PROGRAMME SPECIFIC OUTCOMES (PSOs)

M.Sc. Biotechnology

PSO1: Postgraduate students will be able to demonstrate and apply their knowledge of cell biology, biochemistry, microbiology and molecular biology to solve the problems related to the field of biotechnology.

PSO2: Postgraduate students will be able to demonstrate and apply the principles of bioprocess engineering in the design, analysis, optimization and simulation of bioprocess operations.

PSO3: Students will be able to gain fundamental knowledge in animal and plant biotechnology and their applications.

PSO4: Student will be able to (a) Describe fundamental molecular principles of genetics; (b) Understand relationship between phenotype and genotype in human genetic traits; (c) Describe the basics of genetic mapping; (d) Understand how gene expression is regulated.

PSO5: Students will be able to (a) To elaborate concepts of biochemistry with easy to run experiments; (b) To familiarize with basic laboratory instruments and understand the principle of measurements using those instruments with experiments in biochemistry.

PSO6: Students will be able to understand various facets of molecular procedures and basics of genomics, proteomics and metabolomics that could be employed in early diagnosis and prognosis of human diseases.

PSO7: Students will be able to gain hands on experience in gene cloning, protein expression and purification. This experience would enable them to begin a career in industry that engages in genetic engineering as well as in research laboratories conducting fundamental research.

PSO8: Students will be able to develop aptitude for formulating research problem and experimental planning,data collection and statistical planning.

M.Sc. Chemistry

PSO-1 Students will understand the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life. They will also be able to acquire knowledge about the fundamentals and applications of chemical and scientific theories.

PSO-2 Students will find that every branch of science and technology is related to Chemistry. They will develop scientific outlook not only with respect to science subjects but also in all aspects related to life.

PSO-3 Students will become familiar with the different branches of chemistry like analytical, organic, inorganic, physical, environmental, polymer and biochemistry. They will also learn to apply appropriate techniques for the qualitative and quantitative analysis of chemicals in laboratories and in industries.

PSO-4 The student will acquire knowledge of Chemical Thermodynamics, Kinetics, Electrochemistry, Atomic Structure, Organic Chemistry, Spectroscopy and Skill in Industrial Chemistry.

PSO-5 Viewing chemistry as a tool the developing mind and critical attitude and the faculty of logical reasoning that is prepared to serve in diverse fields.

PSO-6 Students will gain a thorough Knowledge in the subject to be able to work in projects at different research as well as academic institutions.

M.Sc. Industrial Chemistry

PSO 1: Students will have the knowledge of fundamental concepts of chemistry including organic, physical, inorganic, analytical and nanotechnology.

PSO 2: Students will be able to use modern instrumentation and classical techniques, to design experiments, along with knowledge of the standard operating procedures and safety regulations for effective handling and use of chemicals.

PSO3: Understand the impact of the professional scientific solutions in the societal and environmental contexts, and demonstrate the knowledge of, and the need for sustainable developments

PSO4: Apply ethical principles and commit to professional ethics and responsibilities and norms of scientific practice.

PSO5: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

M.Sc. Physics

PSO-1: Hone the basic concepts of core areas of Physics, its linkages with related fields of study, and current and emerging developments in a broad multidisciplinary context.

PSO-2: Perform the general Physics and research oriented experiments with appropriate analysis for proper interpretation of results.

PSO-3: A research oriented learning that develops analytical and integrative problem-solving approaches.

PSO-4: Ability to plan and execute their own innovative ideas in the form of projects, product design and development.

PSO-5: To equip the students for seeking suitable careers in Physics

M.Sc Integrated Chemistry

PSO-1 Students will understand the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life. They will also be able to acquire knowledge about the fundamentals and applications of chemical and scientific theories.

PSO-2 Students will find that every branch of science and technology is related to Chemistry. They will develop scientific outlook not only with respect to science subjects but also in all aspects related to life.

PSO-3 Students will become familiar with the different branches of chemistry like analytical, organic, inorganic, physical, environmental, polymer and biochemistry. They will also learn to apply appropriate techniques for the qualitative and quantitative analysis of chemicals in laboratories and in industries.

