

Tamkang University Academic Year 111, 2nd Semester Course Syllabus

Course Title	ALGORITHMS	Instructor	FU-YI HUNG
Course Class	TEIDB2A DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM), 2A	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Required ◆ One Semester
Relevance to SDGs	SDG4 Quality education		
Departmental Aim of Education			
<ul style="list-style-type: none"> I. Comprehend professional knowledge. II. Acquire mastery of Practical Skills. III. Establish creative achievement. 			
Subject Departmental core competences			
<ul style="list-style-type: none"> 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			
<ul style="list-style-type: none"> 1. A global perspective. (ratio:10.00) 2. Information literacy. (ratio:30.00) 3. A vision for the future. (ratio:10.00) 4. Moral integrity. (ratio:20.00) 5. Independent thinking. (ratio:15.00) 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	<p>This course provides an introduction to the design and analysis of algorithms.</p> <p>Course topics include: Fundamentals of the Analysis of Algorithm Efficiency, Divide-and-Conquer, Decrease-and-Conquer, Transform-and-Conquer, Space and Time Tradeoffs, Dynamic Programming, Greedy Technique, Iterative Improvement.</p>
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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	To understand the fundamental properties of algorithms	Cognitive
2	To implement algorithms to solve practical problems by software design	Cognitive
3	To analyze the efficiency of algorithms	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	112/02/13 ~ 112/02/19	Introduction	
2	112/02/20 ~ 112/02/26	Fundamentals of the Analysis of Algorithm Efficiency	

3	112/02/27 ~ 112/03/05	Fundamentals of the Analysis of Algorithm Efficiency	
4	112/03/06 ~ 112/03/12	Fundamentals of the Analysis of Algorithm Efficiency	
5	112/03/13 ~ 112/03/19	Brute Force	
6	112/03/20 ~ 112/03/26	Brute Force	
7	112/03/27 ~ 112/04/02	Divide-and-Conquer	
8	112/04/03 ~ 112/04/09	Divide-and-Conquer	
9	112/04/10 ~ 112/04/16	Divide-and-Conquer	
10	112/04/17 ~ 112/04/23	Midterm Exam Week	
11	112/04/24 ~ 112/04/30	Decrease-and-Conquer	
12	112/05/01 ~ 112/05/07	Transform-and-Conquer	
13	112/05/08 ~ 112/05/14	Transform-and-Conquer	
14	112/05/15 ~ 112/05/21	Dynamic Programming	
15	112/05/22 ~ 112/05/28	Dynamic Programming	
16	112/05/29 ~ 112/06/04	Greedy Technique	
17	112/06/05 ~ 112/06/11	Greedy Technique	
18	112/06/12 ~ 112/06/18	Final Exam Week	
Requirement	Cheating or plagiarism will result in a failing grade in the course. 作弊或抄襲者學期成績為零分·並且依照校規懲處。		
Teaching Facility	Computer, Projector		
Textbooks and Teaching Materials	Introduction to the Design and Analysis of Algorithms, by Anany V. Levitin, Pearson Education Inc., 2nd Edition, 2007		
References	Introduction to Algorithms, by T. H. Cormen, C. E. Leiserson, R. L. Rivest and C. Stein , McGraw-Hill, 3rd edition, 2009		
Number of Assignment(s)	6 (Filled in by assignment instructor only)		
Grading Policy	◆ Attendance : 10.0 % ◆ Mark of Usual : 40.0 % ◆ Midterm Exam : 25.0 % ◆ Final Exam : 25.0 % ◆ 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>.

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