

Reservoir Engineering-I

- 1.1 Course Number: PE241
- 1.2 Contact Hours: 3-1-0 Credits: 11
- 1.3 Semester-offered: 2nd Year-Odd
- 1.4 Prerequisite: Introduction to Petroleum Engineering Practices Course
- 1.5 Syllabus Committee Member: Dr. Shivanjali Sharma

2. Objective: The objective of engineering is optimization. To obtain optimum profit from a field the engineer or the engineering team must identify and define all individual reservoirs and their physical properties, deduce each reservoir's performance, prevent drilling of unnecessary wells, initiate operating controls at the proper time, and consider all important economic factors, including income taxes. Early and accurate identification and definition of the reservoir system is essential to effective engineering.

3. Course Content:

Unit-wise distribution of content and number of lectures

Unit	Topics	Sub-topic	Lectures
1	Introduction to reservoir Engineering	Physical Properties of Reservoir Rocks (Porosity, Permeability, Measurement, Relationship, Relative Permeability, Combination of Beds)	12
2	Rock-Fluid Interaction	Fluid saturation, Determination and significance, measurement and significance of Wettability, Capillary Pressure,	10
3	Reservoir Fluid Properties	PVT Properties, Phase Behavior,	7
4	Reservoir drives	Depletion , Gas cap , water and combination drive mechanics and characteristics , recovery factors	6
5	Reserve Estimation	Volumetric and Material Balance, Decline Curve Analysis	5
		Total	40

4. Readings

- 4.1 Textbook: Fundamental of Reservoir Engineering, L.P. Dake.

4.2 Reference books: Applied Petroleum Reservoir Engineering, B.C. Craft, M. Hawkin

5. Outcome of the Course:

- Recognize the main terminology, concepts, and techniques that applies to reservoir engineering founded on a theory based understanding of mathematics and the natural and physical sciences
- Apply a critical-thinking and problem-solving approach towards the main principles of reservoir engineering demonstrated through appropriate and relevant assessment