PSO-4 The student will acquire knowledge of Chemical Thermodynamics, Kinetics, Electrochemistry, Atomic Structure, Organic Chemistry, Spectroscopy and Skill in Industrial Chemistry.

PSO-5 Viewing chemistry as a tool the developing mind and critical attitude and the faculty of logical reasoning that is prepared to serve in diverse fields.

PSO-6 Students will gain a thorough Knowledge in the subject to be able to work in projects at different research as well as academic institutions.

B.Sc Biochemistry

PSO1- To create interest in Biochemistry and appreciation for chemical basis of biological processes.

PSO2- To inculcate the spirit of inquiry and value of systematic study of a discipline. Provide a general understanding of the related disciplines with a holistic knowledge generation in biological sciences.

PSO3- To provide an in-depth understanding of chemical reaction mechanisms in biological processes.

PSO4- To provide a flavor of historical developments of enzymes and their applications in research, diagnostics and various industries.

PSO5- Gain proficiency in basic laboratory techniques and be able to apply the scientific method to the processes of experimentation, hypothesis testing, data interpretation and logical conclusions.

PSO6- Develop problem solving and analytical skills through case studies, research papers and hands-on-experience.

PSO7- To appreciate biochemical mechanistic basis of physiological processes, metabolism under normal and pathological conditions importance and levels of metabolic regulations.

PSO8- to apply and effectively communicate scientific reasoning and data analysis in both written and oral forms. They will be able to communicate effectively with well-designed posters and slides in talks aimed at scientific audiences as well as the general public.

PSO9- To bridge the knowledge and skill gap between academic out and industry requirements.

PSO10- To give students experience in conducting independent, hypothesis-driven, biological research, project planning and management.

PSO11- To provide skills to publish research findings, and awareness of IP rights, and scientific publication ethics and problems of plagiarism.

PSO12- To prepare competent human resource with better knowledge, hands-on-experience and scientific attitude, at national and global levels for careers in research and development, academia and Pharma-, biotech- and agro-, and food processing industries.

B.Sc Biotechnology

PSO1-Understanding concepts of Biotechnology and demonstrate interdisciplinary skills acquired in cell biology, genetics, biochemistry, microbiology, and molecular biology.

PSO2- Demonstrating the Laboratory skills in cell biology, basic and applied microbiology with an emphasis on technological aspects

PSO3-Competent to apply the knowledge and skills gained in the fields of Plant biotechnology, animal biotechnology and microbial technology in pharma, food, agriculture, beverages, herbal and nutraceutical industries.

PSO4- Critically analyze the environmental issues and apply the biotechnology knowledge gained for conserving the environment and resolving the problems.

PSO5-Demonstrate comprehensive innovations and skills in the fields of biomolecules, cell and organelles, molecular biology, bioprocess engineering and genetic engineering of plants, microbes, and animals with respect to applications for human welfare.

PSO6-Apply knowledge and skills of immunology, bioinformatics, computational modelling of proteins, drug design and simulations to test the models and aid in drug discovery.

PSO7-Critically analyze, interpret data, and apply tools of bioinformatics and multi omics in various sectors of biotechnology including health and Food.

PSO8-Demonstrate communication skills, scientific writing, data collection and interpretation abilities in all the fields of biotechnology.

PSO9-Learning and practicing professional skills in handling microbes, animals and plants and demonstrate the ability to identify ethical issues related to recombinant DNA technology, genetic engineering, animals handling, intellectual property rights, biosafety, and biohazards.

PSO10-Exploring the biotechnological practices and demonstrating innovative thinking in addressing the current day and future challenges with respect to food, health, and environment.

PSO11-Thorough knowledge and application of good laboratory and good manufacturing practices in biotech industries.

PSO12. Understanding and application of molecular biology techniques and principles in forensic and clinical biotechnology.
PSO13- Demonstrate entrepreneurship abilities, innovative thinking, planning, and setting up small-scale enterprises or CROs.

