Tamkang University Academic Year 111, 2nd Semester Course Syllabus

Course Title	WIND RESISTANT DESIGN FOR STRUCTURES	Instructor	HUANG, MING-HUI
Course Class	TECXM1A MASTER'S PROGRAM, DEPARTMENT OF CIVIL ENGINEERING, 1A	Details	◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG4 Quality education		

Departmental Aim of Education

Ⅰ. Develop students' ability and knowledge of civil engineering to meet the requirements of employability and further education.

Ⅱ. Equip students with the ability to integrate engineering profession and information technology to strengthen their competitiveness.

Ⅲ. Enable students to understand the international trends, and to activate a lifelong learning concept.

Subject Departmental core competences

A. Each student should have the advanced professional knowledge of engineering design and analysis.(ratio:40.00)

B. Each student should have the ability to integrate interdisciplinary knowledge and information technology.(ratio:10.00)

C. Each student should have independent thinking and ability of research conducting and dissertation writing.(ratio:30.00)

D. Each student should have the ability of effective communication, team work integration and leadership.(ratio:10.00)

E. Each student should the concept of lifelong learning and international sustainability. (ratio:10.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:10.00)
2. Information literacy. (ratio:30.00)
3. A vision for the future. (ratio:5.00)
4. Moral integrity. (ratio:5.00)
5. Independent thinking. (ratio:30.00)
6. A cheerful attitude and healthy lifestyle. (ratio:5.00)

7. A spirit of teamwork and dedication. (ratio:10.00)

8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction	Teach students to learn wind-resistant design methods for various building structure types.

The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.

II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.

III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	Teach students to learn wind-resistant design methods for various building structure types.	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDE	12345678	Lecture	Testing, Discussion(including classroom and online), Practicum

Course Schedule

Week	Date	Course Contents	Note
1	112/02/13 ~ 112/02/19	Atmospheric circulations	
2	112/02/20 ~ 112/02/26	The atmospheric boundary layer	
3	112/02/27 ~ 112/03/05	Extreme wind climatology	

4	112/03/06～ 112/03/12	Bluff-body aerodynamics	
5	112/03/13～ 112/03/19	Structural dynamics	
6	112/03/20～ 112/03/26	Aerodynamic phenomena	
7	112/03/27～ 112/04/02	Random vibration-Introduction to probability distributions and averages	
8	112/04/03～ 112/04/09	Random vibration-Correlation	
9	112/04/10～ 112/04/16	Random vibration-Fourier analysis	
10	112/04/17～ 112/04/23	Random vibration-Spectral density	
11	112/04/24～ 112/04/30	Random vibration-Accuracy of measurements	
12	112/05/01～ 112/05/07	Random vibration-Digital spectral analysis	
13	112/05/08～ 112/05/14	Random vibration-The fast Fourier transform	
14	112/05/15～ 112/05/21	Wind tunnels test	
15	112/05/22～ 112/05/28	Wind tunnels test	
16	112/05/29～ 112/06/04	Taiwan code	
17	112/06/05～ 112/06/11	Taiwan code	
18	112/06/12～ 112/06/18	Practice of wind load calculation on buildings	

Requirement	
Teaching Facility	Computer, Projector
Textbooks and Teaching Materials	An Introduction to Random Vibrations, Spectral and Wavelet Analysis, D. E. Newland, third edition Wind Effects on Structures, Emil Simiu and Robert H. Scanlan, third edition
References	Advanced Structural Wind Engineering,Yukio Tamura and Ahsan Kareem
Number of Assignment(s)	3 (Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 20.0 % ◆ Mark of Usual： % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 20.0 % ◆ Other〈HW〉：30.0 %

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