Stability Slope

Course Code	Credit Hours
CE- 426	3-0

Course Description

To equip the students with the state of the art software dealing with Slope Stability problems. The understanding of Land Slide, Mudflows, Rock Slides and Rock Mechanics as well as Preventive and Stabilization Strategies.

1. Duncan, J. M and Wright, S. G. (2005), Soil Strength and Slope Stability, John Wiley & Sons.

Reference Book:

1. Stability and Performance of Slopes and Embankments –II, A 25-year perspective. Vol-1&2, Geotechnical Special Publication, ASCE.
2. Slope Stability 2000, Geotechnical Special Publication, ASCE.
3. Abramson et al. (2001), Slope Stability and Stabilization Methods, John Wiley & Sons.
4. Fang, H.Y (1990); Foundation Engineering Handbook, CBS Publishers.
5. Hoek, E (1981); Rock Slope Engineering, Institute of Mining and Metallurgy.

Prerequisites :

CE-222 Soil Mechanics-I

ASSESSMENT SYSTEM FOR THEORY

	Without Project (%)	With Project/Complex Engineering Problems (%)
Quizzes	15	10-15
Assignments	10	5-10
Mid Terms	25	25
Project	-	5-10
End Semester Exam	50	45-50

ASSESSMENT SYSTEM FOR LAB

Lab Work/ Psychomotor Assessment/ Lab Reports	70%
Lab Project/ Open Ended Lab Report/ Assignment/ Quiz	10%
Final Assesment/ Viva	20%

Teaching Plan

Week No	Topics/Learning Outcomes
	Introductory Lecture: Examples of Slope Failures, triggering Factors
2-3	Soil Mechanics Principals: Drained and Undrained conditions, Mohr Circle and Stress paths Stability Conditions for Analysis: End of construction Stability, long-term stability Shear Strength of Soils and MSW
4-6	Mechanics of Limit Equilibrium: Definition of the Factor of Safety , equilibrium Conditions, single Free-Body Procedures, procedures of Slices: Circular Slip Surfaces , procedures of Slices: Noncircular Slip Surfaces, assumptions, Equilibrium Equations, and Unknowns
7-8	Methods of Analyzing Slope Stability: simple Methods of Analysis, slope Stability Charts, computer Programs
9	**Mid Semester Exam**
10	Seismic Slope Stability: Analysis Procedures, shear Strength for Pseudostatic Analyses. Methods of Analyzing Slope Stability Artificial intelligence techniques for slope stability analysis
11	Analysis of Embankments
12	Analysis to Back-Calculate
13	Factors of safety and Reliability
14	Important Details of Stability Analysis Presenting Results of Stability
15-16	Slope Stabilization and Repair: Drainage, retaining Structures, anchoring, vegetation, removal and Replacement of the Sliding Mass
17-18	End Semester Exam

Practical: Nil.