



॥ विद्या विनयेन शोभते ॥

Janardan Bhagat Shikshan Prasarak Sanstha's

CHANGU KANA THAKUR

**ARTS, COMMERCE AND SCIENCE COLLEGE, NEW PANVEL
(AUTONOMOUS)**

Re-accredited 'A+' Grade by NAAC (3rd Cycle - CGPA 3.61)

'College with Potential for Excellence' Status Awarded by UGC

'Best College Award' by University of Mumbai

Department of Biotechnology

Program Outcomes for B.Sc. Biotechnology

Sr. No.	Outcome for B.Sc. Program After completion of B.Sc. program students will acquire	Graduate Attribute
PO1	The knowledge of the disciplines and in-depth and extensive knowledge, understanding and skills in a specific field of interest.	Disciplinary knowledge
PO2	An ability to develop and conduct experiments, analyze, and interpret data and use scientific judgment to draw conclusions	Scientific reasoning
PO3	An ability to use current technology, and modern tools necessary for creation, analysis, dissemination of information.	Digital literacy
PO4	Innovative, professional, and entrepreneurial skills needed in various disciplines of science.	Life-long learning
PO5	An ability to achieve high order communication skills.	Communication skills
PO6	An ability to collect, analyze and evaluate information and ideas and apply them in problem solving using conventional as well as modern approaches	Problem solving
PO7	A sense of social responsibility; intellectual and practical skills and demonstration of ability to apply it in real-world settings.	Reflective thinking
PO8	An ability to engage in independent and life-long learning through openness, curiosity, and a desire to meet new challenges.	Life-long learning
PO9	A capacity to relate, collaborate, and lead others, and to exchange views and ideas to work in a team to achieve desired outcomes	Teamwork
PO10	An ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	Leadership
PO11	An ability to understanding values, ethics, and morality in a multidisciplinary context.	Moral and ethical awareness



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Program Specific Outcomes for B.Sc. Biotechnology

Name of the Programme:	Programme Coordinator:	Head of the Department:
B.Sc. Biotechnology	Dr (Mrs) J.S. Thakur	Dr (Mrs) S.S. Kokitkar
Upon completion of B.Sc. Biotechnology programme students will be able to:		
PSO1	Students will learn the basic concepts of Chemistry and analytical chemistry applied in Biological Sciences.	
PSO2	An education in Cell biology, Biochemistry, Animal and plant physiology, human genetics and Immunology will impart knowledge to the students about cellular structure, biomolecules, metabolic pathways, its regulation along with defence mechanism and physiological processes in plants and animals.	
PSO3	Students will also learn the concepts of biodiversity, ecology environment and its conservation.	
PSO4	Students will gain basic information of microbial cultures, sterilization methods and enzyme production. They will be taught bio-safety guidelines and good laboratory practices.	
PSO5	Introduction of recent topics like Drug delivery, Marine biotechnology, Bioinformatics will impart knowledge of mechanism of drug delivery, drug designing and applications of marine organisms as food, nutraceutical and cosmetics etc.	
PSO6	Students will understand the principles and the applications of molecular biology and genetic engineering methods with an emphasis on the application of recombinant DNA technology to animals, plants and microbial organisms.	
PSO7	The course will give the knowledge of Bioethics, IPR, entrepreneurship, scientific writing, Communication, and management skills to the students.	
PSO8	Students will get hands-on training of techniques used in Cell Biology, Biochemistry, Microbiology, Immunology, Molecular Biology and Genetic Engineering.	



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Program Outcomes for M.Sc. Biotechnology

Sr. No.	Outcome for M.Sc. Program After completion of M.Sc. program students will acquire	Graduate Attribute
PO1	The ability to identify and describe broadly accepted methodologies of science, and different modes of reasoning.	Disciplinary knowledge
PO2	An ability to demonstrate proficiency in various instrumentation, modern tools, and advanced techniques to meet industrial expectations and research outputs.	Disciplinary knowledge
PO3	Ability to identify problems, formulate, and prove hypotheses by applying theoretical knowledge and skills relevant to the discipline.	Problem-solving
PO4	The ability to articulate thoughts, research ideas, information, scientific outcomes in oral and in written presentation to a range of audience.	Communication skills
PO5	A capacity for independent, conceptual, and creative thinking, and critical analysis through the existing methods of enquiry.	Critical thinking
PO6	Acquisition of skills required for cutting edge research, investigations, field study, documentation, networking, and ability to build logical arguments using scholarly evidence.	Research skills
PO7	An ability to portray good interpersonal skills with the ability to work collaboratively as part of a team undertaking a range of different team roles	Teamwork
PO8	The ability to understand ethical responsibilities and impact of scientific solutions in global, societal, and environmental context and contribute to sustainable development	Moral and ethical awareness/ multicultural competence
PO9	An openness to and interest in life-long learning through directed and self-directed study	self-directed learning
PO10	The ability to translate the knowledge and demonstrate the skills required to be employed and successful professional development.	Life-long learning
PO11	The ability to identify and describe broadly accepted methodologies of science, and different modes of reasoning.	Disciplinary knowledge



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Program Specific Outcomes for M.Sc. Biotechnology

Name of the Programme:	Programme Coordinator:	Head of the Department:
B.Sc. Biotechnology	Dr (Mrs) J.S. Thakur	Dr (Mrs) S.S. Kokitkar
Upon completion of B.Sc. Biotechnology programme students will be able to:		
PSO1	Courses will provide integrated knowledge of biochemistry, cell biology and Immunology with details of protein folding, protein targeting, and regulation of metabolic pathways, bio-membranes, cell signalling, vaccinology, immunological techniques and Animal Models.	
PSO2	Students will develop understanding of history, theoretical basis, and latest technologies in the area of biotechnology.	
PSO3	On completion of course, students should be able to gain basic skills in plant and animal biotechnology.	
PSO4	Students will get conceptual exposure to computational, biostatistical and bioinformatics tools.	
PSO5	Course will provide integrated knowledge of operations of various fermenters and important microbial/enzymatic industrial processes in the food and fuel industry. It will also provide knowledge on intellectual property rights and their implications in biological research and product development	
PSO6	Courses will provide integrated knowledge and broad perspectives of various pandemics diseases and emerging pathogens. Students will be familiar with the basic concepts and significance of Biologics/Bio similar principles and the applications of enzyme technology with enzyme purification techniques.	
PSO7	Students will develop understanding about Health hazards of pollution and waste, solid waste management, biodiversity concepts and data management and environmental monitoring.	
PSO8	Students will be able to understand the basic science behind the properties of nanomaterial synthesis and applications of nanomaterial.	



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PSO9	Students will get knowledge of the emerging fields of OMICS and Systems Biology, biological systems as a whole and how parts of systems interact with each other and their applications for screening, testing and treatment of human diseases.
PSO10	Students will have a firm foundation in Drug Discovery and Clinical Studies along with detail information of Clinical Trial Design and Indian Regulations, Pharmacovigilance and Clinical Data Science.
PSO11	Students will develop skills for the processing and analysis of scientific data along with knowledge of techniques used Food Technology – Nutraceuticals