	1,2,,4	U, R
			<b>CO2:</b> Analyze the Government Control over Co-operatives: Legal and Administrative.	2,4,5,6	U, An
			<b>CO3:</b> Understand the Organization Structure of Co-operatives and Federal Structure of Co-operative Organization-Control.	4,5,7	U, E
			<b>CO4:</b> Understand the Needs and Importance of Co-operative Training with the help of case study on RAJFED, IFCCO and Cooperative dairy federation.	1,2,5	U, R, An
<b>IV</b>	<b>MCEF402</b>	<b>Bank Management</b>	<b>CO1:</b> Understand the concept, significance, Structure, Role and organization of the Indian Banking System	1,2,,5	U, R
			<b>CO2:</b> Evaluate the Role of Banking Business and Management of Loans and Advances including bank guarantee, Letter of Credit.	4, 7,8	R, E
			<b>CO3:</b> Develop the understanding about Merchant Banking, role of Merchant Bankers, Investment Banking, Venture Capital Funding, Factoring Services.	1,2,5,6	U, R
			<b>CO4:</b> Provide a comprehensive understanding the Non-Performing Assets (NPA) Management and Corrective Measures in managing NPAs.	4,8,2	U, R
<b>IV</b>	<b>MCEF403</b>	<b>Rural Development</b>	<b>CO1:</b> Understand the meaning, Concept and Philosophy of Rural Development including Basic characteristics of Rural Economy of India.	1,2,4,5	U, R
			<b>CO2:</b> Analyze the Gandhian Model v/s Rural Development and Role of NGO's in Rural Development.	3,4,7,8	U, An

			<b>CO3:</b> Understand about the Agencies for Rural Development at various levels eg. Panchayati Raj, Gram Panchayat, Panchayat Samiti & Zila Parishad. Including Concept need, Sources and Importance of Rural Finance.	2,4,5,6,7	U, E
			<b>CO4:</b> Analyze the role of MNREGA in Rural employment generation and Rural Marketing in rural development of India.	1,5,7,	E, An
<b>IV</b>	<b>MCEF404</b>	<b>Central Banking</b>	<b>CO1:</b> Understand the meaning, Evolution and Origin of Central Banking.	1,5,7,8	U, R
			<b>CO2:</b> Analyze the Role of R.B.I. in India.	1,5,4	R, An
			<b>CO3:</b> Understand about the Regulation and supervision over commercial banks	1,2,3	U, E
			<b>CO4:</b> Analyze The conduct of central banking in open and market Oriented economies. Including non-banking financial companies (NBFCs) and Regulatory framework for NBFCs.	1,7	R, An

## M. Com. A.B.S.T. (PSO's)

<b>PSO 1</b>	Students will acquire a comprehensive understanding of accounting principles, concepts and practices.
<b>PSO 2</b>	Students will develop skills in analyzing and interpreting financial statements, assessing the financial health of organizations and making informed decisions based on financial information.
<b>PSO 3</b>	Students will gain knowledge of tax laws, regulations and procedures, both for individuals and businesses.
<b>PSO 4</b>	Students will understand the principles and practices of auditing.
<b>PSO 5</b>	Students will apply knowledge of accounts, finance and auditing information for effective investment decisions.
<b>PSO 6</b>	Students will gain the practical knowledge of research methods

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MCAS101	Advanced Business Statistics I	CO1: Familiarize with various statistical data analysis tools.	6	An, E
			CO2: Able to understand the concept of permutations and Combinations	1	U, E
			CO3: Able to understand the probability and probability distribution	1	U, An, E
			CO4: Understand the basics of statistical decision theory and quality control	6	U, An, E
I	MCAS102	Direct Taxes	CO1: Able to understand basic provisions of Income Tax Act	3	U
			CO2: Learn about the residential status and various heads of income	3	U, R
			CO3: Able to compute taxable income of different assessee	3, 5	U, A, An
			CO4: Able to compute taxable liability of different assessee	3, 5	U, A, An
I	MCAS103	Advanced Cost Accounting	CO1: Students will be able to explain process costing and compute equivalent production	5	U
			CO2: Able to have a clear knowledge about cost concepts, methods and techniques of costing	2, 5	A, An
			CO3: Able to taking decisions about pricing, product and production	2, 5	U, R
			CO4: Able to understand cost reduction techniques and inter firm coparision	5	A, An
I	MCAS104	Cost and Management Audit	CO1: Able to articulate knowledge of fundamental cost and management audit concepts	1, 2	U
			CO2: Gain knowledge about the statutory provision regarding cost records and audit rules	2	U, R
			CO3: Develop detail understanding on preparation of Cost Audit Programme	2, 4	A, An



			<b>CO4:</b> Able to effectively guide a management audit process	4, 5	An, E
<b>II</b>	<b>MCAS201</b>	<b>Advanced Business Statistics II</b>	<b>CO1:</b> Understand the applications of Time Series, Moments and kurtosis	2	U, An
			<b>CO2:</b> Able to select the appropriate method for Association of attributes	6	U, An, E
			<b>CO3:</b> Able to compute multiple correlation and regressions	6	An, E
			<b>CO4:</b> Able to understand vital statistics and analyse the problems of Interpolation and Extrapolation	6	An, E
<b>II</b>	<b>MCAS202</b>	<b>Management Accounting</b>	<b>CO1:</b> Understand the tools of financial analysis	1, 2	U, R
			<b>CO2:</b> Able to understand the concept of capital structure and leverages	2	U, R
			<b>CO3:</b> Understand the concept of working capital management	2, 5	U, R, A
			<b>CO4:</b> Gather in-depth knowledge activity based cost management, bench marking, life cycle costing etc	2, 5, 6	U, R, An
<b>II</b>	<b>MCAS203</b>	<b>Advance Corporate Accounting</b>	<b>CO1:</b> Develop an understanding to prepare financial statements according double accounting system	1,2, 5	U
			<b>CO2:</b> Understanding the Accounting for Electricity companies Electricity Company	1, 2	U, A
			<b>CO3:</b> Develop an understanding to prepare financial statements of Banking and Insurance companies	1, 2	U, A, An
			<b>CO4:</b> Construct the consolidated financial statements of Holding and Subsidiary Company as per Companies Act 2013	1, 2	U, A
<b>II</b>	<b>MCAS204</b>	<b>Goods and Service Tax</b>	<b>CO1:</b> Able to learn about basic knowledge of Goods and Service Taxes	3, 4	U
			<b>CO2:</b> Providing knowledge about various provisions of GST	3, 4	U, R
			<b>CO3:</b> Able to compute total taxable income and tax liability under GST	3, 4	A, An, E

			<b>CO4:</b> Understanding and skill for meeting the requirements of the GST returns	3, 4	U, A, E
<b>III</b>	<b>MCAS301</b>	<b>Research Methodology</b>	<b>CO1:</b> Able to understand the basics of research methodology	2, 6	U, A
			<b>CO2:</b> Describe sampling methods, measurement scale and instrument and appropriate uses of each	2, 6	U, An
			<b>CO3:</b> Able to understand analysis of variance	2, 6	A, An
			<b>CO4:</b> Understand the concept and application of parametric and non-parametric tests	2, 6	U, A, An
<b>III</b>	<b>MCAS302</b>	<b>Custom Duty</b>	<b>CO1:</b> The students shall demonstrate knowledge of the Law and Practice of Custom Duty	3	U
			<b>CO2:</b> Students would understand the provisions relating to coastal goods, warehousing and duty drawback	3	U
			<b>CO3:</b> Students would understand the classification and valuation of goods imported and to be exported	3, 5	U, A
			<b>CO4:</b> Students will also learn about the various import and export procedures related to baggage	3, 5	U, A, An
<b>III</b>	<b>MCAS303</b>	<b>Project Planning &amp; Management</b>	<b>CO1:</b> Apply appropriate approaches to plan a new project and develop project schedule	5	U, A, E
			<b>CO2:</b> Able to identify the important risks facing in a new project	5	An, E
			<b>CO3:</b> Able to identify the important risks facing in a new project	5, 6	U, R, An
			<b>CO4:</b> Able to use PERT and CPM techniques to improve project planning	2, 5	A, An, E, C
<b>III</b>	<b>MCAS304</b>	<b>Tax Planning</b>	<b>CO1:</b> Understand the concept of tax planning	3	U
			<b>CO2:</b> Able to understand the areas of tax planning	3	U
			<b>CO3:</b> Understand the tax planning of companies, cooperatives and other assessees	3, 5	U, A, An

			<b>CO4:</b> Understand the tax consideration in respect of special decisions	3, 5	U, A, An, E
<b>IV</b>	<b>MCAS401</b>	<b>Operational Research &amp; Quantitative Techniques</b>	<b>CO1:</b> Understand the Operational Research & Quantitative Approaches to decision making	2, 5	U, A, E
			<b>CO2:</b> Able to identify, formulate and solve the LPP	5	An, E
			<b>CO3:</b> Able to solve optimization problems like transportation and assignment	5	U, R, An
			<b>CO4:</b> Able to use PERT and CPM techniques to improve decision making	5, 6	An, E, C
<b>IV</b>	<b>MCAS402</b>	<b>Financial Reporting</b>	<b>CO1:</b> Evaluate different types of performance measurement systems in accounting and commonly used financial control systems	2	U
			<b>CO2:</b> Demonstrate knowledge of management accounting concepts and techniques; and. Make sound financial decisions in real world settings	2, 5	U, E
			<b>CO3:</b> Understand the role of IFRS/Ind-AS in accounting discipline	1, 2, 5	A, An
			<b>CO4:</b> Able to understand the various forms of reporting and accounting for special transactions, and apply such knowledge in problem solving	1, 2, 5	U, A, An
<b>IV</b>	<b>MCAS403</b>	<b>Strategic Financial Management</b>	<b>CO1:</b> Practice strategic management to evaluate the role finance plays in strategic decision making	2	U
			<b>CO2:</b> Apply and evaluate analytical tools used in making investment decisions	2, 5	A
			<b>CO3:</b> Able to understand the financial derivatives and security analysis	2, 5	A, An
			<b>CO4:</b> Understand the portfolio theory and concept of mutual fund.	2, 5	A, An

<b>IV</b>	<b>MCAS404</b>	<b>Dissertation (Project) and Comprehensive Viva</b>	<b>CO1:</b> Able to communicate research concept and context clearly	6	U
			<b>CO2:</b> Understand and apply ethical standards to conducting research	6	U, A
			<b>CO3:</b> Understand to apply quantitative and qualitative evaluation process to original data	2, 6	A, An
			<b>CO4:</b> Understand to apply appropriate techniques in research	6	U, A, An

## M. Com. B.A.D.M. (PSO's)

<b>PSO 1</b>	Students would inculcate Proficiency in core business areas like finance, marketing, and HR, fostering a comprehensive understanding. They would be able to cultivate research expertise to conduct scholarly investigations and present findings proficiently.
<b>PSO 2</b>	Embracing a global mindset to navigate diverse business environments and international markets adeptly.
<b>PSO 3</b>	Students would be able to Craft strategic solutions for intricate business dilemmas through analytical thinking and foresight.
<b>PSO 4</b>	Students would develop advanced leadership skills and managerial acumen for effective team direction stimulating an entrepreneurial mindset, fostering innovation and agility in seizing opportunities.
<b>PSO 5</b>	Students would apply critical analysis to solve complex business problems with precision and insight.
<b>PSO 6</b>	Students would excel in communication across varied stakeholders, conveying ideas and strategies effectively integrating ethical considerations into decision-making processes, emphasizing integrity and responsibility.
<b>PSO 7</b>	Post Graduates will embrace continuous professional growth and lifelong learning to stay current in the dynamic business world.

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MCBM101	Theory and Practice of Management	CO1: Identify and apply new ideas, methods and ways of thinking	1,2,3,4,5,6,7	U, An, E, A
			CO2: Work effectively with others, on their different thinking, experience and skills	1,5,6	E, S
			CO3: Identify and evaluate social, cultural, global, ethical and environmental responsibilities and issues	1,3,5,6	U, An, E
			CO4: Demonstrate skills in various dimensions in management	5,7	S, A
I	MCBM102	Marketing Management	CO1: Students will demonstrate knowledge of the legal and ethical environment impacting business organizations and exhibit an understanding and appreciation of the ethical implications of decision	1,2,3,4,5,6,7	U, An, E, A
			CO2: Students will demonstrate an understanding of and appreciation for the importance of the impact of globalization	1,4	U, R
			CO3: Graduates will demonstrate knowledge of current information, theories and models, and techniques and practices in all of the major business disciplines	5,7	S, A
			CO4: Understanding of areas like the general Accounting and Finance, Information Technologies, Management, Marketing, and Quantitative Analysis.	1,4	U
I	MCBM103	Human Resource Management	CO1: Demonstrate an understanding of key terms, theories/concepts and practices within the field of HRM	1,2,4	U, R
			CO2: Demonstrate competence in development and problem-solving in the area of HR Management	1,3,5,6	An, E, S
			CO3: Be able to identify and appreciate the significance of the ethical issues in HR	1,3,5,6	An, E
			CO4: Provide innovative solutions to problems in the fields of HRM	3,4,5,6,7	S, C, A

<b>I</b>	<b>MCBM104</b>	<b>Managerial Economics</b>	<b>CO1:</b> Analyze economic information and develop the solution of micro and macro-economic problems	1,2,3,4,5	U, An, E
			<b>CO2:</b> Understanding economic data and applying them in various economic concepts.	1,2,4	U, R
			<b>CO3:</b> Concretize economic problems to be analyzed and understand how theoretical framework and actual empirical conditions are connected	1,2,3,4	U, An, E, C
			<b>CO4:</b> With the help of economic data, they can use them in various economic concepts and models and find out and compare the economic situations of the country	3,4,5,7	S, C, A
<b>II</b>	<b>MCBM201</b>	<b>Management Thinkers</b>	<b>CO1:</b> Acquainted with different concepts and jargon in the field of management	1,2,4	U, R
			<b>CO2:</b> Analyze the managerial problems from different perspectives	1,3,6	An, E
			<b>CO3:</b> Understand how the solution to the age old problems of 'allocating scarce resources to meet the needs and wants of organizations.	1,3,5,6	An, E, S
			<b>CO4:</b> Handle future issues that will affect the organizations with sound conceptual knowledge	1,2,4,7	U, A
<b>II</b>	<b>MCBM202</b>	<b>Advertising Management</b>	<b>CO1:</b> Students will able to understand the ways that communication through advertising influences and persuades consumers.	1,2,3,4,6	U, An
			<b>CO2:</b> Identify advertisement's place in the promotion mix and decisions which need to be made in budgeting and planning for promotion.	1,2,4,6,7	U, An, E, A
			<b>CO3:</b> Setting promotional objectives and identify their relationship with the strategic plan	2,3,5,7	S, C, A
			<b>CO4:</b> Identify and discuss a range of creative strategies in advertising also the role of the advertising agency and its client relationships	1,2,4,7	U, A

<b>II</b>	<b>MCBM203</b>	<b>Organisational Behaviour</b>	<b>CO1:</b> Recognize and discuss the different perspectives of working culture in organizations	1,2,4	U, R
			<b>CO2:</b> Interpret key concepts and theories with regard to individual differences and apply these appropriately to specific situations	1,2,5,6,7	U, An, E
			<b>CO3:</b> Understand how organizational performance can be improved through the effective management of human resources.	1,3,5,6,7	An, E, A
			<b>CO4:</b> Students will able to accept and embrace in working with different people from different cultural and diverse background in the workplace.	1,2,4,7	U, A
<b>II</b>	<b>MCBM204</b>	<b>Financial Management</b>	<b>CO1:</b> Describe the financial environment within which organisations must operate and critically evaluate the financial objectives of various types of organisations and the respective requirements of stakeholders	1,2,4,5,6,7	U, R, An, E, A
			<b>CO2:</b> Explain alternative sources of finance and investment opportunities and their suitability in particular circumstances	1,2,3,5,6	U, An, E
			<b>CO3:</b> Assess the factors affecting investment decisions and opportunities presented to an organisation and Select and apply techniques in managing working capital	1,2,3,5,6	An, E, A
			<b>CO4:</b> Analyse a company's performance and make appropriate recommendation	1,3,5,6,7	An, A
<b>III</b>	<b>MCBM301</b>	<b>Business Environment</b>	<b>CO1:</b> Students would be acquainted with business objectives, dynamics of business and environment, various types of business environment and its analysis.	1,2,4	U, R
			<b>CO2:</b> Students would recall and relate various concepts like business ethics, ethical dilemmas, corporate culture and ethical climate. They would also be acquainted about development of various acts applicable to business in India.	1,2,4	U, R
			<b>CO3:</b> Students would describe and discuss Corporate Social Responsibility, Corporate Governance and Social Audit.	1,2,4	U, R



			<b>CO4:</b> Students would be acquainted with various strategies of Global Trade. They would also discuss Foreign Trade in India, Foreign Direct Investments and its implications on Indian Industries.	1,2,4	U, R
<b>III</b>	<b>MCBM302</b>	<b>E-Commerce</b>	<b>CO1:</b> Impart the students with higher level knowledge and understanding of contemporary trends in E-commerce.	1,2,4	U, An, E
			<b>CO2:</b> They would get aware of the e-Business environment, the identification of contemporary e-business issues, and the evaluation of their implications for organizations	1,2,3,4,5,6	U, An, E
			<b>CO3:</b> Describe about the anatomy of e-commerce applications and demonstrate about the E-commerce consumer application	1,3,6,7	An, E, A
			<b>CO4:</b> Develop the ability to evaluate the effects of business issues in relation to various e-Business model	1,5,6	E, S
<b>III</b>	<b>MCBM303</b>	<b>International Business</b>	<b>CO1:</b> Identify the similarities and differences in business practices between the home country and the work/study country	1,2,3,4,5,6	U, An, E
			<b>CO2:</b> Integrate the knowledge and skills obtained in the classroom with that obtained in the business world through cooperative education	1,3,5,6,7	An, E, S, A
			<b>CO3:</b> Students will able to Communicate effectively, present information, issues and recommendations clearly..	1,3,5,6,7	An, E, S, A
			<b>CO4:</b> Adapt to and function effectively in different national cultures.	1,2,4,7	U, A
<b>III</b>	<b>MCBM304</b>	<b>Research Methodology</b>	<b>CO1:</b> Understand some basic concepts of research and its methodologies	1,2,4	U, R
			<b>CO2:</b> Identify appropriate research topics and select and define appropriate research problem and parameters	1,2,3,5,6,7	U, An, A
			<b>CO3:</b> Prepare a project proposal (to undertake a project) and organize and conduct research (advanced project) in a more appropriate manner	1,2,3,4,5,6,7	U, R, An, E, S, A
			<b>CO4:</b> Write a research report and thesis and write a research proposal (grants)	1,2,3,4,5,6,7	U, E, A, C

<b>IV</b>	<b>MCBM401</b>	<b>Strategic Management</b>	<b>CO1:</b> To understand the basic concepts of strategic management, generic strategic alternatives and its process.	1,2,4	U, R
			<b>CO2:</b> To grasp the importance of strategic analysis and apply various methods used for the analysis.	1,2,6,7	U, E, A
			<b>CO3:</b> To correlate Sustainability and Strategic Management	1,3,5,6,7	An, E, A
			<b>CO4:</b> To critically evaluate and analyze case studies	1,3,5,6	An, E
<b>IV</b>	<b>MCBM402</b>	<b>Tourism Marketing</b>	<b>CO1:</b> Students get an overview of the concept of tourism marketing and its role in the promotion of tourism products.	1,2,4	U, R
			<b>CO2:</b> Students are exposed to various tour packages and the use of technology in marketing.	1,2,4,7	U, A
			<b>CO3:</b> Students obtain knowledge about various marketing strategies adopted by major tour operators.	1,2,5,6	U, An, E
			<b>CO4:</b> Students will learn various marketing skills which can be applied in tourism jobs.	1,2,5,6,7	An, E, A
<b>IV</b>	<b>MCBM403</b>	<b>Human Resource Development</b>	<b>CO1:</b> Explain human resources development (HRD) and its theories, the difference between education, training, learning and the concept of the transfer of learning	1,2,4	U, R
			<b>CO2:</b> Critique the relationship between organisational development (OD) and HRD contribution to organisational effectiveness.	1,2,5,6,7	An, E, A
			<b>CO3:</b> Apply and evaluate a learning process starting with training needs analysis to assessment and evaluation process.	1,2,5,6,7	An, E, A
			<b>CO4:</b> Understand the role of continuous development in the life of human resource to make them realise their full potential.	1,2,5,6,7	An, E, A
<b>IV</b>	<b>MCBM404</b>	<b>Dissertation</b>	<b>CO1:</b> Able to communicate research concept and context clearly	6	U
			<b>CO2:</b> Understand and apply ethical standards to conducting research	6	U, A
			<b>CO3:</b> Understand to apply quantitative and qualitative evaluation process to original data	2, 6	A, An
			<b>CO4:</b> Understand to apply appropriate techniques in research	6	U, A, An

## M. A.(PO's)

<b>PO1</b>	Students will be able to critically analyze social phenomena, theories, and research findings to evaluate their validity and implications within diverse social contexts.
<b>PO2</b>	To develop abilities to demonstrate proficiency in designing and conducting sociological research, including qualitative and quantitative methodologies, and interpreting findings ethically.
<b>PO3</b>	Students will possess a comprehensive understanding of major sociological theories and their applications to contemporary social issues and phenomena.
<b>PO4</b>	Students will be equipped with the knowledge and skills to advocate for social justice, equity, and human rights within various social systems and institutions.
<b>PO5</b>	To demonstrate cultural competence and sensitivity in understanding and interacting with diverse individuals and communities, including those from different socio-economic, cultural, and ethnic backgrounds
<b>PO6</b>	Students will exhibit an understanding of global sociological processes, including globalization, transnationalism, and global inequalities, and their impacts on local communities and societies.
<b>PO7</b>	Students will effectively communicate sociological concepts, theories, and research findings to diverse audiences through written, oral, and digital mediums.
<b>PO8</b>	Students will be able to collaborate effectively with professionals from other disciplines, applying sociological insights to interdisciplinary projects and initiatives.
<b>PO9</b>	Students will adhere to ethical principles and standards in sociological research, teaching, and professional practice, demonstrating integrity, honesty, and respect for human dignity and diversity.
<b>PO10</b>	Students will recognize the importance of lifelong learning and professional development, continually updating their knowledge and skills to adapt to evolving societal challenges and opportunities.

## M. A. History (PSO's)

<b>PSO 1</b>	Produce scholarly publications, presentations, or creative works that contribute to the dissemination and enrichment of knowledge about Indian history.
<b>PSO 2</b>	Evaluate the impact of diverse historical theories and perspectives on understanding Indian history, discerning their contributions and limitations
<b>PSO 3</b>	Analyze the historiographical evolution of specific topics in Indian history, identifying shifts in interpretations and contributing factors.
<b>PSO 4</b>	Apply advanced historical methodologies, theoretical frameworks, and interdisciplinary approaches to analyze complex primary and secondary sources in Indian history.
<b>PSO 5</b>	Understand a sophisticated understanding of the multi-layered socio-political, cultural, and economic contexts shaping Indian history
<b>PSO 6</b>	Remember and synthesize comprehensive knowledge of significant historical events, periods, figures, and movements in Indian history.

