Tamkang University Academic Year 109, 2nd Semester Course Syllabus

Course Title	JUNIOR STRUCTURAL DYNAMICS	Instructor	CHIEH-HSUN WU
Course Class	TECAB4P DEPARTMENT OF CIVIL ENGINEERING-DIVISION OF INFRASTRUCTURE, 4P	Details	◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG8 Decent work and economic growth SDG9 Industry, Innovation, and Infrastructure		

Departmental Aim of Education

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

Ⅱ. Enable students to have management knowledge and literacy to meet challenges of workplace.

Ⅲ. Equip students with the information technology skills to strengthen their competitiveness.

IV. Develop students' literacy of Literature, Art, Language, History, Society, Politics, Futurology, International Situation, Religious Law, Nature and such general courses to have the understanding of humanity emotions and to proceed on-going development.

Subject Departmental core competences

A. Civil Engineering Professional Proficiency.(ratio:100.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:25.00)

2. Information literacy. (ratio:25.00)

5. Independent thinking. (ratio:50.00)

Course Introduction	This course introduces the basics of vibration theory that is fundamental in structural dynamics. It begins with the free & forced vibrations of a single degree of freedom system (DOF). Systems of two and more DOFs are discussed later.

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	Students will be able to learn the fundamentals of structural dynamics through understanding the basics of vibration theory.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	A	125	Lecture, Discussion	Testing, Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	110/02/22 ~ 110/02/28	Introduction/Oscillatory motion	
2	110/03/01 ~ 110/03/07	Free Vibration - Vibration Model, Equation of Motion	和平紀念日補假(03/01(一))
3	110/03/08 ~ 110/03/14	Free Vibration - Vibration Model, Equation of Motion	
4	110/03/15 ~ 110/03/21	Free Vibration - Viscously Damped Free Vibration, Logarithmic Decrement, Coulomb Damping	
5	110/03/22 ~ 110/03/28	Free Vibration - Viscously Damped Free Vibration, Logarithmic Decrement, Coulomb Damping	
6	110/03/29 ~ 110/04/04	Harmonically Excited Vibr. - Forced Harmonic Vibr.	教學行政觀摩
7	110/04/05 ~ 110/04/11	Harmonically Excited Vibr. - Forced Harmonic Vibr.	清明節補假(04/05(一))
8	110/04/12 ~ 110/04/18	Harmonically Excited Vibr. - Rotating Unbalance	
9	110/04/19 ~ 110/04/25	Harmonically Excited Vibr. - Support Motion, Vibration Isolation	
10	110/04/26 ~ 110/05/02	Midterm Exam Week	

11	110/05/03 ~ 110/05/09	2DOF System - The Normal Mode Analysis, Initial Conditions	
12	110/05/10 ~ 110/05/16	2DOF System - Coordinate Coupling, Forced Harmonic Vibration	
13	110/05/17 ~ 110/05/23	Properties of Vibr. Systems - Flexibility Influence Coefs., Reciprocity Theorem, Stiffness Influence Coefs	
14	110/05/24 ~ 110/05/30	Properties of Vibr. Systems - Flexibility Influence Coefs., Reciprocity Theorem, Stiffness Influence Coefs	
15	110/05/31 ~ 110/06/06	Graduate Exam Week	
16	110/06/07 ~ 110/06/13	---	
17	110/06/14 ~ 110/06/20	---	
18	110/06/21 ~ 110/06/27	---	

Requirement	
Teaching Facility	Computer, Projector
Textbooks and Teaching Materials	Theory of Vibration with Applications, 5-th edition, by Thomson & Dahleh.
References	Dynamics Of Structures, by Chopra.
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 20.0 % ◆ Mark of Usual： % ◆ Midterm Exam： 40.0 % ◆ Final Exam： 40.0 % ◆ Other〈 〉： %
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.**