



# Indian Institute of Technology

## Course Details Report

**Course No: PE5050**

**Course Name: Offshore Drilling And Production Practices**

**Course Type:**

Theory

**Description:**

The aim of this course is to impart the knowledge of offshore drilling and production practices adopted in the field of petroleum engineering. The various stages involved from offshore exploration, production, transportation and decommissioning are discussed.

The learning outcomes are for the student to (1) gain knowledge and skills needed to supervise the offshore drilling and production practices by means of acquiring basic offshore engineering operations; (2) apply integrated knowledge of offshore, petroleum engineering practices related to offshore drilling, and production practices.

**Course Content:**

Ocean Environment for installation, operation and survival condition; Exploratory, production, storage and transportation, Platform installation and positioning, subsea preparation.

Deep-water platforms: FPSO, Semisubmersible, TLP and SPAR with case studies including transportation by tankers and pipelines. Difference between onshore drilling and offshore drilling. Unconventional and conventional resources and environmental effects, Digital Oil Field, Oil processing facilities and gas processing facilities: Upstream well planning, Risers for shallow and deep-water platforms, corrosion inhibition in pipelines, Case studies on Offshore drilling worldwide, Oil spill and safety measures.

Anchors: Pile, Suction, Torpedo, dead weight, mushroom etc. CALM, SPM, mooring dolphins and booms, selection criteria, moorings with and without buoys, mooring alternatives- Dynamic Positioning Systems (DPS), Remotely Operated Vehicles (ROV) and its types.

VIV in Offshore pipelines, umbilicals and risers, and its mitigation measures.

**Text Books:**

1. Handbook of offshore Engineering, Subrata K. Chakrabarti, Volume 1 and 2, Elsevier, 2005.
2. Marine Structure Engineering: Specialized Applications, Gregory Tsinker, Springer, 1995.

**Reference Books:**

1. Handbook of Offshore Oil and Gas Operations. James G Speight, Elsevier, 2011.
2. Offshore Petroleum Drilling and Production. Laik Sukumar, CRC Press, 2018.
3. Offshore Operation Facilities: Equipment and Procedures, Huacan Fang and Menglan Duan, Gulf Professional Publishing, 2014.
4. Oil and gas production handbook. An introduction to oil and gas production, transport, refining and petrochemical industry. Håvard Devold, 2013.