GOVT. HOLKAR (MODEL AUTONOMOUS) SCIENCE COLLEGE, INDORE

PROGRAMME OUTCOMES & PROGRAMME SPECIFIC OUTCOMES

INTERNAL QUALITY ASSURANCE CELL

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Content

Programme Outcomes

(PO)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the fundamental concepts and principles of biochemistry, including the structure and function of biomolecules, metabolic pathways, and cellular signalling. (Bloom's Taxonomy: Remembering)

PO2: Apply laboratory techniques and experimental methods to purify, analyze, and manipulate biological molecules, including proteins, nucleic acids, and carbohydrates. (Bloom's Taxonomy: Applying)

PO3: Analyze and interpret experimental data using quantitative and statistical methods, and use bioinformatics tools to predict and model biochemical processes. (Bloom's Taxonomy: Understanding and Applying)

PO4: Evaluate and critically assess the impact of biochemical processes on human health and disease, and propose solutions to diagnose and treat biochemical disorders. (Bloom's Taxonomy: Evaluating)

PO5: Synthesize and communicate complex ideas and concepts related to biochemistry, using effective written and oral communication skills to convey scientific information to a variety of audiences, including non-scientific audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the principles of botany, including plant structure, function, and diversity, as well as the mechanisms of plant growth and development. (Bloom's Taxonomy: Remembering)

PO2: Analyze and interpret complex data and scientific literature to develop hypotheses, design experiments, and draw conclusions related to plant biology. (Bloom's Taxonomy: Understanding and Applying)

PO3: Evaluate and critically assess the impacts of human activities on plant communities, ecosystems, and global environmental systems. (Bloom's Taxonomy: Evaluating)

PO4: Apply laboratory and field techniques to collect and analyze plant data, and use quantitative methods to interpret and communicate findings. (Bloom's Taxonomy: Applying)

PO5: Synthesize and communicate complex concepts and ideas related to plant biology, using effective written and oral communication skills to convey scientific information to a variety of audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the principles of biotechnology, including genetic engineering, bioprocessing, and bioinformatics, as well as the applications of biotechnology in medicine, agriculture, and industry. (Bloom's Taxonomy: Remembering)

PO2: Apply laboratory techniques and experimental methods to design and conduct experiments in biotechnology, including DNA cloning, protein expression, and cell culture. (Bloom's Taxonomy: Applying)

PO3: Analyze and interpret complex biological data, using statistical methods and computational tools to identify patterns, make predictions, and draw conclusions related to biotechnology. (Bloom's Taxonomy: Understanding and Applying)

PO4: Evaluate and critically assess the ethical, social, and environmental impacts of biotechnology, and propose strategies to ensure responsible and sustainable use of biotechnology. (Bloom's Taxonomy: Evaluating)

PO5: Synthesize and communicate complex ideas and concepts related to biotechnology, using effective written and oral communication skills to convey scientific information to a variety of audiences, including non-scientific audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the principles of bioinformatics, including molecular biology, computer science, and statistics, as well as the applications of bioinformatics in genomics, proteomics, and drug discovery. (Bloom's Taxonomy: Remembering)

PO2: Apply computational methods and software tools to analyze biological data, including DNA sequences, protein structures, and gene expression profiles, and use visualization techniques to interpret and communicate findings. (Bloom's Taxonomy: Applying)

PO3: Evaluate and critically assess the quality and validity of biological data and computational models, and propose strategies to improve data quality and model accuracy. (Bloom's Taxonomy: Evaluating)

PO4: Design and implement bioinformatics workflows and pipelines to manage and analyze large-scale biological datasets, and use automation techniques to increase efficiency and reproducibility. (Bloom's Taxonomy: Applying)

PO5: Synthesize and communicate complex ideas and concepts related to bioinformatics, using effective written and oral communication skills to convey scientific information to a variety of audiences, including non-scientific audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the fundamental principles and concepts of chemistry, including chemical reactions, thermodynamics, chemical bonding, and atomic and molecular structure. (Bloom's Taxonomy: Remembering)

PO2: Apply laboratory techniques and instrumentation to perform chemical experiments and analyze data, and use appropriate software to process and interpret chemical data. (Bloom's Taxonomy: Applying)

PO3: Analyze and interpret chemical data to make inferences about chemical properties and reactions, and use quantitative and qualitative methods to test hypotheses and theories about chemical phenomena. (Bloom's Taxonomy: Understanding and Applying)

PO4: Evaluate and critically assess the environmental, societal, and ethical implications of chemical processes, including pollution, toxicology, and sustainability, and propose solutions to address these issues. (Bloom's Taxonomy: Evaluating)

