Tamkang University Academic Year 112, 1st Semester Course Syllabus

Course Title	AERODYNAMICS OF BRIDGES	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:20.00)

C. Each student should have independent thinking and ability of research conducting and dissertation writing.(ratio:10.00)

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:20.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:25.00)

2. Information literacy. (ratio:20.00)

3. A vision for the future. (ratio:5.00)

4. Moral integrity. (ratio:5.00)

5. Independent thinking. (ratio:20.00)

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:10.00)

Course Introduction	The objective of this course is to focus on the wind effects on long-span bridges. The theory of the most significant effects, including flutter and buffeting, are emphasized. The analytical methods on the analysis of flutter and buffeting are addressed.In addition,the practices for the wind tunnel test is included

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	to learn the aerodynamic behavior of long-span bridges.	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	Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	112/09/11 ~ 112/09/17	Introduction	
2	112/09/18 ~ 112/09/24	Structural Systems of Long-Span Bridges	
3	112/09/25 ~ 112/10/01	Wind Loads on Bridges	
4	112/10/02 ~ 112/10/08	Flutter theory	

5	112/10/09 ~ 112/10/15	Buffeting theory	
6	112/10/16 ~ 112/10/22	Evaluation of Flutter stability	
7	112/10/23 ~ 112/10/29	Evaluation of Buffeting Response	
8	112/10/30 ~ 112/11/05	Sectional model test	
9	112/11/06 ~ 112/11/12	Practice of Sectional model test : Flutter derivatives	
10	112/11/13 ~ 112/11/19	Midterm Exam	
11	112/11/20 ~ 112/11/26	Practice of Sectional model test : force coefficients	
12	112/11/27 ~ 112/12/03	Full model tests	
13	112/12/04 ~ 112/12/10	Equivalent Wind Load of bridges	
14	112/12/11 ~ 112/12/17	Vibration Control	
15	112/12/18 ~ 112/12/24	Discussion	
16	112/12/25 ~ 112/12/31	Discussion	
17	113/01/01 ~ 113/01/07	Discussion	
18	113/01/08 ~ 113/01/14	Final Exam	

Key capabilities	
Interdisciplinary	
Distinctive teaching	
Course Content	Logical Thinking
Requirement	

Textbooks and Teaching Materials	Self-made teaching materials:Textbooks
References	Wind Effects on Structures - E. Simiu and R. H. Scanlan
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual：20.0 % ◆ Midterm Exam： % ◆ Final Exam： 40.0 % ◆ Other〈Report〉：30.0 %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . **※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**