B.Sc Botany

PSO1: Skill development for the proper description using botanical terms, identification, naming and classification of life forms especially plants and microbes.

PSO2: Acquisition of knowledge on structure, life cycle and life processes that exist among plant and microbial diversity through certain model organism studies.

PSO3: Understanding of various interactions that exist among plants and microbes; to develop the curiosity on the dynamicity of nature.

PSO4: Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

PSO5: Ability to explain the diversity and evolution based on the empirical evidences in morphology, anatomy, embryology, physiology, biochemistry, molecular biology and life history.

PSO6: Skill development for the collection, preservation and recording of information after observation and analysis- from simple illustration to molecular database development.

PSO7: Making aware of the scientific and technological advancements- Information and Communication, Biotechnology and Molecular Biology for further learning and research in all branches of Botany.

PSO8: Internalization of the concept of conservation and evolution through the channel of spirit of inquiry.

PSO9: To enable the graduates to prepare for national as well as international level competitive examinations like UGC-CSIR, UPSC, KPSC etc.

PSO10: To enable the students for practicing the best teaching pedagogy as a biology teacher including the latest digital modules.

PSO11: The graduates should be knowledgeable and competent enough to appropriately deliver on aspects of global importance like climate change, SDGs, green technologies etc at the right opportunity.

PSO12: The graduate should be able to demonstrate sufficient proficiency in the hands-on experimental techniques for their area of specialization within biology during research and in the professional career.

B.Sc Chemistry

PSO. 1: To create enthusiasm among students for Analytical chemistry and its application in various fields of life.
PSO. 2: To provide students with broad and balanced knowledge and understanding of key concepts in Analytical chemistry.

PSO. 3: To develop in students a range of practical skills so that they can understand and assess risks and work safely measures to be followed in the laboratory.

PSO. 4: To develop in students the ability to apply standard methodology to the solution of problems in chemistry.

PSO. 5: To provide students with knowledge and skill towards employment or higher education in Analytical chemistry or multi-disciplinary areas involving Analytical chemistry.

PSO. 6: To provide students with the ability to plan and carry out experiments independently and assess the significance of outcomes and to cater to the demands of chemical Industries of well trained graduates

PSO. 7: To develop in students the ability to adapt and apply methodology to the solution of unfamiliar types of problems.

PSO. 8: To instil critical awareness of advances at the forefront of chemical sciences, to prepare students effectively for professional employment or research degrees in chemical sciences and to develop an independent and responsible work ethics.

B.Sc Computer Science

PSO1. Discipline knowledge: Acquiring knowledge on basics of Computer Science and ability to apply to design principles in the development of solutions for problems of varying complexity.

PSO2. Problem Solving: Improved reasoning with strong mathematical ability to Identify, formulate and analyze problems related to computer science and exhibiting a sound knowledge on data structures and algorithms.

PSO3. Design and Development of Solutions: Ability to design and development of algorithmic solutions to real world problems.

PSO4. Programming a computer: Exhibiting strong skills required to program a computer for various issues and problems of day-to-day scientific applications.

PSO5. Application Systems Knowledge: Possessing a minimum knowledge to practice existing computer application software.

PSO6. Communication: Must have a reasonably good communication knowledge both in oral and writing.

PSO7. Ethics on Profession, Environment and Society: Exhibiting professional ethics to maintain the integrality in a working environment and also have concern on societal impacts due to computer-based solutions for problems.
PSO8. Lifelong Learning: Should become an independent learner. So, learn to learn ability.

PSO9. Motivation to take up Higher Studies: Inspiration to continue educations towards advanced studies on Computer Science.

B.Sc Electronics

PSO1- Ability to apply knowledge of logic thinking and basic science for solving electronics related problems.

PSO2- Ability to perform electronics experiments, as well as to analyze and interpret data.

PSO3- Ability to design and manage electronic systems or processes that conforms to a given specific action within ethical and economic constraints.

PSO4- Ability to identify, formulate, solve and anlyze the problems in various sub-discipline of electronics.

PSO5- Ability to use modern tools/techniques.

