＊ GC10002

Advanced Theory of Disaster Prevention System

Credits 2 credits

Semester First Semester (every odd year)

Instructor KATSUCHI, Hiroshi

Contact Environment and Information Sciences Building #1, Rm. 614 Ext.4243 katsuchi¥5443¥ynu.ac.jp

1. Objectives

Infrastructures are required to serve their functions under various natural conditions for a long time. In particular, special consideration must be taken to prevent failure from natural disasters in the design stage. Natural disasters often result from strong winds and earthquakes, and their actions are described by probabilistic theories. This class discusses mechanisms of natural disasters and probabilistic design methods for them.

2. Topics

1. Overview of natural disasters (1)
2. Overview of natural disasters (2)
3. Origins of strong wind
4. Characteristics and modeling of natural wind
5. Wind actions (1)
6. Wind actions (2)
7. Wind-resistant design
8. Prediction of strong wind
9. Reliability-based design (1)
10. Reliability-based design (2)
11. Wind tunnel test method
12. Seismic desin (1)
13. Seosmic design (2)
14. Disaster prevention systems
15. Summary

3. Textbook

Not specified. Handouts will be given.

4. Goals

To understand mechanisms of wind-related and earthquake disasters, and design methodology again st them.

5. Methods

Lectures are given based on handouts relating to the topics.

6. Prerequisites and related courses

Fundamental knowledge of probability and vibration is required.

7. Grading

Grade is decided based on asignments.