

**SCHOOL OF PETROLEUM TECHNOLOGY**

**PROGRAM LEARNING OUTCOME**



**PANDIT DEENDAYAL PETROLEUM UNIVERSITY (PDU)  
Raisan Village, District-Gandhinagar,  
Pincode - 382007, Gujarat, INDIA**

## **Philosophy of General Education at School of Petroleum Technology**

General Education at School of Petroleum Technology is in tune with the School's vision and mission of higher education and research in energy sector. The academic programs at each stage, i.e conceptualization, design, delivery and review, go by the benchmark of this vision and mission. Education at School of Petroleum Technology is a core of common learning experiences that enables students to acquire and apply a broad foundation of integrated knowledge, skills, and behaviors. Further, the program provides opportunities for students to apply their acquired knowledge and skills in solving increasingly complex problems. This prepares students to be independent, lifelong learners, assuming roles of responsibility in the global community.

### **Vision statement**

School of Petroleum Technology (SPT) is committed to being a premier oil and gas institution contributing to the country's energy manpower resource. The school provides challenging and rewarding opportunities to students and faculties and shows a pathway to energy research and academics.

### **Mission Statement**

The mission of SPT is to provide a broad range of career oriented educational programs with the goal of producing innovative, creative graduates who are well prepared for their chosen careers in a global society. The school strives hard to bridge the gap between academia and industry. It generates new knowledge by engaging cutting edge research and promotes academic growth by offering state-of-the art undergraduate, post graduate programs.

School of Petroleum Technology (SPT) is in tune with PDCU mission of promoting excellence in education, competitive edge in research and real time relevance with futuristic thrusts in offering of programs and undertaking of activities and projects. All the academic programs are a blend of theory and experiential learning in the form of industrial exposure and field based learning reflects the same. In certain cases choice based learning with cross-discipline studies is also offered.

### **Program Educational Objectives (PEO)**

The college has stated vision and mission and it is mapped to the vision and mission of the department. The department has more than one program. Based on the vision and mission of the department, the Program Educational Objectives (PEOs) are set for each program, which visualizes the accomplishments of the students after 3 to 6 years of students' graduation. Each PEO is mapped to Program Outcomes (POs) which would be assessed at the different stages of the program. The College believes that a well-educated person is one who possesses the intellectual capabilities, skills and behaviors to:

- Read with critical comprehension
- Write clearly and coherently
- Demonstrate literacy as appropriate within a given discipline
- Apply problem solving skills or methods to make informed decisions in a variety of contexts
- Differentiate between ethical and unethical behavior
- Demonstrate an understanding of the physical, and social environments and how individual behaviors impact this complex system.
- Demonstrate an understanding of and appreciation for human diversities and commonalities
- Speak and listen effectively

### **Programs Offered By School of Petroleum Technology**

School of Petroleum Technology offers three programs. B.Tech. in Petroleum engineering (Major Upstream and Minor Downstream), B.Tech. in Petroleum engineering (Major Downstream and Minor Downstream) and M.Tech. in Petroleum Engineering.

The 4 Year B.Tech. program in Petroleum Engineering is based on integrated approach of relevant basic sciences and engineering and Oil & Gas industry technology operations and emphasis on the application of these knowledge base to exploration, drilling, production, reservoir engineering, City Gas Distribution, Pipeline Operations, Refining etc. School of Petroleum Technology has recently devised a new Course Curriculum as per the Industry Demand & students deep Interest for particular stream. The Course is bifurcated in to two Major streams as Upstream and Downstream.

All the students have common subjects in Semester I & Semester II. In Semester III & IV, all the students will learn basic fundamental knowledge of both the streams. They have common course curriculum. Students have to opt for their choice of stream after 2nd Year. Students will learn specialized subjects as per their selected stream. Students who will opt for upstream they have Major Upstream & Minor Downstream subjects. Students who will opt for downstream they have Major Downstream & Minor Upstream Subjects. The Course is designed as such that all the students get exposure of Upstream, Midstream & Downstream field of Oil & Gas Industry.

