Tamkang University Academic Year 102, 1st Semester Course Syllabus

Course Title	DATA STRUCTURE & PROCESSING	Instructor	WU, SHIH-JUNG
Course Class	TPIAB2A DIVISION OF SOFTWARE ENGINEERING, DEPARTMENT OF INNOVATIVE INFORMATION AND TECHNOLOGY, 2A	Details	◆ Required ◆ One Semester ◆ 3 Credits

Departmental teaching objectives

Cultivate professional talents in software engineering and communication technology.

Departmental core competences

A. Capability of computer program coding, process planning, and problem solving.

B. Capability of applying basic mathematics and information technology related mathematics.

C. Capability of applying knowledge of internet structure and protocol in communication system.

D. Capability of data collecting and analyzing, and organizing software and hardware.

E. Capability of understanding and integrating system structure for problem solving.

F. Capability of system analyzing, modeling, and designing.

G. Capability of management utilizing information technology system.

Course Introduction	This course focus on using c programming language to solve special problem for application and computer. It emphasizes data storage, fetch, algorithms design and complexity evaluation.

The Relevance among Teaching Objectives, Objective Levels and Departmental core competences

I.Objective Levels (select applicable ones) :

(i) Cognitive Domain : C1-Remembering, C2-Understanding, C3-Applying, C4-Analyzing, C5-Evaluating, C6-Creating

(ii) Psychomotor Domain : P1-Imitation, P2-Mechanism, P3-Independent Operation, P4-Linked Operation, P5-Automation, P6-Origination

(iii) Affective Domain : A1-Receiving, A2-Responding, A3-Valuing, A4-Organizing, A5-Charaterizing, A6-Implementing

II.The Relevance among Teaching Objectives, Objective Levels and Departmental core competences :

(i) Determine the objective level(s) in any one of the three learning domains (cognitive, psychomotor, and affective) corresponding to the teaching objective. Each objective should correspond to the objective level(s) of ONLY ONE of the three domains.

(ii) If more than one objective levels are applicable for each learning domain, select the highest one only. (For example, if the objective levels for Cognitive Domain include C3,C5,and C6, select C6 only and fill it in the boxes below. The same rule applies to Psychomotor Domain and Affective Domain.)

(iii) Determine the Departmental core competences that correspond to each teaching objective. Each objective may correspond to one or more Departmental core competences at a time. (For example, if one objective corresponds to three Departmental core competences: A,AD, and BEF, list all of the three in the box.)

No.	Teaching Objectives	Relevance	
		Objective Levels	Departmental core competences
1	Understanding the basic concepts for data structure	C2	ABD
2	Promoting programming ability.	C4	ABD
3	To possess the ability for algorithms design and evaluation.	C6	ABD

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	Understanding the basic concepts for data structure	Lecture, Practicum	Written test, Practicum, Participation
2	Promoting programming ability.	Lecture, Practicum	Written test, Participation
3	To possess the ability for algorithms design and evaluation.	Lecture, Practicum	Written test, Practicum, Participation

This course has been designed to cultivate the following essential qualities in TKU students

Essential Qualities of TKU Students	Description
◇ A global perspective	Helping students develop a broader perspective from which to understand international affairs and global development.
◇ Information literacy	Becoming adept at using information technology and learning the proper way to process information.
◆ A vision for the future	Understanding self-growth, social change, and technological development so as to gain the skills necessary to bring about one's future vision.
◇ Moral integrity	Learning how to interact with others, practicing empathy and caring for others, and constructing moral principles with which to solve ethical problems.
◆ Independent thinking	Encouraging students to keenly observe and seek out the source of their problems, and to think logically and critically.
◇ A cheerful attitude and healthy lifestyle	Raising an awareness of the fine balance between one's body and soul and the environment; helping students live a meaningful life.
◇ A spirit of teamwork and dedication	Improving one's ability to communicate and cooperate so as to integrate resources, collaborate with others, and solve problems.
◇ A sense of aesthetic appreciation	Equipping students with the ability to sense and appreciate aesthetic beauty, to express themselves clearly, and to enjoy the creative process.

Course Schedule

Week	Date	Subject/Topics	Note
1	102/09/16 ~ 102/09/22	Basic concepts	
2	102/09/23 ~ 102/09/29	Recursion	
3	102/09/30 ~ 102/10/06	Recursion	
4	102/10/07 ~ 102/10/13	Stacks	
5	102/10/14 ~ 102/10/20	Queues	
6	102/10/21 ~ 102/10/27	Introduction to Trees	
7	102/10/28 ~ 102/11/03	Introduction to Trees	
8	102/11/04 ~ 102/11/10	Binary Search Trees	
9	102/11/11 ~ 102/11/17	Binary Search Trees	
10	102/11/18 ~ 102/11/24	Midterm Exam Week	
11	102/11/25 ~ 102/12/01	AVL Trees	
12	102/12/02 ~ 102/12/08	Binary Search Trees	

13	102/12/09～ 102/12/15	Heaps	
14	102/12/16～ 102/12/22	Graphs	
15	102/12/23～ 102/12/29	Graphs	
16	102/12/30～ 103/01/05	Sorting	
17	103/01/06～ 103/01/12	Sorting	
18	103/01/13～ 103/01/19	Final Exam Week	

Requirement	pc教室禁止飲食。 上課保持肅靜。 上課可能使用全廣播。 上課15分鐘後鎖門，遲到視為未到。
Teaching Facility	Computer
Textbook(s)	Data Structures –A Pseudocode Apporach with C by Forouzan
Reference(s)	資料結構相關書籍
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual： % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 30.0 % ◆ Other〈兩次小考〉：30.0 %
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.**