

B. Tech., Energy Engineering (under the Department of Chemical Engineering)

Type of the Programme: Full Time

Duration: 4 Years

Sanctioned Intake: 60

Year of Starting: 2025



Why B.Tech. in Energy Engineering?



With the world's growing population and industrialization, energy demand is increasing rapidly.



Governments and industries worldwide are transitioning from fossil fuels to renewable energy sources like solar, wind, hydro, and bioenergy



Knowledge about energy-efficient technologies, waste reduction, and clean energy production is crucial.

 The International Renewable Energy Agency (IRENA)
- Target of 77% renewable energy capacity by 2050

Make *India* Energy Independent by 2047
आत्मनिर्भर भारत अभियान



The Program Educational Objectives (PEOs)

PEO1	Demonstrate skills in emerging and conventional energy technologies, energy conservation and efficiency.
PEO2	Excel in advanced studies with strong foundation laid in the undergraduate education.
PEO3	Exhibit leadership, ethical attitude, communication skills, teamwork in their profession and multidisciplinary skills.
PEO4	Engage in lifelong learning and continuous professional development.

Programme Outcomes (POs) and Programme Specific Outcomes (PSOs)

PO1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	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.
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication: Communicate effectively on complex engineering activities with the 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.
PO11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
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PSO1	Apply the fundamental principles physics, mathematics and engineering to design, analyze, optimize and control energy conversion, storage and transmission systems.
PSO2	Develop solutions for complex engineering problems using conventional, modern tools and techniques
PSO3	Able to think individually, communicate effectively, work in teams and assume position as leaders

Energy Companies

Evidence of Employment Market

- Renewable Energy Target – 500 GW by 2030**
 Demand for skilled Engineers in solar, wind and other renewables
- Significant Investments in Energy**
 India's renewable energy sector received \$6.1 billion in FDI equity investment from 2020
- Growing Demand for Digital Solutions**
 AI-driven predictive maintenance, IoT for energy monitoring, and data analytics for energy efficiency
- Shortage of Skilled Professionals**
 Reports from NITI Aayog and TERI (The Energy and Resources Institute) highlight the current and projected shortage of skilled professionals in India's energy sector