PO5: Synthesize and communicate complex ideas and concepts related to chemistry, using effective written and oral communication skills to convey scientific information to a variety of audiences, including non-scientific audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the fundamental principles and concepts of computer science, including programming languages, algorithms, data structures, computer architecture, and operating systems. (Bloom's Taxonomy: Remembering)

PO2: Apply programming and software development skills to design, implement, test, and maintain computer programs and systems, using appropriate software development methodologies and tools. (Bloom's Taxonomy: Applying)

PO3: Analyze and interpret complex data and computational models, and use computational methods to solve problems in a variety of domains, including artificial intelligence, machine learning, and data science. (Bloom's Taxonomy: Understanding and Applying)

PO4: Evaluate and critically assess the ethical and social implications of computer science, including privacy, security, and social responsibility, and propose solutions to address these issues. (Bloom's Taxonomy: Evaluating)

PO5: Synthesize and communicate complex ideas and concepts related to computer science, using effective written and oral communication skills to convey technical information to a variety of audiences, including non-technical audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Design and implement electronic circuits for real-world applications using advanced software tools and techniques. (Create, Implement, Design)

PO2: Analyze and evaluate the performance of electronic systems through experimental and theoretical investigations. (Analyze, Evaluate, Investigate)

PO3: Communicate technical information effectively to both technical and non-technical audiences, using appropriate tools and media. (Communicate, Effectively, Media)

PO4: Apply knowledge of ethical and professional standards to engineering practice, and appreciate the social and environmental impacts of electronic technologies. (Apply, Ethical, Appreciate)

PO5: Develop a lifelong learning attitude and engage in professional development activities to keep pace with emerging techno.

Programme Outcomes: -

PO1: Demonstrate understanding of economic theories, concepts, and models (Knowledge)

PO2: Analyze economic issues using quantitative and qualitative research methods (Analysis)

PO3: Evaluate economic policies and their impact on individuals, businesses, and society (Evaluation)

PO4: Communicate economic ideas and analysis effectively to diverse audiences, both orally and in writing (Communication)

PO5: Apply ethical principles and professional standards to guide decision-making in economics and related fields (Ethics)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the fundamental principles and concepts of forensic science, including crime scene investigation, evidence collection and preservation, and forensic laboratory analysis. (Bloom's Taxonomy: Remembering)

PO2: Apply laboratory techniques and experimental methods to analyze and identify physical and biological evidence, including DNA, fingerprints, and trace materials. (Bloom's Taxonomy: Applying)

PO3: Analyze and interpret complex data and scientific literature to develop hypotheses, design experiments, and draw conclusions related to forensic science, including statistical methods for evaluating evidence. (Bloom's Taxonomy: Understanding and Applying)

PO4: Evaluate and critically assess the validity and reliability of forensic evidence, and propose strategies to improve the accuracy and reliability of forensic analysis. (Bloom's Taxonomy: Evaluating)

PO5: Synthesize and communicate complex ideas and concepts related to forensic science, using effective written and oral communication skills to convey scientific information to a variety of audiences, including non-scientific audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the fundamental principles and concepts of geology, including the structure and composition of the Earth, plate tectonics, rock and mineral identification, and geological time scales. (Bloom's Taxonomy: Remembering)

PO2: Apply field and laboratory methods to study geological phenomena, including mapping, sampling, and analysis of rocks, minerals, and geological structures, and use appropriate technology and software to process and interpret geological data. (Bloom's Taxonomy: Applying)

PO3: Analyze and interpret geological data to make inferences about geological processes and history, and use quantitative and qualitative methods to test hypotheses and theories about geological phenomena. (Bloom's Taxonomy: Understanding and Applying)

PO4: Evaluate and critically assess the environmental and societal impacts of geological processes, including natural hazards, resource extraction, and climate change, and propose strategies to mitigate or adapt to these impacts. (Bloom's Taxonomy: Evaluating)

PO5: Synthesize and communicate complex ideas and concepts related to geology, using effective written and oral communication skills to convey scientific information to a variety of audiences, including non-scientific audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the fundamental principles and concepts of geography, including physical and human geography, spatial analysis, and cartography. (Bloom's Taxonomy: Remembering)

PO2: Apply field and laboratory methods to study geographical phenomena, including remote sensing, GIS, and statistical analysis, and use appropriate technology and software to process and interpret geographical data. (Bloom's Taxonomy: Applying)

PO3: Analyze and interpret geographical data to make inferences about spatial patterns and relationships, and use quantitative and qualitative methods to test hypotheses and theories about geographical phenomena. (Bloom's Taxonomy: Understanding and Applying)