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MAHS101	Main Trends In The History of Modern World (Upto 1900 AD)	CO1: Students will develop a comprehensive Understanding knowledge of the major historical trends, events, and turning points that have shaped the modern world and will	5,3,2	U, AN, E
			CO2: Analyse and evaluate differing historical interpretations and debates related to key events and trends in modern world history	5,3,2	U, AN, E
I	MAHS102	History of Modern World (1900-2000 Ad)-I	CO1: Students will develop critical understanding and Analysis of skills, allowing them to assess historical sources for bias, credibility, and relevance, and to construct well-reasoned arguments based on evidence.	5,3,6	U, AN, R
			CO2: Through this student will Remember research skills, including locating and utilizing primary and secondary sources, evaluating their credibility, and citing them appropriately in academic work.	5,3,6	U, AN, R
I	MAHS103	Main Trends in the History and Culture of Rajasthan – I	CO1: Students will develop a comprehensive understanding & knowledge of the major historical events, rulers, and cultural trends that have influenced Rajasthan's history and culture.	5,6	U, R
			CO2: Students through this will Remember the ways in which historical, political events and cultural influences have contributed to the unique identity of Rajasthan as a region	5,6	U, R
I	MAHS104A	Group (A) Ancient Indian History (Earliest Times To C.200 B.C.)	CO1: Students will develop a foundational knowledge of ancient Indian history, and will remember key periods, regions, and cultural developments up to around 200 B.C.	6,2,5	R, E, U
			CO2: student will be able to understand and evaluate the chronological sequence of major events and developments in ancient India.	6,2,5	R, E, U

<b>I</b>	<b>MAHS104B</b>	<b>Group (B) Medieval Indian History (A. D. 750-1526) I</b>	<b>CO1:</b> Students will Understand major historical events, dynasties, and cultural developments that characterized medieval India from the 8th to the 16th century.	5,3	U, An
			<b>CO2:</b> Analyze & develop critical thinking skills, enabling them to construct well-reasoned historical arguments based on evidence and interpretation	5,3	U, An
<b>I</b>	<b>MAHS104C</b>	<b>Group (C) Modern Indian History (1756-1905 A.D.)-I</b>	<b>CO1:</b> Students will apply the knowledge of colonial influences, and socio-cultural transformations in India from 1756 to 1905 in their Assignments and Projects.	4,6,5	A, R, U
			<b>CO2:</b> Students will Remember effectively and communicate their understanding of modern Indian history through well-structured	4,6,5	A, R, U
<b>II</b>	<b>MAHS201</b>	<b>Main Trends In The History Of Modern World (Upto 1900 AD)</b>	<b>CO1:</b> Upon successful completion of this paper, students will be able to understand the causes of the numerous wars and its repercussions will understand the impact on the world of the changes occurring during this period.	5,3,6	U, AN, R
			<b>CO2:</b> Analyze and Remember the Repercussions of Wars for World	5,3,6	U, AN, R
<b>II</b>	<b>MAHS202</b>	<b>History of Modern World (1900-2000 A. D.)-II</b>	<b>CO1:</b> Students will develop critical Understanding allowing them to assess historical sources, reasoned arguments based on evidence.	5,3,2	U, AN, E
			<b>CO2:</b> Through this student will Analyze research skills, including primary and secondary sources, evaluating their credibility, and citing them appropriately in academic work	5,3,2	U, AN, E
<b>II</b>	<b>MAHS203</b>	<b>Main Trends in the History and Culture of Rajasthan- II</b>	<b>CO1:</b> Students will develop a comprehensive Understanding of the major historical events, rulers, and cultural trends of Rajasthan's history and culture.	5,3	U, AN
			<b>CO2:</b> Students through this will Analyse the importance of historical, political events and cultural influences have contributed to the unique identity of Rajasthan	5,3	U, AN

II	MAHS204A	<b>Group (A) Ancient Indian History (Earliest Times To C. 200 B.C.)</b>	CO1: Students will understand an ancient Indian history, covering key periods, regions, and cultural developments up to around 200 B.C,	5,3,6	U, AN, R
			CO2: Analyse chronological sequence of major events and developments in ancient India and Remember the interdisciplinary nature of studying ancient history, integrating insights from archaeology, epigraphy, linguistics, and other related fields	5,3,6	U, AN, R
II	MAHS204B	<b>Group (B) Medieval Indian History (A. D. 750-1526)-II</b>	CO1: Students will acquire knowledge and understand o major historical events.	5,2	U, E
			CO2: paper will develop critical Evaluation and thinking skills, of students written assignments, presentations, and discussions.	5,2	U, E
II	MAHS204C	<b>Group (C) Modern Indian History (1756-1905 A.D)-II</b>	CO1: Students will gain a comprehensive understanding of the major historical events, and the contribution of Women in Indian Nationalist Movement from 1756 to 1905.	5,6	U, R
			CO2: Students will Remember the emergence and growth of Indian nationalism, its diverse expressions, and its role in shaping India's future	5,6	U, R
III	MAHS301	<b>Historical Tourism In India With Special Reference To Rajasthan-I</b>	CO1: This course will provide students understand the significant role of History in the field of travel and tourism.	5,2	U, AN
			CO2: It makes the students Analyze that the history of a land is one of the most compelling of all travel motivations. In tracing the history of India, this paper also familiarizes the students with different types of tourism, historical and heritage sites of India	5,2	U, AN
III	MAHS302	<b>Philosophy of History Part – I</b>	CO1: Demonstrate a nuanced understanding of various philosophical approaches to interpreting and conceptualizing history, including teleological, cyclical, and dialectical perspectives.	5,2	U, AN
			CO2: Analyze historical narratives and historiographical debates from a philosophical perspective, discerning underlying patterns, biases, and epistemological challenges.	5,2	U, AN

<b>III</b>	<b>MAHS303A</b>	<b>Ancient Indian History (C. 200B.C to 750 A. D.)</b>	<b>CO1:</b> They will Remember Rise & Growth of the Gupta's Empire in ancient India and understand the emergence of regional Kingdoms in different parts of India after downfall of the Empire.	6,5,3	R, U, AN
			<b>CO2:</b> They Analyze the importance of the society, economy and culture in early medieval India and will Evaluate that why Gupta empires Known to be the "Classical age" in India	6,5,3	R, U, AN
<b>III</b>	<b>MAHS303B</b>	<b>Medieval Indian History (1526-1761 A.D.)</b>	<b>CO1:</b> Course would help students develop a comprehensive understanding of the complex and rich history of Medieval India from 1526 to 1761, Familiarity with primary and secondary sources used by historians to reconstruct and interpret the history of this period	5,3	U, AN
			<b>CO2:</b> Analyze importance of historical debates and controversies related to this period, such as the nature of Mughal rule,	5,3	U, AN
<b>III</b>	<b>MAHS303C</b>	<b>Modern Indian History (1905-1990)-I</b>	<b>CO1:</b> Outcomes will reflect a deep understanding of the historical, political, social, economic, and cultural developments in India during this period and Gain knowledge about prominent leaders and women leaders i.e Kasdturba Gandhi, Mahatma Gandhi, Jawaharlal Nehru, Sardar Patel, and others,	5,6	U, R
			<b>CO2:</b> Student will remember the ideologies and strategies they employed in the struggle for independence.	5,6	U, R
<b>III</b>	<b>MAHS304A</b>	<b>Social And Economic Life in Ancient India-I</b>	<b>CO1:</b> student will gain knowledge of concept of social system in Ancient India and will remember the position of women since Vedic times till Modern India	6,2	R, E
			<b>CO2:</b> Student will evaluate the status of women specially in Vedic times	6,2	R, E
<b>III</b>	<b>MAHS304B</b>	<b>Social and Economic Life in Medieval India Part-I</b>	<b>CO1:</b> Paper study would help students develop a comprehensive understanding of different social and economic concept of medieval Indian society.	5,6	U, R
			<b>CO2:</b> student can remember the importance of different classes of society in Medieval times	5,6	U, R



III	MAHS304C	Social and Economic Life in Modern India-I	CO1: Students should have a strong understanding of the historical context of modern India, including the major events, colonial rule, and the pre-independence period, which laid the foundation for subsequent developments	5,3	U, AN
			CO2: Students will analyze the socio-economic structures of modern India, including the impact of British colonialism, agrarian relations, industrialization, urbanization and demographic changes on Indian society.	5,3	U, AN
III	MAHS305A	Ancient Indian Art and Architecture	CO1: The course will enable the student to Understand the ancient aesthetics and knowledge of construction, and also stimulate interest to know the subject in detail.	5,4	U, A
			CO2: Students will apply the knowledge of the Art & Architecture in their class presentations.	5,4	U, A
III	MAHS305B	History and Culture of Medieval Rajasthan (C.1200-1761A.D.)-I	CO1: A course on the history and culture of Medieval Rajasthan help students to Understand the impact of Mughal rule on Rajasthan, including political alliances, administrative changes, and the fusion of Mughal and Rajput cultures and will Encourage interdisciplinary thinking	5,2	U, E
			CO2: Students will critically evaluate primary sources such as historical texts, inscriptions artworks, and archaeological findings to reconstruct and analyze the history and culture of medieval Rajasthan	5,2	U, E
III	MAHS305C	History of Modern Rajasthan-I	CO1: Outcomes aim to provide students with a well-rounded understanding of the history, culture, and socio-political dynamics of Modern Rajasthan.	5,6	U, R
			CO2: Student will able to Remember the culture of Modern Rajasthan	5,6	U, R
IV	MAHS401	Historical Tourism in India with Special Reference to Rajasthan-II	CO1: Analyze the impact of tourism on the conservation and management of historical sites in Rajasthan, considering issues of sustainability and cultural heritage management.	3,2	AN, E

			CO2: Evaluate the effectiveness of tourism policies, strategies, and initiatives aimed at promoting historical tourism in Rajasthan, identifying areas for improvement and innovation	3,2	AN, E
IV	MAHS402	Philosophy Of History– II	CO1: Evaluate the implications of philosophical theories of history for broader philosophical, political, and social debates, considering their impact on conceptions of identity, progress, and human destiny	2,3	E, AN
			CO2: Conduct in-depth analyses of key philosophical texts and theories relevant to the philosophy of history, examining their historical context, conceptual coherence, and implications for historical understanding	2,3	E, AN
IV	MAHS403A	Ancient Indian History (200B.C to 750 A. D)	CO1: students will Understand the importance of Gupta Era ad why it considered as Golden period of history.	5,6	U, R
			CO2: The paper will help in remembering the contribution of different dynasties towards art, architecture and administration of the period.		
IV	MAHS403B	Medieval Indian History (1526-1761 A.D.)-II	CO1: Remembering various historical debates and controversies related to this period, such as the nature of Mughal rule, the impact of colonialism, and the interpretation of historical events.	6,5	R, U
			CO2: An understanding of how events and developments in Medieval India have influenced contemporary Indian society, politics, and culture	6,5	R, U
IV	MAHS403C	Modern Indian History (1905-1990)- II	CO1: outcomes will reflect a deep understanding and evaluating the economic policies and reforms in post-independence India, including the Green Revolution, nationalization, and economic liberalization in the 1990s	5,2,3	U, E, AN
			CO2: Student will Analyze India's foreign policy during this period, including its role in the Non-Aligned Movement, conflicts with neighboring countries, and nuclear policy	5,2,3	U, E, AN

IV	MAHS404A	<b>Social And Economic Life In Ancient India- II</b>	CO1: This course will make students understand the flesh blood and to the abstract concepts of society and economy, modes of production and distribution of labor.	5,6	U, R
			CO2: Student will able to remember the facts of socio-economic history by the time this course is concluded	5,6	U, R
IV	MAHS404B	<b>Social And Economic Life In Medieval India-II</b>	CO1: From this paper the students will be able to understand the change & continuity of Indian social and Economic system From Ancient to Medieval period	6,3	U, AN
			CO2: Students will analyze the various economic systems and modes of production in medieval India, including agrarian economies, trade networks, artisanal production, and the impact of state policies on economic activities.	6,3	U, AN
IV	MAHS404C	<b>Social and Economic Life in Modern India-II</b>	CO1: After studying the paper student will able to understand the impact of economic policies on the self-sufficient village economy of India, also he /she will grasp a good command on modern economic concept.	5,2	U, E
			CO2: Students will evaluate the economic transformations in modern India, including the emergence of modern industries, transportation and communication networks, banking and finance systems, and their impact on livelihoods and living standards i.e commercialization of agriculture and de-industrialization.	5,2	U, E
IV	MAHS405A	<b>Ancient Indian Art and Architecture- II</b>	CO1: The student is prepared to Remember the characters and features of Indian art from different regions of the given period.	6,5	R, U
			CO2: The course also helps them to understand art as source for historical studies	6,5	R, U

<b>IV</b>	<b>MAHS405B</b>	<b>History and Culture of Medieval Rajasthan (1200-1761 A.D.)-II</b>	<b>CO1:</b> Student will develop understanding of research skills and critical thinking abilities through research projects, essays, and presentations on topics related to Medieval Rajasthan. <b>CO2:</b> Student will Remember the histories of Marwar (Jodhpur) and Mewar (Udaipur) in depth, including their unique contributions to the cultural and political landscape of Rajasthan. They will evaluate the importance of Hindu temples, and their coexistence of various religious traditions	5,6	U, R
<b>IV</b>	<b>MAHS405C</b>	<b>History of Modern Rajasthan-II</b>	<b>CO1:</b> Paper aim to provide students with a well-rounded understanding of the Modern history of Rajasthan with special context to Company's Economic policies and developments.	5,6	U, R
			<b>CO2:</b> Paper also aims at making student Remember about different independent movement occur in states of Rajputana for freedom.	5,6	U, R
<b>IV</b>	<b>MAHS451</b>	<b>Project/Dissertation/ Summer Training/ Field Visit</b>	<b>CO1:</b> students will gain a deeper understanding of historical contexts, enhance their research skills, and develop their ability to critically evaluate historical sources and narratives.	1,5,6	U, E, R
			<b>CO2:</b> Students will design and execute a comprehensive research project based on their field visit findings.	1,5,6	U, E, R

## M. A. Geography (PSO's)

<b>PSO 1</b>	The students may be able to read and understand maps and topographic features to look at the various aspects on the spatial and temporal phenomenon. It also describe the physiography,geological processes, distribution of resources, ecume and non-ecumene regions of the world with settlement patterns and type and dynamism of phenomena over time
<b>PSO 2</b>	Evaluate critical aspects of spatial phenomenon from global to local level on various time scales.
<b>PSO 3</b>	Analyse co-relationship of physical condition, cultural condition, population, efficiency, education, science, policy, religion, health, ethics, various philosophical schools and related theories paradigm shift in geographical studies , contemporary issues, environmental concers and policies etc.
<b>PSO 4</b>	Understand the basic statistical analysis, cartography, representation of data and its application in geography.
<b>PSO 5</b>	The students learn about different geographical, geomorphological, climatic and hydrological Processes and therefore can study interrelated phenomenon

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
<b>I</b>	<b>MAGE101</b>	<b>Geographical Thought –I (up to Medieval Period)</b>	<b>CO1:</b> Acquire the knowledge about the development of Philosophical and Theoretical aspect of geography by studying the various thinkers.	1,2,3	U, R
			<b>CO2:</b> Learn the chronological development of geography from the ancient to medieval and from medieval to modern/post-modern.	1,2,3	U, C, R, A
			<b>CO3:</b> Evaluate Vedic age and puranas.	1,2	U, C, E
			<b>CO4:</b> Compare the ideas and Philosophies of scholars of modern school of thought and Paradigm shift.	1,2,3	U, C, E, An
<b>I</b>	<b>MAGE 102</b>	<b>Dynamic Geomorphology</b>	<b>CO1:</b> Understand earth's form and relationships between its physical components.	1, 2	U, An, A
			<b>CO2:</b> Learn the fundamentals of physical aspects of the Earth, Earth's structure and dynamic processes.	1,2,5	U, An
			<b>CO3:</b> Understand about the earth's physical environment and to comprehend the relationships between geomorphologic landforms, concepts, and processes.	1,2,3,4,5	U, An, E, A
<b>I</b>	<b>MAGE 103</b>	<b>Economic Geography</b>	<b>CO1:</b> Understand nature scope and types of Agriculture in the modern economic world	2,3	U, R, A
			<b>CO2:</b> Acquire knowledge of energy sources and industries	1,2,3	U, C, R, A
			<b>CO3:</b> Conceptualize, demarcate and analyze the geographical determinates of agriculture and manufacturing activities	2	U, C, E
			<b>CO4:</b> Evaluate the importance of economic regions, economic man, and decision theories.	3	U, R
			<b>CO5:</b> Visualize and analyze data on flows, networks of transportation, and economic indices	3	U, R

<b>I</b>	<b>MAGE104A</b>	<b>Man &amp; Natural Environment-I</b>	<b>CO1:</b> understand concept of relationship between man and environment	1,2	R, U, E, A, An
			<b>CO2:</b> Understand environmental crises and problems	1	U, R
			<b>CO3:</b> Investigate the contemporary global environmental issues	1,2	U, R, A, An
<b>I</b>	<b>MAGE104B</b>	<b>Quantative Techniques Geography-I</b> in	<b>CO1:</b> Understand concept of Probability	1,2	U, E, A, An
			<b>CO2:</b> Evaluate Theory of Sampling, need and testing.	1,2	U, E, A, An
			<b>CO3:</b> Learn about bivariate analysis Regression analysis.	1,2,3	U, E, A, An
			<b>CO4:</b> Understand multivariate analysis ANOVA -testing	1,2	U, E, A, An
<b>I</b>	<b>MAGE151</b>	<b>Geography Practical-I</b>	<b>CO1:</b> Learn the art of making Maps	2,3,5	U, C, An, A
			<b>CO2:</b> Calculate the distances on the Map by knowing about the different types of the scale	2,3,5	U, C, An, A
			<b>CO3:</b> Learn the Methods of depiction of the relief	2,3,5	U, C, An, A
			<b>CO4:</b> Evaluate the data of climate on the Map	2,3,5	U, C, An, A
<b>II</b>	<b>MAGE201</b>	<b>Geographical Thought-II (Modern)</b>	<b>CO1:</b> Students can enhance the knowledge about temporal succession of geographical views from ancient times to the 20 <sup>th</sup> century so that they are able to know the development of thought in the field of geography in India as well as the world.	1,2	U, R
			<b>CO2:</b> Explain and identify the characteristics and attributes of Regional Development and Planning Multi-level planning, Analyze Planning for backward areas. Identify local to global perspectives	2,3	U, C, R, A
			<b>CO3:</b> Analyzing modern and contemporary principles of Empiricism, Positivism, Structuralism, Human and Behavioral Approaches in Geography.	1,2,3	U, C, E
			<b>CO4:</b> Understand different approaches in Geography and recent trend in geography.	1,2,3	C, U, E, An

<b>II</b>	<b>MAGE202</b>	<b>Climatology &amp; Oceanography</b>	<b>CO1:</b> Understand various elements of Climate and the factors influencing the distribution of temperature and pressure	1,2	C, U, E, An
			<b>CO2:</b> learn about the Heat budget, Insolation, Air masses, Fronts, cyclones and weather phenomenon.	1,2,4	U, C, E
			<b>CO3:</b> Study world climate types and evaluate co-relationship between various weather elements.	1,2	C, U, E, An, A
			<b>CO4:</b> Evaluate the utilities of marine resources and significance of corals in marine ecology.	1,2,3	C, U, E
<b>II</b>	<b>MAGE203</b>	<b>Principles and Theory of Economic Geography</b>	<b>CO1:</b> Acquire the Theoretical aspect of Economic geography -Simple model & structure of economy	1,2	U, R
			<b>CO2:</b> Understand the fundamental theories in economic geography.	1	U, C, R, A
			<b>CO3:</b> Students will be familiarized with economic processes such as globalization, trade and transportation and their impacts on economic, cultural and social activities.	1,2	U, C, E
			<b>CO4:</b> Analyze the factors of location of agriculture and industries.	1,2	C, U, E, An
<b>II</b>	<b>MAGE204A</b>	<b>Man &amp; Natural Environment-II</b>	<b>CO1:</b> Understand and evaluate the global scale of environmental problems	1,2	C, U, E, An
			<b>CO2:</b> Learn the importance and strategies of Resource management and conservation.	1,2,3	U, C, E
			<b>CO3:</b> Study about natural hazards and food security.	1,2	C, U, E, An, A
			<b>CO4:</b> Develop the ability to evaluate the environment degradation, Sustainable development – concept and goals.	1,2,3	U, C, E



<b>II</b>	<b>MAGE204B</b>	<b>Quantative Techniques Geography-II</b> in	<b>CO1:</b> Understand Hypothesis, need, types.	1,2	U, R, A, An, E
			<b>CO2:</b> Students can enhance the knowledge about Correlation and regression.	2,3	U, C, R,A
			<b>CO3:</b> Understand surface models and their application.	1,2,4,5	U, C, E, A
			<b>CO4:</b> Gain knowledge about Simulation models.	1,3	C, U, E, An
<b>II</b>	<b>MAGE251</b>	<b>Geography Practical-II</b>	<b>CO1:</b> Read and interpret the weather Maps	2,3,5	U, C, An, A
			<b>CO2:</b> Learn to draw isotherm and isobar maps	2,3,5	U, C, An, A
			<b>CO3:</b> Sketch the land use Maps by using different methods of surveying	2,3,5	U, C, An, A
			<b>CO4:</b> Create a plan for a small area	2,3,5	U, C, An, A
<b>III</b>	<b>MAGE301</b>	<b>Advanced Geography of India</b>	<b>CO1:</b> Understand about the Geology, physiography, climate, drainage, soils of India	1,2,4	C, U, E, An
			<b>CO2:</b> They understand the economic resources of India.	1,2,4	U, C, E
			<b>CO3:</b> Understand about Resource development and regional problems of India.	1,2,3	C, U, E, An, A
			<b>CO4:</b> Learn and discuss about the International, national trade, transport, regional planning in India.	1,2,3	C, U, E, An, A
<b>III</b>	<b>MAGE302A</b>	<b>Agricultural Geography-I</b>	<b>CO1:</b> Introduced the students to the basic principles and concepts in Agriculture Geography, Origin and dispersal of agriculture.	1,2	C, U, E, An
			<b>CO2:</b> Understand about Land use survey and agriculture types agriculture regions of world	1,2,3	U, E, An
			<b>CO3:</b> Students can enhance the knowledge about crop combination, Crop Diversification, Agricultural Efficiency	1,2	U, E, An, A
			<b>CO4:</b> Students will be familiarized with Sustainable development of agriculture, problems of agriculture, agricultural Policy of India.	1,2,3	C, U, E, An, A

<b>III</b>	<b>MAGE302B</b>	<b>Disaster Perception and Management</b>	<b>CO1:</b> Understand about Concept of disaster management, its importance, hazards and disaster.	1,2	U, C, E, An
			<b>CO2:</b> Information about Disaster perceptions and mitigation and response.	1,2	U, E, An, A
			<b>CO3:</b> Know about Disaster Management mechanism in India, Public awareness, plans, policies.	1,3	U, E, An, A, C
<b>III</b>	<b>MAGE303A</b>	<b>Urban Geography</b>	<b>CO1:</b> Understand the nature, scope, approaches and recent trends in Urban Geography.	1,2	U, E, An
			<b>CO2:</b> Comprehend the fundamentals of urbanization, morphology and hierarchy theories that explain the process of urban development.	1,2	U, E, An, A, C
			<b>CO3:</b> Analyze the theories of urban evolution and growth, Hierarchy of urban settlements.	1,2,3	U, E, An, C
			<b>CO4:</b> Analyze the models on city structure, Understand the ecological processes of urban growth; urban fringe; city-region	1,2,3	U, E, An, A
			<b>CO5:</b> Information about Principles of Town planning, Preparation of a Master plan, National Urban Policy and Urban Land use.	1,2	U, E, An, A
<b>III</b>	<b>MAGE303B</b>	<b>Regional Planning</b>	<b>CO1:</b> Understand the Scope and objective, Principles of Regional Planning.	1,2	U, E, An
			<b>CO2:</b> Students can enhance the knowledge about Significance of the term Political, Economic, social and spatial Integration in regional planning.	1,2	U, E, An
			<b>CO3:</b> Acquire the knowledge about Methods of Regional planning, Factor Analysis, Comparative Cost-analysis, Industrial complex and analysis, Shift analysis, Types of Planning, Multi-levels Planning. .	1,2,3	U, E, An, A
			<b>CO4:</b> Know about Regional and Sectoral Policy in India. Problems and Planning of Tribal and hill areas.	1,2	U, E, An

<b>III</b>	<b>MAGE304A</b>	<b>Political Geography</b>	<b>CO1:</b> Understand the Definition, Scope and Development of Political Geography & Geopolitics.	1,2	U, E, An
			<b>CO2:</b> Understand about State: Definition, importance, core areas, Capital.	1	U, An
			<b>CO3:</b> Students can enhance the knowledge about Frontiers and Boundaries	1,2	U, An
			<b>CO4:</b> Acquire the knowledge about Conceptual Model of the Voting Decision.	1,2	U, An
<b>III</b>	<b>MAGE304B</b>	<b>Water Resource and their Management-I</b>	<b>CO1:</b> Students will be familiarized with distribution of world's water resources, world hydrologic cycle.	1,3	U, E, An
			<b>CO2:</b> Understand about Precipitation: potential evapo-transpiration. Water demand and use.	1,2,3	U, E, An, A
			<b>CO3:</b> Information about Soil-water- crop relationships & soil water conservation.	1,2	U, E, An
			<b>CO4:</b> Students can enhance the knowledge about water logging, salinity and alkalinity of soil, over exploitation of ground water. Water quality parameters, surface and ground water pollution	1,2,3	U, E, An, A
<b>III</b>	<b>MAGE304C</b>	<b>Research Methodology</b>	<b>CO1:</b> Acquire the knowledge of concept of research and research methodology	2,3	U, R, A, An, E, C
			<b>CO2:</b> Acquire the knowledge about Selected techniques of spatial analysis, Methods of delimiting regions	2,3	U, R, A, An, E, C
			<b>CO3:</b> Understand the application of statistical techniques in geographical studies.	1,2,3	U, C, E
			<b>CO4:</b> Gain knowledge about the applied aspect research methodology in spatial analysis.	4, 5	U, C, E, An
<b>III</b>	<b>MAGE351</b>	<b>Geography Practical/ Project Work-III</b>	<b>CO1:</b> Represent data using different types of Diagrams	2,3,5	U, C, An, A
			<b>CO2:</b> Acquire the knowledge of different types of Maps and cartography techniques to represent the data	2,3,5	U, C, An, A
			<b>CO3:</b> Apply the statistical techniques to the data for further analysis	2,3,5	U, C, An, A
			<b>CO4:</b> Learn the basic concept of application of statistical tools in geographical analysis	2,3,5	U, C, An, A

IV	MAGE401	Geography of Rajasthan	CO1: Learn the Geographical features, climate, water, soil and human, resources and other significant regional features of Rajasthan	2	U, R
			CO2: Examine the comprehensive over view of economic and socio-cultural features of arid and semi-arid region	2,5	U, C, R, A
			CO3: Gain essential knowledge about Rajasthan, which will prove beneficial for State level and other competitive exams, helping them to familiarize themselves with the state's fundamental information.	2,4,5	U, C, E
IV	MAGE402A	Agriculture Geography-II	CO1: Introduced the students to the basic principles and concepts in Agriculture Geography, Origin and dispersal of agriculture.	1,2	C, U, E, An
			CO2: Understand about Land use survey and agriculture types agriculture regions of world	1,2,3	U, E, An
			CO3: Students can enhance the knowledge about crop combination, Crop Diversification, Agricultural Efficiency	1,2	U, E, An, A
			CO4: Students will be familiarized with Sustainable development of agriculture, problems of agriculture, agricultural Policy of India.	1,2,3	U, C, E, An, A
IV	MAGE402B	Climatology	CO1: Understand various elements of Climate and the factors influencing the distribution of temperature and pressure ,air circulation	1,2	C, U, E, An
			CO2: Evaluate the world climate and climatic classification based on climatic factors	2,5	U, C, R, A
			CO3: Learn the fundamentals of Applied climatology.	1,2,3,5	U, An, E, A
			CO4: Understand about issues of environment related with climate.	1,2,	U, An, E, A

