Course Title	ADVANCED COMPUTER PROGRAMMING	Instructor	FENG-CHENG CHANG
Course Class	TEIDB1A DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ Blended Course ◆ Selective ◆ 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:40.00)

B. Mathematical reasoning ability.(ratio:15.00)

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:30.00)

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

4. Moral integrity. (ratio:10.00)

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	This course presents an advanced view of computer programming, mainly using C and C++. The first part is both a review and application of C language. The second part is fundamental C++ syntax and the C++-specific OOP concepts. Outcomes: Students who successfully complete this course will be able to: * Apply and develop procedural and object-oriented code. * Develop software with a few building tools. * Demonstrate basic knowledge of software engineering concepts.

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 the basic concept of software development tools for problem solving using computer languages	Cognitive
2	Familiar with the processes of the computer program design and applications for solving the computer problems	Affective
3	Using computer language and software engineering to solve computer problems	Psychomotor

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ACE	246	Lecture	Testing, Study Assignments, Practicum
2	ABCE	2358	Lecture, Practicum, Experience	Testing, Study Assignments, Discussion(including classroom and online), Practicum
3	ACDE	12578	Lecture, Discussion, Practicum, Experience	Testing, Study Assignments, Discussion(including classroom and online), Practicum

Course Schedule

Note for Blended Course : When utilizing weekly digital instruction, please fill in "Online Asynchronous Instruction".

Week	Date	Course Contents	Note
1	113/02/19 ~ 113/02/25	Course overview and quick review of C fundamentals	
2	113/02/26 ~ 113/03/03	Practices with C toy programs	Online Asynchronous Instruction
3	113/03/04 ~ 113/03/10	Introduction of ncurses and the make utility	
4	113/03/11 ~ 113/03/17	Introduction of raylib	
5	113/03/18 ~ 113/03/24	Design a raylib application with C language	
6	113/03/25 ~ 113/03/31	Transition from C to C++ (quick but informal)	Online Asynchronous Instruction
7	113/04/01 ~ 113/04/07	Object-oriented approach and C++	
8	113/04/08 ~ 113/04/14	Basic C++ standard classes	
9	113/04/15 ~ 113/04/21	Midterm Exam Week	
10	113/04/22 ~ 113/04/28	Basic C++ class design	
11	113/04/29 ~ 113/05/05	More run-time properties of C++ objects	
12	113/05/06 ~ 113/05/12	C++ application with ncurses	Online Asynchronous Instruction
13	113/05/13 ~ 113/05/19	C++ application with raylib (1)	
14	113/05/20 ~ 113/05/26	C++ application with raylib (2)	
15	113/05/27 ~ 113/06/02	C++ application with raylib (group project)	
16	113/06/03 ~ 113/06/09	C++ application with raylib (group project)	Online Asynchronous Instruction
17	113/06/10 ~ 113/06/16	Final Exam Week (Date:113/6/11-113/6/17)	
18	113/06/17 ~ 113/06/23	Flex week, learning activities should be arranged.	

Key capabilities	
Interdisciplinary	

Distinctive teaching	
Course Content	Computer programming or Computer language (students have hands-on experience in related projects)
Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Presentations, Videos Using teaching materials from other writers:Textbooks, Handouts, Videos
References	
Grading Policy	◆ Attendance： 　 ％ ◆ Mark of Usual：10.0 ％ ◆ Midterm Exam： 15.0 ％ ◆ Final Exam： 15.0 ％ ◆ Other〈Labs〉：60.0 ％
Note	1. This syllabus may be uploaded at the website of the Course Syllabus Management System at https://info.ais.tku.edu.tw/csp or through the link of the Course Syllabus Upload posted on the home page of the TKU Office of Academic Affairs http://www.acad.tku.edu.tw/CS/main.php 2. According to the Implementation regulations of distance education for junior college and above are prescribed pursuant to Article 2, "The distance learning course referred to in these Measures refers to more than one-half of the teaching hours in each subject." 3. According to the regulations of Tamkang University Enforcement Rules for digital teaching, Paragraph 2 and Article 3, the distance learning course of our school must be "The course of digital teaching with distance learning platform or synchronous video system in our school. Teaching Hours include course lectures, teacher-student interaction discussions, quizzes and other learning activities." 4. If there are any temporary course changes (including time changes and classroom changes of distance learning courses, blended courses), please make out an application according to regulations to the Office of Academic Affairs. ※ **Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**