

Course Title: Reservoir Petrophysics

Course Code: PE-208

Course Contents

Introduction

Introduction to Petrophysics, Introduction to Petrophysical properties; Porosity, Permeability, fluid saturation, compressibility, IFT, capillary pressure and wettability.

Description and measurement of Petro-physical properties

Factors affecting porosity, laboratory measurements of porosity, averaging porosity and water saturation data, pore volume compressibility. Permeability; *dimensions, unit and* its types, Klinkenberg effect, permeability laboratory determination of permeability, factors affecting permeability, permeability-porosity correlation, averaging permeability data. Interfacial phenomena and wettability; measurement techniques of IFT and wettability, effect of wettability on rock-fluid interaction. Capillary pressure; drainage and imbibition curves, capillary hysteresis, J-function. Reservoir fluid distribution. Pc data types and their relationship

Heterogeneity and Geo-statistics

Measures of central tendency and variability, measure of spatial continuity.

Text book

1. Djebbar Tiab and Erle C. Donaldson “Petrophysics, Theory and Practice of Measuring Reservoir Rock and Fluid Transport Properties”, Third Edition, Elsevier, ISBN: 9780123838490, 2011

Reference Book(s)

1. Tarik Ahmed, “Reservoir Engineering Handbook”, Fourth Edition, Elsevier, ISBN 978-1-85617-803-7, 2010.
2. Abdus Satter and Ghulam M. Iqbal: Reservoir Engineering” 1st Edition, Elsevier, ISBN: 9780128005231, 2015.
3. Ekwere J. Peters, “ Advance Petrophysics”, First Edition Volume 2, Live Oak Book Company, ISBN 978-936909-47-6, 2012.