

AG-306

Engineering Geology

Credit Hours 2+1

Learning Objectives

This course is designed to acquire the knowledge about the rock mechanics and their role in the construction of huge structure. This will help the students in learning various techniques of determination of physical and geotechnical parameters of soils and rocks for construction of buildings and foundations.

Course Contents

Rock and soil mechanics and its application in civil engineering. Rock mass characteristics. Elastic properties and rocks. Geological factors and strength of rocks. Classification of rocks. Study of geological factors in relation to the construction of buildings and foundations, roads, highways, tunnels, dams and bridges. Application of geophysical methods. Case histories of important engineering projects (small & Mega) in Pakistan. Site investigation for engineering projects. Construction materials. Landslides, their causes and prevention.

Lab.

Determination of physical and geotechnical properties of soils and rocks. Visits to the engineering projects.

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. Engineering Geology by Beavis, F.C., 1985, Blackwell.
2. Geology for Engineers by Blyth, F.G.H. & De Frietes, M.H., 1960, Butter & Tonner Ltd.
3. Geology and Engineering by Legget, R.F., 1962, McGraw Hill.
4. Fundamentals of Engineering ?Geology by Bell, F.A.G., 1983, Butter Worth.
5. Measuring Engineering Properties of Soil by Wray, W.K., 1986, Prentice Hall.
6. Engineering Geology by Goodman, R.E., 1993, John Wiley & Sons.