Course Type	Course Code	Name of Course	L	T	P	Credit
DE1	PED401	Offshore Drilling and Petroleum Production Practices	3	0	0	9

Course Objective
The objective of this course is to introduce the students in this new and challenging area of operation so that when they join the oil & gas industry, they are already well trained to get used to a completely new environment by not being a novice in a challenging circumstance. This will also open up many new ideas for doing further research.
Learning Outcomes
Exposure to the different offshore platforms used for drilling and production; basics of their stability criteria and station keeping methods. Exposure to the offshore drilling, completion and production operations with a clear understanding of the difference between offshore and onshore operations.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	**Introduction to offshore oil and gas operations**.	3	Students will get introduced to the historical development and the whole gamut of offshore activities all over the world.
2	**Sea States / Offshore Environment:** Meteorology, oceanography, ice, sea bed soil.	4	Will understand the complexity of operating in a typical offshore environment in different parts of the world.
3	**Offshore Fixed Platforms:** Types, description and operations, Includes Compliant Platforms.	6	Will learn about the use of fixed and compliant platforms in a particular situation besides their type, installation and structural differences.
4	**Offshore Mobile Units:** Types, description and installation. Station keeping methods like conventional mooring & dynamic positioning system.	6	Will get an exposure to a completely new type of offshore structure, specially floating platforms and also associated problems and solutions.
5	**Buoyancy and stability**.	3	Will learn to evaluate the stability criteria of the floating platforms.
6	**Offshore Drilling:** Difference in drilling from land, from fixed platform, Jackup, ships and semi submersibles. Use of conductors and risers. Deep sea drilling.	6	It is the core of this subject and students will learn right from the installation of conductors, risers and landing bases upto the completion of drilling from different types of platforms in or stepwise manner.
7	**Offshore Well Completion -** Platforms and subsea completions, Deep water applications of subsea technology.	4	This is equally an important chapter and knowledge of different types of well completion especially subsea completion which is completely a new innovation, will be available here.
8	**Offshore Production:** Oil processing platforms, gas processing platforms, water injection platforms, storage, SPM and SBM, transportation and utilities.	6	This is also another important operation which has a completely new set of arrangement in offshore environment, right from processing set up, types of production risers, mid-water terminal facilities like SBM etc., storage and transportation and the outcome will be to gain knowledge about all those.
9	**Deep water technology:** Introduction, definition & prospects. Deep water regions, Deep water drilling rig – selection and deployment, deep water production system, Emerging deep water technologies – special equipment and systems, Remote operation vessels (ROV).	2	Here the students will learn about the challenges in deep water and their possible solutions. Of course this is an emerging area and students have to keep them abreast with it.

10	**Divers and Safety:** Principles of diving, use of decompression chambers, life boats.	2	Divers play a very important role and students will learn about the diver's role and the complexity involved in their working condition. Knowledge of safety during all the above operations is a must for anybody working in offshore platform. So students will have that knowledge beforehand.
	Total contact hours:	42	

Text Books:

i. Offshore Petroleum Drilling and Production: Sukumar Laik
ii. Dynamics of Offshore Structures: James F. Wilson
iii. Offshore Drilling, Completion and Production: ETA Offshore Seminars Inc.
iv. Introduction to Offshore Structures: Graff
v. Deepwater Petroleum – Exploration & Production: Leffler, Pattarozzi and Sterling.

Reference Books:

i. Offshore Handbook: B. C. Malhotra
ii. Floating Drilling: Equipment and its use: Riley Sheffield.
iii. Offshore Handbook Vol.1 to 5: Gulf Pub. Co.
iv. Offshore Pipeline Design, Analysis and Methods: A. H. Mousselli.
v. Drilling and Producing Offshore: Stewart Hall