<b>IV</b>	<b>MAGE403A</b>	<b>Industrial Geography</b>	<b>CO1:</b> Understand the fundamental theories in economic geography.	1,2	U, C, R, A
			<b>CO2:</b> Understand new trends of Industrial world.	1,3	U, An, E, A
			<b>CO3:</b> Gain essential knowledge about delimitation of industrial regions.	1,2,3	C, U, E, An
			<b>CO4:</b> Evaluate the regional and regionalization pattern of industries	1,2	U, E, An
<b>IV</b>	<b>MAGE403B</b>	<b>Fundamentals of Remote Sensing</b>	<b>CO1:</b> Understand new technology of Remote sensing. Concepts of Remote Sensing.	1,2,3	U, E, An
			<b>CO2:</b> Learn basics of Air photography and photogrammetry.	1,2,3	U, An, E, A
			<b>CO3:</b> Understand about Satellite Remote sensing platforms, applications, microwave sensing.	1,2	U, An, E, A
			<b>CO4:</b> Learn about Applications of Air and Image interpretations and mapping land use and land cover, Land evaluation.	1,2,3,5	U, An, E, A
<b>IV</b>	<b>MAGE404A</b>	<b>Biogeography</b>	<b>CO1:</b> Gain essential knowledge about Bio-geography, Zoo-geography and plant geography, Plant and Animal Ecology.	1,2,3	U, E, An
			<b>CO2:</b> Study the natural habitat –Biome and community	2,3	
			<b>CO3:</b> Evaluate the process of distribution , origin, and spread of biological diversity	1,2	U, An, E, A
			<b>CO4:</b> study of the patterns of geographic distribution of organisms and the factors that determine those patterns.	1,2	U, An, E ,C
<b>IV</b>	<b>MAGE404B</b>	<b>Water Resource and their Management-II</b>	<b>CO1:</b> Students can enhance the knowledge about use of water.	1,2	U, An, E, A
			<b>CO2:</b> Evaluate problems of water & floods.	1,2	U, An, E, A
			<b>CO3:</b> Understand concept of soil conservation, land use.	1,2,4	U, An, E, C
			<b>CO4:</b> Learn about drought management, water resource development planning, water shed management, river water issues.	1,2,4	U, An, E, C, A

<b>IV</b>	<b>MAGE404C</b>	<b>Applied Geography</b>	<b>CO1:</b> Understand about Application aspects of Geography	1,2	U, An, E
			<b>CO2:</b> Learn about application of surveying and mapping.	1,2,4	U, An, E, C, A
			<b>CO3:</b> Examine the comprehensive over view of Human resource development and man power planning.	1,2	U, An, E, C
<b>IV</b>	<b>MAGE451</b>	<b>Geography Practical/ Field Survey/ Dissertation IV</b>	<b>CO1:</b> Get the knowledge of the co-ordinate system and its applicability	2,3,5	U, C, An, A
			<b>CO2:</b> Learn to prepare the grids pattern for various regions of the world	2,3,5	U, C, An, A
			<b>CO3:</b> Select appropriate maps for specific purpose	2,3,5	U, C, An, A
			<b>CO4:</b> Prepare map according to the region or purpose	2,3,5	U, C, An, A

## M.A. Political Science (PSO's)

<b>PSO1</b>	Course serves both recent college graduates and seasoned professionals ready to take on more advanced roles.
<b>PSO2</b>	A master's degree in political science prepares for a wide selection of careers in government, the nonprofit sector, politics, law, public interest groups, research firms and academics.
<b>PSO3</b>	Students develop skills like negotiation & communication skills, writing skills, generic and analytical reasoning, and public response management.
<b>PSO4</b>	It prepares the students to enter the national/international political scene as you will be well-versed with historical and current affairs.
<b>PSO5</b>	It equips the students to choose from many promising careers such as law, education, journalism, politics, civil services, etc.
<b>PSO6</b>	It focuses on studying the origin, development, and operation of political systems around the world. They also learn and research political ideas and policies, political trends, and analyze governments. Their research usually pertains to the four core areas – political theory, national politics, comparative politics, and international relations.
<b>PSO7</b>	Since the general science paper of both the preliminary and main exams of Civil Services contain several Political Science questions, Political Science students certainly have the edge over candidates from other streams.
<b>PSO8</b>	Political Scientists use qualitative methods to gather information from disparate sources, they use different quantitative methods to develop political theories. Political Scientists may sometimes don the role of a Policy Analyst for organizations with labor unions and political groups.
<b>PSO9</b>	It can provide a student with different kinds of elective courses so that he can choose and then specialize among the different subjects to get in-depth knowledge.
<b>PSO10</b>	Students will get more job opportunities in multiple sectors, including Universities, Administration, Campaigns, and other recognized sectors.

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MAPO101	Western Political Thought - I	CO1: The students shall learn nature and importance of western thinkers and contemporary relevance of their thought	4, 6, 7	An, E, U, R
			CO2: They will be able have a broad overview an worldwide developments based on western political ideas and philosophies.	4, 6, 7	An, E, U, R
I	MAPO102	Indian Political Thought-I	CO1: The course enriches the knowledge of ancient Indian political thought.	4, 6, 7,	An, U, E, R
			CO2: It gives an understanding of the contribution of the various thinkers in the past.		
			CO3: The student learns about the past political ideologies and philosophies.		
I	MAPO103	International Politics-I	CO1: The course enriches the knowledge of international political concepts.	2, 5, 6, 7, 8, 10	U, A, An, E
			CO2: It gives an understanding of the contribution of various events and institutions in the past.	2, 5, 6, 7, 8, 10	U, A, An, E
			CO3: The student learns about the past political ideologies and philosophies relating to international politics.	2, 5, 6, 7, 8, 10	U, A, An, E
I	MAPO104	Theory and Practice of Public Administration-I	CO1: The course enriches the knowledge of public administration, concepts and theories.	1, 2, 3, 6, 7, 10	U, E, A, An
			CO2: It gives an understanding of the contribution of various events and institutions. The student learns about the administration, bureaucracy and executive.	1, 2, 3, 6, 7, 10	U, E, A, An
II	MAPO201	Western Political Thought - II	CO1: The course enriches the knowledge of western political thought.	4, 6, 7	An, E, U, R
			CO2: It gives an understanding of the contribution of the various thinkers in the past.	4, 6, 7	An, E, U, R
			CO3: The student learns about the past political ideologies and philosophies.	4, 6, 7	An, E, U, R



<b>II</b>	<b>MAPO202</b>	<b>Indian Political Thought-II</b>	<b>CO1:</b> The course enriches the knowledge of modern Indian political thought.	4, 6, 7	An, U, E, R
			<b>CO2:</b> It gives an understanding of the contribution of the various thinkers in the past.	4, 6, 7	An, U, E, R
			<b>CO3:</b> The student learns about the past political ideologies and philosophies	4, 6, 7	An, U, E, R
<b>II</b>	<b>MAPO203</b>	<b>International Politics-II</b>	<b>CO1:</b> The course enriches the knowledge of international political concepts.	2, 5, 6, 7, 8, 10	U, A, An, E
			<b>CO2:</b> It gives an understanding of the contribution of various events and institutions in the past	2, 5, 6, 7, 8, 10	U, A, An, E
			<b>CO3:</b> The student learns about the past political ideologies and philosophies relating to international politics.	2, 5, 6, 7, 8, 10	U, A, An, E
<b>II</b>	<b>MAPO204</b>	<b>Theory and Practice of Public Administration-II</b>	<b>CO1:</b> The course enriches the knowledge of public administration, concepts and theories.	1, 2, 3, 6, 7, 10	U, E, A, An
			<b>CO2:</b> It gives an understanding of the contribution of various events and institutions.	1, 2, 3, 6, 7, 10	U, E, A, An
			<b>CO3:</b> The student learns about the administration, bureaucracy and executive.	1, 2, 3, 6, 7, 10	U, E, A, An
<b>III</b>	<b>MAPO301</b>	<b>Comparative Politics and Institutions-I</b>	<b>CO1:</b> The students develop a deep understanding of comparative approach to the study of practical and theoretical aspects of political science.	1, 2, 3, 6, 8	A, An, E, U, C
			<b>CO2:</b> They also learn about contemporary relevance of political science.	1, 2, 3, 6, 8	A, An, E, U, C
<b>III</b>	<b>MAPO302</b>	<b>Indian Government &amp; Politics (Constitutional Framework)</b>	<b>CO1:</b> The student becomes well aware about the structures and functions of the legislature, executive and judiciary and dynamics of Indian Politics.	2, 5, 7, 8, 10	A, An, E, U
<b>III</b>	<b>MAPO303</b>	<b>Research Methodology-I</b>	<b>CO1:</b> The student will have a deep understanding of the need and role of research in Political Science.	1, 2, 5, 8	U, An, E, A, C
			<b>CO2:</b> Students will also develop knowledge about various methods of research. Related theories and concepts.	1, 2, 5, 8	U, An, E, A, C

<b>III</b>	<b>MAPO304A</b>	<b>Modern Indian Political Thought-I</b>	<b>CO1:</b> Enrich about variety of Modern Indian political thoughts.	4, 6, 7, 8	An, E, R, U
			<b>CO2:</b> Understands the contributions of Social Reformers	4, 6, 7, 8	An, E, R, U
			<b>CO3:</b> Creates awareness on political ideologies of 19th century social reformers.	4, 6, 7, 8	An, E, R, U
			<b>CO4:</b> Familiarizes the political philosophy of religious reformers	4, 6, 7, 8	An, E, R, U
<b>III</b>	<b>MAPO304B</b>	<b>Foundation of Gandhian Thought</b>	<b>CO1:</b> Enrich about gandhian political thoughts.	4, 6, 7	An, E, U
			<b>CO2:</b> Understands the contributions of Gandhi in Indian Political Scenario.	4, 6, 7	An, E, U
			<b>CO3:</b> Creates awareness on political ideologies of Mahatma Gandhi.	4, 6, 7	An, E, U
			<b>CO4:</b> Familiarizes with gandhian political philosophy	4, 6, 7	An, E, U
<b>III</b>	<b>MAPO304C</b>	<b>Theory of Diplomacy</b>	<b>CO1:</b> The students become well aware about the structures and functions of the diplomatic actions and can examine various state's diplomacy according to their gathered knowledge.	1, 3, 4	A, An, U, E
<b>III</b>	<b>MAPO304D</b>	<b>Foreign Policies of USA, Russia, and China</b>	<b>CO1:</b> The students become well aware about the structures and functions of the foreign policy actions and can examine various state's foreign policy according to their gathered knowledge.	4, 6, 10	An, E, U, R
<b>III</b>	<b>MAPO304E</b>	<b>Public Administration in India</b>	<b>CO1:</b> The students become well aware about the structures and functions of the public administration in India and can examine and evaluate the administrative machinery according to their gathered knowledge.	1, 2, 3, 6, 7, 10	U, E, An, A
<b>III</b>	<b>MAPO304F</b>	<b>State Politics in India</b>	<b>CO1:</b> The students become well aware about the structures and functions of the state administration in India and can examine and evaluate the center-state relations according to their gathered knowledge.	1, 2, 3, 5, 8	U, E, An
<b>IV</b>	<b>MAPO401</b>	<b>Contemporary Political Theory</b>	<b>CO1:</b> The students develop a deep understanding of contemporary political approaches to the study of practical and theoretical aspects of political science.		
			<b>CO2:</b> They also learn about the applied aspect of political science.	1, 2, 3, 6, 8	A, An, E, U, C

IV	MAPO402	Indian Government & Politics (Practice & Processes)	CO1: The students become well aware about the structures and functions of the legislature, executive and judiciary and dynamics of Indian Politics.	2, 5, 7, 8, 10	A, An, E, U
			CO2: They will know the importance of Centre – State Relations.& learn the Indian federal process and also assess the electoral process in India	2, 5, 7, 8, 10	A, An, E, U
IV	MAPO403A	Research Methodology-II	CO1: The student will have a deep understanding of the need and role of research in Political Science.	1, 2, 5, 8	U, An, E, A, C
			CO2: Students will also develop knowledge about various methods of research. related theories and concepts.	1, 2, 5, 8	U, An, E, A, C
IV	MAPO403B	Modern Indian Political Thought-II	CO1: Enrich about variety of Modern Indian political thoughts.	4, 6, 7, 8	An, E, R,U
			CO2: Understands the contributions of Freedom fighters.	4, 6, 7, 8	An, E, R,U
			CO3: Creates awareness on political ideologies of Gandhi, Nehru Ambedkar etc.	4, 6, 7, 8	An, E, R,U
			CO4: Familiarizes the political philosophy of M.N.Roy,V. D. Savarkar etc	4, 6, 7, 8	An, E, R,U
IV	MAPO403C	Foundation of Gandhian Thought-II	CO1: Enrich about gandhian political thoughts.	4, 6, 7	An, E, U
			CO2: Understands the contributions of Gandhi in Indian Political Scenario.	4, 6, 7	An, E, U
			CO3: Creates awareness on political ideologies of Mahatma Gandhi.	4, 6, 7	An, E, U
			CO4: Gives an in-depth understanding of the gandhian political philosophy	4, 6, 7	An, E, U
IV	MAPO403D	Practice of Diplomacy	CO1: The students becomes well aware about the structures and functions of the diplomatic actions and can examine various state's diplomacy according to their gathered knowledge	1, 3, 4	A, An, E, U
IV	MAPO403E	India's Foreign Policy	CO1: Understands the theoretical framework of foreign policy.	1, 4, 9, 10	An, E, U
			CO2: Enables the student to know the role of foreign policy and national interest.	1, 4, 9, 10	An, E, U

			<b>CO3:</b> Learns about the origin, principles and basics of Indian foreign policy.	1, 4, 9, 10	An, E, U
			<b>CO4:</b> Assess importance of Panchsheel agreement between India and China.	1, 4, 9, 10	An, E, U
			<b>CO5:</b> Understands the geo-political, geo-strategic determinants and cross-border terrorism in India.	1, 4, 9, 10	An, E, U
<b>IV</b>	<b>MAPO403F</b>	<b>Comparative Public Administration</b>	<b>CO1:</b> The students becomes well aware about the structures and functions of the public administration in several countries of the world	1, 2, 3, 8	A, An, E, U, C
			<b>CO2:</b> They can examine and compare the administrative system of these countries according to their gathered knowledge.	1, 2, 3, 8	A, An, E, U, C
<b>IV</b>	<b>MAPO403G</b>	<b>Electoral System in India, Electoral Reforms</b>	<b>CO1:</b> On completion of this course the students becomes well aware about the role of political parties and pressure groups in India.	1, 2, 5, 7, 8, 9	U, R, A, An, E
			<b>CO2:</b> They also develop understanding about electoral politics and election system in India.	1, 2, 5, 7, 8, 9	U, R, A, An, E
<b>IV</b>	<b>MAPO404D</b>	<b>Project/ Dissertation/ Summer Training/ Field</b>	<b>CO1:</b> It enables students to demonstrate their capacity to carry out a substantial piece of independent academic research on a selected topic.	1, 3, 5, 8, 9,10	U, A, An, E, CS

## Master's in Social Work (M.S.W.) (PSO's)

<b>PSO1</b>	Develop a robust understanding of fundamental sociological concepts across various subfields.
<b>PSO2</b>	Cultivate critical thinking abilities to discern between concepts explored in different courses.
<b>PSO3</b>	Apply pertinent sociological concepts and methodologies to address diverse challenges.
<b>PSO4</b>	Foster positive attributes such as empathy, compassion, and effective communication skills, including listening, speaking, and observation.
<b>PSO5</b>	Demonstrate commitment to the health and well-being of diverse stakeholders.
<b>PSO6</b>	Foster appreciation and tolerance for diverse behavioral patterns.
<b>PSO7</b>	Analyze social issues and dynamics, devising effective solutions for their management.
<b>PSO8</b>	Establish a solid theoretical grounding in sociological research methodologies and ethically apply this knowledge to research endeavours.

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MASW101	History and Philosophy of Social Work	PO1: Understand the foundational principles and theories of sociology.	1,2	R, A, C
			PO2: Develop a critical perspective on social structures and processes.	1,2	R, A, C
I	MASW102	Society and Human Behaviour	PO1: Analyze the complexities and dynamics of Indian society.	1,2	A, E
			PO2: Explore cultural diversity and social issues in the Indian context.	1,2	A, E
I	MASW103	Social Case Work	PO1: By engaging in the study of social structure and change, students acquire essential knowledge about the fundamental aspects of society and its major segments.	1,3,6,7	R, A, An
I	MASW151	Field Practicum-I	PO1: Examine contemporary social issues and challenges in India.	2,3,4,7	An, E, C
			PO2: Propose solutions and interventions for societal problems.	2,3,4,7	An, E, C
			PO3: Acquire foundational knowledge in social research methods and develop skills for designing and conducting social research.	2,3,4,7	An, E, C
			PO4: Understand the social dynamics and issues in rural communities and analyze the impact of social change on rural societies.	2,3,4,7	An, E, C
II	MASW201	Social Welfare Administration and Social Policy	PO1: Explore the unique characteristics and challenges of tribal societies.	1,2,3,6	An, E
			PO2: Understand the cultural and social aspects of tribal communities.	1,2,3,6	An, E
II	MASW202	Social Work with Groups	PO1: Examine and critically analyze classical sociological theories.	1,2,3,6,7,8	R, An, E
			PO2: Relate classical thought to contemporary societal issues.	1,2,3,6,7,8	R, An, E

<b>II</b>	<b>MASW203</b>	<b>Research Methodology and Statistical Reasoning</b>	<b>PO1:</b> Analyze the social dynamics and challenges of urban environments.	1,3,8	R, A, An, E
			<b>PO2:</b> Explore the impact of urbanization on society.	1,3,8	R, A, An, E
<b>II</b>	<b>MASW251</b>	<b>Field Practicum-II</b>	<b>PO1:</b> Study the evolution and contributions of Indian sociological thinkers.	2,3,4,7	An, E, C
			<b>PO2:</b> Apply indigenous perspectives to sociological analysis.		
<b>III</b>	<b>MASW301</b>	<b>Social Work with Communities</b>	<b>PO1:</b> In their education, students gain an understanding of the distinction between values and ethics and learn to incorporate an ethical approach into their lives. They cultivate compassion and selflessly serve others, recognizing the importance of treating people with kindness	1,2,3,6,7,8	R, A, An, E
<b>III</b>	<b>MASW302</b>	<b>Disaster Management and Environmental Social Work</b>	<b>PO1:</b> Analyze the interplay between politics and society.	3,4	A, An, E, R
			<b>PO2:</b> Understand the sociological aspects of political processes.	3,4	A, An, E, R
<b>III</b>	<b>MASW303</b>	<b>Urban World and Social Work</b>	<b>PO1:</b> This course delves into the evolution of sociological perspectives, building upon the foundations laid by classical theories. Students explore the historical progression of sociological thought, examining how contemporary perspectives have emerged and evolved from the seminal works of classical sociologists.	1,3,5,7	A, E, C
<b>III</b>	<b>MASW304A</b>	<b>Issues of Health Rights: Social Work Perspective</b>	<b>PO1:</b> Explore the historical and philosophical foundations of social work.	1,2,3,4,5,6	R, A, E
			<b>PO2:</b> Understand the evolution of social work as a profession.	1,2,3,4,5,6	R, A, E
<b>III</b>	<b>MASW304B</b>	<b>Human Resource Management (HRM)</b>	<b>PO1:</b> Analyze the relationship between society and individual behavior. <b>PO2:</b> Understand the psychological and sociological factors influencing behavior.	2,4,7	R, An, E
<b>III</b>	<b>MASW304C</b>	<b>Human Right and Civil Rights Organizations</b>	<b>PO1:</b> Develop skills in individualized intervention and counseling.	1,2,3,8	R, A, E
			<b>PO2:</b> Apply social work theories to address individual problems.	1,2,3,8	R, A, E

<b>III</b>	<b>MASW351</b>	<b>Field Practicum-III</b>	<b>PO1:</b> In their educational journey, students develop an understanding of the distinction between values and ethics and strive to adopt an ethical approach to life. They embrace the practice of treating people with compassion and selflessly offering service to others	2,3,4,7	An, E, C
<b>IV</b>	<b>MASW401</b>	<b>Women and Social Legislation</b>	<b>PO1:</b> Understand the principles of social welfare administration.	1,2,3,7	An, E
			<b>PO2:</b> Analyze and evaluate social policies for their impact on communities.	1,2,3,7	An, E
<b>IV</b>	<b>MASW402</b>	<b>Industrial Relations and Trade Union</b>	<b>PO1:</b> This paper helps the students to understand group work, group process and group dynamics. It also develops an idea about the skills and techniques required for working with different groups.	1,7	R, An, E
<b>IV</b>	<b>MASW403</b>	<b>Counselling</b>	<b>PO1:</b> Acquire knowledge and skills in social research methodology.	3,4,6	A, An
			<b>PO2:</b> Understand the role of statistical reasoning in sociological research.	3,4,6	A, An
<b>IV</b>	<b>MASW404A</b>	<b>Social Work with Older Persons</b>	<b>PO1:</b> This paper introduces the definition and concepts of social welfare administration and discusses about various approaches of organizational management.	4,5,7	A, An, E
<b>IV</b>	<b>MASW404B</b>	<b>Labour Welfare and Social Security (HRM)</b>	<b>PO1:</b> Explore community development strategies and interventions.	4,5,6,7	A, An, R
			<b>PO2:</b> Apply sociological concepts to community-based social work.	4,5,6,7	A, An, R
<b>IV</b>	<b>MASW404C</b>	<b>Child Rights and Social Work</b>	<b>PO1:</b> Understand the social dimensions of disasters and environmental issues.	4,7,2	R, A, An, E
			<b>PO2:</b> Develop strategies for social work in disaster management.	4,7,2	R, A, An, E
			<b>PO3:</b> Urban World and Social Work:	4,7,2	R, A, An, E
<b>IV</b>	<b>MASW451</b>	<b>Dissertation/ Field Work/ Report writing</b>	<b>PO1:</b> Gain practical experience in applying sociological concepts in real-world settings.	2,3,4,7	An, E, C
			<b>PO2:</b> Develop skills through hands-on fieldwork.	2,3,4,7	An, E, C



## M.A. Sociology (PSO's)

<b>PSO1</b>	Demonstrate Advanced Sociological Knowledge: Acquire a comprehensive understanding of advanced sociological theories, concepts, and methodologies relevant to various subfields within sociology.
<b>PSO2</b>	Critically Evaluate Sociological Perspectives: Develop the ability to critically evaluate and compare different sociological perspectives, theories, and research findings, fostering a nuanced understanding of sociological debates and controversies.
<b>PSO3</b>	Apply Sociological Insights to Real-world Issues: Apply sociological theories and methodologies to analyze and address complex social issues such as inequality, globalization, social change, and environmental sustainability, demonstrating the relevance of sociology to contemporary challenges.
<b>PSO4</b>	Cultivate Empathy and Interpersonal Skills: Foster empathy, cultural competence, and effective interpersonal skills to engage ethically and respectfully with individuals and communities from diverse backgrounds, facilitating meaningful sociological research and practice.
<b>PSO5</b>	Conduct Advanced Sociological Research: Gain proficiency in designing, conducting, and analyzing advanced sociological research projects using both qualitative and quantitative methods, contributing to the advancement of sociological knowledge.
<b>PSO6</b>	Communicate Complex Ideas Effectively: Develop advanced written and oral communication skills to effectively communicate complex sociological ideas, research findings, and analyses to diverse audiences, including academic, professional, and lay audiences.
<b>PSO7</b>	Engage in Collaborative Scholarship: Collaborate with peers, faculty, and community partners to engage in collaborative scholarship, interdisciplinary research, and community-based initiatives aimed at addressing social issues and promoting social justice.
<b>PSO8</b>	Demonstrate Professional Ethics and Integrity: Adhere to ethical principles and professional standards in all aspects of sociological practice, demonstrating integrity, honesty, and a commitment to social justice in research, teaching, and professional endeavors.

