Tamkang University Academic Year 113, 2nd Semester Course Syllabus

Course Title	BASIC ENGINEERING MATHEMATICS		Instructor	HUANG, MING-HUI
Course Class	TECXB1A DEPARTMENT OF CIVIL ENGINEERING, 1A		Details	◆ General Course ◆ Required ◆ One Semester ◆ 3 Credits
Relevance to SDGs	SDG4 Quality education			

Departmental Aim of Education

Ⅰ. Cultivate students' professional knowledge of civil engineering and attitude towards self-learning to satisfy demands for employment and advanced studies.

Ⅱ. Cultivate students' abilities of engineering project execution and practical views of coordination.

Ⅲ. Cultivate students' information technology skills for innovation implementation.

Ⅳ. Cultivate students' engineering ethics, liberal arts mind, and global perspectives.

Subject Departmental core competences

A. Civil Engineering Professional Proficiency.(ratio:47.00)

B. Implementation and Information Processing Ability.(ratio:5.00)

C. Team collaboration and Knowledge Integration Ability.(ratio:24.00)

D. Globalization and Continuous Learning.(ratio:24.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:6.00)

2. Information literacy. (ratio:21.00)

3. A vision for the future. (ratio:11.00)

4. Moral integrity. (ratio:6.00)

5. Independent thinking. (ratio:30.00)

6. A cheerful attitude and healthy lifestyle. (ratio:10.00)

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

8. A sense of aesthetic appreciation. (ratio:6.00)

Course Introduction	"Basic Engineering Mathematics" introduces and consolidates basic mathematical principles. This course thus promotes awareness of mathematical concepts for students needing a broad base for further advanced mathematics and mechanics studies

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	"Basic Engineering Mathematics" introduces and consolidates basic mathematical principles. This course thus promotes awareness of mathematical concepts for students needing a broad base for further advanced mathematics and mechanics studies	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCD	12345678	Lecture	Testing

Course Schedule

Week	Date	Course Contents	Note
1	114/02/17～114/02/23	Units, Prefixes and Engineering Notation/Powers, Roots and Laws of Indices	
2	114/02/24～114/03/02	Basic and Further Algebra	
3	114/03/03～114/03/09	Solving Simultaneous and Quadratic Equations	
4	114/03/10～114/03/16	Linear Algebra: Matrices, Vectors, Determinants and Linear System	

5	114/03/17 ~ 114/03/23	Linear Algebra: Matrices, Vectors, Determinants and Linear System	
6	114/03/24 ~ 114/03/30	Logarithmic and Exponential functions	
7	114/03/31 ~ 114/04/06	Spring Break	
8	114/04/07 ~ 114/04/13	Introduction to Trigonometry/Trigonometric Waveforms	
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	Non-Right-Angled Triangles and Some Practical Application	
11	114/04/28 ~ 114/05/04	Differentiation	
12	114/05/05 ~ 114/05/11	Differentiation	
13	114/05/12 ~ 114/05/18	Differentiation	
14	114/05/19 ~ 114/05/25	Integration	
15	114/05/26 ~ 114/06/01	Integration	
16	114/06/02 ~ 114/06/08	Differential Equations	
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			
Interdisciplinary			
Distinctive teaching			

Course Content	Logical Thinking
Requirement	上課請準時出席並作課程筆記
Textbooks and Teaching Materials	Self-made teaching materials:Handouts
References	BASIC ENGINEERING MATHMATICS
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual： % ◆ Midterm Exam： 40.0 % ◆ Final Exam： 40.0 % ◆ Other〈實習課〉：10.0 %
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.**