

AG-302 Geophysics

Credit Hours 2+1

Prerequisite: GEN(NS)-101

Learning Outcomes

This course is designed to acquire the knowledge about the seismic waves, seismic refraction, gravity, magnetic and electrical prospecting. This will help the students in learning the basic techniques in geophysics and the students will also work on the seismic images and interpretation of subsurface structures.

Course Contents

Definition and relation of geophysics with other sciences. Classification and brief description of various branches of geophysics such as seismology, geomagnetism, geoelectricity, tectonophysics, gravimetry, geo-thermy and geodesy.

Introduction to various geophysical techniques for exploration of mineral deposits; oil and gas and engineering works. Geophysical data processing. Earthquake seismology and geodynamics of Earth. Ground Penetrating Radar, Borehole Geophysics.

Lab.

Analysis and interpretation of geophysical data and computer modeling.

TEACHING – LEARNING STRATEGIES

- Lecture based examination
- Presentation/seminars
- Class discussion
- Quizzes

ASSIGNMENTS – TYPE AND NUMBER WITH CALENDAR

It is continuous assessment. The weightage of Assignments will be 25% before and after midterm assessment. It includes:

- classroom participation,
- attendance, assignments and presentation,
- homework
- attitude and behavior,
- hands-on-activities,
- short tests, quizzes etc.

ASSESSMENT AND EXAMINATIONS

Sr. No.	Elements	Weightage	Details
1.	Mid Term Assessment	35%	It takes place at the mid-point of the semester
2.	Formative Assessment	25%	It is continuous assessment. It includes: classroom participation, attendance, assignments and presentation, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc.
3.	Final Assessment	40%	It takes place at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.

Books Recommended

1. Applied geophysics by Telford, W.M., Geldart, C.P., Sheriff, R.E., & Keys, D.A., 1976, Cambridge University Press.
2. Introduction to Geophysics by Garland G.D., 1971, W.B. Saunders Co.
3. Seismic Exploration by Al-Sadi, H.N, 1980, Birkhauser Verlag.
4. Introduction to Geophysical Prospecting by Dobrin, M.B. & Savit, C.H., 1988, McGraw Hill.
5. An Introduction to Geophysical Exploration by Kearey, P., & Brooks, M., 1991, Osney Mead.
6. Basic Exploration Geophysics by Robinson, E.S. & Coruh, C., 1988, John Willey & Sons.
7. Geophysical Methods in Geology by Sharma, P.V., 1987, Elsevier.