Tamkang University Academic Year 113, 2nd Semester Course Syllabus

Course Title	ENGINEERING STATISTICS(II)	Instructor	HUANG, YU-LIN
Course Class	TEWXB2A DEPARTMENT OF WATER RESOURCES AND ENVIRONMENTAL ENGINEERING, 2A	Details	◆ General Course ◆ Required ◆ One Semester ◆ 2 Credits
Relevance to SDGs	SDG4 Quality education		

Departmental Aim of Education

Ⅰ. Educating students with the fundamental knowledge of mathematics, science and engineering to enable them to succeed in the practice or academic research related to water resources and environmental engineering.

1. Training students with engineering basics to equip them with the capabilities of construction supervision and operation management.
2. Cultivating students with ability of applying engineering theory and pursuing innovation to equip them with the capabilities of researching, planning, engineering design, integration and assessment.
3. Training students with capacity to apply information technology in the engineering business.

Ⅱ. Cultivating students to become professional engineers with care in environment and professional ethics.

1. Cultivating students with characters of respecting the nature and humane care.
2. Cultivating students with engineering ethics and law-abiding character.
3. Preparing students with the capabilities of exploring, analyzing, interpreting, and dealing with problems.

Ⅲ. Preparing students with the capabilities of engaging in domestic and international engineering business.

1. Cultivating students with the capabilities of project management, presentation and communication skills, and teamwork.
2. Preparing students with the capabilities of applying professional foreign language and expanding their global perspective.
3. Cultivating students with cognitive and habits of continuous learning.

Subject Departmental core competences

A. Basic mathematical and engineering knowledge needed for water resources and environmental engineering applications.(ratio:40.00)

B. Capabilities of engineering planning, design, and information applications.(ratio:5.00)

C. Capabilities of logical thinking, analysis, integration, problem-solving skills, innovative design and engineering implementation.(ratio:40.00)

D. Continuous learning of the up-to-date knowledge of professional engineering, professional foreign language skills and global perspective.(ratio:5.00)

E. Awareness of the importance of teamwork and working attitude, and with cognition of professional ethics.(ratio:10.00)

Subject Schoolwide essential virtues
1. A global perspective. (ratio:5.00) 2. Information literacy. (ratio:10.00) 3. A vision for the future. (ratio:20.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:25.00) 6. A cheerful attitude and healthy lifestyle. (ratio:5.00) 7. A spirit of teamwork and dedication. (ratio:20.00) 8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction	Engineering statistics is a discipline that applies statistical methods to solve engineering problems. It involves the collection, analysis, and interpretation of data to help engineers make decisions in design, manufacturing, and quality control processes. This course will teach the basic statistical concepts and tools and demonstrate how to apply these methods to solve engineering problems.

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	Understand basic concepts and applications of engineering statistics.	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, Study Assignments

Course Schedule

Week	Date	Course Contents	Note
1	114/02/17 ~ 114/02/23	Review	
2	114/02/24 ~ 114/03/02	Continuous Random Variables	
3	114/03/03 ~ 114/03/09	Multiple Random Variables	
4	114/03/10 ~ 114/03/16	Multiple Random Variables	
5	114/03/17 ~ 114/03/23	Conditional Probability Models	
6	114/03/24 ~ 114/03/30	Conditional Probability Models	
7	114/03/31 ~ 114/04/06	Random Vectors	
8	114/04/07 ~ 114/04/13	Random Vectors	
9	114/04/14 ~ 114/04/20	Midterm Exam/Midterm Assessment Week (teachers can adjust the week as needed)	
10	114/04/21 ~ 114/04/27	Flexible Teaching Week	
11	114/04/28 ~ 114/05/04	Sums of Random Variables	
12	114/05/05 ~ 114/05/11	Sums of Random Variables	
13	114/05/12 ~ 114/05/18	The Sample Mean	
14	114/05/19 ~ 114/05/25	The Sample Mean	
15	114/05/26 ~ 114/06/01	Hypothesis Testing	
16	114/06/02 ~ 114/06/08	Hypothesis Testing	
17	114/06/09 ~ 114/06/15	Final Exam/Final Assessment Week (teachers can adjust the week as needed)	

18	114/06/16～ 114/06/22	Flexible Teaching Week: Generally, no in-person classes; teachers may arrange teaching activities or final assessments, among other options.	

Key capabilities	self-directed learning Problem solving
Interdisciplinary	STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist)
Distinctive teaching	
Course Content	Logical Thinking
Requirement	
Textbooks and Teaching Materials	Using teaching materials from other writers:Textbooks Name of teaching materials: Probability and Stochastic Processes. Roy D. Yates
References	
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual： % ◆ Midterm Exam： 35.0 % ◆ Final Exam： 35.0 % ◆ Other〈Homework〉：20.0 %
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.**