



Faculty of Earth Sciences



Geophysics Department



The Geological Society
Accredited degree courses

REFLECTION SEISMOLOGY

Course Name	Course ID	Prerequisites
<i>REFLECTION SEISMOLOGY</i>	<i>EGP 421</i>	<i>EGP 312 / EGP 411 / EGP 412</i>

Course Description

Various seismic sources and receivers, description of wave trains, field data acquisition techniques, seismic data treatment, resolution and diffraction, migration, correlation and interpretation

Course Objectives

1. Information on basics of seismic waves and their propagation.
2. Presenting seismic equipments used in common seismic surveys.
3. Identification of direct and head waves on seismic reflection records.
4. Examining seismic reflection data to differentiate between horizontal and dipping reflectors. Calculation of dip angle.
5. Basic seismic processing schemes (NMO, Static, Migration). Differentiate between processed and unprocessed seismic data.
6. Presenting various case histories on interpreted seismic data.

General References for the Course: (Books/Journals...etc.)

Students in this course can read from:

1. *Applied Geophysics*, by Telford, W.M., Geldart, L.P., Sheriff, R.E., 1990, 2002. Cambridge University Press.
2. *Exploration Geophysics of the Shallow Subsurface*, by Burger, H.R., 1992. Prentice-Hall PTR, Englewood Cliffs, NJ.
3. *Seismic Data processing*, by Yilmaz, O., 1987. SEG-Publication Series, Tulsa, OK, USA.

4. *Seismic Interpretation Series (Volumes 1, 2 & 3)*, SEG Series, 1990. SEG-publications, Tulsa, OK, USA.
5. *The Reflection Process. Seismic Series (Educational Manual)*, by Ansty, 1990. SEG-publications, Tulsa, OK, USA.

List of URLs for this Course

- www.geology.wisc.edu/
- www.geo.utep.edu/
- <http://utam.geophys.utah.edu/stanford/>

Course Outcome

The student is able to know the seismic waves and their modes of propagation separation of waves for study. He is also suppose to lean the following:

1. Student can know the equipments used for deep seismic surveys.
2. Student knows the principles of data analysis.
3. Student can know the seismic data processing.
4. Student can Interpret the seismic reflection data.
5. Student can relate between seismic model and geologic models.