

Department: Civil Engineering

Number: CE 5338

Title: Slope Stability

Catalog Description: Properties of soils relevant to slope stability; site investigation, instrumentation, and monitoring of slopes; methods of stability analysis for embankments, dams, natural and manmade cut slopes, rock falls, debris flow, mudslides, and submarine slopes; stability of slopes under earth quake loading conditions

Prerequisites: CE 4348 and Permission of instructor

Textbook:

1. *Slope Stability and Stabilization Methods*, (first edition) by L.W. Abramson, T.S. Lee, S. Sharma, and G.M. Boyce, John Wiley & Sons, Inc, New York

Course Objectives: The objective of this course is to familiarize students with the slope stability concepts and methods of slope stabilization. To achieve course objectives, the students are exposed to the problems associated with the slope stability and various factors that influence stability. The students are also exposed to the issues related to the groundwater conditions and geologic conditions of sites. Based on the field and laboratory evaluation, students apply slope stability and slope stabilization concepts.

Specifically student will develop the following skills (the CE program outcomes addressed by each objective are given in parentheses):

Students will be able to use engineering tools to identify stability of manmade as well as natural slopes (1)

Student will be able to plan site investigation to meet desired needs of the slope stability. (2)

Students will be able to work in teams by performing projects and will be able to write technical report and present their study professionally. (3)

Students will learn the various aspects of geotechnical site investigation and be able to conduct independent work (4)

Topics covered:

- 1.0 General Slope Stability Concepts
- 2.0 Engineering Geology Principles
- 3.0 Groundwater Conditions
- 4.0 Geologic Site Exploration
- 5.0 Laboratory Testing and Interpretation
- 6.0 Slope Stability Concepts
- 7.0 Slope Stabilization Methods
- 8.0 Design, Construction, and Maintenance

Class/Laboratory Schedule

Class: MW 6:00 to 7:20 PM

Contribution of course to meeting the professional component: The course contributes towards engineering design appropriate to the civil engineering field.

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