Tamkang University Academic Year 114, 1st Semester Course Syllabus

Course Title	CALCULUS	Instructor	MENG-YING CHOU
Course Class	TEIDB1A DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ General Course ◆ Required ◆ One Semester ◆ 3 Credits
Relevance to SDGs	SDG4 Quality education		

Departmental Aim of Education

Ⅰ. Comprehend professional knowledge.

Ⅱ. Acquire mastery of Practical Skills.

Ⅲ. Establish creative achievement.

Subject Departmental core competences

A. Programming and application ability.(ratio:15.00)

B. Mathematical reasoning ability.(ratio:40.00)

C. Implementing computer systems ability.(ratio:15.00)

D. Computer networking application skills.(ratio:15.00)

E. Professional skills for information technology (IT) industry.(ratio:15.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:5.00)

2. Information literacy. (ratio:20.00)

3. A vision for the future. (ratio:10.00)

4. Moral integrity. (ratio:20.00)

5. Independent thinking. (ratio:30.00)

6. A cheerful attitude and healthy lifestyle. (ratio:5.00)

7. A spirit of teamwork and dedication. (ratio:5.00)

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

Course Introduction	Calculus

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 how to perform differentiation and integration.	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

Course Schedule

Week	Date	Course Contents	Note
1	114/09/15 ~ 114/09/21	Finding Limits (Briefly introduction), Evaluating Limits Analytically.	
2	114/09/22 ~ 114/09/28	Continuity and One-Sided Limits, Infinite Limits.	
3	114/09/29 ~ 114/10/05	The Derivative and the Tangent Line Problem, Basic Differentiation Rules and Rates of Change, Product and Quotient Rules and Higher-Order Derivatives.	
4	114/10/06 ~ 114/10/12	The Chain Rule, Implicit Differentiation, Related Rates.	

5	114/10/13 ~ 114/10/19	Extrema on an Interval, Rolle’ s Theorem and the Mean Value Theorem, Increasing and Decreasing Functions and the First Derivative Test.	
6	114/10/20 ~ 114/10/26	Concavity and the Second Derivative Test, Limits at Infinity.	
7	114/10/27 ~ 114/11/02	A Summary of Curve Sketching, Optimization Problems, Differentials (Briefly introduction the definition of differentials).	
8	114/11/03 ~ 114/11/09	Mid-term Exam	
9	114/11/10 ~ 114/11/16	Antiderivatives and Indefinite Integration, Riemann Sums and Definite Integrals (Briefly introduction).	
10	114/11/17 ~ 114/11/23	The Fundamental Theorem of Calculus, Integration by Substitution.	
11	114/11/24 ~ 114/11/30	The Natural Logarithmic Function: Differentiation, The Natural Logarithmic Function: Integration, Inverse Functions.	
12	114/12/01 ~ 114/12/07	Exponential Functions, Bases Other than e and Applications, Indeterminate Forms and L'Hopital's Rule.	
13	114/12/08 ~ 114/12/14	Inverse Trigonometric Functions: Differentiation, Inverse Trigonometric Functions: Integration, Hyperbolic Functions (Briefly introduction).	
14	114/12/15 ~ 114/12/21	Area of Region Between Two Curves, Volume: The Disk Method Volume: The Shell Method.	
15	114/12/22 ~ 114/12/28	Arc Length and Surfaces of Revolution, Basic integrations Rules, Integration by Parts.	Holiday on Thursday
16	114/12/29 ~ 115/01/04	Trigonometric Integrals, Trigonometric Substitution, Partial Factions.	Holiday on Thursday
17	115/01/05 ~ 115/01/11	Final-term Exam (Final Week of Diverse Assessments/Flexible Teaching Week for Teachers)	
18	115/01/12 ~ 115/01/18	Improper Integrals (Flexible Teaching Week for Teachers)	
Key capabilities			
Interdisciplinary			

Distinctive teaching	
Course Content	Logical Thinking
Requirement	rollcall (bonus 10%)
Textbooks and Teaching Materials	Using teaching materials from other writers:Textbooks Name of teaching materials: Calculus, Metric Version 9e, Early Transcendentals. James Stewart, Daniel Clegg, Saleem Watson. Cengage. (In Chinese words: 作者 Stewart, 滄海圖書出版.)
References	
Grading Policy	◆ Attendance： % ◆ Mark of Usual：30.0 % ◆ Midterm Exam： 35.0 % ◆ Final Exam： 35.0 % ◆ Other〈 〉： %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at https://web2.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. ※"Adhere to the concept of intellectual property rights" and "Do not illegally photocopy, download, or distribute." Using original textbooks is advised. It is a crime to improperly photocopy others' publications.