

PE-315 Structural Geology & Geophysical Exploration

Credit Hour

Theory = 3

Practical = 0

Course Content

Introduction

Introduction to structural geology, Elements of map scale structure, location, structural contouring, and thickness Measurement. Fold and fault geometry, cross section, data projection & dip sequence analysis. Structure restoration and validation.

Geophysical Exploration methods

Gravity, magnetic and electrical resistivity methods, seismic refraction, and reflection methods. Seismic data acquisition and its hazards. Seismic data processing, interpretation, and pitfalls of seismic interpretations

Geophysical/geological interpretation

General consideration of interpretation, Time depth conversion, velocity analysis, structural interpretation, contouring and faults. Seismic Stratigraphic interpretation, versatile colour display, seismic attributes, reef analysis, sand reservoir and direct hydrocarbon indicators.

Text book:

1. Richard H. Groshong, "3-D Structural Geology", 2nd Edition, Springer, 2008.

Reference Books:

1. Richard C. selley, "Elements of petroleum geology ", 2nd Edition, 1997.
2. Mamdouh R. Gadallah. R Fisher, "Exploration geophysics An Introduction", 2nd Edition, 1997.
3. William Lowrie, "Fundamentals of Geophysics", 2nd Edition, 2007