

## Tamkang University Academic Year 113, 1st Semester Course Syllabus

Course Title	DATA STRUCTURES	Instructor	FENG-CHENG CHANG
Course Class	TEIDB2A DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM), 2A	Details	<ul style="list-style-type: none"> <li>◆ General Course</li> <li>◆ Required</li> <li>◆ One Semester</li> <li>◆ 3 Credits</li> </ul>
Relevance to SDGs	SDG4 Quality education		
<b>Departmental Aim of Education</b>			
<ul style="list-style-type: none"> <li>I. Comprehend professional knowledge.</li> <li>II. Acquire mastery of Practical Skills.</li> <li>III. Establish creative achievement.</li> </ul>			
<b>Subject Departmental core competences</b>			
<ul style="list-style-type: none"> <li>A. Programming and application ability.(ratio:40.00)</li> <li>B. Mathematical reasoning ability.(ratio:15.00)</li> <li>C. Implementing computer systems ability.(ratio:15.00)</li> <li>D. Computer networking application skills.(ratio:15.00)</li> <li>E. Professional skills for information technology (IT) industry.(ratio:15.00)</li> </ul>			
<b>Subject Schoolwide essential virtues</b>			
<ul style="list-style-type: none"> <li>1. A global perspective. (ratio:10.00)</li> <li>2. Information literacy. (ratio:30.00)</li> <li>3. A vision for the future. (ratio:10.00)</li> <li>4. Moral integrity. (ratio:20.00)</li> <li>5. Independent thinking. (ratio:15.00)</li> <li>6. A cheerful attitude and healthy lifestyle. (ratio:5.00)</li> <li>7. A spirit of teamwork and dedication. (ratio:5.00)</li> <li>8. A sense of aesthetic appreciation. (ratio:5.00)</li> </ul>			

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
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**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	Understanding the basic concepts for data structure	Cognitive
2	Promoting programming ability.	Cognitive
3	To possess the ability for algorithms design and evaluation.	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
2	ABCDE	12345678	Lecture	Testing
3	ABCDE	12345678	Lecture	Testing

**Course Schedule**

Week	Date	Course Contents	Note
1	113/09/09 ~ 113/09/15	Introduction and Review of Structures	
2	113/09/16 ~ 113/09/22	Review of Structures	
3	113/09/23 ~ 113/09/29	Review of Pointers	

4	113/09/30 ~ 113/10/06	Linked Lists	
5	113/10/07 ~ 113/10/13	Linked Lists	
6	113/10/14 ~ 113/10/20	Stacks and Queues	
7	113/10/21 ~ 113/10/27	Stacks and Queues	
8	113/10/28 ~ 113/11/03	Introduction to Binary Trees	
9	113/11/04 ~ 113/11/10	Midterm Exam Week	
10	113/11/11 ~ 113/11/17	Introduction to Binary Trees	
11	113/11/18 ~ 113/11/24	Introduction to Binary Trees	
12	113/11/25 ~ 113/12/01	Sorting	
13	113/12/02 ~ 113/12/08	Sorting	
14	113/12/09 ~ 113/12/15	Graphs	
15	113/12/16 ~ 113/12/22	Graphs	
16	113/12/23 ~ 113/12/29	Hashing	
17	113/12/30 ~ 114/01/05	Final Exam Week	
18	114/01/06 ~ 114/01/12	Flex week, learning activities should be arranged.	MSTeams sessions for supplementary topics
Key capabilities	Information Technology		
Interdisciplinary			
Distinctive teaching			
Course Content	Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking		

Requirement	The assignments include homework and quizzes/exams. There is no make-up assignment if you miss it without a proper reason.
Textbooks and Teaching Materials	Self-made teaching materials:Presentations, Handouts, Videos Using teaching materials from other writers:Textbooks, Videos, Tutorial websites Name of teaching materials: Horowitz et al., Fundamentals of Data Structures in C, 2e
References	C/C++/Java related materials N. Kalicharan, Data Structures in C
Grading Policy	◆ Attendance :           %   ◆ Mark of Usual : 10.0 %   ◆ Midterm Exam : 15.0 % ◆ Final Exam :   15.0 % ◆ Other < assignments > : 60.0 %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at <a href="http://info.ais.tku.edu.tw/csp">http://info.ais.tku.edu.tw/csp</a> or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a> .  <b>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</b>