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MASO101	Introduction to Sociology	CO1: Gain familiarity with major sociological theories	1,6	R, A, C
			CO2: Apply theoretical perspectives to analyze social issues and phenomenas.	1,6	R, A, C
I	MASO102	Basic Theoretical perspectives in Sociology	CO1: Understand major sociological theories like functionalism and conflict theory.	1,2	A, An, R
			CO2: Apply theories to analyze social issues effectively.	1,2	A, An, R
I	MASO103	Indian Social System	CO1: Comprehend the structure and dynamics of Indian society.	1,2,3	R, A,U, An
			CO2: Evaluate socio-cultural factors shaping Indian society.	1,2,3	R, A, U, An
I	MASO104	Rural Society	CO1: Explore characteristics and changes in rural communities.	1,2,3,5	R, An, E, U
			CO2: Assess the impact of globalization on rural areas.	1,2,3,5	R, An, E, U
II	MASO201	Social Research Methods & Technique	CO1: Mastery in diverse research methodologies	4, 5, 7, 8	An, E, U
			CO2: Development of Critical Thinking for evaluating and contributing to sociological research effectively.	4, 5, 7, 8	An, E, U
II	MASO202	Modern Sociological Theory	CO1: Examine and critically analyze classical sociological theories.	1,2,3,6	U, R, An, E
			CO2: Relate classical thought to contemporary societal issues.	1,2,3,6	U, R, An, E
II	MASO203	Political Sociology	CO1: Analyze the relationship between politics and society.	1,3,6,8	R, A, An, E
			CO2: understand the role of social movements in political processes.	1,3,6,8	R, A, An, E
II	MASO204	Urban Sociology	CO1: Understand urban social structures and issues.	1,2,3,4	An, E, C
			CO2: Propose solutions to urban social problems.	1,2,3,4	An, E, C
III	MASO301	Sociology of Religion	CO1: Examine religion's impact on society and culture.	1,2,3,6,	R, A, An, E
			CO2: Analyze religious beliefs and practices sociologically.	1,2,3,6,	R, A, An, E

<b>III</b>	<b>MASO302</b>	<b>Advance Social Theory</b>	<b>CO1:</b> Explore cutting-edge sociological theories and concepts.	1,3,6	A, An, R
			<b>CO2:</b> Critically assess theoretical approaches to social phenomena.	1,3,6	A, An, R
<b>III</b>	<b>MASO303</b>	<b>Sociology of Development</b>	Investigate theories and practices of development.	1,4,5,6	A, E, C
			<b>CO1:</b> Analyze social, economic, and environmental dimensions of development.	1,4,5,6	A, E, C
<b>III</b>	<b>MASO304</b>	<b>Sociology of Education</b>	<b>CO1:</b> Investigate theories and practices of development.	1,2,3,4	U, An, E, C
			<b>CO2:</b> Analyze social, economic, and environmental dimensions of development.	1,2,3,4	U, An, E, C
<b>III</b>	<b>MASO305A</b>	<b>Criminology</b>	<b>CO1:</b> Understand theories and concepts in criminology	1,2,3,6	R, A, E
			<b>CO2:</b> Analyze causes and consequences of criminal behavior.	1,2,3,6	R, A, E
<b>III</b>	<b>MASO305B</b>	<b>Industrial Sociology</b>	<b>CO1:</b> Explore the relationship between work and society.	1,2,3,6	R, An, E
			<b>CO2:</b> Analyze industrial organization and labor relations.	1,2,3,6	R, An, E
<b>III</b>	<b>MASO305C</b>	<b>Sociology of Ageing</b>	<b>CO1:</b> Examine social implications of aging populations.	1,3,4,5,6	R, A, E
			<b>CO2:</b> Analyze policies and practices related to aging societies.	1,3,4,5,6	R, A, E
<b>IV</b>	<b>MASO401</b>	<b>Sociology of Population</b>	<b>CO1:</b> Study demographic trends and patterns.	1,2,3,5,6	A, An, C
			<b>CO2:</b> Analyze implications of population dynamics for society.	1,2,3,5,6	A, An, C
<b>IV</b>	<b>MASO402</b>	<b>Indian Sociological Thought</b>	<b>CO1:</b> Explore key thinkers and movements in Indian sociology.	1,2,3,6	An, E
			<b>CO2:</b> Analyze indigenous sociological perspectives and debates.	1,2,3,6	An, E

<b>IV</b>	<b>MASO403</b>	<b>Sociology of Environment</b>	<b>CO1:</b> Understand interactions between society and the environment.	1,2,3,4,5,7	R, An, E
			<b>CO2:</b> Analyze environmental issues from a sociological perspective.	1,2,3,4,5,7	R, An, E
<b>IV</b>	<b>MASO404</b>	<b>Social Movements in India</b>	<b>CO1:</b> Study social movements and activism in India.	3,4,6	U, A, An
			<b>CO2:</b> Analyze factors influencing social movement dynamics.	3,4,6	U, A, An
<b>IV</b>	<b>MASO405A</b>	<b>Dissertation</b>	<b>CO1:</b> Conduct independent sociological research.	5,6,7,8	An, E, C
			<b>CO2:</b> Demonstrate research skills and scholarly writing.	5,6,7,8	An, E, C
<b>IV</b>	<b>MASO405B</b>	<b>Sociology of Health</b>	<b>CO1:</b> Explore sociological perspectives on health and illness.	2,3,4,5	A, An, E
			<b>CO2:</b> Analyze healthcare systems and inequalities.	2,3,4,5	A, An, E
<b>IV</b>	<b>MASO405C</b>	<b>Social Anthropology</b>	<b>CO1:</b> Study cultural diversity and human societies.	1,3,5	A, An, R
			<b>CO2:</b> Analyze anthropological approaches to social phenomena.	1,3,5	A, An, R

## M.A. (J.M.C.) PSO's

<b>PSO1</b>	Students will acquire a comprehensive understanding of concepts, and practices of journalism and mass communication.
<b>PSO2</b>	Students will develop critical thinking and analytical abilities to assess and interpret the news.
<b>PSO3</b>	Students will gain knowledge reporting, script writing, content writing and editing for different media platforms.
<b>PSO4</b>	Students will understand the principles and practices of photo journalism, radio journalism, television journalism, Advertising Public relation and corporate communication.
<b>PSO5</b>	Students will enhance their communication skills, both written and oral, and develop the ability to work effectively in media organization.
<b>PSO6</b>	Students will develop strong analytical and the ability to adapt to evolving technologies and communication platforms.
<b>PSO7</b>	Students will cultivate a deep understanding of media ethics and the role of journalism in society, emphasizing accuracy, fairness and objectivity.
<b>PSO8</b>	Student will get hands on practice and practical knowledge in various fields of journalism and mass communication.

Semester	Course Code	Course Title	Course Outcomes On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
<b>I</b>	<b>MAJM101</b>	<b>Contemporary India</b>	<b>CO1:</b> Students will gain in-depth knowledge of the organizational structure and operations of the state, including the legislature, executive branch, and the judiciary.	1	U, An, E
			<b>CO2:</b> Students will acquire a profound understanding of the formulation and functioning of both central and state governments	1,6	A, C, U
			<b>CO3:</b> Students will become well-versed in the rights and responsibilities of citizens within the framework of the constitution.	5	U, A, An
			<b>CO4:</b> Facilitate students in gaining insights into the roles and functions of different constitutional bodies.	1,5,6	U, A,
<b>I</b>	<b>MAJM102</b>	<b>Growth of Media</b>	<b>CO1:</b> Students will emerge with a heightened awareness of the press's indispensable role in India's fight for independence and a profound appreciation of the historic contributions made by journalists during that era.	1,7	U
			<b>CO2:</b> They will gain a thorough understanding of folk and traditional media, along with strategies to preserve and nurture these valuable forms of communication.	1,2	U, An, E
			<b>CO3:</b> Students will acquire a deep appreciation for the illustrious history of Indian journalism, recognizing its evolution and significance in the context of the nation's development	1	U, A
			<b>CO4:</b> Student will be aware regarding the fundamental concepts and characteristics of journalism	1,2	An, E, A

<b>I</b>	<b>MAJM103</b>	<b>News Reporting and Feature Writing</b>	<b>CO1:</b> Students will acquire proficiency in news writing, mastering the skills necessary to craft compelling and informative news articles.	2,3,6	U, An, C
			<b>CO2:</b> They will develop a comprehensive understanding of reporting concepts, enabling them to effectively communicate news stories	1,2,3	U, A ,C
			<b>CO3:</b> Students will gain insight into the intricacies of the news process, from gathering information to presenting it to the public, facilitating a holistic grasp of journalism's core practices	1,2,3	U, A, E.C
			<b>CO4:</b> Students will have in-depth awareness of the intricate news production process.	2	U, R
<b>I</b>	<b>MAJM104</b>	<b>Editing Layout and Photo Journalism</b>	<b>CO1:</b> Students will be able to discern and articulate the distinctions between editing and proofreading, recognizing their indispensability in the realm of writing.	2,3	U, An, C
			<b>CO2:</b> They will harness their inherent language and usage knowledge to refine and polish imperfect writing, ensuring clarity and coherence.	6	U, A, U, A An
			<b>CO3:</b> Students will develop proficiency in the art of photography as an integral part of journalistic storytelling.	1,6	A, An, E
			<b>CO4:</b> Student will learnt about Photo Journalism, Pictures: Selection and editing, Writing Photo Captions, Photo Features and Photo Essay	4	U, An ,C
<b>II</b>	<b>MAJM201</b>	<b>Theories of Communication</b>	<b>CO1:</b> Students will emerge with a comprehensive grasp of the theoretical underpinnings of mass communication, enabling them to analyze and apply communication theories effectively.	1,5	U
			<b>CO2:</b> Students will recognize the significance of mass communication models and their practical implications in real-world scenarios.	2,6	A, An, E
			<b>CO3:</b> Students will attain a understanding of the effective communication	6	A

			<b>CO4:</b> Students will have solid understanding of the communication theories.	1,6	U, An, E
<b>II</b>	<b>MAJM202</b>	<b>Media Laws and Ethics</b>	<b>CO1:</b> Students will develop a sound understanding of the constitutional framework and its intricate connection with the media, enabling them to navigate the complex interplay between media and governance.	5,7	U, An
			<b>CO2:</b> Students will acquire an extensive knowledge base encompassing various laws that govern the media landscape, equipping them with the legal acumen needed in media related professions	1,7	U, R
			<b>CO3:</b> Students will cultivate awareness of the legal aspects pertaining to the media industry.	5,7	U, R, E
			<b>CO4:</b> Student will enhance their comprehension of ethical dilemmas and considerations in the field of journalism	1,5,7	U, An
<b>II</b>	<b>MAJM203</b>	<b>Computer Application</b>	<b>CO1:</b> Students will emerge with a solid foundation in basic computer operations, enabling them to navigate digital platforms with confidence and ease.	5,6	U, A, An
			<b>CO2:</b> Student will develop the capabilities required to work efficiently with Microsoft Word and Excel, utilizing these essential software tools for tasks ranging from word processing to data analysis	1,5	U, An, A
			<b>CO3:</b> Students with have practical skills effectively using Microsoft Word and Excel for various tasks.	6, 8	U, An, E, C
			<b>CO4:</b> Student will cultivate proficiency in presentations using MS PowerPoint.	5,6	U, A, An, E, C
<b>II</b>	<b>MAJM204</b>	<b>Media Management</b>	<b>CO1:</b> Students will develop the ability to critically analyze ownership patterns within the Indian media sector, recognizing their implications on media content and diversity.	1,5	U, A, An
			<b>CO2:</b> Students will acquire a comprehensive understanding of the operational dynamics of news agencies in India, appreciating their role in disseminating news and information across the media landscape	5,6	U, A, E



			<b>CO3:</b> Students will gain insights into the dynamic trends shaping the Indian media business, including the economic aspects of newspaper operations	6,8	U, A, An, E
			<b>CO4:</b> Enable students to comprehend the economic forces that drive the media industry	1,6	U, R, A, E
<b>III</b>	<b>MAJM301</b>	<b>Radio Program Production</b>	<b>CO1:</b> Students will gain a comprehensive understanding of the concept and theory of radio production, providing them with a solid foundation for working in the radio industry.	1,3	U, C, An
			<b>CO2:</b> Students will grasp the technical intricacies involved in radio broadcasting, equipping them with the knowledge required to operate radio equipment and understand the processes behind radio production technique	4,5	U, C, A
			<b>CO3:</b> Student will become proficient in crafting formats suitable for radio, allowing them to create engaging and effective radio content.	5,8	U, A, An, C
			<b>CO4:</b> Students with adapt skills necessary for writing formats tailored for radio broadcasts.	3	U, A, An, E, C
<b>III</b>	<b>MAJM302</b>	<b>Communication Research</b>	<b>CO1:</b> Students will emerge with a solid conceptual foundation in communication research, allowing them to grasp the fundamental theories and frameworks in the field.	1,2	U, R
			<b>CO2:</b> Student will acquire a versatile toolkit of methods and instruments used in media research, enhancing their ability to investigate and analyze various media-related phenomena	2,3	U, R
			<b>CO3:</b> Students will understand communication research principles and concepts.	1,3	U, R, An
			<b>CO4:</b> Students will equip with a diverse array of methods and tools employed in media research	5,6	U, R, An

<b>III</b>	<b>MAJM303</b>	<b>Desktop Publishing</b>	<b>CO1:</b> Students will develop a comprehensive understanding of page layout, enabling them to create well-structured and visually appealing documents.	4,5	U, An, E
			<b>CO2:</b> Students will acquire knowledge and skills related to page makeup and designing, empowering them to produce aesthetically pleasing and professionally formatted materials for print and digital media.	5,6	An, C, E
			<b>CO3:</b> Student will gain an advanced understanding of the versatile applications of Quark Xpress, utilizing it effectively for diverse design and publishing tasks.	4,6	U, A, An, C
			<b>CO4:</b> Students will learnt about techniques of page layout	5,6	U, A, An, C
<b>III</b>	<b>MAJM304</b>	<b>New Media Technology</b>	<b>CO1:</b> Students will emerge with a profound knowledge of the operational dynamics of New Media, grasping its defining characteristics and significance in the modern media landscape.	1,5	U, A
			<b>CO2:</b> They will develop proficiency in creating content tailored for various platforms within New Media, demonstrating the ability to adapt and excel in this evolving digital sphere.	5,6	U, R,A
			<b>CO3:</b> Student will gain the understanding of New Media and its integral components.	1,6	A,An,E
			<b>CO4:</b> Students will equip the technical skills essential for effective writing and communication within the realm of New Media	1,7	U, A, E
<b>IV</b>	<b>MAJM401</b>	<b>Television Programme Production</b>	<b>CO1:</b> Students will gain proficiency in the art of writing, recording, and reporting for television, enabling them to produce engaging and informative television content.	1,3,5	U,An,C
			<b>CO2:</b> Students will acquire insight into the working concept of recording, production, and the editing process involved in creating television programs.	4,8	U,A,C

			<b>CO3:</b> Students will develop a deep understanding of the unique characteristics of television as a medium and the dynamics of a newsroom environment.	1,3	U, A, An
			<b>CO4:</b> Students will equip the practical skills required for effective reporting and writing specifically for television	1,5,8	U, A, C
			<b>CO4:</b> Understand the current market situation on marketing and advertising related aspects.	3,5	U, A, An, E
<b>IV</b>	<b>MAJM402</b>	<b>Advertisement &amp; Public Relations</b>	<b>CO1:</b> Students will gain practical expertise in utilizing both external and internal tools in the realm of Public Relations, enabling them to effectively strategize and execute communication campaigns. .	3,4	U, C, A, An, C
			<b>CO2:</b> Students will understand about Corporate Communication and business opportunity.	3,4,8	U, R, A
			<b>CO3:</b> Students will understand about diverse models and functions within Public Relations.	4,6	A, An, E
			<b>CO4:</b> They will cultivate an awareness of the ethical dimensions inherent to the practice of Public Relations.	4,6,8	U, A, E, C
<b>IV</b>	<b>MAJM403</b>	<b>Science &amp; Development Communication</b>	<b>CO1:</b> Students will attain a comprehensive grasp of human communication, gaining proficiency in applying at least one communication approach to dissect and assess various forms of human interaction.	2,4	U, A, An
			<b>CO2:</b> They will develop the capacity to identify, utilize, and critically evaluate primary academic resources within the discipline of communication.	4,5	U, A, E
			<b>CO3:</b> Introduce students to the multifaceted field of human communication and encourage the application of communication approaches for analysis and evaluation.	4,5	U, A, An, E
			<b>CO4:</b> Equip students with the ability to locate, utilize, and critically assess primary academic literature within the realm of communication studies.	1,7	U, R, A, E

<b>IV</b>	<b>MAJM404</b>	<b>Dissertation/Practical Work/ Project Work</b>	<b>CO1:</b> Students will acquire a profound understanding of their major subject or field of study, employing appropriate research methods to investigate and address critical issues.	2,3,4	U, A, E, C
			<b>CO2:</b> They will identify and address the specific issues inherent to their research, ensuring a comprehensive and relevant exploration of their chosen dissertation topic.	4,5	U, A, E, C
			<b>CO3:</b> Students will effectively communicate their research conclusions and substantiate them with well-founded knowledge and arguments, making a valuable contribution to their academic and professional communities	3,4,5	U, A, An, E, C
			<b>CO4:</b> They will demonstrate the ability to create, analyze, and critically evaluate various technical and research solutions, showcasing their problem-solving competence.	5,6 ,8	U, R, A, E, C

## M. A. Maths (PSO's)

<b>PSO 1</b>	Have a strong foundation in core areas of Mathematics, both pure and applied.
<b>PSO 2</b>	Be able to apply mathematical skills and logical reasoning for problem solving.
<b>PSO 3</b>	Communicate mathematical ideas effectively, in writing as well as orally.
<b>PSO 4</b>	Have sound knowledge of mathematical modeling, programming and computational techniques as required for employment in industry.
<b>PSO 5</b>	Pursue their research activities in mathematics and related field
<b>PSO 6</b>	Nurture problem solving skills, thinking, creativity through assignments, project work.
<b>PSO 7</b>	Ability to learn the fundamentals of computational thinking and Programming using mathematical tools.
<b>PSO 8</b>	Provide a systematic understanding of the concepts and theories of mathematics and their application in the real world.

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
<b>I</b>	<b>MAMA101</b>	<b>Algebra -I</b>	<b>CO1:</b> Understand, explain in depth, and apply the fundamental concepts of Groups, Structure of Groups, isometries, Rings and integral domains.	3, 5	R, U, A, AN, C
			<b>CO2:</b> To introduce the concepts and to develop working knowledge on fundamentals of algebra.	3, 5	R, U, A, AN, C
			<b>CO3:</b> Identify and construct examples of fields, distinguish between algebraic and transcendental extensions, characterize normal extensions in terms of splitting fields and prove the existence of algebraic closure of a field.	3, 5	R, U, A, AN, C
			<b>CO4:</b> Characterize perfect fields using separable extensions, construct examples of automorphism group of a field and Galois extensions as well as prove the fundamental theorem of Galois theory.	3, 5	R, U, A, AN, C
			<b>CO5:</b> Classify finite fields using roots of unity and Galois theory and prove that every finite separable extension is simple.	3, 5	R, U, A, AN, C
			<b>CO6:</b> Use Galois Theory of equations to prove that a polynomial equation over a field of characteristic is solvable by radicals iff its group (Galois) is a solvable group and hence deduce that a general quintic equation is not solvable by radicals.	3, 5	R, U, A, AN, C
<b>I</b>	<b>MAMA102</b>	<b>Real Analysis</b>	<b>CO1:</b> Verify whether a given subset of a real valued function is measurable.	3, 5	U, A, E
			<b>CO2:</b> Understand the requirement and the concept of the Lebesgue integral (a generalization of the Reimann integration) along its properties.	3, 5	U, A, E
			<b>CO3:</b> Demonstrate understanding of the statement and proofs of the fundamental integral convergence theorems and their applications.	3, 5	U, A, E

			<b>CO4:</b> Know about the concepts of functions of bounded variations and the absolute continuity of functions with their relations.	3, 5	U, A, E
			<b>CO5:</b> Extend the concept of outer measure in an abstract space and integration with respect to a measure.	3, 5	U, A, E
			<b>CO6:</b> Learn and apply Fourier series and coefficients, Parseval's identity, Riesz-Fisher Theorem. In $L_p$ -spaces and understand completeness of $L_p$ -spaces and convergence in measures.	3, 5	U, A, E
<b>I</b>	<b>MAMA103</b>	<b>Differential Equations-I</b>	<b>CO1:</b> Students will have the knowledge and skills to solve various types of non-linear differential equations.	2,6,8	R, U, A
			<b>CO2:</b> Can solve total differential equation of the three and four variables and total differential equations of second degree.	2,6,8	R, U, A
			<b>CO3:</b> Describe solutions of differential equations using series solution method.	2,6,8	R, U, A
			<b>CO4:</b> Have skills to solve partial differential equations using Monge's method.	2,6,8	R, U, A
<b>I</b>	<b>MAMA104</b>	<b>Differential Geometry</b>	<b>CO1:</b> Understand the space curves, their curvature and torsion, Serret-Frenet's formulae and its applications	1,6	R, U, A
			<b>CO2:</b> Learn about envelopes and ruled surfaces with emphasis on the properties of developable and skew surfaces.	1,6	R, U, A
			<b>CO3:</b> Know about Asymptotic lines, Differential equation of an asymptotic line, Curvature and Torsion of an asymptotic line.	1,6	R, U, A
			<b>CO4:</b> Apply Gauss's formulae, Gauss's characteristic equation, Weingarten equations, Mainardi-Codazzi equations	1,6	R, U, A

<b>I</b>	<b>MAMA105</b>	<b>Dynamics Of Rigid Bodies</b>	<b>CO1:</b> Understand D'Alembert's Principle and its simple applications. Able to construct General equation of motion of a rigid body under fixed force, no force and impulsive force.	1,5,7,8	U, An
			<b>CO2:</b> Describe the concept of Motion of a rigid body in two dimensions, Rolling and sliding friction, rolling and sliding of uniform rod and uniform sphere.	1,5,7,8	U, An
			<b>CO3:</b> Understand to Describe Motion in three dimensions with reference to Euler's dynamical and geometrical equations, Motion under no forces, Motion under impulsive forces.	1,5,7,8	U, An
			<b>CO4:</b> Analyse the Derivation of Lagrange's Equations to holonomic Systems. Understand the motion of top.	1,5,7,8	U, An
			<b>CO5:</b> Distinguish the concept of the Hamilton Equations of Motion and the Principle of Least Action.	1,5,7,8	U, An
<b>I</b>	<b>MAMA106</b>	<b>Calculus Of Variation And Special Function-I</b>	<b>CO1:</b> Solve the problem of brachistochrone, problem of geodesics, isoperimetric problem, Variation and its properties, functions and functionals,	1,6	R, U, A
			<b>CO2:</b> Solving Variational problems with the fixed boundaries.	1,6	R, U, A
			<b>CO3:</b> Variational problems involving higher order derivatives, constraints involving several variables and their derivatives.	1,6	R, U, A
			<b>CO4:</b> Explain the applications and the usefulness of these special functions.	1,6	R, U, A
			<b>CO5:</b> Analyse properties of special functions by their integral representations and symmetries.	1,6	R, U, A
			<b>CO6:</b> Identified the application of some basic mathematical methods via all these special functions.	1,6	R, U, A



<b>II</b>	<b>MAMA201</b>	<b>Algebra -II</b>	<b>CO1:</b> Explain demonstrate accurate and efficient use of Eigen values and eigen vectors.	3,5	R, U, E, C
			<b>CO2:</b> Understand application of Orthogonal Projection.	3,5	R, U, E, C
			<b>CO3:</b> Study the concept of dual spaces and dual basis, maps and annihilator.	3,5	R, U, E, C
			<b>CO4:</b> Understand the Real inner product space and Schwartzs inequality.	3,5	R, U, E, C
			<b>CO5:</b> Explain invertible matrices and similar matrices.	3,5	R, U, E, C
<b>II</b>	<b>MAMA201</b>	<b>Topology</b>	<b>CO1:</b> Determine interior, closure, boundary, limit points of subsets and basis and sub-basis of topological spaces.	3,5	R, A
			<b>CO2:</b> Check whether a collection of subsets is a basis for a given topological spaces or not, and determine the topology generated by a given basis.	3,5	R, A
			<b>CO3:</b> Identify the continuous maps between two spaces and maps from a space into product space and determine common topological property of given two spaces.	3,5	R, A
			<b>CO4:</b> Determine the connectedness and path connectedness of the product of an arbitrary family of spaces.	3,5	R, A
			<b>CO5:</b> Find Hausdorff spaces using the concept of Net and Filter in topological spaces and learn about 1st and 2nd countable spaces, separable, Lindelöf spaces and Tychonoff's theorem.	3,5	R, A
<b>II</b>	<b>MAMA203</b>	<b>Differential Equations-II</b>	<b>CO1:</b> Knowledge and skills to classify and reduce various types of linear partial differential equation of second order into Canonical forms.	2,4,5,6,8	U
			<b>CO2:</b> Understand with eigen values and eigen functions of Sturm–Liouville systems and the solutions of initial and boundary value problems.	2,4,5,6,8	U
<b>II</b>	<b>MAMA204</b>	<b>Riemannian Geometry And Tensor Analysis</b>	<b>CO1:</b> Study the most fundamental knowledge for understanding tensors were taught in the traditional way.	1,5,6,8	R, U, A, AN
			<b>CO2:</b> Prior to our applying tensor analysis to our research area of modern continuum mechanics.	1,5,6,8	R, U, A, AN
			<b>CO3:</b> Tensor analysis provides a kind of bridge between elementary aspects of linear algebra, geometry and analysis.	1,5,6,8	R, U, A, AN

