Course Type	Course Code	Name of Course	L	T	P	Credit
DE4	PED407	Advanced Well Completion Practices	3	0	0	9

Course Objective
The objective of the course is to provide the advanced knowledge of well completion methods and their applications
Learning Outcomes
Ability of predict well life and their durability Ability to forecast the future production behavior of the well and field.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	**Completion Equipment:** On-land and subsea Christmas trees; Subsurface safety Valves, Packers, Expansion devices and anchor latches, Landing nipples, locks and sleeves, Mandrels and gauges, Capillary lines and cable clamps, Loss control and reservoir isolation valves, Crossovers, Flow couplings, Modules,	6	The different completion equipment and their role in well completion will be explained to student.
2	**Material Selection:** Down hole Corrosion, Metallurgy Selection, Corrosion Inhibition, Seals, Control Lines and encapsulation, Coatings and liners	6	The role of tubing metallurgy in corrosion control and different aspect of well completion damage prevention will be explained.
3	**Tubing Stress Analysis:** Stress, Strain and Grades, Axial Loads, Burst ,Collapse, Triaxial Analysis, Safety and design Factors, Load Cases, Tubing Connections	7	The student will learn the design of well completion string pertaining to its behavior related to changes in temperature and pressure.
4	**Life of Well Operations:** Types and methods of Intervening, Impact on Completion Design. Tubing well performance, Multiphase flow & tubing performance, Flow predictions, Temperature prediction and Control, Packer fluids, Production & Injection well sizing.	8	Student will learn about different instances in well during course of production and how to handle these situation with well completion design. They will learn about tubing performance prediction and means of controlling well bore environment.
5	**Well Completion Techniques:** Deep water Completions. HPHT Completions, Completions with down hole flow control, Multilateral Completions, Dual Completions, Multipurpose Completions, Underbalanced completions, Coiled tubing and insert completions, Completions for Heavy oil and steam injection, Completions for Coal Bed Methane.	8	The well completion design depends upon reservoir and production need. How to design a completion for a particular well bore will be explained to student.
6	**Installation of Completion systems:** Wellbore Clean-out and mud displacement, Completion fluids and filtration, Well clean-up and flow initiation.	7	Student will learn about installation procedure of a well completion string.
	Total contact hours:	42	

Text Books:

Surface Production Operation , Arnold, Ken and Stewart, Maurice
Principle of Oil Well Production- Nind, T.W.

Reference Books:

The Artificial lift technology (All Volumes) Brown, K.E.
Well Design: Drilling & Production Craft, Holden & Graves