PO4: Evaluate and critically assess the environmental and societal impacts of geographical processes, including climate change, land use change, and natural hazards, and propose strategies to mitigate or adapt to these impacts. (Bloom's Taxonomy: Evaluating)

PO5: Synthesize and communicate complex ideas and concepts related to geography, using effective written and oral communication skills to convey geographical information to a variety of audiences, including non-geographical audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge of plant biology, horticultural crops, and their management practices (Knowledge)

PO2: Apply practical techniques for propagating, growing, and maintaining horticultural crops (Application)

PO3: Evaluate the economic and environmental sustainability of horticultural production systems (Evaluation)

PO4: Communicate effectively with stakeholders in the horticultural industry, including growers, marketers, and consumers (Communication)

PO5: Apply ethical principles and professional standards to guide decision-making in horticulture and related fields (Ethics)

Programme Outcomes: -

PO1: Demonstrate knowledge of the biological and ecological principles underlying fisheries science (Knowledge)

PO2: Apply quantitative and qualitative research methods to address problems in fisheries management and conservation (Application)

PO3: Evaluate the impacts of human activities on fish populations and ecosystems, and propose strategies for sustainable resource use (Evaluation)

PO4: Communicate scientific findings and policy recommendations effectively to diverse audiences, including policymakers, industry stakeholders, and the general public (Communication)

PO5: Apply ethical principles and professional standards to guide decision-making in fisheries science and management (Ethics)

Programme Outcomes: -

PO1: Demonstrate understanding of the principles of microbiology, including microbial diversity, physiology, and genetics (Knowledge)

PO2: Apply laboratory techniques to culture, identify, and study microorganisms (Application)

PO3: Evaluate the impact of microorganisms on human health, the environment, and industry (Evaluation)

PO4: Communicate scientific findings and recommendations effectively to diverse audiences (Communication)

PO5: Apply ethical principles and professional standards to guide decision-making in microbiology research and practice (Ethics)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the fundamental principles and concepts of mathematics, including calculus, linear algebra, and abstract algebra, as well as the applications of mathematics in other fields. (Bloom's Taxonomy: Remembering)

PO2: Apply mathematical reasoning and problem-solving skills to analyze and solve mathematical problems, including theoretical and applied problems in algebra, geometry, analysis, and statistics. (Bloom's Taxonomy: Applying)

PO3: Analyze and interpret mathematical data and models, including graphs, tables, and equations, to draw conclusions and make predictions about real-world phenomena. (Bloom's Taxonomy: Understanding and Applying)

PO4: Evaluate and critically assess mathematical arguments and proofs, and propose counterexamples or alternative approaches to solve problems. (Bloom's Taxonomy: Evaluating)

PO5: Synthesize and communicate complex ideas and concepts related to mathematics, using effective written and oral communication skills to convey mathematical information to a variety of audiences, including non-mathematical audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the fundamental principles and concepts of pharmaceutical chemistry, including drug design, synthesis, and evaluation, as well as pharmacokinetics and pharmacodynamics. (Bloom's Taxonomy: Remembering)

PO2: Apply laboratory techniques and experimental methods to synthesize, purify, and characterize novel drug compounds, and use analytical methods to determine their physicochemical and biological properties. (Bloom's Taxonomy: Applying)

PO3: Analyze and interpret data from in vitro and in vivo studies to evaluate the safety and efficacy of drug compounds, and use computational methods to predict drug activity and toxicity. (Bloom's Taxonomy: Understanding and Applying)

PO4: Evaluate and critically assess the ethical and regulatory issues related to drug development and use, and propose strategies to ensure responsible and ethical use of pharmaceuticals. (Bloom's Taxonomy: Evaluating)

PO5: Synthesize and communicate complex ideas and concepts related to pharmaceutical chemistry, using effective written and oral communication skills to convey scientific information to a variety of audiences, including non-scientific audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the fundamental concepts, principles, and laws of physics, including mechanics, electromagnetism, thermodynamics, and quantum mechanics. (Bloom's Taxonomy: Remembering)

PO2: Apply mathematical and computational techniques to analyze and solve problems in physics, using a variety of tools and methods to develop models, make predictions, and evaluate results. (Bloom's Taxonomy: Applying)

PO3: Evaluate and critically assess the validity and limitations of scientific models and theories, and use evidence-based reasoning to draw conclusions and make predictions about physical phenomena. (Bloom's Taxonomy: Evaluating)

PO4: Design and conduct experiments and investigations to test hypotheses, collect and analyze data, and communicate results using appropriate scientific terminology and conventions. (Bloom's Taxonomy: Applying)

