Tamkang University Academic Year 112, 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
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 let students could use calculus on variaous applications.	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, Discussion, Practicum	Testing, Study Assignments, Activity Participation

Course Schedule

Week	Date	Course Contents	Note
1	112/09/11 ~ 112/09/17	(1.1 - 1.3) Introduction to Limits, Limit Theorems.	
2	112/09/18 ~ 112/09/24	(1.4 - 1.6) Limits at Infinity, Infinite Limits, Continuity of Functions.	
3	112/09/25 ~ 112/10/01	(2.1-2.3) Derivatives	
4	112/10/02 ~ 112/10/08	(2.4) Derivatives of Trigonometric Functions	
5	112/10/09 ~ 112/10/15	(2.5 - 2.7) Chain Rule, Implicit Differentiation.	

6	112/10/16 ~ 112/10/22	(3.1 - 3.3) Extrema	
7	112/10/23 ~ 112/10/29	(3.6, 3.8) Mean Value Theorem, Antiderivatives.	
8	112/10/30 ~ 112/11/05	(4.1 - 4.2) Definite Integral	
9	112/11/06 ~ 112/11/12	Midterm Exam Week	
10	112/11/13 ~ 112/11/19	(4.3 - 4.5) Fundamental Theorem of Calculus, Mean Value Theorem for Integrals.	
11	112/11/20 ~ 112/11/26	(5.1 - 5.2) Area of Regions, Volume of Solids.	
12	112/11/27 ~ 112/12/03	(5.3 - 5.4) Volume of Solid of Revolution, Length of a Plane Curve.	
13	112/12/04 ~ 112/12/10	(6.1 - 6.4) Log/Exp Function & Their Derivatives.	
14	112/12/11 ~ 112/12/17	(6.8, 7.1, 7.2) Inverse Trig Functions & Their Derivatives, Basic Integration Rules, Integration by Parts.	
15	112/12/18 ~ 112/12/24	(7.3 - 7.5) Trig. Integral & Rationalizing Substitutions, Integration of Rational Functions Using Partial Fractions.	
16	112/12/25 ~ 112/12/31	(8.1 - 8.4) Indeterminate Forms & Improper Integrals	
17	113/01/01 ~ 113/01/07	Final Exam Week	
18	113/01/08 ~ 113/01/14	Flex week, learning activities should be arranged.	

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, Presentations, Handouts Name of teaching materials: Calculus 9th edition. VarBerg, Purcell, Rigdon. Pearson New International Edition. 2014.
References	
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual：30.0 % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 30.0 % ◆ 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.**