Course Type	Course Code	Name of Course	L	T	P	Credit
OE2	PEO302	Oil & Gas Field Development and Planning	3	0	0	9

Course Objective
To provide basic knowledge of Reservoir Engineering.
Learning Outcomes
Exposure of reservoir rock properties, reservoir fluids and behavior of oil and gas in reservoir. Proficiency in reserve estimation and prediction of reservoir fluid flow characteristics.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Brief overview on field development, Difference between oil and gas field development,	5	• Recognition of the process to start field development and briefly about the variants on which field development depends
2	The Field Life Cycle: Gaining Access, Exploration Phase, Appraisal Phase, Development Phase, Production Phase, Decommissioning.	5	• To recognize the different stages of a petroleum field and the activities carried out during the life of a field.
3	Petroleum Agreements & Bidding: Invitations to bid, Motivations and form of bid, Block Award, Fiscal System, Farm-in & Farm-out, Unitisation and Equity determination. NELP & OALP, PSC.	5	• Development of the knowledge of various petroleum exploration and production licensing policies practiced throughout the globe, with their merits and demerits, with emphasis on Indian policy
4	Field Appraisal: Importance of Appraisal, Identifying and quantifying sources of Uncertainty, Cost benefit calculations for Appraisal.	5	• The activities carried out during the appraisal stage to be elaborated with classification of resource and reserve
5	Reservoir Dynamic Behaviour: Fluid Flow studies, PVT data, Drive Mechanisms. Gas Reservoirs: Gas sales profiles; Influence of Contracts; movement of GWC during production, Pressure response, Fluid displacement in the Reservoir, Estimation of Reserves, Reservoir Simulation, Estimating the Recovery Factor, Estimating the Production Profile.	5	• Basic understanding of drive mechanism and its effect on the field development decisions in well planning, completion strategy and recovery techniques
6	Well Dynamic behavior in Vertical and Horizontal Wells: Estimating the number of Development Wells, Fluid flow near the wellbore.	4	• Understanding of fluid flow behaviour through the well depending on the type of well i.e. horizontal and vertical, and determination of numbers of wells to be drilled based on the criteria .
7	Petroleum Economics: Basic principles of Development Economics, Project Cash flow, Revenue & expenditure items, CAPEX-OPEX, Sensitivity Analysis,	4	• Understanding the economic parameters in field development decisions • Constructing cash flow for a project
8	Project & Contract Management: Phasing & Organization, Planning & Control, Cost Estimation & Budgets, Types of Contracts.	4	• Basic knowledge how to phase out a project, and its control.
9	Managing the Producing Field: Subsurface, surface facilities, Internal & External factors	5	• Development of idea about the various facilities required at subsurface and surface to produce and treat petroleum for maximizing the recovery
	Total contact hours:	42	

Text Books:

1. Hydrocarbon Exploration and Production by Frank John, Mark Cook and Mark Graham (Elsevier Publications)
2. Integrated Petroleum Reservoir Management A Satter and G C Thakur
3. Fundamentals of Reservoir Engineering L P Dake

Petroleum Production System : M. J. Economides, A. D. Hill and C. E. Economides