PO5: Synthesize and communicate complex ideas and concepts related to physics, using effective written and oral communication skills to convey scientific information to a variety of audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: Demonstrate knowledge of seed biology, genetics, and breeding techniques (Knowledge)

PO2: Apply seed production and processing technologies to produce high quality seeds (Application)

PO3: Evaluate seed quality using appropriate laboratory and field techniques (Evaluation)

PO4: Communicate effectively with stakeholders in the seed industry, including growers, researchers, and policymakers (Communication)

PO5: Apply ethical principles and professional standards to guide decision-making in seed technology and related fields (Ethics)

Programme Outcomes: -

PO1: Demonstrate knowledge of statistical theories, methods, and techniques (Knowledge)

PO2: Apply statistical software and programming languages to analyze data (Application)

PO3: Evaluate the reliability and validity of statistical models and analyses (Evaluation)

PO4: Communicate statistical findings and recommendations effectively to diverse audiences (Communication)

PO5: Apply ethical principles and professional standards to guide decision-making in statistical practice and research (Ethics)

Programme Outcomes: -

PO1: Demonstrate knowledge and understanding of the principles of zoology, including animal structure, function, behaviour, and diversity, as well as the mechanisms of animal growth, development, and evolution. (Bloom's Taxonomy: Remembering)

PO2: Analyze and interpret complex data and scientific literature to develop hypotheses, design experiments, and draw conclusions related to animal biology, including anatomy, physiology, behaviour, and ecology. (Bloom's Taxonomy: Understanding and Applying)

PO3: Evaluate and critically assess the impacts of human activities on animal populations, ecosystems, and global environmental systems, and propose solutions to mitigate or prevent negative effects. (Bloom's Taxonomy: Evaluating)

PO4: Apply laboratory and field techniques to collect and analyze animal data, and use quantitative methods to interpret and communicate findings related to animal biology. (Bloom's Taxonomy: Applying)

PO5: Synthesize and communicate complex ideas and concepts related to zoology, using effective written and oral communication skills to convey scientific information to a variety of audiences, including non-scientific audiences. (Bloom's Taxonomy: Creating)

Programme Outcomes: -

PO1: An ability to apply knowledge of mathematics, computer science and management in practice.

PO2: An ability to enhance not only comprehensive understanding of the theory but its application too in diverse field.

PO3: The program prepares the young professional for a range of computer applications, computer organization, techniques of Computer Networking, Software Engineering, Web development, Database management and Advance Java.

PO4: An ability to design a computing system to meet desired needs within realistic constraints such as safety, security and applicability in multidisciplinary teams with positive attitude.

PO5: An ability to communicate effectively.

Programme Outcomes: -

PO1: Reframe the conceptual understanding of molecules essential for life and their integrated system in maintaining cellular homeostasis.

PO2: Plan scientific research using the understanding of various biochemical techniques and can represent the data by applying efficient bio statistical tools. PO3: Appraise the role of essential nutrients required for the body system and can acquire clinical skills relating to diet plans.

PO4: Acquire in-depth theoretical and practical knowledge of biochemistry and translate knowledge for higher contribution in the field of biochemistry.

PO5: Develop skills which will help in acquiring scientific, academic, and industrial positions.

Programme Outcomes: -

PO1: Understand the various biomolecule, Structure, properties and their role and applications in biotechnology.

PO2: Learn genetics, genetic engineering and it's the techniques and tools and their uses in biotechnology.

PO3: Know instrument like Chromatography, Electrophoresis, Centrifugation and their principle, utility and applications.

PO4: Create knowledge of plant tissue culture, media and sterilization techniques and how to maintain various culture in invitro.

PO5: Understand the concept of Environment and environmental issues, Pollution, its types and methods for their measurement and treatment to protect the environmental

Programme Outcomes: -

PO1: Understand principles and importance of botany. Students would gain knowledge of core subjects like plant taxonomy, plant diversity, plant physiology, biochemistry, molecular cytogenetics and application of statistics.

PO2: Techniques of plant tissue culture and molecular biology would help the students in doing research. Students will be able to gain the basic skills in identifying and labelling different plants.

PO3: Application of botany in agriculture through study of plant pathology. Study of palaeobotany to trace the evolution of plants.

PO4: Understand the relationship between plant and society by recognising and discussing logical scientific and ethical issues in botany subject.

PO5: Understand the environmental issues and sustainable development with respect to assessment conservation and utilization of floral diversity.

