

Curriculum - M.Tech in PE Curriculum

SEMESTER #1

PE6030 Reservoir Engineering

Course Content:

Introduction to Reservoir Engineering; Petroleum Reservoir System; Petroleum Reserves; Reservoir Pressure and Temperature; Reservoir Fluids Composition; Phase Behavior of Hydrocarbons; Properties of Reservoir Liquids; Fundamental Properties of Reservoir Rocks; Reservoir Drive Mechanisms; Single and Multi-Phase Fluid Flow Through Porous Media; Material Balance Equation; Basic Water-Drive and Immiscible Displacement theories. Laboratory Demonstration of Porosity and Permeability Measurements Using Helium Porosimeter and Liquid Permeameter.

Text Books:

1. **Lyons, W. C.** Standard Handbook of Petroleum and Natural Gas Engineering. Gulf Professional Publishing (6th Edition), 1076 Pages, 1996
2. **Craft, B. C., M. Hawkins., and R. E. Terry.** applied Petroleum Reservoir Engineering (2nd Edition), Prentice Hall, 464 Pages.,1991
3. **Lake, L. W.** (1989). Enhanced Oil Recovery, Prentice Hall, Englewood Cliffs., 1989.
4. **Amyx, J. W., D. M. Bass., and R. L. Whiting.** Petroleum Reservoir Engineering – Physical Properties. Mcgraw-Hill inc.,1960.
5. **Marle, C. M.** Multiphase Flow in Porous Media. Gulf Publishing Company,1981.

Reference Books:

1. **Dake, L. P** Fundamentals of Reservoir Engineering (Developments in Petroleum Science), Elsevier, ISSN: 0376-7361 (Series), 2001
2. **Towler, B. F.** Fundamental Principles of Reservoir Engineering. Textbook Vol. 8, Society of Petroleum Engineers, 232 Pages. ISBN: 978-1-55563-092-8,2002
3. **Ewing, R.E.** the Mathematics of Reservoir Simulation. Society for industrial Mathematics, 198 Pages,1987.
4. **Ahmed, T.** Reservoir Engineering Handbook. Gulf Professional Publishers, (3rd Edition), 1376 Pages,2006
5. **Goodman, R. E.** introduction to Rock Mechanics, Second Edition, John Wiley & Sons.
6. **Jaegar, J., N. G. Cook., and R. Zimmerman** Fundamentals of Rock Mechanics, Fourth Edition, Blackwell Publishing,2007

Prerequisite:

NIL