PE-316 Subsurface Production Engineering

Credit Hour

Theory = 3Practical = 0

Course Content

Introduction

Introduction to Production System (onshore, offshore), Production Phases in oil & gas field operation. Surface equipment and Surface safety Control System

Well Completion

Open-hole completion, Cased hole completion, Single zone completion, multiple zone completion, and Horizontal well completion technology and operations and its Reservoir and Mechanical considerations. Down-hole completion equipment's, and its Selection Criteria. Completion and Work over Fluids Function, requirements, selection criteria and types of fluids. Tubing design and movement calculations

Wellbore deliverability

Uses of IPR/VLP matching to predict production rate, rate sensitivity, tubing diameter requirement and well deliverability. Different IPR methods, Gradient curves and generation of vertical lift performance curves. Choke Performance Relationship, Choke types and Flow through chokes.

Production Software

Introduction to production software and its related exercises. Perforation: Perforation, Types of Perforators, Evaluation of Perforators performance. Factors affecting perforating guns

Formation Damage

Near well bore condition and Formation damage characterization. Sand Control: Sand control, their methods, Consequences of sand production.

Wireline operations

Wire line operations, Conventional Production Rigs, Nonconventional workover systems, Concentricworkover systems, well integrity during workover operation, and remedial Cementing.

HSE Considerations and Standards

Considerations during well operations.National & International HSE standards of Petroleum Products.

Text Book

1. Michael J. Economides, A. Daniel Hill, Christine Ehlig-Ecnomides and Ding Zhu, "PetroleumProductionSystems",2nd Edition,Prentice-Hall,2012.

Reference Books

1. M.Golanand, C.Whitson, "Well performance", Springer, 2ndEdition, 1991.