

Course code and Title: PE-418 Oil and Gas Field Production Facilities

Course Contents:

Production optimization (nodal analysis):Process Control

Flow control, pressure control, level control, temperature control, safety shut down and pressure relief.

Well stimulation

Hydraulic fracturing and matrix acidizing. Modeling; propagation models, 2D, Pseudo 3D, PKN, GDK.

Produced water treatment

Skimmer tanks. Coalesces, hydro cyclones, flotation cells, disposal piles and injection wells. Tanks; volume and construction, final separation and vapor recovery options and emissions (flash calculations). Surface separation operations including types, application and design of two and three phase separators.

Artificial lift methods

Artificial lift methods and applications including gas-lift, electrical submersible pumping, and sucker rod pumping. Types of installation and design.

Text book

1. BoyunGuo, PhD Xinghui "Lou" Liu Xuehao Tan, "Petroleum Production Engineering", 2nd Edition, Gulf Professional Publishing, 2017.

Reference Book

1. Michael Economides, A. Daniel Hill, Christine Ehlig-Economides, Ding Zhu, "Petroleum Production Systems", 2nd Edition, Pearson, 2012.