PO6: Students will be able to gain knowledge about various plants and plant products and develop entrepreneurship skills by using plant resources like Medicinal plants, Mushroom Cultivation, Nursery management, Vermicomposting and Organic farming

Programme Outcomes: -

PO1: (Creative Thinking): Student will be able to think creatively to propose novel ideas in explaining facts and figures or providing new solution to the problems in chemistry. The skills of observation and logical inferences from the experiments will also be develop.

PO2: Student will realize how inter disciplinary approach helps in providing better solutions and new ideas for the sustainable developments. (Inter disciplinary approach)

PO3: Skills in research and industrial field: Student will build a scientific temper and will be able to leam the necessary skill to succeed in research or industrial field by acquiring the skills in handling scientific instruments, planning and performing in laboratory experiments.

PO4: (Environmental Monitoring) Students will be able to understand the environmental issues, global warming, climate change, acid rain, ozone depletion and will create awareness in society.

PO5: Students will develop the skills such as reading, listening, speaking which will help them expressing ideas and views clearly and effectively in project and seminar activities.

Programme Outcomes: -

PO1: Students will be able to adapt the skills to implement effective solutions for need based problems by applying knowledge gained through different programming languages, tools and software covered in the syllabus of program.

PO2: Student will be able to learn working and type of operating systems, distributed operating systems, its process, memory and file management which enables them to take appropriate optimized decisions for applying necessary algorithms.

PO3: Students will be able to handle network related problems by studying data communication network, network security courses. Students learn to troubleshoot fault detection in combinational switching circuits, learn and utilize the concepts of mobile communications.

PO4: Students will be able to learn and apply the concepts of software engineering which is essentially important while working on big modules and or projects.

PO5: Students will be able to apply and implement the working of compilers which also tends them towards system programming. By using various components students will be able to implement a efficient scalable software solution in the form of web or windows application.

Programme Outcomes: -

PO1: Reference the conceptual and understanding about fish diversity fish breeding and various culture technology.

PO2: Plan scientific research using different fisheries resources with special reference of India.

PO3: To gain knowledge about fish feed nutrition technology and different integrated farming system with fish farming.

PO4: Acquire knowledge about fish marketing fisheries economics and extension methodology in fisheries sector.

PO5: Improve skills which will help in acquiring academic, scientific and industrial positions.

Programme Outcomes: -

PO1: Identify and recognize the scientific facts and knowledge of natural or unnatural phenomena.

PO2: Relate the theory and practical education to puzzle out problems of society.

PO3: Develop and trained successful pro masters of different areas.

PO4: Employ the knowledge to make surrounding of people healthy and beautiful.

PO5: Carry out internship program and research projects to develop scientific skills and ground-breaking ideas.

PO6: Face and succeed in high level competitive examination like NET, FACT, STATE PSC, UPSC.

Programme Outcomes: -

PO1: The programme in Geology will provide knowledge in the field of earth science to the students.

PO2: Will develop Understanding of the fundamental laws in earth sciences and capability of developing ideas based on them.

PO3: Students Apply theoretical, conceptual and observational knowledge to the analysis and will be able to interpret geological data.

PO4: Students will be able to make use of geological data for environmental studies of the earth.

PO5: Promotes interest of the student to take up higher studies in field of earth sciences.

PO6: Makes the students fully competent to undertake any job in the field of Geology.

Programme Outcomes: -

PO1: Develop need-based mathematics teaching learning recourses.

PO2: Understand Mathematics education as an academic and research field and particularly discuss the nature of Mathematics with reference to pure and applied Mathematics.

PO3: To define specific components of Mathematics as axioms, postulates, paradoxes, mathematical statement, theorem and proof.

PO4: Discuss, analyse and to apply the history and development of field of Mathematics for the betterment of mankind.

PO5: Choose and apply basic statistical techniques for various kinds of data collected under educational research.

PO6: Prepare students for pursuing research or career in industry, in mathematical sciences and allied fields.

Programme Outcomes: -

PO1: Understand the basic and advance concepts in Microbiology.

PO2: Demonstrate and solve major concepts in all disciplines of Microbiology.

PO3: Solve the problem and also think methodically, independently and draw a logical conclusion of environmental Microbiological problems.

PO4: Apply the skill and knowledge in the designing and developing new techniques and experiments for clearing with future medical microbiology problem.

PO5: Employ critical thinking and scientific knowledge to design, carry out, record and analyse the result of microbe's experiments.

Programme Outcomes: -

PO1: Understand the basic and advance concepts in pharmaceutical Chemistry.

PO2: Categorize drugs on the basis of Chemical structure, Therapeutic action and Natural sources of the drugs.

