



DEPARTMENT OF BIOTECHNOLOGY
PROGRAM OUTCOMES (POS)
BACHELOR OF SCIENCE IN BIOTECHNOLOGY (B.Sc. BIOTECHNOLOGY)

Introduction

The Bachelor of Science in Biotechnology (B.Sc. Biotechnology) program is designed to provide students with fundamental and advanced knowledge in biological sciences, biotechnology, molecular biology, genetics, microbiology, biochemistry, bioinformatics, and allied interdisciplinary fields. The program aims to develop scientific aptitude, analytical skills, research orientation, ethical values, communication abilities, and lifelong learning competencies necessary for higher education, research, entrepreneurship, and employment in biotechnology-related sectors.

PROGRAM OUTCOMES (POs)

After successful completion of the B.Sc. Biotechnology program, graduates will be able to:

PO1 – Biological and Biotechnological Knowledge

Apply knowledge of biotechnology, molecular biology, genetics, microbiology, biochemistry, immunology, bioinformatics, and allied life sciences to understand biological systems and solve scientific problems.

PO2 – Critical Thinking and Problem Solving

Identify, analyze, and solve biological, environmental, healthcare, and industrial biotechnology problems using scientific reasoning and analytical approaches.

PO3 – Laboratory Competency

Demonstrate proficiency in laboratory techniques, instrumentation, experimental procedures, data collection, analysis, interpretation, and documentation.

PO4 – Modern Tools and Technological Applications

Apply bioinformatics tools, computational methods, biotechnological techniques, instrumentation, and emerging technologies in research and industrial applications.

PO5 – Research, Innovation and Entrepreneurship

Apply scientific inquiry, experimental design, innovation, product development, intellectual property awareness, and entrepreneurial skills in biotechnology and related fields.

PO6 – Ethics, Biosafety and Environmental Sustainability

Demonstrate professional ethics, biosafety practices, bioethics principles, environmental awareness, and social responsibility.

PO7 – Communication and Teamwork

Communicate scientific information effectively through oral, written, and digital modes and work collaboratively in multidisciplinary teams.

PO8 – Interdisciplinary and Industrial Readiness

Integrate knowledge from chemistry, physics, mathematics, statistics, computer science, and allied disciplines for industrial, research, and societal applications.

PO9 – Lifelong Learning and Professional Development

Engage in self-learning, adaptability, leadership, and continuous professional development to meet emerging challenges in biotechnology.

CO–PO Mapping Methodology

The Course Outcomes (COs) of individual courses are mapped with the relevant Program Outcomes (POs) using the following scale:

Mapping Level	Description
3	High Correlation
2	Moderate Correlation
1	Low Correlation
–	No Correlation

Assessment and Attainment

The attainment of Program Outcomes is measured through:

- Internal Assessment Tests
- Semester End Examinations
- Assignments and Seminars
- Laboratory Performance
- Project Work and Viva-Voce
- Internships and Industrial Training
- Field Visits and Practical Activities
- Student Participation in Workshops, Conferences, and Research Activities

The attainment levels are evaluated periodically for continuous improvement of curriculum delivery, research exposure, and academic quality.

Conclusion

The Program Outcomes of B.Sc. Biotechnology aim to prepare graduates with scientific knowledge, laboratory competence, research aptitude, communication skills, ethical values, interdisciplinary understanding, and lifelong learning abilities required for higher education, research, entrepreneurship, biotechnology industries, healthcare sectors, environmental management, and societal contribution.

These Program Outcomes are approved in BOS and ratified in Academic Council.



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