<b>II</b>	<b>MAMA205</b>	<b>Hydrodynamics</b>	<b>CO1:</b> Understand the basic principles of ideal fluid, such as Lagrangian and Eulerian approach, conservation of mass etc.	5,6,8	U, A
			<b>CO2:</b> Use Euler and Bernoulli's equations and the conservation of mass to determine velocity and acceleration for incompressible and non-viscous fluid.	5,6,8	U, A
			<b>CO3:</b> Understand the concept of rotational and irrotational flow, stream functions, velocity potential, complex potential due to sink, source and doublets.	5,6,8	U, A
			<b>CO4:</b> Understand the motion of a fluid element, Vorticity, Body forces, Surface forces, Stress & Strain analysis, Flow and circulation, Connectivity, Irrotational motion in multiple connected space,	5,6,8	U, A
			<b>CO5:</b> Distinguish the concept of Irrotational motion of a cylinder in two dimensions, Motion of a circular cylinder in a uniform stream and two co-axial cylinders, Streaming and circulation for a fixed circular cylinder.	5,6,8	U, A
<b>II</b>	<b>MAMA206</b>	<b>Special Function-II</b>	<b>CO1:</b> Explain the applications and the usefulness of these special functions.	2,5,6,8	R, U, A, AN
			<b>CO2:</b> Classify and explain the functions of different types of differential equations.	2,5,6,8	R, U, A, AN
			<b>CO3:</b> Analyse properties of special functions by their integral representations and symmetries.	2,5,6,8	R, U, A, AN
			<b>CO4:</b> Identified the application of some basic mathematical methods via all these special functions.	2,5,6,8	R, U, A, AN
			<b>CO5:</b> Apply these techniques to solve and analyse various mathematical problems.	2,5,6,8	R, U, A, AN

<b>II</b>	<b>MAMA301</b>	<b>Functional Analysis-I</b>	<b>CO1:</b> Verify the requirements of a norm, completeness with respect to a norm, relation between compactness and dimension of a space, check boundedness of a linear operator and relate to continuity, convergence of operators by using a suitable norm, compute the dual spaces.	1,5,8	U, A, E
			<b>CO2:</b> Understand the concepts of metric spaces and continuous mapping.	1,5,8	U, A, E
			<b>CO3:</b> Solve problems based on Banach contraction theorem, Baire's category theorem and compact sets.	1,5,8	U, A, E
			<b>CO4:</b> Understand the concepts of Normed linear space of bounded linear transformations and boundedness theorem.	1,5,8	U, A, E
<b>III</b>	<b>MAMA302</b>	<b>Viscous Fluid Dynamics-I</b>	<b>CO1:</b> Understand the concept of fluid and their classification, models and approaches to study the fluid flow. <b>CO5:</b> Understand the different types of flows related to viscosity.	3,5,6,8	R, U, A
			<b>CO2:</b> Understand the concept of stress and strain in viscous flow	3,5,6,8	R, U, A
			<b>CO3:</b> Formulate the Governing Equations for fluid motion.	3,5,6,8	R, U, A
			<b>CO4:</b> Know Buckingham theorem and its application, Non-dimensional parameters and their relationships	3,5,6,8	R, U, A
			<b>CO6:</b> Know flow near Stagnation point	3,5,6,8	R, U, A
<b>III</b>	<b>MAMA303</b>	<b>Mathematical Programming-I</b>	<b>CO1:</b> Understand the core principles of mathematical modelling. Apply precise and logical reasoning to problem solving.	4,5,8	U, A, C
			<b>CO2:</b> Frame quantitative problems and model them mathematically analyse the importance of differential equations in mathematical modelling.	4,5,8	U, A, C
			<b>CO3:</b> Formulate the observable real problem mathematically.	4,5,8	U, A, C
			<b>CO4:</b> Apply methods to solve Integer programming problems and examine the solutions.	4,5,8	U, A, C

<b>III</b>	<b>MAMA304</b>	<b>Integral Transforms</b>	<b>CO1:</b> Gain the idea that by applying the theory of Integral transform the problem from its original domain can be mapped into a new domain where solving problems becomes easier.	5,6,8	A,C
			<b>CO2:</b> Apply these techniques to solve research problems of signal processing, data analysis and processing, image processing, in scientific simulation algorithms etc.	5,6,8	A,C
			<b>CO3:</b> Develop the ability of using the language of mathematics in analysing the real-world problems of sciences and engineering.	5,6,8	A,C
			<b>CO4:</b> Think logically and mathematically and apply the knowledge of integral transform to solve complex problems.	5,6,8	A,C
<b>III</b>	<b>MAMA305</b>	<b>Relativistic Mechanics</b>	<b>CO1:</b> Understand the basics of principles of relativity and its postulates and their simple applications.	1,5,8	U, A, AN
			<b>CO2:</b> Apply the concepts of composition of parallel velocities and time dilation.	1,5,8	U, A, AN
			<b>CO3:</b> Describe the concepts of Simultaneity, Velocity of light as fundamental velocity, Relativistic aberration and its deduction to Newtonian theory clearly and solve basic problems based on these concepts.	1,5,8	U, A, AN
			<b>CO4:</b> Analyse the concepts of Relativistic Lagrangian and Hamiltonian and Minkowski space and describe the relation of time and space using the theorems of relativity.	1,5,8	U, A, AN
<b>III</b>	<b>MAMA306</b>	<b>Numerical Analysis - I</b>	<b>CO1:</b> Gain knowledge and skills to use different iterative methods and utilise them to solve equation and simultaneous and polynomial equations.	2,4,5,8	R,A
<b>IV</b>	<b>MAMA401</b>	<b>Functional Analysis-II and Advanced Calculus</b>	<b>CO1:</b> Explain the fundamental concepts of functional analysis in applied contexts.	1,5,8	R, U, A, C
			<b>CO2:</b> Use elementary properties of Banach space and Hilbert space.	1,5,8	R, U, A, C
			<b>CO3:</b> Identify normal, self-adjoint or unitary operators.	1,5,8	R, U, A, C
			<b>CO4:</b> Communicate the spectrum of bounded linear operator	1,5,8	R, U, A, C
			<b>CO5:</b> Construct orthonormal sets.	1,5,8	R, U, A, C

<b>IV</b>	<b>MAMA402</b>	<b>Viscous Fluid Dynamics-II</b>	<b>CO1:</b> Understand the properties of unsteady flow by using stokes' problems.	3,5,8	R, U, AN
			<b>CO2:</b> Understand the equation of energy and different types of temperature distribution.	3,5,8	R, U, AN
			<b>CO3:</b> Analyse suction and injection device in transpiration cooling	3,5,8	R, U, AN
			<b>CO4:</b> Illustrate the very slow motion by stokes' and Oseen's flow	3,5,8	R, U, AN
			<b>CO5:</b> Know the concept of Boundary layer.	3,5,8	R, U, AN
<b>IV</b>	<b>MAMA403</b>	<b>Mathematical Programming-II</b>	<b>CO1:</b> Understand the core principles of mathematical modelling.	4,5,6,8	U, C
			<b>CO2:</b> Frame quantitative problems and model them mathematically and solve them by different methods.	4,5,6,8	U, C
<b>IV</b>	<b>MAMA404</b>	<b>Integral Equations</b>	<b>CO1:</b> Acquire knowledge of different types of Integral equations: Fredholm and Volterra integral equations.	5,6,8	U, A
			<b>CO2:</b> Obtain integral equation from ODE arising in applied mathematics and different engineering branches and solve accordingly using various method of solving integral equation.	5,6,8	U, A
			<b>CO3:</b> Think logically and mathematically and apply the knowledge of transforms to solve complex problems.	5,6,8	U, A
			<b>CO4:</b> Understand the Conversion of Volterra Equation to ODE, IVP and BVP to Integral Equation.	5,6,8	U, A
			<b>CO5:</b> Understand the Fredholm's first, second and third theorem, <b>CO5.</b> Understand the Integral Equations with symmetric kernel, Eigen function expansion, Hilbert-Schmidt theorem.	5,6,8	U, A

<b>IV</b>	<b>MAMA405</b>	<b>General Relativity and Cosmology</b>	<b>CO1:</b> Formulate Einstein field equation for matter and empty space.	1,5,8	U, AN, C
			<b>CO2:</b> Understand the concept of clock paradox in general relativity.	1,5,8	U, AN, C
			<b>CO3:</b> Derive the differential equation for planetary orbit, analogues of Kepler's law.	1,5,8	U, AN, C
			<b>CO4:</b> Understand the properties of Einstein & de-Sitter cosmological models.	1,5,8	U, AN, C
<b>IV</b>	<b>MAMA406</b>	<b>Numerical Analysis -II</b>	<b>CO1:</b> Utilize the Numerical Methods to convert the scatter data into the equation and solutions of the ODE and BVP.	2,4,5,8	A
<b>IV</b>	<b>MSMA407</b>	<b>Project/ Dissertation</b>	<b>CO1:</b> Ability to apply advanced mathematical theories and techniques	6	A, U
			<b>CO2:</b> Ability to identify and formulate a significant research problem	6	A, U

## M. A. Psychology (PSO's)

<b>PSO 1</b>	Develop sound knowledge about the fundamental concepts in Psychology related to various sub fields of Psychology.
<b>PSO 2</b>	Develop critical thinking skills and distinguish between concepts studied in different courses.
<b>PSO 3</b>	Apply appropriate concepts and methods of Psychology to solve problems.
<b>PSO 4</b>	Develop positive attributes such as empathy, compassion, effective communication skills like listening, speaking and observational skills.
<b>PSO 5</b>	Be committed towards the health and wellbeing of different stakeholders.
<b>PSO 6</b>	Appreciation and tolerance towards different behavioral patterns.
<b>PSO 7</b>	Analyze social problems, social dynamics and create solutions to manage them effectively.

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MAPY101	Theoretical Approaches in Psychology	CO1: Apply theories that explain ways of understanding and thinking about human thought processes.	1,2	R, U, A, An, E
			CO2: Understand theories that can provide a new perspective regarding human behaviours and an understanding of how humans think, learn and find motivation.	5,6	R, U, A, An, E
I	MAPY102	Research Methods	CO1: Recognize the elements of research and determine the importance of sampling.	8	R, U, A, An, E
			CO2: Understand the distinctive features of experimental and non-experimental methods.	1,8	R, U, A, An, E
			CO3: Inferring various true and quasi experimental strategies with their strengths and limitations.	2,8	R, U, A, An, E
			CO4: Inferring various styles and formatting and demonstrating and understanding of writing a research report.	3,4	R, U, A, An, E
I	MAPY103	Advanced Social Psychology	CO1: Apply social psychology in work settings.	1,3	R, U, A, An, E
			CO2: Differentiate different kinds of relationship patterns of interpersonal attraction.	6,7	R, U, A, An, E
			CO3: Examine different theories of aggression	6,7	R, U, A, An, E
			CO4: Analyze different causes of attitude and prejudice and accordingly suggest appropriate measures to reduce them.	3,6,,7	R, U, A, An, E
			CO5: Understand gender differences.	1,5	R, U, A, An, E
I	MAPY104	Psychopathology	CO1: Understand various manifestation of Psychopathology.	1,2	R, U, A, An, E
			CO2: Understand the criteria to diagnose various disorders using ICD and DSM classification system.	1,7	R, U, A, An, E
			CO3: Understand the prevention of mental disorders, various causal factors and etiology of disorders.	5,6	R, U, A, An, E



<b>I</b>	<b>MAPY151</b>	<b>General Lab</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E
<b>II</b>	<b>MAPY201</b>	<b>Developmental Psychology</b>	<b>CO1:</b> Understand the methods of studying developmental behavior.	1,2	R, U, A, An, E
			<b>CO2:</b> Explain the cognitive, cultural, environmental and social factors that influence development throughout the life span.	7	R, U, A, An, E
			<b>CO3:</b> Understand the influence on identity development.	6,7	R, U, A, An, E
			<b>CO4:</b> Compare and contrast the foundational theories of developmental psychology.	4	R, U, A, An, E
			<b>CO5:</b> Understand the theoretical aspects of emotional and moral development.	4,5	R, U, A, An, E
<b>II</b>	<b>MAPY202</b>	<b>Bio-Psychology</b>	<b>CO1:</b> Understand the fundamental physiological process, evolution of the brain and scientific method underlying human behavior.	5,6	R, U, A, An, E
			<b>CO2:</b> Understand the role of nerve cell and central nervous system in governing human behavior.	1,2	R, U, A, An, E
			<b>CO3:</b> Understand the fundamental physiological process underlying human behavior like learning and memory.	4,6	R, U, A, An, E
			<b>CO4:</b> Understand the biological causes of psychiatric disorders.	1,3	R, U, A, An, E

<b>II</b>	<b>MAPY203</b>	<b>Statistics Psychology</b>	<b>in</b>	<b>CO1:</b> Define and identify basic concepts inferential and descriptive statistics.	3	R, U, A, An, E
				<b>CO2:</b> Describe and utilize principals of normal probability.	2	R, U, A, An, E
				<b>CO3:</b> Explain and apply the concepts and procedure of descriptive statistics.	8	R, U, A, An, E
				<b>CO4:</b> Apply and interpret correlation methods.	1,8	R, U, A, An, E
				<b>CO5:</b> Understand the utility application and interpretation of parametric and non-parametric tests.	8	R, U, A, An, E
				<b>CO6:</b> Understand and apply regression and factor analysis.	8	R, U, A, An, E
<b>II</b>	<b>MAPY204</b>	<b>Foundation Counselling Psychology</b>	<b>of</b>	<b>CO1:</b> Distinguish between guidance, psychotherapy and counselling	1,3	R, U, A, An, E
				<b>CO2:</b> State the historical background and development of counselling psychology	2,3	R, U, A, An, E
				<b>CO3:</b> Critically analyze ethical issues and debate in counselling psychology.	4	R, U, A, An, E
				<b>CO4:</b> Assess boundaries of the different types of counselling	6,7	R, U, A, An, E
<b>II</b>	<b>MAPY251</b>	<b>General Lab</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E	
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E	
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E	

<b>III</b>	<b>MAPY301</b>	<b>Cognitive Psychology</b>	<b>CO1:</b> Gain knowledge about the historical development of Cognitive Psychology and understand the complexity of cognitive processes underlying behaviour.	4,5	R, U, A, An, E
			<b>CO2:</b> Appreciate the complexity of cognitive processes underlying people's behaviour from a life span perspective.	4,5,6	R, U, A, An, E
			<b>CO3:</b> Understand basic cognitive functions like attention and memory through different theoretical approaches.	2,3	R, U, A, An, E
			<b>CO4:</b> Acquire knowledge regarding higher order cognitive processes	4,6	R, U, A, An, E
			<b>CO5:</b> Understand cognitive functioning involved in language, decision making & problem solving through different perspective.	2,4	R, U, A, An, E
<b>III</b>	<b>MSPY302</b>	<b>Research Design</b>	<b>CO1:</b> Describe the research designs.	1	R, U, A, An, E
			<b>CO2:</b> Differentiate between the need to use within group, between group and multiple group design.	8	R, U, A, An, E
			<b>CO3:</b> Identify the use of qualitative methodology to research problem.	8	R, U, A, An, E
			<b>CO4:</b> Understand and apply quasi experimental designs	8	R, U, A, An, E
			<b>CO5:</b> Understand the theoretical aspects of emotional and moral development	5,7	R, U, A, An, E
<b>III</b>	<b>MAPY303A</b>	<b>Foundations of Clinical Psychology</b>	<b>CO1:</b> Understand about the field of clinical psychology, its nature and scope.	1,2	R, U, A, An, E
			<b>CO2:</b> Understand the role of clinical psychologists in clinical and research settings.	2,3	R, U, A, An, E
			<b>CO3:</b> Understand various methods used in the assessment of abnormal behavior and examine the applicability of these methods to different clinical situations	3	R, U, A, An, E
			<b>CO4:</b> Understand the legal and ethical issues in clinical psychology and ethical dilemmas concerning rights and related social issues of patients	2	R, U, A, An, E

<b>III</b>	<b>MAPY303B</b>	<b>Clinical Disorders</b>	<b>CO1:</b> Understand psychopathologies of anxiety and stress related disorders,	2,3	R, U, A, An, E
			<b>CO2:</b> Understand psychopathologies of somatoform disorders, schizophrenia, personality disorders and substance related and addictive disorders.	6,7	R, U, A, An, E
			<b>CO3:</b> Understand psychopathologies of intellectual disabilities and specific learning disorders.	5,7	R, U, A, An, E
<b>III</b>	<b>MAPY304A</b>	<b>Counselling Psychology</b>	<b>CO1:</b> Demonstrate skills and techniques to deal with various issues related to counselling.	1,2	R, U, A, An, E
			<b>CO2:</b> Identify the social and cultural aspects of counselling programs	7	R, U, A, An, E
			<b>CO3:</b> Identify community and institutional opportunities that enhance as well act as barriers that impede the academics	6,7	R, U, A, An, E
<b>III</b>	<b>MAPY304B</b>	<b>Child and Adolescent Counselling</b>	<b>CO1:</b> Demonstrate skills and techniques to deal with various issues related to children and adolescents.	3,4	R, U, A, An, E
			<b>CO2:</b> Identify community and institutional opportunities that enhance, as well as barriers that impede academics, career and personal or social and overall development of children and adolescents.	3,4	R, U, A, An, E
			<b>CO3:</b> To know about the intervention and policies of the school.	5	R, U, A, An, E
<b>III</b>	<b>MAPY305</b>	<b>Project Work (PRJ)</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E

			<b>CO4:</b> Collecting data (qualitative or quantitative) and using appropriate statistical or qualitative analysis techniques to interpret the results.	1,2,5	R, U, A, An, E
			<b>CO5:</b> Effectively communicate findings through written reports, presentations, or other mediums suitable for the project.	3,4,7	R, U, A, An, E
			<b>CO6:</b> Demonstrate an understanding of ethical principles in research, including obtaining informed consent, protecting participant confidentiality, and minimizing harm.	1,2,4,6	R, U, A, An, E
<b>III</b>	<b>MAPY351</b>	<b>General Lab</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E
<b>IV</b>	<b>MAPY401</b>	<b>Indian Psychology</b>	<b>CO1:</b> Understand the theoretical models based on classical Indian psychological thoughts.	1,2	R, U, A, An, E
			<b>CO2:</b> Understand psychology being deep rooted in the consciousness-based Indian worldview, yoga and a life-affirming spirituality	1,3	R, U, A, An, E
			<b>CO3:</b> Understand various Indian models of mind and personality	5	R, U, A, An, E
			<b>CO4:</b> Understand Sri Aurobindo's reflection on Knowledge	1	R, U, A, An, E
			<b>CO5:</b> Understand Psychotherapy and Indian Thought.	1	R, U, A, An, E

<b>IV</b>	<b>MAPY402</b>	<b>Applied Psychology</b>	<b>CO1:</b> Appraise the field role of forensic psychologists in the legal world.	1,2,4,6	R, U, A, An, E
			<b>CO2:</b> Understand about the dynamics of sports life and enhance the performance by applying Psychology.	1,2	R, U, A, An, E
			<b>CO3:</b> Understand the mental health issues of army personnel.	1,3	R, U, A, An, E
			<b>CO4:</b> Understand the role of media and the issues related to cyber crime.	1,2,4,6	R, U, A, An, E
			<b>CO5:</b> Understand the psychology of gender and various aspects of social change	1,2	R, U, A, An, E
<b>IV</b>	<b>MAPY403A</b>	<b>Psychodiagnostics</b>	<b>CO1:</b> Understand the initial assessment process of disorders.	1	R, U, A, An, E
			<b>CO2:</b> Use of different tools For Personality Assessment and Ability Testing.	3	R, U, A, An, E
			<b>CO3:</b> Understand about different tests and rating scales used in clinical settings.	3	R, U, A, An, E
			<b>CO4:</b> Use of neuropsychological tests in clinical settings	3,8	R, U, A, An, E
<b>IV</b>	<b>MAPY403B</b>	<b>Therapeutic Approaches</b>	<b>CO1:</b> Develop insight about basics of therapeutic approaches	1,2	R, U, A, An, E
			<b>CO2:</b> Understand about psychoanalytic and psychodynamic therapies.	2,3	R, U, A, An, E
			<b>CO3:</b> Understand about humanistic, existential and gestalt psychotherapies	2,3	R, U, A, An, E
			<b>CO4:</b> Understand couple therapy, family therapy & group therapy	2,3,5	R, U, A, An, E

<b>IV</b>	<b>MAPY404A</b>	<b>Counselling Theories and Techniques</b>	<b>CO1:</b> Trace the historical development of family therapy.	1	R, U, A, An, E
			<b>CO2:</b> Assess family dynamics in a structured manner.	1,2	R, U, A, An, E
			<b>CO3:</b> Apply concepts from family system theories to understand family dynamics and thereby develop treatment plans for couples and families	3,6	R, U, A, An, E
<b>IV</b>	<b>MAPY404B</b>	<b>Vocational Psychology</b>	<b>CO1:</b> Demonstrate knowledge of the vocational theories and issues.	1,2	R, U, A, An, E
			<b>CO2:</b> Demonstrate knowledge of the vocational sessions with special clients.	5,6	R, U, A, An, E
<b>IV</b>	<b>MAPY405</b>	<b>Project Work</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E
			<b>CO4:</b> Collecting data (qualitative or quantitative) and using appropriate statistical or qualitative analysis techniques to interpret the results.	1,2,5	R, U, A, An, E
			<b>CO5:</b> Effectively communicate findings through written reports, presentations, or other mediums suitable for the project.	3,4,7	R, U, A, An, E
<b>IV</b>	<b>MAPY451</b>	<b>General Lab</b>	<b>CO1:</b> Students will be able to demonstrate proficiency in research methods commonly used in psychology, such as experimental design, surveys, case studies, or observational techniques.	1,2,5	R, U, A, An, E
			<b>CO2:</b> Develop critical thinking skills by evaluating existing literature, identifying gaps in research, and formulating hypotheses or research questions.	3,4,7	R, U, A, An, E
			<b>CO3:</b> Conducting a thorough literature review to understand the existing knowledge and theories relevant to the chosen topic.	1,2,4,6	R, U, A, An, E

## M. A. Hindi (PSO's)

<b>PSO 1</b>	हिन्दी साहित्य का अध्ययन-अध्यापन वर्तमान युग की महती आवश्यकता है।
<b>PSO 2</b>	सम्पूर्ण विश्व में हिन्दी भाषा का प्रयोग किया जाता है करीब 90 करोड़ लोग हिन्दी भाषा बोलते-समझते हैं।
<b>PSO 3</b>	हिन्दी भाषा एवं साहित्य अत्यन्त समृद्ध है।
<b>PSO 4</b>	हिन्दी ने तकनीक की भाषा के रूप में स्वयं को ढाल लिया है।
<b>PSO 5</b>	हिन्दी में विविध क्षेत्रों में रोजगार की बहुत अधिक सम्भावनाएँ हैं।
<b>PSO 6</b>	व्यावसायिक क्षेत्र में दक्षता हेतु।
<b>PSO 7</b>	विद्यार्थियों में रचना कौशल का विकास करने के लिए।



Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MAHI-101	हिन्दी साहित्य का इतिहास (आदिकाल एवं भक्तिकाल)	1 विद्यार्थियों में हिन्दी साहित्य का इतिहास न केवल व्यक्तिगत परिवर्तन बल्कि सामाजिक परिवर्तन के लिये भी शिक्षा की परिवर्तनकारी क्षमता का पता लगाने का प्रयास करता है।	2	A
			2 यह पेपर छात्र-शिक्षकों के युवा मन में उठने वाले प्रश्नों और इन प्रश्नों के उत्तर देने के लिये उन्हें मिली कुछ दिशाओं को स्पष्ट करता है।	2	A
I	MAHI-102	प्राचीन काव्य	1 इस प्रश्न-पत्र में विद्यार्थी प्राचीन काव्य का अध्ययन करेंगे, इस प्रश्न-पत्र के द्वारा उस युग की प्रतिनिधि रचनाओं का अध्ययन किया जायेगा।	2	U
			2 प्राचीन काव्य द्वारा विद्यार्थियों में भारतीय प्राचीन साहित्य के विविध भाषा साहित्य के कवियों को समझने में सहायता होगी तथा वे एक वैचारिक क्षमता को रेखांकित करने में समर्थ होंगे।	2	U
I	MAHI-103	काव्यशास्त्र -I (भारतीय)	1 इस प्रश्न-पत्र द्वारा विद्यार्थियों में काव्यशास्त्रियों के विचार एवं सिद्धान्त का अनुशीलन किया जायेगा।	1, 2	A, N
			2 प्रस्तुत पाठ्यक्रम विद्यार्थियों में तार्किक तथा विश्लेषणात्मक प्रकृति का विकास करता है। साथ ही आलोचनात्मक अथवा समीक्षात्मक दृष्टि को विकसित करता है।	1, 2	A, N
I	MAHI-104	हिन्दी गद्य -I (उपन्यास एवं निबन्ध)	1 प्रस्तुत पाठ्यक्रम द्वारा छात्र-छात्राओं को सामाजिक सरोकारों से अवगत कराना प्रमुख लक्षण है।	1, 2	U, C
			2 इस पाठ्यक्रम द्वारा विद्यार्थियों को समकालीन चुनौतियों, जटिलताओं से अवगत कराना।	1, 2	U, C
II	MAHI-201	हिन्दी साहित्य का इतिहास (रीतिकाल एवं आधुनिक काल)	1 विद्यार्थियों में हिन्दी साहित्य का इतिहास न केवल व्यक्तिगत परिवर्तन बल्कि सामाजिक परिवर्तन के लिये भी शिक्षा की परिवर्तनकारी क्षमता का पता लगाने का प्रयास करता है।	2	A
			2 यह पेपर छात्र-शिक्षकों के युवा मन में उठने वाले प्रश्नों और इन प्रश्नों के उत्तर देने के लिये उन्हें मिली कुछ दिशाओं को स्पष्ट करता है।	2	A