PO3: Demonstration of synthesis, Mode of action and SAR of drugs and preparation of dosage forms of drugs.

PO4: Analyze the drugs qualitatively and quantitatively by advance analytical techniques like HPLC, FTIR, U-V spectroscopy in various formulations of drugs and as raw material.

PO5: Apply the skill and knowledge in drug designing

Programme Outcomes: -

PO1: Understand the basic and advance concepts in physics.

PO2: Demonstrate and solve major concepts in all disciplines of physics.

PO3: Solve the problem and also think methodically, independently and draw a logical conclusion.

PO4: Apply the skill and knowledge in the design and development of electronic circuit.

PO5: Employ critical thinking and scientific knowledge to design, carry out. record, and analyze the result of physics experiments.

Programme Outcomes: -

PO1: The Degree of Master of Science in Statistics aims to train the students in the development and applications of Statistical techniques for analyzing data arising in the scientific investigation of problems in various disciplines. It is also proposed to provide first hand practical experience in handling modern statistical softwares in the analysis of such data.

PO2: The present course is intended to provide a platform for students to undergo higher studies in the subject as well as to train them to suit the needs of the society.

PO3: The students will be competent to pursue research or pursue a career in the subject.

PO4: After completing the M. Sc. Programme, the students will have mastered the basics and applied aspects of the subject and they will be in a position to apply their knowledge in their professional, social and personal life.

PO5: Apart from teaching core Statistics subjects, the students are also trained to handle real life problems through practical classes. As part of the course, the students are taught some programming languages, learn to analyze data through excel and also trained in statistical software such as SPSS.

PO6: Upon completing the programme, students gain knowledge of statistical theory and multiple programming languages that help in modelling the data that arise in many real-life situations.

PO7: Students get expertise in applications of statistical techniques so that they can make a career as a Statistician or a data scientist.

PO8: Understand and critically apply the statistical methods to solve problems in different sectors like pharmaceuticals, banking, retail, manufacturing, marketing etc.

Programme Outcomes: -

PO1: Understand the basic and advance concept of Zoology.

PO2: Learn the biological diversity and grades of complexity of various animal's form through their systematic classification and comparative studies.

PO3: Develop skills about analytical and critical thinking through the concept of biostatistics.

PO4: To motivate the learner about new developments in cell and molecular biology and its implication in human welfare.

PO5: Employ critical thinking and scientific knowledge to understand Aquaculture, Limnology, immunology in Various field.

Programme Outcomes: -

PO1: Demonstrate a comprehensive understanding of the concepts and methods used in the study of landforms, (Bloom's Taxonomy: Understanding)

PO2: Analyze and interpret climatological data to understand the geographical variations in climate patterns. (Bloom's Taxonomy: Analyzing)

PO3: Apply the principles of oceanography and urban geography to analyze and evaluate the dynamic interactions between coastal processes, human activities, and urban development. (Bloom's Taxonomy: Applying)

PO4: Critically analyze population distribution, migration patterns, and demographic trends using various demographic techniques and models, (Bloom's Taxonomy: Analyzing)

PO5: Examine and analyze political geography, and understand the interplay between politics and geography. (Bloom's Taxonomy: Understanding)

PO7: Demonstrate awareness of the geographical aspects of environmental issues. (Bloom's Taxonomy: Evaluating)

Programme Outcomes: -

PO1: Demonstrate a comprehensive understanding of the processes of pollination and fertilization in seed plants (Bloom's Taxonomy: Understanding)

PO2: Apply the principles and techniques of seed production in cereals, pulses, oilseeds, vegetables, fiber crops, and fodder crops. (Bloom's Taxonomy: Applying)

PO3: Understand and comply with seed legislation and certification requirements, including knowledge of the legal framework, procedures, and standards for ensuring seed quality, traceability, and marketing. (Bloom's Taxonomy: Understanding)

PO4: Analyze and evaluate seed pathology, including the identification and management of seed-borne diseases. (Bloom's Taxonomy: Analyzing)

PO5: Demonstrate proficiency in seed marketing and management, and apply statistical and computer applications in agricultural data analysis and decision-making. (Bloom's Taxonomy: Applying)

Programme Outcomes: -

PO1: Understand the fundamental concepts of computer systems, programming languages, operating systems, and networking.

PO2: Analyze and solve computational problems using algorithmic thinking and logical reasoning.

PO3: Acquire knowledge and practical skills in web designing using HTML, XML, and DHTML.

PO4: Apply database design and SQL skills to design, create, and manage databases using Oracle.

PO5: Evaluate and apply e-commerce technologies, security measures, and business models.

