

B.Sc- Biotechnology

Program Educational Objectives (PEOs)

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This program is designed to prepare graduates to pursue careers in both the biotechnology industry and cutting-edge research. The entire course curriculum is specifically curated to impart fundamental knowledge in basic subjects and complement it with hands-on practice in all the disciplines of biotechnology.

PEO-1: Graduates will apply their knowledge of Biotechnology through research-intensive programs aligned with academic and industry needs, demonstrating the ability to analyze, apply, and update their expertise to solve complex challenges.

PEO-2: Graduates will design experiments, perform analyses, and develop innovative biotechnological solutions using advanced analytical tools and AI, while ensuring safety, ethical practices, and environmental sustainability.

PEO-3: Graduates will excel in individual and team roles within multidisciplinary settings, leveraging analytical thinking and collaboration to manage and execute industry-relevant projects effectively.

PEO-4: Graduates will integrate ethical standards, technical skills, and leadership capabilities to develop biotechnological products and processes, fostering innovation and entrepreneurship to meet societal needs.

PEO-5: Graduates will demonstrate strong communication skills, proficiency in Biotechnology, and competence in project management and leadership, while embracing lifelong learning and ethical responsibility in addressing socio-economic challenges.

Program Outcomes (POs)

PO1: Domain Knowledge: Graduates will acquire knowledge of fundamental concepts of cell biology, biochemistry, microbiology, genetics, molecular biology, environmental science, chemistry and understand their applicability or correlate these sciences to nature.

PO2: Critical Thinking: Graduates will develop scientific reasoning to critically evaluate practices, policies, and theories, integrating advanced technologies and interdisciplinary approaches for knowledge development.

PO3: Problem-Solving and Analytical Skills: Graduates will identify, analyze, and design solutions for biotechnological challenges, considering public health, safety, societal, and environmental factors.

PO4: Communication Skills:

Graduates will demonstrate proficiency in technical communication, including effective report writing, presentations, and documentation, ensuring clarity and precision in conveying complex ideas.

PO5: Experimental Knowledge and AI augmented digital Literacy:

Graduates will acquire laboratory skills, handle scientific instruments, and leverage AI tools and bioinformatics software for data analysis and experimental design.

PO6: Environment and Sustainability:

Graduates will understand the impact of scientific solutions to improve global, economic, and environmental health and will be aware of the knowledge and need for sustainable development.

PO7: Social Interaction and Sensitivity towards the Societal Issues:

Graduates will work effectively in diverse teams, mediate disagreements, and address societal issues with a strong sense of ethical responsibility and respect for diverse value systems.

PO8: Research-related modern AI integrated skills:

Graduates will master modern research techniques, including AI, to design experiments, analyze data, and derive valid conclusions, addressing both theoretical and experimental challenges.

PO9: Effective Citizenship:

Graduates will gain awareness of contemporary issues that can be mitigated or supported through life science know-how and biotechnology skills and participate in civic life through volunteering.

PO10: Self-directed and Life-long Learning

Graduates will recognize the need for, and an ability to engage in life-long learning in the broadest context of socio-technological changes.

PO11: Ethical Awareness:

Graduates will internalize ethical values, understand bioethics, biosafety, intellectual property rights, and promote fairness and collaboration in professional and academic endeavors.

PO12: Employability and Entrepreneurial Skill:

Graduates will develop a blend of employability and entrepreneurial skills, such as resilience, adaptability, and innovation, with a focus on sustainable development and business acumen.

Program Specific Outcomes (PSOs)

PSO1: Graduates will possess theoretical and practical knowledge of biotechnology, enhanced by interdisciplinary learning and modern technologies like AI, fostering advanced skill sets.

PSO2: Graduates will develop multidisciplinary excellence via rigorous training thus bringing their inclination towards research approaches for their career in the field of biotechnology thus meeting the academic and industry demands of our country.

PSO3: Graduates will demonstrate innovation and proficiency in applications of various biotechnological skills in demanding industries while promoting continuous learning.

PSO4: Graduates will gain entrepreneurial acumen, promoting start-ups and research incubation to support national initiatives like Atmanirbhar Bharat and Start-Up India.