<b>II</b>	<b>MAHI-202</b>	मध्यकालीन काव्य	1 इस प्रश्न-पत्र में विद्यार्थी प्राचीन काव्य का अध्ययन करेंगे इस प्रश्न-पत्र के द्वारा उस युग की प्रतिनिधि रचनाओं का अध्ययन किया जायेगा।	2	U
			2 प्राचीन काव्य द्वारा विद्यार्थियों में भारतीय प्राचीन साहित्य के विविध भाषा साहित्य के कवियों को समझने में सहायता होगी तथा वे एक वैचारिक क्षमता को रेखांकित करने में समर्थ होंगे।	2	U
<b>II</b>	<b>MAHI-203</b>	काव्यशास्त्र -II (पाश्चात्य)	1 इस प्रश्न-पत्र द्वारा विद्यार्थियों में काव्यशास्त्रियों के विचार एवं सिद्धान्त का अनुशीलन किया जायेगा।	1, 2	A, N
			2 प्रस्तुत पाठ्यक्रम विद्यार्थियों में तार्किक तथा विश्लेषणात्मक प्रकृति का विकास करता है। साथ ही आलोचनात्मक अथवा समीक्षात्मक दृष्टि को विकसित करता है।	1, 2	A, N
<b>II</b>	<b>MAHI-204</b>	हिन्दी गद्य -II (हिन्दी कहानी)	1 प्रस्तुत पाठ्यक्रम द्वारा छात्र-छात्राओं को सामाजिक सरोकारों से अवगत कराना प्रमुख लक्षण है।	1, 2	U, C
			2 इस पाठ्यक्रम द्वारा विद्यार्थियों को समकालीन चुनौतियों, जटिलताओं से अवगत कराना।	1, 2	U, C
<b>III</b>	<b>MAHI-301</b>	हिन्दी गद्य -III (हिन्दी नाटक)	1 हिन्दी गद्य की विविध विधाओं जैसे कहानी, उपन्यास, नाटक, निबंध, जीवनी, आत्मकथा आदि के अध्ययन से विद्यार्थियों में परिवार, समाज एवं राष्ट्र के प्रति नवीन दृष्टिकोण स्थापित हो सकेगा।	1, 3	C, A
			2 विद्यार्थियों में लेखन कौशल विकसित हो सकेगा।	1, 3	C, A
			3 प्रतियोगी परीक्षाओं एवं रोजगार की दृष्टि से भी यह अध्ययन महत्वपूर्ण एवं प्रासंगिक है।	1, 3	C, A
<b>III</b>	<b>MAHI-302</b>	निर्गुण काव्य	1 इस प्रश्न-पत्र द्वारा विद्यार्थी निर्गुण काव्य का अध्ययन करेंगे। इस प्रश्न-पत्र में निर्गुण काव्य धारा की रचनाओं से छात्रों को अवगत कराया जायेगा।	2	U, A N
			2 इस प्रश्न-पत्र में हिन्दी के शीर्ष निर्गुण कवियों के गहन अध्ययन का परिज्ञान करवाया जायेगा।	2	U, A N
<b>III</b>	<b>MAHI-303</b>	भाषा विज्ञान -I	1 यह प्रश्न-पत्र हिन्दी भाषा एवं उसके इतिास से छात्रों को परिचित कराता है।	2	A, U
			2 इस प्रश्न-पत्र द्वारा हिन्दी भाषा परिवार की विविध बोलियों एवं उप-भाषाओं की जानकारी देने के साथ-साथ छात्रों में भाषा-विज्ञान कौशल को विकसित करना है।	2	A, U

<b>III</b>	<b>MAHI-304</b>	<b>रीतिकालीन काव्य</b>	1 प्राचीन एवं मध्यकालीन काव्य प्रश्न-पत्र पढ़ने से विद्यार्थियों को उस दौर के काव्य एवं कवियों के विषय में ज्ञान प्राप्त होता है, जिससे विद्यार्थियों में सत्य, प्रेम, शान्ति, सद्भाव, परोपकार, नैतिकता, सादगी, सहिष्णुता जैसे मानवीय गुणों का विकास होता है जिससे उनका चरित्र-निर्माण हो सकेगा।	1, 2	C, U, A
			2 इससे विद्यार्थियों में भाषा कौशल विकसित हो सकेगा।	1, 2	C, U, A
<b>III</b>	<b>MAHI-305(A)</b>	<b>(क) कवि, साहित्यकार (1) तुलसीदास</b>	1 इस प्रश्न-पत्र द्वारा विद्यार्थियों में भक्तिकाल की पृष्ठभूमि से अवगत करवाते हुये उन्हें नैतिक मूल्यों का ज्ञान करवाया जाता है।	1, 2	C, R
			2 भारतीय समाज में समन्वय की भावना का ज्ञान करवाना तुलसी साहित्य की प्रमुख भावना है जिससे छात्र अवगत हो सकेंगे।	1, 2	C, R
<b>III</b>	<b>MAHI-305 (B)</b>	<b>(ख) कवि, साहित्यकार (2) प्रेमचन्द</b>	1 मुंशी प्रेमचन्द के इस प्रश्न-पत्र द्वारा विद्यार्थियों में समकालीन परिवेश की जटिलताओं को समझने की क्षमता विकसित होगी।	1, 2	C, E
			2 इस प्रश्न-पत्र द्वारा विद्यार्थियों में साहित्यिक, सामाजिक एवं सांस्कृतिक मूल्यों में अभिवृद्धि हो सकेगी।	1, 2	C, E
<b>IV</b>	<b>MAHI-401</b>	<b>आलोचना एवं आलोचक</b>	1 इस प्रश्न-पत्र द्वारा विद्यार्थियों में विस्तृत ज्ञान के साथ आलोचना एवं आलोच्य विषय के ज्ञान को परिष्कृत किया जा सकेगा। इस प्रश्न-पत्र द्वारा छात्रों में पाठ अध्ययन, विश्लेषण, मूल्यांकन की प्रक्रिया से अवगत कराया जाता है।	1, 2	E, A, N
<b>IV</b>	<b>MAHI -402</b>	<b>आधुनिक काव्य -I</b>	2 आधुनिक हिन्दी काव्य प्रश्न-पत्र से विद्यार्थियों को हिन्दी साहित्य में आधुनिकता, नवजागरण, प्रकृति अध्यात्म, राष्ट्रीयता, देशप्रेम की भावना का ज्ञान प्राप्त होता है।	1, 2	C, U
			3 इससे विद्यार्थियों में भाषा कौशल विकसित हो पायेगा।		
<b>IV</b>	<b>MAHI -403</b>	<b>भाषा विज्ञान -II</b>	1 यह प्रश्न-पत्र हिन्दी भाषा एवं उसके इतिहास से छात्रों को परिचित कराता है।	2	A, U
			2 इस प्रश्न-पत्र द्वारा हिन्दी भाषा परिवार की विविध बोलियों एवं उप-भाषाओं की जानकारी देने के साथ-साथ छात्रों में भाषा-विज्ञान कौशल को विकसित करना है।	2	A, U

<b>IV</b>	<b>MAHI 404</b>	<b>आधुनिक काव्य -II</b>	1 आधुनिक हिन्दी काव्य प्रश्न-पत्र से विद्यार्थियों को हिन्दी साहित्य में आधुनिकता, नवजागरण, प्रकृति अध्यात्म, राष्ट्रीयता, देशप्रेम की भावना का ज्ञान प्राप्त होता है।	1, 2	C, U
			2 इससे विद्यार्थियों में भाषा कौशल विकसित हो पायेगा।	1, 2	C, U
<b>IV</b>	<b>MAHI 405 (A)</b>	<b>(क) कवि, साहित्यकार (1) तुलसीदास</b>	1 इस प्रश्न-पत्र द्वारा विद्यार्थियों में भक्तिकाल की पृष्ठभूमि से अवगत करवाते हुये उन्हें नैतिक मूल्यों का ज्ञान करवाया जाता है।	1, 2	C, R
			2 भारतीय समाज में समन्वय की भावना का ज्ञान करवाना तुलसी साहित्य की प्रमुख भावना है जिससे छात्र अवगत हो सकेंगे।	1, 2	C, R
<b>IV</b>	<b>MAHI -405 (B)</b>	<b>(ख) कवि, साहित्यकार (2) प्रेमचन्द</b>	1 मुंशी प्रेमचन्द के इस प्रश्न-पत्र द्वारा विद्यार्थियों में समकालीन परिवेश की जटिलताओं को समझने की क्षमता विकसित होगी।	1, 2	C, E
			2 इस प्रश्न-पत्र द्वारा विद्यार्थियों में साहित्यिक, सामाजिक एवं सांस्कृतिक मूल्यों में अभिवृद्धि हो सकेगी।	1, 2	C, E
<b>IV</b>	<b>MAHI -405 (C)</b>	<b>Project/Dissertation/ Summer Training/Field Work</b>			

## M. A. Public Administration (PSO's)

<b>PSO 1</b>	Graduates should be able to analyze complex problems, policies, and administrative issues using various Qualitative and Quantitative methods. Students will understand the need for Good Administration and Will be Able to Understand the Role of Administrative Institution in Democratic Socialistic Society
<b>PSO 2</b>	Students will be proficient in valuating existing Policies and Programs proposing new ones, and understanding the implications of Policy decisions.
<b>PSO 3</b>	Students will be able to explain the Governmental mechanism from Gram Panchayat to Parliament and can Suggest solutions over various issues In its functioning and Implementation.
<b>PSO 4</b>	Students can work as Administrative analyst, Administrative adviser, as a Research scholar or can be a Administrative thinker and writer.
<b>PSO 5</b>	Students Can understand the comparative differences between the Administrative Systems of different countries
<b>PSO 6</b>	Students will be able to understand The composition and functions of Various Administrative Institutions
<b>PSO 7</b>	Students can understand the institutions Working for redressal of public Grievances in different Countries

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MAPA101	Administrative Theories and Management	CO1: To input the knowledge of Public Administration about the Evolution of Public Administration and it's Relationship with other Social Sciences	1,2,5	U, R
			CO2: To Develop Understanding about the Concept of New Public Administration	1,2,5	U, R
			CO3: To Provide detailed information about Various Theories and Principles of the Study of Public Administration	1,2,5	U, R
I	MAPA102	Comparative Public Administration	CO1: To Acquaint the Knowledge about the Concept of Comparative Public Administration and its Ecological Context.	1,2,5,6	U, R, An
			CO2: Provide detailed information on various approaches related to comparative public administration and providing information about their usefulness.	1,2,5,6	U, R, An
			CO3: Provide deep Knowledge about the various typology of Societies given by F.W. Riggs	1,2,5,6	U, R, An
I	MAPA103	Public Personnel Administration	CO1: To provide conceptual knowledge about Personnel Administration and Bureaucracy	1,2,4	U, An
			CO2: To acquaint the knowledge about meaning and nature of public Services and new trends of Public Services in Modern Times	1,2,4	U, An
			CO3: To provide detailed information about the types of recruitment and promotion in public services, their pay scales, other service conditions and political rights etc.	1,2,4	U, An
I	MAPA104	Social Welfare Administration	CO1: To introduce students to the concept of social administration, as well as to identify areas of legislative provisions and problems in the field of social administration in India and invite suggestions for solutions.	1,2,4	U, R, C
			CO2: To provide information about major social welfare schemes related to women, Scheduled Castes, Scheduled Tribes and children in India and Personnel System in Social Administration	1,2,4	U, R, C

			<b>CO3:</b> To explain The Role of National Human Rights Commission in India	1,2,4	U, R, C
<b>II</b>	<b>MAPA201</b>	<b>Management Techniques</b>	<b>CO1:</b> To provide detailed information about the position, powers and duties of the Chief Executive in Administration	1,2,4	U
			<b>CO2:</b> To introduce students to decision making technique	1,2,4	U
			<b>CO3:</b> To make students understand the importance of motivation and morale in Administration.	1,2,4	U
			<b>CO4:</b> To Introduce Students to leadership and communication techniques in administration	1,2,4	U
<b>II</b>	<b>MAPA202</b>	<b>Comparative Administrative Systems</b>	<b>CO1:</b> To Provide knowledge about Salient features of Administrative Systems of UK, USA and France	1,2,4	U, R, An, E
			<b>CO2:</b> To present a comparative study of the administrative systems of Bangladesh, China and Nepal with the administrative systems of India	1,2,4	U, R, An, E
			<b>CO3:</b> To present a detailed study of the administrative institutions of different Countries such as British Treasury, Council D' E tat (France), Ombudsman in UK, USA. China and Bangladesh.	1,2,4	U, R, An, E
<b>II</b>	<b>MAPA203</b>	<b>Human Resour Management Government</b>	<b>CO1:</b> To provide information on methods of recruitment, training and promotion under human resource management in India	1,2,4,6	A, An
			<b>CO2:</b> To provide information on methods of recruitment, training and promotion under human resource management in UK, USA and France	1,2,4,6	A, An
<b>II</b>	<b>MAPA204</b>	<b>Social Welfa Administration India</b>	<b>CO1:</b> To provide detailed information about the organization and Working of Social Administration at the Center and the State Level in India	1,2,4	U, An, E
			<b>CO2:</b> To Provide Knowledge about the Role of National Commission of Women and National Commission for Scheduled castes and Scheduled tribes	1,2,4	U, An, E
			<b>CO3:</b> Comprehend about the organization and working of Department of Social Justice & Empowerment, Rajasthan State Social Welfare Advisory Board	1,2,4	U, An, E

			<b>CO4:</b> Providing information about the role of Voluntary Agencies and Non-Governmental Organization in India	1,2,4	U, An, E
<b>III</b>	<b>MAPA301</b>	<b>Public Administration India</b>	<b>CO1:</b> To provide information about Evolution and Development of Indian Administration.	1,2	U, A, An
			<b>CO2:</b> To introduce the features of present Indian administration	1,2	U, A, An
			<b>CO3:</b> To Explore the role and functions of President and Prime Minister of India	1,2	U, A, An
			<b>CO4:</b> To develop an understanding of the composition and functioning of the Ministry of Home Affairs and Ministry of Personnel, Pension and Public Grievances	1,2	U, A, An
			<b>CO5:</b> To provide a comparative study of major types of Public Enterprises	1,2	U, A, An
<b>III</b>	<b>MAPA302</b>	<b>Economic Policy and Administration</b>	<b>CO1:</b> To provide Knowledge about the Role of Government in Economic Development	1,2,3	U, A, E
			<b>CO2:</b> To Provide Information about the Importance of Economic Planning	1,2,3	U, A, E
			<b>CO3:</b> To provide detailed information about the role and composition of the World Trade Organization.	1,2,3	U, A, E
			<b>CO4:</b> To provide information about the composition and functioning of NITI Aayog and Finance Commission.	1,2,3	U, A, E
			<b>CO5:</b> To Develop Understanding about The Impact of Globalization on Indian Economy	1,2,3	U, A, E
<b>III</b>	<b>MAPA303A</b>	<b>Development Administration</b>	<b>CO1:</b> To introduce The Students to the concept of development administration	1,2,3,5,6	U, An, C
			<b>CO2:</b> Explaining the differences between development administration and traditional administration.	1,2,3,5,6	U, An, C
			<b>CO3:</b> To Provide Detailed information about the effects of administrative system on political, social, cultural and technological changes is available and provides comparative information about China, Nepal and Philippines	1,2,3,5,6	U, An, C



<b>III</b>	<b>MAPA303B</b>	<b>Research Methodology</b>	<b>CO1:</b> Clarifying the Concept and Importance of Research Methodology, explain the role of Research Methodology in Social Science	4	An, C, E
			<b>CO2:</b> The Students will develop skills in qualitative and quantitative data analysis and presentation.	4	An, C, E
			<b>CO3:</b> Students will be able to demonstrate the ability to choose methods appropriate to research objectives and help them to select an appropriate Research Design.	4	An, C, E
<b>III</b>	<b>MAPA303C</b>	<b>Indian Constitution</b>	<b>CO1:</b> The student will be able to Describe historical background of the constitution making and its importance for building a democratic India.	1,5	U, R, A
			<b>CO2:</b> Explain the value of the fundamental rights and duties for becoming good citizen of India.	1,5	U, R, A
			<b>CO3:</b> To Provide detailed Information about Composition and Powers and Mutual relationship of Lok Sabha and Rajyasabha	1,5	U, R, A
<b>III</b>	<b>MAPA303D</b>	<b>Urban Local Administration</b>	<b>CO1:</b> To develop knowledge and understanding about the Local Self Government and its Evolution in Indian Perspective	1,3	U, An
			<b>CO2:</b> To Provide detailed Information of Various Pattern of Urban Local bodies in UK,USA and France	1,3	U, An
			<b>CO3:</b> To provide detailed information about the various types of urban local Administration, their structure and functions in India in the light of the 74th Constitutional Amendment Act.	1,3	U, An
<b>III</b>	<b>MAPA303E</b>	<b>Rural Local Administration</b>	<b>CO1:</b> To explains the concept of rural local administration in India along with its historical background and to provide an introduction to the various committees And commissions constituted on Panchayati Raj.	3,4,5,6	R, U, E
			<b>CO2:</b> To Provide deep Knowledge about various types of Panchayati Raj Institutions and The Role of NGO's in Rural Local Development	3,4,5,6	R, U, E
			<b>CO3:</b> To Explain the Role of Panchayati Raj Agencies in Planning and Development	3,4,5,6	R, U, E

<b>III</b>	<b>MAPA303F</b>	<b>Public Policy and Administration</b>	<b>CO1:</b> To Provide Information about Public Policy and Explain the Role of Public Policy in Planning and Decision Making Process	4,5	U, An, A
			<b>CO2:</b> To provide detailed information about various Models of Policy Analysis	4,5	U, An, A
			<b>CO3:</b> To Explore The Comparative Study about the Role of Legislative, Executive and Judiciary in Policy Formulation or Implementation	4,5	U, An, A
<b>III</b>	<b>MAPA303G</b>	<b>State Administration in India with Special Reference to Rajasthan</b>	<b>CO1:</b> To Provide Information about the Constitutional Structure of State Government in India	1,2,4	U, R, An
			<b>CO2:</b> Student will be able to get information and understanding about the role of chief minister and Governor and their relationship.	1,2,4	U, R, An
			<b>CO3:</b> To Acquaint the Knowledge about the organization and working of Cabinet Secretariat and various Departments in Rajasthan State	1,2,4	U, R, An
			<b>CO4:</b> To Impart detail information about Central and State relationship in various matters	1,2,4	U, R, An
<b>IV</b>	<b>MAPA401</b>	<b>Public Administration in India</b>	<b>CO1:</b> To introduce the role of Finance Ministry in budget making.	1,2	An, E
			<b>CO2:</b> To provide information about the ways in which various committees of Parliament exercise control over financial administration.	1,2	An, E
			<b>CO3:</b> To provide knowledge and understanding of the role of the Comptroller and Auditor General in financial administration	1,2	An, E
			<b>CO4:</b> To present a comparative study of the reports of the first and second Administrative Reforms Commission.	1,2	An, E
			<b>CO5:</b> To Provide Knowledge of Emerging Issues and Challenges to Indian Administration in 21st Century	1,2	An, E
<b>IV</b>	<b>MAPA402</b>	<b>Economic Policy and Administration</b>	<b>CO1:</b> To Provide Knowledge about the Planning System and Planning Machinery in Rajasthan To provide a comparative study of major types of public enterprises	1,2	E, C

			<b>CO2:</b> To Explain the role of the Comptroller and Auditor General in financial matters.	1,2	E, C
<b>IV</b>	<b>MAPA403A</b>	<b>Development Administration</b>	<b>CO1:</b> To Provide Knowledge about the Role of Bureaucracy in Economic Development	1,3,4	R, U, An
			<b>CO2:</b> Providing information about the Role of Various International funding Agencies in Development	1,3,4	R, U, An
			<b>CO3:</b> To input the deeply knowledge of Sustainable Development and Role of NGO's and Private Sector in Development	1,3,4	R, U, An
			<b>CO4:</b> To acquaint the knowledge of Development Index and Capacity Building for Development	1,3,4	R, U, An
<b>IV</b>	<b>MAPA403B</b>	<b>Research Methodology</b>	<b>CO1:</b> The Students will develop skills in qualitative and quantitative data analysis and Presentation.	1,3,5,6	E, C, An
			<b>CO2:</b> Students will be able to demonstrate the ability to choose methods appropriate to research objective also enable Students to collect the data, edit it properly and analyses it accordingly. Thus, it will facilitate students' prosperity in higher Education	1,3,5,6	E, C, An
<b>IV</b>	<b>MAPA403C</b>	<b>Indian Constitution</b>	<b>CO1:</b> Students will be able to analyze the decentralization of powers between central and state	1,2,5	E, C, An, A
			<b>CO2:</b> To provide knowledge about Legislative, Financial and Administrative Relationships between Central and State Government	1,2,5	E, C, An, A
			<b>CO3:</b> Explaining in detail the emergency provisions mentioned in the Constitution	1,2,5	E, C, An, A
			<b>CO4:</b> To Explore Major challenges and issues facing the Indian Constitution	1,2,5	E, C, An, A
<b>IV</b>	<b>MAPA403D</b>	<b>Urban Local Administration</b>	<b>CO1:</b> To provide a detailed study of the systems related to urban administration in big cities as well as to provide information on all aspects related to their personnel administration.	3,6,7	U, R, An
			<b>CO2:</b> To present a comparative study about Calcutta, Delhi and Jaipur Municipal Corporation	3,6,7	U, R, An

			<b>CO3:</b> To acquaint students with the major challenges and problems faced by urban local bodies and to explain the control of the state government over them.	3,6,7	U, R, An
<b>IV</b>	<b>MAPA403E</b>	<b>Rural Local Administration</b>	<b>CO1:</b> To provide information on methods of training and teaching of personnel in Panchayati Raj Institutions.To provide detailed information about the mutual relations between government and non-government officials in Panchayati Raj institutions.	3,6,7	An, A, E
			<b>CO2:</b> To provide information about various schemes running in Panchayati Raj Institutions.	3,6,7	An, A, E
			<b>CO3:</b> To inform about the financial condition of Panchayati Raj institutions and to clarify the role of State Financial Commission.	3,6,7	An, A, E
			<b>CO4:</b> To provide information on major challenges and problems faced by Panchayati Raj Institutions	3,6,7	An, A, E
<b>IV</b>	<b>MAPA403F</b>	<b>Public Policy and Administration</b>	<b>CO1:</b> Explain the Role of Various Determinants in policy formulation	5,6,7	U, An
			<b>CO2:</b> Student will be able to get the knowledge of Policy Making Process and Implementation process	5,6,7	U, An
			<b>CO3:</b> To provide information about major policies related to education, health and environment in India.	5,6,7	U, An
			<b>CO4:</b> To Understand the Role of NGO's in Policy Making Process	5,6,7	U, An
<b>IV</b>	<b>MAPA403G</b>	<b>State Administration In India (With Special Reference to Rajasthan)</b>	<b>CO1:</b> To Explain the types of public enterprises operating in the state administration, their managerial functioning and the control over them by the state government.	2,5,6,7	U, R, An
			<b>CO2:</b> To provide information about the composition and functioning of various corporations operating at the state level such as Rajasthan State Road Transport Corporation. Rajasthan Industrial Development and Investment Corporation, Tourism Development Corporation etc.	2,5,6,7	U, R, An

			<b>CO3:</b> To provide a detailed introduction to the various stages of the planning process and information on all issues related to personnel administration at State Level	2,5,6,7	U, R, An
			<b>CO4:</b> To make aware about the role and functioning of various key administrative officers working in the district administration	2,5,6,7	U, R, An
<b>IV</b>	<b>MAPA404</b>	<b>Dissertation</b>	<b>CO1:</b> Plan, and engage in, an independent and sustained critical investigation and evaluation of a chosen research topic relevant to environment and society	6,7	An, A, C, E
			<b>CO2:</b> Systematically identify relevant theory and concepts, relate these to appropriate methodologies and evidence, apply appropriate techniques and draw appropriate conclusions	6,7	An, A, C, E
			<b>CO3:</b> Engage in systematic discovery and critical review of appropriate and relevant information sources appropriately apply qualitative and/or quantitative evaluation processes to original data	6,7	An, A, C, E
			<b>CO4:</b> Understand and apply ethical standards of conduct in the collection and evaluation of data and other resources	6,7	An, A, C, E
			<b>CO5:</b> Communicate research concepts and contexts clearly and effectively both in writing and orally	6,7	An, A, C, E

## M. A. English (PSO's)

<b>PSO 1</b>	Students will demonstrate a command of written academic English, including the abilities to organize and present material in a cogent fashion, to formulate and defend original arguments, also to employ effectively the language of their discipline and write under time constraints.
<b>PSO 2</b>	Students will demonstrate a familiarity with literary history, literary theory, and rhetoric, including an awareness of the structures of power and systems of inequality that shape the historical, socio cultural, ideological, and institutional contexts of literature and literary studies..
<b>PSO 3</b>	Students will demonstrate critical and analytical skills in close reading, comprehension, interpretation, and evaluation of diverse literatures and authors across a variety of genres.
<b>PSO 4</b>	Develop mastery of English language skills and forms to be used in explicitly meaningful contexts through literature and criticism
<b>PSO 5</b>	Develop a will and aptitude to solve problems of society and generation

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MAEN101	Language and Communication Skills –I	CO1: Write the grammatically correct and organized sentences and understand various nuances of language	1,2,3	R, U, A
			CO2: Will learn communication skills and modes of communication	1,2,3	R, U, A
			CO3: Will develop writing skills	1,2,3	R, U, A
I	MAEN102	Age of Revival –I (Elizabethan)	CO1: Understand Metaphysical poets and their poems along with an understanding of the cultural context of its production and reception	1,2,3	R, U, A, An
			CO2: Demonstrate the knowledge of literary history of early period of British literature and role of Metaphysical poets	1,2,3	R, U, A, An
I	MAEN103	Pre Romantic and Romantic Age - I	CO1: Examine political and Literary movements of the age	1,2,3	R, U, A, An
			CO2: Co-relate social changes and their influence on writings	1,2,3	R, U, A, An
			CO3: Explore simple diction used in literature during that era with deep insights	1,2,3	R, U, A, An
I	MAEN104	Victorian Age – I	CO1: Compare and contrast between private and public worlds and increasing mechanization of human relationships.	1,2,3	R, U, A, An
			CO2: Collate and contrast Empiricism and Utilitarian ideologies and transformed worldviews.	1,2,3	R, U, A, An