Programme Specific Outcomes (PSO)

Programme Specific Outcomes: -

PSO1: The ability to learn biochemistry theoretically and **apply** it to cost-effective biochemistry solutions.

PSO2: Technical **understanding** of existing technologies that help humans solve biological and medical problems.

PSO3: **Applying** biochemistry to environmental, intellectual, sociological, and ethical challenges through class case studies.

PSO4: Mastery of laboratory techniques used in biochemistry, including spectroscopic and chromatographic methods, enzyme assays, and protein purification.

Programme Specific Outcomes: -

PSO1: Students will **understand** systematics, evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microorganisms and insects, morphology, anatomy, reproduction, genetics, and molecular biology after finishing the course.

PSO2: They **understand** plant science techniques and analysis.

PSO3: Graduates can **categorize** various plant life forms, design, and conduct experiments in evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics, microbiology, molecular biology, recombinant DNA technology, proteomics, and transgenic technology. Students also learn bioinformatics databases and statistics for biological data.

PSO4: The course **develops** scientific thinking and research skills.

Programme Specific Outcomes: -

PSO1: To offer the ability to **utilize** biotechnology knowledge and applications in core and adjacent domains, such as molecular and microbiology, immunology and genetic engineering, bioprocess and fermentation, enzyme and food technology, and bioinformatics.

PSO2: To improve students' interest in science and equip them with the concepts.

PSO3: Students will acquire practical laboratory skills, including techniques in genetic engineering, DNA sequencing, protein purification, and microbial culturing. and research techniques necessary for a career in biotechnology.

PSO4: To educate students with in-depth, practice-oriented knowledge in a variety of biotechnology-related concentration areas so that they can meet the needs of industry and academia.

Programme Specific Outcomes: -

PSO1: Analyze and propose medical bioinformatics solutions.

PSO2: Analyze, organize, and interpret data.

PSO3: **Apply** medical bioinformatics tools and databases.

PSO4: Work independently and collaboratively in all healthcare subdomains.

PSO5: **Identify** and perform their medical bioinformatics professional duties.

Programme Specific Outcomes: -

PSO1: Students will be able to **understand** the most important parts of chemistry and improve their oral and written communication skills when talking about chemistry-related topics.

PSO2: Plan and carry out **experiments** to show how well they understand scientific methods and processes.

PSO3: **Learn** how to collect data using a variety of tools, how to **analyze** and **interpret** the data, and how to use numerical techniques.

PSO4: **Identify** and learn about the effects of chemistry on society.

Programme Specific Outcomes: -

PSO1: Understand various concepts of Computing, Statistics, Mathematics and Electronics appropriately to the discipline.

PSO1: Develop software-based solutions for industry as well as research and development and develop skills required for social interaction.

PSO1: Develop strong problem solving, analyzing and decision-making abilities.

PSO4: Apply principles of computer organization and architecture to design and optimize computer systems and networks.

Programme Specific Outcomes: -

PSO1: Analyze different parameters of various circuits.

PSO2: Understand the use of electronics in the field of computer science.

PSO3: Perform and testing of different electronics components and circuits.

PSO4: Analyze the I/P, O/P V-I characteristics of the circuits.

Programme Specific Outcomes: -

PSO1: Create a deep knowledge in the subject and there by prepare them for employment and future studies.

PSO2: Master the ability to forecast the effectiveness of the policies made by the government and other agencies.

PSO3: Develop a comprehensive knowledge about the historic, political and economic features of our nation and the world.

PSO4: Evaluate various social and economic problems in the society and develop answers to the problems as global citizens.

PSO5: Acquire skills to enhance the economic way of thinking and research.

Programme Specific Outcomes: -

PSO1: To develop the undergraduate level students with the specific knowledge of handling different types of evidences and their examinations.

PSO2: To develop the laboratory skills in examining different types of evidences found at the crime scene.

PSO3: To prepare the students to compete for employment in State and central level Organizations. Become professionals equipped with the knowledge and skills necessary to take part in a forensic investigation.

PSO4: Develop the laboratory skills in examining different types of evidences found at the crime scene.

Programme Specific Outcomes: -

PSO1: **Understand** the fundamental geological concept, principles, and stratigraphic theories.

PSO2: **Understand**, plan, and carry out experiments in the labs to show concepts, principles, and theories covered in class.

PSO3: **Elaborate** the student to the large field of geosciences, including disaster management, watershed management, water pollution, oil exploration, mining, and so on.

PSO4: Highlight geology as the most crucial field for sustaining existing industries and establishing new ones to create jobs at all levels of employment.

Government Holkar (Model Autonomous) Science College, Indore (M.P.)