M.Tech. in Petroleum Engineering program is an interdisciplinary program designed to meet the need of highly qualified human recourse in the petroleum industry. The curriculum covers the technology related to petroleum industry, from hydrocarbon exploration, prospecting, drilling and production to processing. The program will provide the students an extensive knowledge of the principles and practices of petroleum engineering. The students will also undergo a minimum six weeks industrial summer training to understand latest technology adopted in petroleum engineering. Adding up, the thesis will prepare students to take up careers in challenging problem industry.

**Program Title:** B.Tech. Petroleum Engineering (Major Upstream and Minor Downstream)

**Core Skills and Program Learning Outcomes (PLO):**

Upon successful completion of this program, students will be able to:

1. Apply knowledge of mathematics, science, and engineering
2. Identify, formulate, and solve petroleum engineering problems
3. Demonstrate a fundamental understanding of exploration, drilling, production and reservoir engineering
4. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
5. Design and conduct experiments, as well as to analyze and interpret data.
6. Function on multi-disciplinary teams
7. Demonstrate an understanding of industrial safety, health, and environmental requirements
8. Demonstrate proficiency in the use of quality assurance methods and quality control concepts
9. Demonstrate proficiency in using tools, instruments and testing devices
10. Demonstrate basic troubleshooting skills
11. Develop research skills and innovative ideas
12. Understand professional and ethical responsibility
13. Demonstrate an understanding of modern business practices and strategies
14. Recognition of the need for, and an ability to engage in life-long learning
15. Demonstrate employability skill

In addition, students will demonstrate skill of core competencies through the General Education courses included in the program. These are:

- Reading with critical competency.
- Writing clearly and coherently.
- Demonstrate the ability to apply problem-solving techniques or methods in a variety of settings to make informed decisions.

**Assessment of Student Learning**

Student learning is assessed in a number of ways including classroom tests, internal tests, viva-voce examinations, assignments, quizzes, seminar, technical projects, case study, Laboratory model exam, poster presentation, and group discussion throughout the program.

**Program Title:** B.Tech. Petroleum Engineering (Major Downstream and Minor Upstream)

**Core Skills and Program Learning Outcomes (PLO):**

Upon successful completion of this program, students will be able to:

16. Apply knowledge of mathematics, science, and engineering.
17. Design and conduct experiments, as well as to analyze and interpret data.
18. Identify, formulate, and solve petroleum engineering problems
19. Demonstrate a fundamental understanding of Processing, Refineries, City Gas Distribution, LNG value chain, Pipeline Operations,
20. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
21. Function on multi-disciplinary teams.
22. Demonstrate an understanding of industrial safety, health, and environmental requirements.
23. Demonstrate proficiently in the use of quality assurance methods and quality control concepts.
24. Demonstrate proficiency in using tools, instruments and testing devices.
25. Demonstrate basic troubleshooting skills.
26. Develop research skills and innovative ideas
27. Understand professional and ethical responsibility.
28. Demonstrate an understanding of modern business practices and strategies
29. Recognition of the need for, and an ability to engage in life-long learning.
30. Demonstrate employability skills.

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Laboratory model exam, poster presentation, and group discussion throughout the program.

## **Program Title: M.Tech. Petroleum Engineering**

### **Core Skills and Program Learning Outcomes (PLO):**

Upon successful completion of this program, students will be able to:

1. Apply knowledge of mathematics, science, and engineering.
2. Design and conduct experiments, as well as to analyze and interpret data.
3. Identify, formulate, and solve petroleum engineering problems
4. Demonstrate a fundamental understanding of exploration, drilling, production, reservoir engineering, Processing.
5. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
6. Function on multi-disciplinary teams.
7. Demonstrate an understanding of industrial safety, health, and environmental requirements.
8. Demonstrate proficiently in the use of quality assurance methods and quality control concepts.
9. Demonstrate proficiency in using tools, instruments and testing devices.
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