

Advanced slope disaster reduction

2 units (selection)

Jing-Cai Jiang · ASSOCIATE PROFESSOR / ENVIRONMENTAL CONSERVATION ENGINEERING, CIVIL AND ENVIRONMENTAL ENGINEERING, INTELLIGENT STRUCTURES AND MECHANICS SYSTEMS ENGINEERING

Target The objective of this subject is to make students aware of the slope stability methods and to develop an understanding of the procedures and processes involved in the design of engineered slopes and slope stabilization works.

Outline Topics of the subject covered include slope stability analysis methods, types of shear strengths for both engineered and natural slopes, selection of strength parameters, types of slope stabilization works and their design, and seismic instability of slopes. This subject is related on engineering.

Style Lecture

Keyword *slopes, stability analysis, shear strength, slope stabilization*

Relational Lecture “Advanced Disaster Reduction Engineering”(0.5), “Advanced Soil Structure Earthquake Resistance Design”(0.5), “Advanced Soil Mechanics”(0.5)

Requirement not specified

Goal

1. On the completion of this subject, students should have a knowledge of slope engineering practices in static and seismic stability analyses, determination of shear strengths, and design of slope remedial works.
2. The students should understand the measurement and selection of the peak, fully softened, and residual shear strengths for use in stability analyses, and understand the design outline of slope stabilization works.

Schedule

1. Examples and causes of slope failure
2. Introduction of slope disaster reduction
3. Static slope stability methods (Part 1)
4. Static slope stability methods (Part 2)
5. Total stress analysis and effective stress analysis
6. Types of shear strengths for engineered and natural slopes
7. In-situ determination of shear strengths
8. Laboratory determination of shear strengths
9. Determination of shear strengths by back analysis (Part 1)
10. Determination of shear strengths by back analysis (Part 2)
11. Slope stabilization (unloading and drainage)
12. Slope stabilization (anchors)

13. Slope stabilization (piles)

14. Slope stabilization (soil reinforcement)

15. New development of slope disaster reduction

16. Examination

Evaluation Criteria Reports and tests.

Textbook Reading and discussing materials are distributed.

Reference Soil Strength and Slope Stability by Michael J. Duncan and Stephen G. Wright (John Wiley & Sons)

Contents <http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216695>

Contact

⇒ Jiang (A311, +81-88-656-7346, jiang@ce.tokushima-u.ac.jp) MAIL (Office Hour: 年度ごとに学科の掲示を参照すること)