Tamkang University Academic Year 110, 1st Semester Course Syllabus

Course Title	CALCULUS	Instructor	HSIAO-FAN LIU
Course Class	TEIDB1A DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ General Course ◆ Required ◆ One Semester
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

B. Mathematical reasoning ability.(ratio:100.00)

Subject Schoolwide essential virtues

2. Information literacy. (ratio:20.00)

5. Independent thinking. (ratio:80.00)

Course Introduction	This course introduces Calculus with applications in computer sciences. Topics in this semester include limits and continuity of functions, definitions and applications of differentiation and integration, the fundamental theorem of Calculus, inverse functions and their derivatives, integration techniques and so on. The goal is to strengthen students' problem-solving skills as well as independent thinking abilities.

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 are expected to understand the concepts and theory of limit, continuity, and derivative of a function, and to solve practical problems with these techniques.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	B	25	Lecture, Discussion	Testing, Study Assignments, Discussion(including classroom and online), Activity Participation

Course Schedule

Week	Date	Course Contents	Note
1	110/09/22 ~ 110/09/28	Functions and Limits 1.1-1.4	
2	110/09/29 ~ 110/10/05	Continuity of Functions 1.5	
3	110/10/06 ~ 110/10/12	Derivatives and Formulas of Differentiations 2.1-2.4	
4	110/10/13 ~ 110/10/19	Implicit Differentiation and Related Rates 2.5-2.7	
5	110/10/20 ~ 110/10/26	Applications of Differentiation 2.8-3.1	
6	110/10/27 ~ 110/11/02	Local Extrema 3.1-3.2	
7	110/11/03 ~ 110/11/09	The Mean Value Theorem; Derivatives and the Shapes of Graphs 3.3	
8	110/11/10 ~ 110/11/16	Optimization 3.5-3.7	
9	110/11/17 ~ 110/11/23	Midterm Exam Week	
10	110/11/24 ~ 110/11/30	integration 4.1-4.3	

11	110/12/01 ~ 110/12/07	The Fundamental theorem of Calculus and Inverse Functions 4.4- Ch.5	
12	110/12/08 ~ 110/12/14	Techniques of Integrations 6.1-6.3	
13	110/12/15 ~ 110/12/21	Techniques of Integrations 6.3-6.5	
14	110/12/22 ~ 110/12/28	Improper Integrals 6.6; Infinite Series 8.1	
15	110/12/29 ~ 111/01/04	Infinite Series 8.2-8.6	
16	111/01/05 ~ 111/01/11	Infinite Series 8.6-8.8; Review	
17	111/01/12 ~ 111/01/18	Final Exam Week	
18	111/01/19 ~ 111/01/25	Suplemental Week	

Requirement	
Teaching Facility	Computer, Other (Blackboard)
Textbooks and Teaching Materials	Essential Calculus 2/e Metric Version by Stewart
References	
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： % ◆ Mark of Usual：10.0 % ◆ Midterm Exam： 40.0 % ◆ Final Exam： 40.0 % ◆ Other〈Quizzes & Homework〉：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.**