<b>II</b>	<b>MAEN201</b>	<b>Language and Communication Skills -II</b>	<b>CO1:</b> Analyze literary appreciation of poetry and prose	1,2,3	R, U, A
			<b>CO2:</b> Will develop the basic knowledge of phonetics	1,2,3	R, U, A
			<b>CO3:</b> Will develop writing skills with enriched vocabulary	1,2,3	R, U, A
<b>II</b>	<b>MAEN202</b>	<b>Age of Revival (Restoration) -II</b>	<b>CO1:</b> Demonstrate categorical knowledge of satire	1,2,3	R, U, A, An
			<b>CO2:</b> Discern the historical, socio-cultural and political context of the texts prescribed	1,2,3	R, U, A, An
<b>II</b>	<b>MAEN203</b>	<b>Pre Romantic and Romantic Age - II</b>	<b>CO1:</b> Conceptualize imagination as a powerful approach to realize the world in subjective terms	1,2,3	R, U, A, An
			<b>CO2:</b> Interpret, evaluate and appreciate the Romantic Movement which involved 'breaking with the past' and moving towards Nature and individual	1,2,3	R, U, A, An
<b>II</b>	<b>MAEN204</b>	<b>Victorian Age – II</b>	<b>CO1:</b> Assess Victorian values and compromise	1,2,3	R, U, A, An
			<b>CO2:</b> Critically discuss and respond to key issues of Victorian society	1,2,3	R, U, A, An
<b>III</b>	<b>MAEN301</b>	<b>Literary Criticism and Theory –I</b>	<b>CO1:</b> Acknowledge the critical and theoretical approaches.	1,2,3,4	U, A, An
			<b>CO2:</b> Develop the ability to comprehend both traditional and contemporary schools of critical theory and apply them to literary texts to generate relevant interpretations.	1,2,3,4	U, A, An



<b>III</b>	<b>MAEN302</b>	<b>Twentieth Century Literature – I</b>	<b>CO1:</b> Recognize and discuss the features of modern literary texts.	1,2,3,4,5	U, A, An, E
			<b>CO2:</b> Appreciate Fragmented structure and Fragmented perspective of the writing	1,2,3,4,5	U, A, An, E
<b>III</b>	<b>MAEN303</b>	<b>Indian Writings in English -I</b>	<b>CO1:</b> appreciate and analyze Indian literary works.	1,2,3,4,5	U, A, An, E
			<b>CO2:</b> Gain access to multiple critical approaches to the poetry in translation.	1,2,3,4,5	U, A, An, E
<b>III</b>	<b>MAEN304A</b>	<b>Applied Linguistics and Contemporary English Grammar–I</b>	<b>CO1:</b> Explain the basic concepts of language and linguistics research.	1,2,3,4	U, A, An, E
			<b>CO2:</b> Establish a relationship between linguistics and language teaching.	1,2,3,4	U, A, An, E
<b>III</b>	<b>MAEN304B</b>	<b>American Literature–I</b>	<b>CO1:</b> Familiarize with fundamental terminologies and concepts required for the analysis and understanding of American literature.	1,2,3,4,5	U, A, An, E
			<b>CO2:</b> Acquaint with the richness of American culture and concepts	1,2,3,4,5	U, A, An, E
<b>III</b>	<b>MAEN304C</b>	<b>Women’s Writing-I</b>	<b>CO1:</b> Compare and critique the various aspects of feminism.	1,2,3,4,5	U, A, An, E
			<b>CO2:</b> To understand various nuances of feminist writings and Literature on women.	1,2,3,4,5	U, A, An, E
<b>III</b>	<b>MAEN304D</b>	<b>Postcolonial Literature–I</b>	<b>CO1:</b> Develop an understanding of the responses and the experiences of post-colonial writers	1,2,3,4,5	U, A, An, E
			<b>CO2:</b> effectively conduct literary research in the field of Postcolonialism	1,2,3,4,5	U, A, An, E

IV	MAEN401	Literary Criticism and Theory -II	CO1: Interpret Post-colonial writings as writing of emancipation, critique and transformation	1,2,3,4	U, A, An, E, C
			CO2: Evaluate literature both formally and culturally, in relation to the changing social, political, religious, and linguistic landscape of post independent nation states.	1,2,3,4	U, A, An, E, C
IV	MAEN402	Twentieth Century Literature - II	CO1: Recognize and discuss the salient features of modernist literary texts.	1,2,3,4,5	U, A, An, E, C
			CO2: Gain a critical understanding of modern writings with their contexts.	1,2,3,4,5	U, A, An, E, C
IV	MAEN403	Indian Writings in English -II	CO1: Respond to the historical perspectives in Indian writings.	1,2,3,4,5	U, A, An, E, C
			CO2: Evaluate major cultural and socio-political discussions from past to present.	1,2,3,4,5	U, A, An, E, C
IV	MAEN403A	Applied Linguistics and Contemporary English Grammar-II	CO1: Learn the approaches and methods in Language Teaching.	1,2,3,4	U, A, An, E
			CO2: Build up communicative skills in language.	1,2,3,4	U, A, An, E
IV	MAEN403B	American Literature-II	CO1: Familiarize with American History, culture and literature.	1,2,3,4,5	U, A, An, E, C
			CO2: Demonstrate familiarity with fundamental terminology and concepts relevant to the analysis of American literature.	1,2,3,4,5	U, A, An, E, C
IV	MAEN403C	Women's Writing -II	CO1: Understand gender-based sensitivities.	1,2,3,4,5	U, A, An, E, C
			CO2: Develop inclusive approach towards alternative, non- binary identities	1,2,3,4,5	U, A, An, E, C

<b>IV</b>	<b>MAEN403D</b>	<b>Postcolonial Literature–II</b>	<b>CO1:</b> Examine the traces of colonialism in Postcolonial societies	1,2,3,4,5	U, A, An, E, C
			<b>CO2:</b> Respond to the critical approaches to discern transition in Postcolonial era.	1,2,3,4,5	U, A, An, E, C
<b>IV</b>	<b>MAEN403E</b>	<b>Project/Dissertation/Summer Training/Field Visit</b>	<b>CO1:</b> Students will be able understand the concept of research and the stages and procedure along with interdisciplinary/comparative approach involved in it	1,2,3,4,5,6	U, A, An, E, C
			<b>CO2:</b> Students will be able to illustrate the significance of systematic planning, cohesion and coherence for the research activity	1,2,3,4,5,6	U, A, An, E, C

## M. A. Economics (PSO's)

<b>PSO 1</b>	Prepare students to develop critical thinking to carry out investigation about various socio-economic issues objectively while bridging the gap between theory and practice.
<b>PSO 2</b>	Equip the student with skills to analyse problems, formulate a hypothesis, evaluate and validate results and draw reasonable conclusions thereof.
<b>PSO 3</b>	Prepare students for pursuing research or careers that provide employment through entrepreneurship and innovative methods. Because today's unemployment problem can also be solved by developing the micro and small entrepreneurship
<b>PSO 4</b>	Prepare students to develop own thinking /opinion regarding current national or international policies and issues
<b>PSO 5</b>	Create awareness to become a rational and an enlightened citizen so that they can take the responsibility to spread the governments' initiatives/schemes to the rural areas for the upliftment of the poor or vulnerable section of the society for inclusive growth.
<b>PSO 6</b>	At the end of the programme, the students will have adequate competency in the frontier areas of economic theory and methods.
<b>PSO 7</b>	They will be able to use common software for analysis of economic data. Besides, students will be able to execute in-depth analysis of economic issues based on their understanding of economic theory.
<b>PSO 8</b>	The course will not only widen their opportunities for employment, but also helps them to pursue their doctoral studies.
<b>PSO 9</b>	The students will acquire additional specialization through optional courses.

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
I	MAEC101	Micro Economic Theory-I	CO1: develop a sound understanding of the core concepts that economists use to understand the world of business, trade and public policy.	1,2,4	R, A, U
			CO2: familiarize with the mathematical techniques that economists routinely use in their analysis.	2,6	U, An, E
			CO3: usefulness of the abstract ideas and concepts introduced in the course with the aid of suitable applications to real world problems.	3,4,5,7	A, An, C
I	MAEC102	Macro Economic Theory-I	CO1: A deeper understanding of what causes aggregate output and employment levels in an economy to fluctuate /change over time? And what causes aggregate output and employment how effective are government policies in stabilizing the economy and/or generating steady growth?	1,2,4,8	R, U, A, An, E
			CO2: evaluate various macroeconomic policies and their implications on the basis of coherent theoretical frameworks.	4,7	A, An, E, C
I	MAEC103	Mathematical Methods for Economics	CO1: Approach of the course will be analytical	1,2,6	R, U, A
			CO2: Modelling and analyzing economic problems.	1,2,3,4,6,7	An, E, C
			CO3: Understand the main optimization and other tools used in a variety of economic applications	2,3,6,7	U, A, An, E, C
I	MAEC104A	Demography-I	CO1: To understand meaning, nature, scope and importance of demography.	1,9	U, R
			CO2: To understand Relationship between development and population growth	1,2,9	U, An
			CO3: Understand various theories of population and their implications for India	1,2,3,4,9	U, An, A

<b>I</b>	<b>MAEC104B</b>	<b>Mathematical Economics- I</b>	<b>CO1:</b> Learn to select basic mathematical tools that are used by economic theorists	1,2,6,7,9	R, U, A, An
			<b>CO2:</b> Applications of these tools to some areas of economic theory	2,3,6,7,8,9	A, An, E, C
<b>II</b>	<b>MAEC201</b>	<b>Micro Economic Theory II</b>	<b>CO1:</b> develop a sound understanding of the core concepts that economists use to understand the world of business, trade and public policy.	1,2,4,7,8	U, An
			<b>CO2:</b> familiarize with the mathematical techniques that economists routinely use in their analysis.	1,2	U, An, A, E
			<b>CO3:</b> usefulness of the abstract ideas and concepts introduced in the course with the aid of suitable applications to real world problems.	1,2,3,4,5,7,8	A, E, C
<b>II</b>	<b>MAEC202</b>	<b>Macro Economic Theory II</b>	<b>CO1:</b> To understand and apply dynamic programming methods to analyze macroeconomic problems and policy	1,2,3,4,5,7,8	U, An, A, E
<b>II</b>	<b>MAEC203</b>	<b>Statistical Methods</b>	<b>CO1:</b> Learn the fundamental statistical concepts	1,2	U
			<b>CO2:</b> Analyze and interpret data using descriptive statistics	1,2,7	An, A, E
<b>II</b>	<b>MAEC204A</b>	<b>Demography-II</b>	<b>CO1:</b> To understand the occupational structure of Indian population and population policy	1,2,4,9	U
			<b>CO2:</b> To understand the concept of migration and urbanization with special reference to India.	1,3,4,5,8,9	R, U, An
<b>II</b>	<b>MAEC204B</b>	<b>Mathematical Economics- II</b>	<b>CO1:</b> Acquiring a deep understanding of economic theory and advanced mathematical techniques used in economic analysis	1,2,4,9	U, An, A
			<b>CO2:</b> Understanding of microeconomic and macroeconomic theories	1,3,4,5,6,7,8,9	U, R
			<b>CO3:</b> Students will become proficient in econometric methods used to analyze economic data	3,4,5,6,7,8,9	A, E, C

<b>III</b>	<b>MAEC301</b>	<b>Public Economics-I</b>	<b>CO1:</b> Draw the policy conclusions related to Taxes	3,4,5,6,8	An, A, E
			<b>CO2:</b> Draw the policy conclusions related to Procurement of Public Goods	3,4,5,6,8	An, A, E
			<b>CO3:</b> Draw the policy conclusions related to Public vs. Private organizations	3,4,5,6,7,8	An, A, E
<b>III</b>	<b>MAEC302</b>	<b>International Trade Theory</b>	<b>CO1:</b> analyze historical as well as contemporary issues in trade theory and policy using a variety of lenses provided in the course:	2,3,4,5	U, An, A, E
			<b>CO2:</b> The analytical tools relating to the issues of migration, trade and capital formation will be updated	1,2,5,7,8	An, A, E, C
<b>III</b>	<b>MAEC303</b>	<b>Economics of Development and Growth — I</b>	<b>CO1:</b> Learn and apply economic theories and models specifically designed to analyze development-related issues.	1,2,4,	R, U, An
			<b>CO2:</b> Explore theories of economic growth, trade, finance, and institutions that affect development outcomes	1,2,6,7,8	U, An
			<b>CO3:</b> Understand the limitations and challenges associated with applying standard economic models to developing economies.	6,8	U, An, A, E, C
<b>III</b>	<b>MAEC304</b>	<b>Indian Economy-I</b>	<b>CO1:</b> Gain valuable insights into the economic complexities and unique characteristics of the country	1,2,3,4,5,8,9	An, A
			<b>CO2:</b> This knowledge can be used to pursue careers in academia, research, government agencies, international organizations, and the private sector	3,7,8,9	An, A, E, C
<b>III</b>	<b>MAEC305A</b>	<b>History of Economic Thought-I</b>	<b>CO1:</b> To develop critical thinking skills to analyze and critique different economic theories and paradigms	1,4,9	U, An, E
			<b>CO2:</b> Able to assess the strengths, weaknesses, and limitations of various economic frameworks	1,2,4,9	U, An
<b>III</b>	<b>MAEC305B</b>	<b>Econometrics- I</b>	<b>CO1:</b> Students will become proficient in econometric methods used to analyze economic data	1,2,6,7,8,9	An, A
			<b>CO2:</b> Learn to estimate and interpret statistical models	1,7,8,9	R, U, An, A, E
			<b>CO3:</b> Learn to conduct hypothesis tests	1,2,7,8,9	An, A, E, C
			<b>CO4:</b> Learn to apply econometric techniques such as regression analysis, time series analysis, panel data analysis, and instrumental variables.	1,2,7,8,9	A, E, C

<b>III</b>	<b>MAEC305C</b>	<b>Survey Methods</b>	<b>CO1:</b> Learn how to design surveys that effectively measure the constructs and variables of interest	1,2,3,5,7,8,9	U, A, An, E
			<b>CO2:</b> Study the principles of question construction, including question wording, response options, and survey formatting.	1,2,3,5,7,8,9	U, An, A, R, C
			<b>CO3:</b> Understand the importance of pre-testing and pilot studies to ensure the validity and reliability of survey instruments	1,2,3,4,7,8,9	An, A, E, C
<b>IV</b>	<b>MAEC401</b>	<b>Public Economics-II</b>	<b>CO1:</b> Enhance their skill to develop formal analytical framework to examine the settings and areas covered in the course	1,2,3,4,5	An, A, E
			<b>CO2:</b> Learn about the incentive structure for the individuals	1,3,4,5	An, E
			<b>CO3:</b> Learn to draw the policy conclusions related to Taxes.	3,4,5,7,8	An, E
<b>IV</b>	<b>MAEC402</b>	<b>Trade Policy and International Monetary System</b>	<b>CO1:</b> To understand and apply dynamic programming methods to analyze macroeconomic problems and policy strategies	1,2,3,4,5	U, An, A, E, C
<b>IV</b>	<b>MAEC403</b>	<b>Economics of Development and Growth — II</b>	<b>CO1:</b> Develop a global perspective on development issues	1,3,4	U, An, E
			<b>CO2:</b> Understand the interconnectedness of economies and societies	1,2,4,5	U, An, E
			<b>CO3:</b> Study the role of international trade, foreign aid, global financial institutions, and global governance in shaping development outcomes	1,2,3,4,5,6	An, E
			<b>CO4:</b> Explore the challenges and opportunities presented by globalization, technological advancements.	1,2,3,4,5	U, An, E
<b>IV</b>	<b>MAEC404</b>	<b>Indian Economy-II</b>	<b>CO1:</b> To formulate evidence-based policy recommendations to address economic challenges	1,2,3,9	An, A, E, C
			<b>CO2:</b> Promote sustainable economic development in India	3,4,5,9	An, A, E, C



<b>IV</b>	<b>MAEC405A</b>	<b>History of Economic Thought-II</b>	<b>CO1:</b> Critically evaluate economic techniques and link them to the challenges of economic environment that led to their emergence.	2,4,9	An, E
<b>IV</b>	<b>MAEC405B</b>	<b>Econometrics- II</b>	<b>CO1:</b> Conduct empirical analyses and data analytics are increasingly valued in the job market	1,2,3,5,6,7,8,9	An, A, E
			<b>CO2:</b> Understand why and how questions are to be framed and answered	1,2,4,7,8,9	U, R
			<b>CO3:</b> Equip them to learn more advanced topics on their own.	3,4,5,7,8,9	An, A, E, C
<b>IV</b>	<b>MAEC405C</b>	<b>Dissertations</b>	<b>CO1:</b> 1. Understand the significance of research method in research. 2. Apply statistical techniques to research data for analyzing and interpreting. 3. To develop ability to present and interpret data in a research report.	1,2,3,7,8,9	R, U, A, An, E, C

## M. Sc. (Zoology) (PSO's)

<b>PSO 1</b>	Used the evidences of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth. They are able to use specific examples to explicate how descent with modification has shaped animal morphology, physiology, life history, and behavior.
<b>PSO 2</b>	Explicated the ecological interconnectedness of life on earth by tracing energy and nutrient flows through the environment. They are able to relate the physical features of the environment to the structure of populations, communities, and ecosystems.
<b>PSO 3</b>	Subjects such as invasive or endangered species, embryonic development in mammals and ageing in social insects. Lead to advances in medicine to prevent disease amongst both animals and human beings.
<b>PSO 4</b>	Developed knowledge and understood of living organisms at several levels of Zoological and Biological organization from the molecular, through to cells and whole organisms and ecosystems all organs of evolutionary perspectives.
<b>PSO 5</b>	Understood how the chemistry and structure of the major biological macromolecules, including proteins and nucleic acids, determines their biological properties.

Semester	Course Code	Course Title	Course Outcomes on completing the course, the student will be able to:	PSOs addressed	Cognitive levels
<b>I</b>	<b>MSZ0101</b>	<b>Principles of Biosystematics &amp; Taxonomy</b>	<b>CO1:</b> Understanding the Principles of Biosystematics: Students will be able to articulate the fundamental principles and concepts underlying biosystematics, including phylogenetics, evolutionary biology, and systematics theory.	2, 3	U, R
			<b>CO2:</b> Analyzing Taxonomic Diversity: Students will demonstrate the ability to analyze and evaluate taxonomic diversity at various levels, from species to higher taxa, utilizing morphological, molecular, and ecological data.	2, 3	U, R
			<b>CO3:</b> Applying Taxonomic Methods: Students will develop proficiency in applying taxonomic methods and techniques, including specimen collection, preservation, identification, and classification.	1,4,5	U,R,A,An
			<b>CO4:</b> Interpreting Phylogenetic Relationships: Students will be able to interpret phylogenetic relationships among organisms using molecular data, cladistic analysis, and other systematic approaches, and infer evolutionary history and patterns of diversification.	1,4,5	U,R,A,An
			<b>CO5:</b> Evaluating Taxonomic Nomenclature: Students will critically evaluate taxonomic nomenclature, including the International Code of Nomenclature for algae, fungi, and plants (ICN) and the International Code of Zoological Nomenclature (ICZN), and understand the importance of standardized naming conventions.	1,4,5	U,R,A,An

<b>I</b>	<b>MSZO102</b>	<b>Structure &amp; Function of Invertebrates</b>	<b>CO1:</b> Understood the Classification and Phylogeny of Animals	3	U, R
			<b>CO2:</b> Described General characteristics, classification of invertebrates and invertebrates.	1,4,5	U,R,A,An
			<b>CO3:</b> Described General characteristics, classification and systematic portion of Minor phyla	1,4,5,6	U,R,A,An, C
			<b>CO4:</b> Described the general biology of few selected non-chordates and chordates which are useful to mankind	1,4,5	U,R,A,An
			<b>CO5:</b> Enriched knowledge on ecology of some important fishes, amphibians, reptiles, birds and mammals	1,4,5	U,R,A,An
<b>I</b>	<b>MSZO103</b>	<b>Biochemistry</b>	<b>CO1:</b> Identified the five classes of polymeric biomolecules and their monomeric building blocks.	3	U, R
			<b>CO2:</b> Explained the specificity of enzymes (biochemical catalysts), and the chemistry involved in enzyme action.	2, 3	U, R
			<b>CO3:</b> Understood types, Structure, biochemical properties and functions of vitamins. Explained how the metabolism of organic compounds leads ultimately to the generation of	1,4,5	U,R,A,An
			<b>CO4:</b> large quantities of ATP. Described the structure and classification of hormones.	1,4,5	U,R,A,An
<b>I</b>	<b>MSZO104</b>	<b>Essentials of Cytology</b>	<b>CO1:</b> Described the ultra-structure and functions of cell	3	U, R
			<b>CO2:</b> Understood DNA replication, RNA and protein synthesis and came to know protein synthesis	1,4,5	U,R,A,An
			<b>CO3:</b> can be controlled at the level of transcription and translation.	1,4,5	U,R,A,An
			<b>CO4:</b> Understood cell signaling and cellular communication.	1,4,5	U,R,A,An
			<b>CO5:</b> Understood the types and applications of stem cells.	1,4,5,6	U,R,A,An, C

<b>I</b>	<b>HSZ0151</b>	<b>Zoology Practical-I</b>	<b>CO1:</b> Identify and classify lower invertebrate specimens using morphological characteristics and taxonomic keys.	5,2,3,4	U, R, A, An
			<b>CO2:</b> Prepare and observe histological sections of lower invertebrate tissues under the microscope, identifying different cell types and structures.	2, 3	U, R
			<b>CO3:</b> Conduct experiments to investigate cellular processes such as mitosis, meiosis, and cellular respiration in lower invertebrates.	1,4,5	U,R,A,An
			<b>CO4:</b> Perform developmental biology techniques, including embryonic staging, manipulation, and observation, to study the life cycles of lower invertebrate species.	1,4,5	U,R,A,An
			<b>CO5:</b> Apply ecological sampling methods to assess the abundance, diversity, and distribution of lower invertebrates in different habitats.	1,4,5	U,R,A,An
<b>I</b>	<b>MSZO152</b>	<b>Lab Work &amp; Seminar</b>	<b>CO1:</b> Describe general taxonomic rules on animal classification	2	U, R
			<b>CO2:</b> Understand and apply basic laboratory techniques:	2	U, R
			<b>CO3:</b> To understand the development of some invertebrates	2	U, R
			<b>CO4:</b> To understand the life history and comparative study	2, 3	U, R
			<b>CO5:</b> Understand the different physiological systems of various invertebrates	1,4,5	U,R,A,An

<b>II</b>	<b>MSZO201</b>	<b>General Physiology</b>	<b>CO1:</b> An integrated Understanding of physiological mechanisms	3	U, R
			<b>CO2:</b> Described the physiology of digestive and respiratory system of human beings.	1,2,4,5	U,R,A,An
			<b>CO3:</b> Understood the blood composition, types, groups and circulatory system.	1,4,5,6	U,R,A,An, C
			<b>CO4:</b> Described the physiology of excretory system and nervous system of human beings.	1,2,4,5	U,R,A,An
			<b>CO5:</b> Came to know the physiology of sense organs, muscles and reproductive system	1,4,5,6	U,R,A,An, C
<b>II</b>	<b>MSZO202</b>	<b>Environmental Biology &amp; Ethology</b>	<b>CO1:</b> Demonstrated an Understood of ecological relationships between organisms and their environment.	2,3	U, R
			<b>CO2:</b> Presented an overview of diversity of life forms in an ecosystem.	1,4,5,6	U,R,A,An, C
			<b>CO3:</b> Explained and identified the role of the organism in energy transfers	1,4,5	U,R,A,An
			<b>CO4:</b> Described the Habitat ecology and Resource ecology	1,4,5,6	U,R,A,An, C
			<b>CO5:</b> Understood the Environmental Pollution and their management	1,2	U, R
<b>II</b>	<b>MSZO203</b>	<b>Molecular Biology</b>	<b>CO1:</b> Performed and understood the molecular structure of cellular function.	3	U, R
			<b>CO2:</b> Performed by experiments to analyze the macromolecules in animals	1,4,5,6	U,R,A,An, C
			<b>CO3:</b> Understood the principles and types of PCR demonstration.	1,4,5,6	U,R,A,An, C
			<b>CO4:</b> Described the fine structure and functions of cell organelles.	1,4,5,6	U,R,A,An, C
			<b>CO5:</b> Performed a variety of molecular and cellular biology techniques.	1,4,5,6	U,R,A,An, C