B.Sc English

PSO1- Acquired enhanced LSRW (Listening, Speaking, Reading, Writing skills).

PSO2- Learn to appreciate and obtain the knowledge of literary devices and genres.
PSO3- Been equipped with interpersonal communicative skills.

PSO4- Augmented their presentation and analytical skills.

PSO5- Developed an ability to critically analyse, interpret and appreciate texts.

PSO6- Developed an openness to, and appreciation of social, cultural, religious and ethnic diversities.

PSO7- Developed the skills required for employability in emerging professional positions such as-content writers, interpreters, translators, transcribers.

PSO8- Acquired language skills for successfully facing competitive examinations like: UPSC/KPSC/IBPS/SSC/RAILWAYS/TOEFL/IELTS and others.

B.Sc Environmental Science

PSO1. Disciplinary knowledge in fields related to Environmental Science

PSO2. Systemic and critical thinking with reference to environment-people-economic development attributes

PSO3. Problem identification skills and sustainable solution provisioning

PSO4. Analytical reasoning and appropriate interpretation skills

PSO5. Self-directed learning efficiencies leading to a productive lifelong learning process

PSO6. Research related skills such as review of literature, design of experiments, statistical competence, report writing and prepare target specific communication packages

PSO7. Cooperation/Teamwork

PSO8. Reflective thinking

PSO9. Multidisciplinary competence catering to environmental sustainability

B.Sc., Geology

PSO1: Learn the essential properties of earth components, including its core, mantle, asthenosphere, lithosphere, cryosphere, hydrosphere, atmosphere and biosphere.

PSO2: Demonstrate mastery of the conceptual framework for understanding earth system processes and the development of earth's features over time.

PSO3: Acquiring geologic data in the field, laboratory, satellites and big data from data banks, Analyzing and interpreting the data through application of scientific method.

PSO4: Enable to apply successfully advanced and current concepts and methods of the geosciences to formulate and solve complex geological problems.

PSO5: Apply knowledge and techniques from allied fields, including chemistry, physics, biology, mathematics, and computing, to solve geological problems.

PSO6: Capable of understanding the impact of a geo-engineering solution in global and societal context.

PSO7: Students take-up a geologic problem and utilize theoretical, analytical or experimental approach to solve the problem through their project work.

B.Sc Mathematics

PSO 1- Disciplinary Knowledge: Bachelor degree in Mathematics is the culmination of in-depth knowledge of Algebra, Calculus, Geometry, differential equations and several other branches of pure and applied mathematics. This also leads to study the related areas such as computer science and other allied subjects.

PSO 2- Communication Skills: Ability to communicate various mathematical concepts effectively using examples and their geometrical visualization. The skills and knowledge gained in this program will lead to the proficiency in analytical reasoning which can be used for modeling and solving of real life problems.

PSO 3- Critical thinking and analytical reasoning: The students undergoing this programme acquire ability of critical thinking and logical reasoning and capability of recognizing and distinguishing the various aspects of reallife problems.

PSO 4- Problem Solving: The Mathematical knowledge gained by the students through this programme develop an ability to analyze the problems, identify and define appropriate computing requirements for its solutions. This programme enhances students overall development and also equip them with mathematical modeling ability, problem solving skills.

PSO 5- Research related skills: The completing this programme develop the capability of inquiring about appropriate questions relating to the Mathematical concepts in different areas of Mathematics.

PSO 6- Information/digital Literacy: The completion of this programme will enable the learner to use appropriate softwares to solve system of algebraic equation and differential equations.

PSO 7- Self - directed learning: The student completing this program will develop an ability of working independently and to make an in-depth study of various notions of Mathematics.

PSO 8- Moral and ethical awareness/reasoning: The student completing this program will develop an ability to identify unethical behavior such as fabrication, falsification or misinterpretation of data and adopting objectives, unbiased and truthful actions in all aspects of life in general and Mathematical studies in particular.

PSO 9- Lifelong learning: This programme provides self directed learning and lifelong learning skills. This programme helps the learner to think independently and develop algorithms and computational skills for solving real word problems.

