Tamkang University Academic Year 113, 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	◆ General Course ◆ Required ◆ 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: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	This course provides an introduction to the design and analysis of algorithms. 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.

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	114/02/17 ~ 114/02/23	Introduction	
2	114/02/24 ~ 114/03/02	Fundamentals of the Analysis of Algorithm Efficiency	

3	114/03/03 ~ 114/03/09	Fundamentals of the Analysis of Algorithm Efficiency	
4	114/03/10 ~ 114/03/16	Fundamentals of the Analysis of Algorithm Efficiency	
5	114/03/17 ~ 114/03/23	Brute Force	
6	114/03/24 ~ 114/03/30	Brute Force	
7	114/03/31 ~ 114/04/06	Divide-and-Conquer	
8	114/04/07 ~ 114/04/13	Divide-and-Conquer	
9	114/04/14 ~ 114/04/20	Midterm Exam/Midterm Assessment Week (teachers can adjust the week as needed)	
10	114/04/21 ~ 114/04/27	Decrease-and-Conquer	
11	114/04/28 ~ 114/05/04	Decrease-and-Conquer	
12	114/05/05 ~ 114/05/11	Transform-and-Conquer	
13	114/05/12 ~ 114/05/18	Dynamic Programming	
14	114/05/19 ~ 114/05/25	Dynamic Programming	
15	114/05/26 ~ 114/06/01	Greedy Technique	
16	114/06/02 ~ 114/06/08	Greedy Technique	
17	114/06/09 ~ 114/06/15	Final Exam/Final Assessment Week (teachers can adjust the week as needed)	
18	114/06/16 ~ 114/06/22	Flexible Teaching Week: Generally, no in-person classes; teachers may arrange teaching activities or final assessments, among other options.	

Key capabilities	
Interdisciplinary	
Distinctive teaching	

Course Content	Computer programming or Computer language (students have hands-on experience in related projects)
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。
Textbooks and Teaching Materials	Using teaching materials from other writers:Textbooks Name of teaching materials: Introduction to The Design and Analysis of Algorithms, □by Anany Levitin, Addison Wesley, 3rd Edition, 2012, 高立圖書
References	Introduction to Algorithms, by T. H. Cormen, C. E. Leiserson, R. L. Rivest and C. Stein , McGraw-Hill, 3rd edition, 2009
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual：25.0 % ◆ Midterm Exam： 22.0 % ◆ Final Exam： 23.0 % ◆ Other〈Assignments〉：20.0 %
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.**