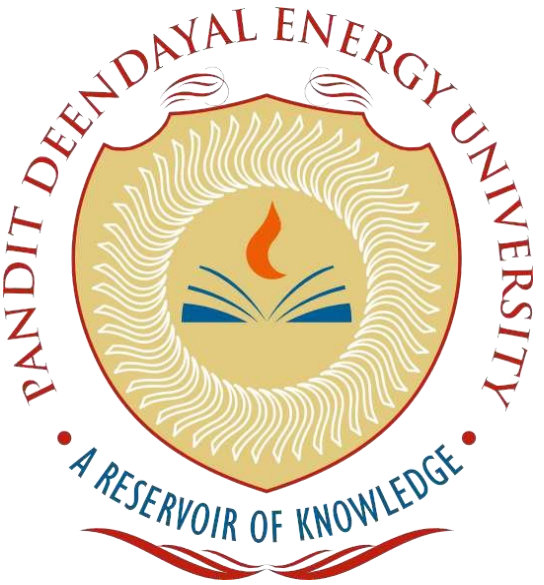
PANDIT DEENDAYAL ENERGY UNIVERSITY



B. Tech in Biotechnology

Department of Biotechnology

School of Energy Technology

PDEU PANDIT DEENDAYAL ENERGY UNIVERSITY

Formerly Pandit Deendayal Petroleum University (PDPU)

UGC RECOGNIZED

B. TECH
BIOTECHNOLOGY

Program Objectives & Outcomes

Program Education Objectives (PEOs)

- Ability to learn the fundamental concepts of biotechnology with advanced experimental and computational techniques.
- Capacity to deal with complex problems of practical importance to society while complying with health, economical, environmental, ethical, and safety considerations.
- Demonstrate professional excellence, ethics, soft skills and leadership qualities with life-long learning's.
- Graduates will be active members ready to serve the society locally and internationally.

Programme Outcomes

Biotechnology Graduates will be able to:

1. **Knowledge**: Apply the knowledge of biology, chemistry, mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex biotechnological problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex biotechnological problems reaching substantiated conclusions using first principles of biology, mathematics, natural sciences, genetics, biotechnology and bioengineering sciences.
3. **Design/development of solutions**: Design solutions for complex industrial problems and design system components or processes that meet the specified need with appropriate considerations for public health and safety, and the cultural, societal and environmental considerations.
4. **Conduct investigations of complex problems**: Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex bioengineering activities with an understanding of the limitations.

6. **The Biotechnologist and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practices.
7. **Environment and sustainability**: Understand the impact of the biotechnology based solutions in societal and environmental context, and demonstrate the knowledge of, and need for sustainable development. Ensuring healthy lives and promoting well-being at all ages is essential to sustainable development.
8. **Ethics**: Apply ethical practices and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings
10. **Communication**: Communicate effectively on complex bioengineering activities with the healthcare / engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the biotechnology and management principles and apply these to one's own work, as a member and leader in the team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning of broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

1. To analyse and tackle the complex and diverse biotechnological problems by appropriate experimentation, simulation, data analysis and interpretation, and, provide probable solutions by applying principles of biotechnology in combination to the fundamental knowledge of basic sciences and technology.
2. Competence to incorporate socio-economic considerations in biotechnology practices, including the concept of sustainable development.
3. An ability to work together collaboratively in multidisciplinary teams to tackle multifaceted problems and pursue a bright career in biotechnology and allied areas by demonstrating professional success at different platforms within industry, governmental bodies or academia.