<b>II</b>	<b>MSZO204</b>	<b>Genetics and Molecular Evolution</b>	<b>CO1:</b> Explain the fundamental concepts of Mendelian genetics, including laws of inheritance, segregation, and independent assortment.	3	U, R
			<b>CO2:</b> Describe the structure, function, and replication of genetic material (DNA and RNA).	3,4,5,7,8	An, E
			<b>CO3:</b> Discuss the molecular basis of gene expression and regulation, including transcription, translation, and epigenetics.	1,2,3,4,5 1,3,4	U, An, A, E,C U, An, E
			<b>CO4:</b> Analyze genetic linkage, mapping, and the role of recombination in genetic diversity.		
			<b>CO5:</b> Explain the fundamental principles of evolution, including natural selection, genetic drift, mutation, and gene flow.	1,2,4,5	U, An, E
<b>II</b>	<b>MSZO251</b>	<b>Zoology Practical-II</b>	<b>CO1:</b> Demonstrate proficiency in the use of laboratory techniques for analyzing genetic variation and evolutionary relationships among species.	1,2,3,4,5,6	An, E
			<b>CO2:</b> Conduct experiments and field studies to observe and record patterns of natural selection and adaptation in different organisms.	1,2,3,4,5	U, An, E
			<b>CO3:</b> Analyze fossil specimens and molecular data to reconstruct phylogenetic trees and interpret evolutionary histories.	1,2,3,9	An, A, E, C
			<b>CO4:</b> Investigate and document evidence of speciation events through comparative anatomy and genetic analysis.	3,4,5,9	An, A, E, C
			<b>CO5:</b> Evaluate the impact of environmental changes on evolutionary processes using case studies and experimental data.	3,4,5,7,8	An, E
<b>II</b>	<b>MSZO252</b>	<b>Lab Work &amp; Seminar</b>	<b>CO1:</b> Demonstrate proficiency in the use of laboratory techniques for analyzing physiological process	5,2,3,4	U, R, A, An
			<b>CO2:</b> Conduct experiments and field studies to observe and record patterns of natural selection and adaptation in different organisms.	3,4,5,7,8	An, E

			<b>CO3:</b> Analyze fossil specimens and molecular data to reconstruct phylogenetic trees and interpret evolutionary histories.	3,4,5,7,8	An, E
			<b>CO4:</b> Investigate and document evidence of speciation events through comparative anatomy and genetic analysis.	1,2,3,4,5	U, An, A, E,C
			<b>CO5:</b> Evaluate the impact of environmental changes on evolutionary processes using case studies and experimental data.	1,3,4	U, An, E
<b>III</b>	<b>MSZO301</b>	<b>Biology of Chordates</b>	<b>CO1:</b> Explain the distinguishing characteristics and classification of chordates, including the major subphyla: Urochordata, Cephalochordata, and Vertebrata.	1,2,4,5	U, An, E
			<b>CO2:</b> Describe the anatomical and physiological features of different classes of chordates, such as fishes, amphibians, reptiles, birds, and mammals.	1,2,3,4,5,6	An, E
			<b>CO3:</b> Analyze the evolutionary relationships among chordates using morphological and genetic data.	1,2,3,4,5	U, An, E
			<b>CO4:</b> Discuss the adaptive strategies and ecological roles of various chordate groups in different environments.	1,2,3,9	An, A, E, C
			<b>CO5:</b> Conduct comparative studies of chordate specimens to identify key adaptations and evolutionary trends.	3,4,5,9	An, A, E, C
<b>III</b>	<b>MSZO302</b>	<b>Genes &amp; Differentiation</b>	<b>CO1:</b> Understand the basic principles of gene structure and function.	2,7	U, R
			<b>CO2:</b> Describe the structure and function of the gene	3,4,5,7,8	An, E
			<b>CO3:</b> Explain the molecular mechanisms of gene expression and regulation.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Analyze the role of genetic and epigenetic factors in cell differentiation.	1,3,4	U, An, E
			<b>CO5:</b> Apply knowledge of gene expression and differentiation to understand and potentially address developmental disorders and diseases.	1,2,4,5	U, An, E



<b>III</b>	<b>MSZO303A</b>	<b>Basics of Toxicology</b>	<b>CO1:</b> Understand the fundamental principles and concepts of toxicology, including dose-response relationships and the classification of toxic agents.	2,7	U, R
			<b>CO2:</b> Explain the mechanisms of toxicity at the molecular, cellular, and organ levels.	3,4,5,7,8	An, E
			<b>CO3:</b> Identify the routes of exposure and absorption, distribution, metabolism, and excretion (ADME) of toxic substances in biological systems.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Evaluate the toxic effects of various chemicals, including pharmaceuticals, environmental pollutants, and industrial chemicals, on human health	1,3,4	U, An, E
			<b>CO5:</b> Apply toxicological principles to assess risk and develop strategies for the prevention and management of toxic exposures and poisonings.	1,2,4,5	U, An, E
<b>III</b>	<b>MSZO303B</b>	<b>Systematics and Ecology of Insects</b>	<b>CO1:</b> Understand the principles of insect systematics, including classification, nomenclature, and identification of major insect orders and families	2,7	U, R
			<b>CO2:</b> Explain the evolutionary relationships and phylogenetics of insects.	3,4,5,7,8	An, E
			<b>CO3:</b> Analyze the ecological roles of insects in various ecosystems, including their interactions with plants, animals, and microorganisms.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Evaluate the impact of environmental factors on insect populations and behaviors.	1,3,4	U, An, E
			<b>CO5:</b> Apply knowledge of insect ecology and systematics to issues in conservation, pest management, and biodiversity.	1,2,4,5	U, An, E
<b>Practicals</b>	<b>MSZO303C</b>	<b>Environmental Pollution &amp; legal frame work</b>	<b>CO1:</b> Explain the biochemical and physiological effects of pollutants on humans, wildlife, and ecosystems.	5,2,3,4	U, R, A, An
			<b>CO2:</b> Analyze the principles and methods of pollution monitoring, assessment, and control	3,4,5,7,8	An, E
			<b>CO3:</b> Evaluate the national and international legal frameworks and regulations related to environmental protection and pollution control	1,2,3,4,5	U, An, A, E,C

			<b>CO4:</b> Understand the types, sources, and effects of environmental pollution, including air, water, soil, and noise pollution.	3,4,5,7,8	An, E
			<b>CO5:</b> Apply knowledge of environmental laws and policies to develop strategies for pollution prevention, mitigation, and sustainable environmental management.	1,2,3,4,5	U, An, A, E,C
<b>III</b>	<b>MSZO303D</b>	<b>Insect Morphology, Physiology, Embryology and Development</b>	<b>CO1:</b> Understand the anatomical structures and functional morphology of insects.	2	U, R
			<b>CO2:</b> Explain the physiological processes in insects, including digestion, respiration, circulation, and excretion.	3,4,5,7,8	An, E
			<b>CO3:</b> Analyze the stages of insect embryonic development and the factors influencing them.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Evaluate the mechanisms of insect growth, metamorphosis, and reproductive strategies.	1,3,4	U, An, E
			<b>CO5:</b> Apply knowledge of insect morphology and physiology to understand their adaptation, behavior, and roles in ecosystems.	1,2,4,5	U, An, E
<b>III</b>	<b>MSZO304A</b>	<b>Fundamentals of Radiation</b>	<b>CO1:</b> Understand the basic principles and properties of radiation, including types and sources of radiation.	6, 7	U, R
			<b>CO2:</b> Explain the mechanisms of radiation interaction with matter, including ionization and excitation processes.	3,4,5,7,8	An, E
			<b>CO3:</b> Analyze the biological effects of radiation on living organisms, focusing on cellular and molecular damage mechanisms.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Evaluate the methods of radiation measurement, detection, and protection.	1,3,4	U, An, E
			<b>CO5:</b> Apply knowledge of radiation principles to practical applications in medicine, industry, and environmental monitoring, ensuring safety and regulatory compliance.	1,2,4,5	U, An, E

<b>III</b>	<b>MSZO304B</b>	<b>Molecular biology of the Gene</b>	<b>CO1:</b> Understand the basic principles of gene structure and function.	6, 7	U, R
			<b>CO2:</b> Describe the structure and function of the gene	3,4,5,7,8	An, E
			<b>CO3:</b> Explain the molecular mechanisms of gene expression and regulation.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Analyze the role of genetic and epigenetic factors in cell differentiation.	1,3,4	U, An, E
			<b>CO5:</b> Apply knowledge of gene expression and differentiation to understand and potentially address developmental disorders and diseases.	1,2,4,5	U, An, E
<b>III</b>	<b>MSZO304C</b>	<b>Biological Effects of Ionizing Radiation</b>	<b>CO1:</b> Understand the fundamental principles of ionizing radiation.	6,7	U, R
			<b>CO2:</b> Describe the mechanisms of biological damage caused by ionizing radiation	3,4,5,7,8	An, E
			<b>CO3:</b> Evaluate the factors influencing radiation dose and its biological effects	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Analyze the acute and chronic effects of ionizing radiation on human health, distinguishing between deterministic and stochastic effects.	1,3,4	U, An, E
			<b>CO5:</b> Assess radiation protection and safety measures to minimize radiation exposure and mitigate its biological effects in various settings.	3,4,5,7,8	An, E
<b>III</b>	<b>MSZO304C</b>	<b>Biological Effects of Ionizing Radiation</b>	<b>CO1:</b> Apply knowledge of animal biology to address practical problems in various fields such as agriculture, veterinary science, conservation, and biotechnology.	6, 7	U, R
			<b>CO2:</b> Identify and classify economically important animals and their roles in ecosystems and human societies.	3,4,5,7,8	An, E
			<b>CO3:</b> Utilize techniques and methodologies in applied zoology, including field surveys, laboratory analyses, and experimental design.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Analyze the impact of human activities on animal populations, habitats, and biodiversity, and propose conservation strategies.	1,3,4	U, An, E

			<b>CO5:</b> Evaluate the ethical, social, and economic implications of human-animal interactions and propose sustainable management practices.	3,4,5,7,8	An, E
<b>III</b>	<b>MSZO304D</b>	<b>Proteomics</b>	<b>CO1:</b> Understand the principles and techniques of proteomics, including sample preparation, protein separation, mass spectrometry, and data analysis.	1,2,3,4,5	U, An, A, E,C
			<b>CO2:</b> Describe the role of proteomics in biological research, including its applications in understanding protein function, structure, and interactions.	1,3,4	U, An, E
			<b>CO3:</b> Analyze proteomic data using bioinformatics tools and databases to identify proteins, characterize post-translational modifications, and elucidate signaling pathways.	1,2,4,5	U, An, E
			<b>CO4:</b> Evaluate the advantages and limitations of various proteomic approaches, such as gel-based and gel-free methods, quantitative proteomics, and targeted proteomics.	1,2,3,4,5,6	An, E
			<b>CO5:</b> Apply proteomic techniques to investigate complex biological systems, such as disease mechanisms, biomarker discovery, drug development, and personalized medicine.	1,2,3,4,5	U, An, E
<b>III</b>	<b>MSZO351</b>	<b>Zoology Practical-III (External) Lab Work &amp; Seminar</b>	<b>CO1:</b> Demonstrate advanced laboratory techniques for studying the anatomy, physiology, and immunology of vertebrate animals.	5,2,3,4	U, R, A, An
			<b>CO2:</b> Conduct experiments and investigations to explore physiological adaptations of vertebrates to their environments and evaluate their implications for animal health and survival.	3,4,5,7,8	An, E
			<b>CO3:</b> Apply immunological techniques, such as ELISA and flow cytometry, to analyze immune responses in vertebrates and assess their significance in disease resistance and immunity.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Utilize comparative anatomical approaches to identify and compare anatomical structures among vertebrate groups and infer their evolutionary relationships.	1,3,4	U, An, E

			<b>CO5:</b> Integrate knowledge from applied zoology to propose solutions for practical issues related to wildlife conservation, veterinary medicine, and sustainable management of animal populations.	3,4,5,7,8	An, E
<b>III</b>	<b>MSZO352</b>	<b>Elective Practical (External) &amp; Dissertation (Internal)</b>	<b>CO1:</b> Demonstrate proficiency in conducting practical experiments in toxicology and proteomics, including sample preparation, data acquisition, and analysis techniques.	5,2,3,4	U, R, A, An
			<b>CO2:</b> Integrate knowledge of toxicology and proteomics principles to design and execute experiments aimed at elucidating the effects of toxic substances on biological systems at the molecular level.	3,4,5,7,8	An, E
			<b>CO3:</b> Analyze and interpret complex data generated from toxicological and proteomic experiments using appropriate statistical and bioinformatics tools.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Communicate scientific findings effectively through written reports, presentations, and oral discussions, demonstrating the ability to synthesize information from diverse sources and articulate research outcomes clearly.	1,3,4	U, An, E
			<b>CO5:</b> Apply interdisciplinary approaches to investigate toxicological mechanisms, identify potential biomarkers of toxicity, and evaluate the safety and efficacy of therapeutic interventions in diverse contexts.	1,2,4,5	U, An, E
<b>IV</b>	<b>MSZO401</b>	<b>Applied Zoology &amp; Biostatistics</b>	<b>CO1:</b> Came to know the data collection, tabulation and presentation.	2	U, R
			<b>CO2:</b> Described the mean, median, mode and SD.CO 3- Understood the Analysis of Variance	3,4,5,7,8	An, E
			<b>CO3:</b> Understand The Economic Importance Of Protozoa To Hemichordata	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Understand The Sericulture And Pearlculture	1,3,4	U, An, E
			<b>CO5:</b> Understand Pest Management And Biological Importance	1,2,4,5	U, An, E

<b>IV</b>	<b>MSZO402</b>	<b>Tools &amp; Techniques in Biology</b>	<b>CO1:</b> Understand the principles and applications of biotechnological techniques, including DNA cloning, PCR, DNA sequencing, and recombinant DNA technology.	2	U, R
			<b>CO2:</b> Describe the instrumentation used in biotechnology research, including spectrophotometers, centrifuges, electrophoresis systems, and PCR machines.	3,4,5,7,8	An, E
			<b>CO3:</b> Analyze biological data using bioinformatics tools and databases to study genetic sequences, protein structures, and metabolic pathways.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Develop practical skills in biotechnological laboratory techniques, including DNA extraction, gel electrophoresis, and bioinformatics analysis.	1,3,4	U, An, E
			<b>CO5:</b> Apply biotechnological methods and bioinformatics tools to address research questions in various fields, including medicine, agriculture, environmental science, and forensics.	3,4,5,7,8	An, E
			<b>CO5:</b> Apply knowledge of wildlife ecology and behavior to develop conservation plans and management practices aimed at preserving biodiversity and ecosystem integrity.	1,2,3,4,5	U, An, A, E,C
<b>IV</b>	<b>MSZO403A</b>	<b>Applied Aspects of Toxicology</b>	<b>CO1:</b> Understand the practical applications of toxicology in various fields such as environmental science, pharmacology, and public health.	2	U, R
			<b>CO2:</b> Analyze the mechanisms of toxicity of different chemicals and substances, including their absorption, distribution, metabolism, and excretion in living organisms.	3,4,5,7,8	An, E
			<b>CO3:</b> Evaluate the risk assessment and management strategies associated with exposure to toxic substances, considering factors such as dose-response relationships and exposure routes.	1,2,3,4,5	U, An, A, E,C

			<b>CO4:</b> Apply toxicological principles to assess the safety and potential hazards of chemicals, drugs, and environmental pollutants, and propose measures for risk mitigation and regulation.	3,4,5,7,8	An, E
			<b>CO5:</b> Communicate effectively about toxicological concepts, research findings, and regulatory issues to diverse stakeholders, including policymakers, healthcare professionals, and the general public.	1,2,3,4,5	U, An, A, E,C
<b>IV</b>	<b>MSZO403B</b>	<b>Industrial, Medical &amp; Veterinary Entomology</b>	<b>CO1:</b> Understand the role of entomology in industrial, medical, and veterinary contexts, including its applications in pest management, disease control, and veterinary medicine.	2	U, R
			<b>CO2:</b> Analyze the life cycles, behaviors, and ecological interactions of medically important insects, vectors of disease, and pests affecting industrial and agricultural settings.	3,4,5,7,8	An, E
			<b>CO3:</b> Evaluate the principles and methods of integrated pest management (IPM) and vector control, including the use of chemical, biological, cultural, and physical control measures.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Apply entomological knowledge and practical skills to identify insect species, assess pest infestations, and develop effective control strategies in diverse environments.	1,3,4	U, An, E
			<b>CO5:</b> Communicate effectively about entomological concepts, pest management practices, and public health issues related to insects to diverse audiences, including stakeholders and the general public.	1,2,4,5	U, An, E

<b>IV</b>	<b>MSZO403C</b>	<b>Biomonitoring &amp; Bioremediation</b>	<b>CO1:</b> Understand the principles and techniques of biomonitoring and bioremediation, including their applications in assessing environmental quality and mitigating pollution.	2	U, R
			<b>CO2:</b> Analyze the role of biomonitoring in evaluating the health of ecosystems and monitoring the presence and effects of pollutants on living organisms, including indicator species and biomarker analysis.	3,4,5,7,8	An, E
			<b>CO3:</b> Evaluate bioremediation strategies for the removal or degradation of pollutants in various environmental matrices, including soil, water, and air, utilizing microbial, plant-based, and other biological approaches.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Apply biomonitoring techniques and bioremediation methods to assess environmental contamination, identify pollution sources, and develop sustainable remediation strategies for contaminated sites.	1,3,4	U, An, E
			<b>CO5:</b> Communicate effectively about biomonitoring and bioremediation concepts, methodologies, and findings to diverse stakeholders, including policymakers, environmental agencies, industry professionals, and local communities.	1,2,4,5	U, An, E
<b>IV</b>	<b>MSZO403D</b>	<b>Insect Toxicology and Pest Control</b>	<b>CO1:</b> Understand the principles of insect toxicology and their relevance to pest control strategies, including the modes of action of insecticides and factors influencing insecticide resistance.	1,2,3,4,5,6	An, E
			<b>CO2:</b> Analyze the ecological impacts of insecticides on non-target organisms and ecosystems, considering factors such as pesticide persistence, bioaccumulation, and effects on beneficial insects.	1,2,3,4,5	U, An, E
			<b>CO3:</b> Evaluate the efficacy and sustainability of various pest control methods, including chemical, biological, cultural, and integrated pest management (IPM) approaches, in mitigating insect pest populations and minimizing environmental risks.	1,2,3,9	An, A, E, C



			<b>CO4:</b> Apply knowledge of insect toxicology and pest control principles to design and implement effective pest management programs for agricultural, industrial, and residential settings, considering factors such as pest biology, behavior, and ecology.	3,4,5,9	An, A, E, C
			<b>CO5:</b> Communicate effectively about insect toxicology concepts, pest control strategies, and their implications for human health and environmental sustainability to diverse stakeholders, including farmers, policymakers, and the general public.	3,4,5,7,8	An, E
<b>IV</b>	<b>MSZO404A</b>	<b>Principles of Radiation Protection, Legislation &amp; International Framework</b>	<b>CO1:</b> Understand the fundamental principles of radiation protection, including the concepts of dose limits, dose constraints, and optimization, as well as the biological effects of ionizing radiation on human health.	2,7	U, R
			<b>CO2:</b> Analyze radiation protection legislation and regulatory frameworks at the national and international levels, including the roles and responsibilities of regulatory bodies and compliance with relevant standards and guidelines.	3,4,5,7,8	An, E
			<b>CO3:</b> Evaluate the international frameworks and conventions governing radiation protection, nuclear safety, and emergency preparedness, such as those established by the International Atomic Energy Agency (IAEA) and other organizations.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Apply radiation protection principles and regulatory requirements to assess radiation risks, develop safety protocols, and implement measures to protect workers, the public, and the environment from ionizing radiation hazards.	1,3,4	U, An, E
			<b>CO5:</b> Communicate effectively about radiation protection concepts, legislative requirements, and international frameworks to diverse stakeholders, including radiation workers, policymakers, and the general public.	1,2,4,5	U, An, E

<b>IV</b>	<b>MSZO404B</b>	<b>Cellular mechanics</b>	<b>CO1:</b> Understand the fundamental principles of cellular mechanics, including the mechanical properties of cells, intracellular forces, and the role of the cytoskeleton in cell structure, motility, and mechanical signaling.	2,7	U, R
			<b>CO2:</b> Analyze the molecular mechanisms underlying cellular mechanics, including the regulation of cell shape, adhesion, migration, and mechanotransduction processes involved in sensing and responding to mechanical cues from the environment.	3,4,5,7,8	An, E
			<b>CO3:</b> Evaluate the impact of cellular mechanics on various cellular processes and physiological functions, such as cell division, differentiation, tissue morphogenesis, and the immune response, in health and disease states.	1,2,3,4,5	U, An, A, E,C
			<b>CO4:</b> Apply experimental techniques and computational tools to study cellular mechanics, including methods for measuring cell stiffness, traction forces, and microenvironmental mechanical properties, and analyzing mechanical models of cellular behavior.	1,3,4	U, An, E
			<b>CO5:</b> Communicate effectively about cellular mechanics concepts, research findings, and their implications for biomedical research and biotechnological applications to diverse audiences, including scientists, clinicians, and the general public.	3,4,5,7,8	An, E
<b>IV</b>	<b>MSZO404C</b>	<b>Occupational Exposure and Radiation Safety</b>	<b>CO1:</b> Understand the principles of occupational radiation safety, including the risks associated with ionizing radiation exposure in various occupational settings and the importance of dose monitoring and dose reduction measures.	2,7	U, R
			<b>CO2:</b> Analyze the factors influencing occupational radiation exposure, such as radiation types, energy levels, exposure pathways, work practices, and the use of personal protective equipment (PPE) and engineering controls.	3,4,5,7,8	An, E

			<b>CO3:</b> Evaluate radiation protection measures and safety protocols for minimizing occupational exposure to ionizing radiation, including the implementation of ALARA (As Low As Reasonably Achievable) principles and dose management strategies	3,4,5,7,8	An, E
			<b>CO4:</b> Apply radiation safety regulations and guidelines to assess occupational radiation hazards, develop radiation protection programs, and conduct radiation risk assessments in workplace settings.	1,2,3,4,5	U, An, A, E,C
			<b>CO5:</b> Communicate effectively about occupational radiation exposure risks, safety procedures, and compliance requirements to workers, employers, regulatory authorities, and other stakeholders involved in radiation-related occupations.	1,3,4	U, An, E
<b>IV</b>	<b>MSZO404D</b>	<b>Molecular Immunology</b>	<b>CO1:</b> Understand the principles of molecular immunology, including the molecular mechanisms underlying immune responses, such as antigen recognition, lymphocyte activation, and cytokine signaling pathways.	3,4,5,7,8	An, E
			<b>CO2:</b> Analyze the molecular basis of immune system function, including the structure and function of major histocompatibility complex (MHC) molecules, antigen processing and presentation, and the generation of immune diversity.	1,2,3,4,5	U, An, A, E,C
			<b>CO3:</b> Evaluate the molecular interactions between immune cells and pathogens, including the recognition and elimination of pathogens by innate and adaptive immune mechanisms, immune evasion strategies, and host-pathogen interactions.	1,3,4	U, An, E
			<b>CO4:</b> Apply knowledge of molecular immunology to understand the pathogenesis of immune-related diseases, including autoimmune disorders, immunodeficiencies, allergies, and the development of vaccines and immunotherapeutic interventions.	1,2,4,5	U, An, E

			<b>CO5:</b> Communicate effectively about molecular immunology concepts, research findings, and their implications for human health and disease to diverse audiences, including scientists, clinicians, policymakers, and the general public.	3,4,5,7,8	An, E
<b>IV</b>	<b>MSZO451</b>	<b>Zoology Practical-IV (External) Lab Work &amp; Seminar</b>	<b>CO1:</b> Demonstrate practical skills in biochemical techniques, including spectrophotometry, chromatography, and electrophoresis, for analyzing biomolecules and metabolic pathways.	3,4,5,7,8	An, E
			<b>CO2:</b> Apply knowledge of wildlife conservation and management principles to design and implement field surveys and monitoring programs aimed at assessing wildlife populations and habitats.	1,2,3,4,5	U, An, A, E,C
			<b>CO3:</b> Utilize biotechnological tools and instrumentation, such as PCR machines and bioinformatics software, to analyze genetic sequences, protein structures, and metabolic pathways in wildlife and apicultural contexts.	1,3,4	U, An, E
			<b>CO4:</b> Develop practical skills in apiculture, including hive management, colony inspection, disease diagnosis, and honey extraction, to support sustainable beekeeping practices and ensure bee health.	1,2,4,5	U, An, E
			<b>CO5:</b> Integrate knowledge from biochemistry, wildlife conservation, biotechniques, and apiculture to propose interdisciplinary approaches for addressing practical issues related to wildlife health, biodiversity conservation, and sustainable agriculture.	1,2,3,4,5,6	An, E
<b>IV</b>	<b>MSZO452</b>	<b>Elective Practical (External) &amp; Dissertation (Internal)</b>	<b>CO1:</b> Understand the principles and applications of biotechnology techniques in animal research and industry, including genetic engineering, cloning, and transgenesis.	5,2,3,4	U, R, A, An
			<b>CO2:</b> Describe the use of molecular biology tools, such as PCR, gene expression analysis, and gene editing technologies, in studying animal genetics and physiology.	3,4,5,7,8	An, E

			<b>CO3:</b> Analyze the ethical, legal, and societal implications of animal biotechnology, including animal welfare, biosafety, and regulatory issues.	3,4,5,7,8	An, E
			<b>CO4:</b> Discuss the potential applications of animal biotechnology in agriculture, medicine, conservation, and biopharmaceutical production.	1,2,3,4,5	U, An, A, E,C
			<b>CO5:</b> Develop practical skills in animal biotechnology, including tissue culture, gene manipulation, and recombinant protein expression, to address research questions and industry needs.	1,3,4	U, An, E
<b>*PROGRAM SPECIFIC OUTCOMES: PSO OF MASTER IN COMPUTER APPLICATION (MCA) AS PER RTU, KOTA NORMS</b>					