PSO 10- Ability to pursue advanced studies and research in pure and applied Mathematical sciences.

B.Sc Microbiology

PSO1- Knowledge and understanding of concepts of microbiology and its application in pharma, food, agriculture, beverages, nutraceutical industries.

PSO2. Understand the distribution, morphology and physiology of microorganisms and demonstrate the skills in aseptic handling of microbes including isolation, identification and maintenance.

PSO3. Competent to apply the knowledge gained for conserving the environment and resolving the environmental related issues.

PSO4. Learning and practicing professional skills in handling microbes and contaminants in laboratories and production sectors.

PSO5. Exploring the microbial world and analyzing the specific benefits and challenges.

PSO6. Applying the knowledge acquired to undertake studies and identify specific remedial measures for the challenges in health, agriculture, and food sectors.

PSO7. Thorough knowledge and application of good laboratory and good manufacturing practices in microbial quality control.

PSO8. Understanding biochemical and physiological aspects of microbes and developing broader perspective to identify innovative solutions for present and future challenges posed by microbes.

PSO9. Understanding and application of microbial principles in forensic and working knowledge about clinical microbiology.

PSO10. Demonstrate the ability to identify ethical issues related to recombinant DNA technology, GMOs, intellectual property rights, biosafety and biohazards.

PSO11.Demonstrate the ability to identify key questions in microbiological research, optimize research methods, and analyze outcomes by adopting scientific methods, thereby improving the employability.

PSO12. Enhance and demonstrate analytical skills and apply basic computational and statistical techniques in the field of microbiology.

B.Sc Physics

PSO1- Understand basic mechanics and properties of matter.

PSO2 -Illustrate the principles of electricity, magnetism, thermodynamics, optics and spectroscopy.

PSO3-Identify, formulate and analyze complex problems using basic principles of mathematics, physics and statistics.

PSO4-Design, construct and analyze basic electronic and digital circuits.

PSO5- Understand the basics of programming language and apply it to various numerical problems.

PSO6- Develop effective communication skills.

PSO7-Develop experimental skills and independent work culture through a series of experiments that compliment theories and projects.

B.Sc Sanskrit

PSO1-Students acquainted with the classical Sanskrit Poetry, Prose literature and Katha Sahitya .

PSO2-It intends to give an understanding of literature, through which students will be able to understand the poetic nuances. They develop the ability to use language in a descriptive way.

PSO3-This programme seeks to help the students negotiate the text independently with the help of proficiency of Sanskrit language, grammar and comprehend the meaning in more than one Language.

PSO4-Students are trained to speak and write in Sanskrit without errors.

PSO5- The students learn and fine-tune their learning of Sandhi, Samasa and start with their effort to translate stories and incidents on their own.

B.Sc Urdu

PSO-1. Fair knowledge about Urdu Language

PSO-2. Brief knowledge about Urdu Literature

PSO-3. Introduction about the famous Urdu Writers, Poets & Short Story Writers

PSO-4. Brief Knowledge about Forms of Prose

B.Sc Zoology

PSO1-The Programme offers both classical as well as modern concepts of Zoology in higher education.

PSO2-It enables the students to study animal diversity in both local and global environments.

PSO3-To make the study of animals more interesting and relevant to human studies more emphasis is given to branches like behavioural biology, evolutionary biology and economic zoology.

PSO4-More of upcoming areas in cell biology, genetics, molecular biology, biochemistry, genetic engineering and bioinformatics have been also included.

PSO5-Equal importance is given to practical learning and presentation skills of students.

PSO6-The lab courses provide the students necessary skills required for their employability.

PSO7-Skill enhancement courses in classical and applied branches of Zoology enhance enterprising skills of students.

PSO8-The global practices in terms of academic standards and evaluation strategies.

PSO9- Provides opportunity for the mobility of the student both within and across the world.

PSO10-The uniform grading system will benefit the students to move across institutions within India to begin with and across countries.

PSO11-It will also enable potential employers in assessing the performance of the candidates across the world.