

Petroleum Engineering Practices

- 1.1 Course Number: PE101
- 1.2 Contact Hours: 1-0-2 Credits: 5
- 1.3 Semester-offered: 1st Year-Even
- 1.4 Prerequisite: None
- 1.5 Syllabus Committee Member: Dr. Satish Kumar Sinha
2. **Objective:** The intent of this course is to give an overview of oil and gas sector to Petroleum engineering students in their BTech program and motivate them. This course is to have lectures and laboratory work.
3. **Course Content:**

Unit-wise distribution of content and number of lectures

Unit	Topic	SubTopics	Lectures
1	Overview of Oil and Gas Industry	Petroleum Industry – Upstream, Downstream, Midstream Earth System; Minerals and Rocks; Origin of Petroleum Exploration techniques Drilling for oil and gas; Oil and Gas Production Properties of oil and gas; Reservoir drive mechanisms Petroliferous basins of India Demand and Supply of oil and gas; Refining and Petroleum Products	12
		Total	12

Lab work:

1. Mineral identification in hand specimen
2. Mineral identification under microscope
3. Rocks identification in hand specimen
4. Rocks identification under microscope
5. Petroleum production testing
 - a. Viscosity, density
 - b. Flash point and Fire point
 - c. Pour point, cloud point and smoke point
6. Demonstration of drilling fluid and cement preparation
7. Demonstration of Reservoir rock properties estimation

8. Subsurface data visualization

4. Readings

4.1 Textbook:

1. Hyne, N.J., Nontechnical Guide to Petroleum Geology, Exploration, Drilling & Production, PennWell
2. Leffler, W.L., Petroleum Refining in Non-technical language, PennWell

4.2 Reference books:

3. Jahn, Cook, and Graham, Hydrocarbon Exploration and Production, Elsevier
4. Palmer, A. 2016, Introduction to Petroleum Exploration and Engineering, World Scientific
5. Articles and videos from the American Association of Petroleum Geologists
6. Articles and videos from the Society of Exploration Geophysicists
7. Articles and videos from the Society of Petroleum Engineers

5 Outcome of the Course:

- Know the oil and gas sector
- Know how oil and gas is produced
- Understand the hydrocarbon value chain
- Understand energy demand and supply scenario