Department of Geography

Programme Name: B.Sc. (Geography Major)

Programme Specific Outcomes: -

PSO1: Students **identify** and study landform formation.

PSO2: Students **understand** disasters, causes, and management.

PSO3: Students **explain** India's geography, economy, and politics.

PSO4: Students **utilize** geography to stay informed about weather, climate, and disasters.

Programme Specific Outcomes: -

PSO1: Relate information about farming from the past to the present.

PSO2: To **demonstrate** a lot of practical knowledge about how to grow crops.

PSO3: To provide in-depth understanding of Agri-allied sectors.

PSO4: To support the agricultural people in rural areas.

Programme Specific Outcomes: -

PSO1: Understand the ideas of catch, culture, and management of fisheries.

PSO2: Distinguish and develop technically sound, economically viable, and socially important fishing ventures.

PSO3: Better **understanding** of fishing goods and by-products technology to embark into self-employment.

PSO4: Apply economic and marketing ideas, as well as acquired entrepreneurship skills, to establish commercial endeavors.

Programme Specific Outcomes: -

PSO1: Understand the fundamental principles of microbiology.

PSO2: **Understand** microbes, their types, and their importance.

PSO3: Identify the metabolic and structural importance of biomolecules.

PSO4: **Define** Immunity, Antigen, Antibody, and the Immune System.

Programme Specific Outcomes: -

PSO1: Apply appropriate mathematical techniques in a multidisciplinary environment.

PSO2: Explain and discuss core areas of pure mathematics including geometry, algebra, mathematical analysis and discrete mathematics.

PSO3: Analyze and apply mathematical arguments in a logical and critical manner.

PSO4: Compare, relate and use quantitative models arising in social science, business and other contexts for further extension of their studies.

PSO5: Categorize and examine advanced areas of mathematics and statistics, chosen by the student from the given courses for future research and societal applications.

PSO6: Attain prominent career in industry, banks, offices and for further academic study.

Programme Specific Outcomes: -

PSO1: **Apply** standard operating procedures for conducting qualitative and quantitative chemical analysis.

PSO2: Understand about several chemistry fields such as analytical, organic, inorganic, physical, environmental, polymer, medicinal, and biochemistry.

PSO3: Develops the skills necessary to synthesize, isolate, and analyze compounds by making use of various laboratory and analytical apparatus.

PSO4: To promote the importance of lifelong learning as a requirement for competent professionals by developing leadership and managerial abilities.

Programme Specific Outcomes: -

PSO1: To **understand** the basic laws and explore the fundamental concepts of physics.

PSO2: To **Apply** the concepts and significance of the various physical phenomena.

PSO3: To **illustrate** experiments to understand the laws and concepts of Physics.

PSO4: To **apply** the theories learnt and the skills acquired to solve real time problems.

Programme Specific Outcomes: -

PSO1: To provide knowledge from ancient to modern agricultural practices.

PSO2: To impart in-depth practical knowledge in crop cultivation practices.

PSO3: To give detailed knowledge about Agri-allied sectors.

PSO4: To provide knowledge on working of different farm implements.

Programme Specific Outcomes: -

PSO1: To **recall** fundamental statistical information and demonstrate understanding of norms such as notations and terminology.

PSO2: A student should be exposed to global and local issues that investigate numerous facets of the mathematical sciences.

PSO3: Students **understand** statistical modelling, problem-solving, creativity, and communication skills for many careers.

PSO4: To **develop** a positive perception of statistics as an interesting and desirable topic of study.

Programme Specific Outcomes: -

PSO1: Classify and evolve animals to recognize their biological diversity and complexity.

PSO2: Examine how plants, animals, and microbes sustain the environment, how they interact, and how human activity degrades it.

PSO3: Gain technical expertise in biotechnology, **Understand** the ideas and principles of biochemistry, immunology, physiology, ethology, endocrinology, developmental biology, cell biology, genetics, and molecular biology.

PSO4: **Analyze** laboratory procedures in the fields of animal diversity, systematics, cell biology, genetics, biochemistry, molecular biology, microbiology, physiology, immunology, developmental biology, environmental biology, ethology, evolution, and scientific method according to standard protocols.

Programme Specific Outcomes: -

PSO1: Focuses on preparing student for roles pertaining to computer applications and IT industry.

PSO2: Start from the basics and in every semester learns each and everything about computers.

PSO3: Develop programming skills, networking skills, learn applications, packages, programming languages and modern techniques of IT.

PSO4: Get skill and info not only about computer and information technology but also in common, organization and management.

PSO5: Learn programming language such as Java, C++, HTML, SQL, etc.