Tamkang University Academic Year 106, 1st Semester Course Syllabus

Course Title	COMPUTER ORGANIZATION	Instructor	FU-YI HUNG
Course Class	TQICB3A DIVISION OF SOFTWARE ENGINEERING, DEPARTMENT OF INNOVATIVE INFORMATION AND TECHNOLOGY (ENGLISH-TAUGHT PROGRAM), 3A	Details	◆ Selective ◆ One Semester ◆ 3 Credits

Departmental Aim of Education

Cultivate professional talents in developing and applying information system in various fields.

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 developing information system

E. Capability of integrating information system

Course Introduction	The goal of this course is to learn how a computer works and why it performs as it does. The focus of this course is on the interaction between hardware and software that includes instruction set architecture, arithmetic for computers, the processor, memory hierarchy and I/O devices.

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	To understand how computers are constructed by a set of functional units	C4	E
2	To understand how computer functional units operate and interact	C4	E
3	To understand how the factors affect computer performance	C5	E
4	To understand how computations are performed at the machine level	C4	E

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	To understand how computers are constructed by a set of functional units	Lecture, Problem solving	Written test, Participation
2	To understand how computer functional units operate and interact	Lecture, Problem solving	Written test, Participation
3	To understand how the factors affect computer performance	Lecture, Problem solving	Written test, Participation
4	To understand how computations are performed at the machine level	Lecture, Problem solving	Written test, 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	106/09/18 ~ 106/09/24	Computer Abstractions and Technology	
2	106/09/25 ~ 106/10/01	Computer Abstractions and Technology	
3	106/10/02 ~ 106/10/08	Instructions: Language of the Computer	
4	106/10/09 ~ 106/10/15	Instructions: Language of the Computer	
5	106/10/16 ~ 106/10/22	Instructions: Language of the Computer	
6	106/10/23 ~ 106/10/29	Arithmetic for Computers	
7	106/10/30 ~ 106/11/05	Arithmetic for Computers	
8	106/11/06 ~ 106/11/12	The Processor	
9	106/11/13 ~ 106/11/19	The Processor	
10	106/11/20 ~ 106/11/26	Midterm Exam Week	
11	106/11/27 ~ 106/12/03	The Processor	
12	106/12/04 ~ 106/12/10	The Processor	

13	106/12/11 ~ 106/12/17	The Processor	
14	106/12/18 ~ 106/12/24	Large and Fast: Exploiting Memory Hierarchy	
15	106/12/25 ~ 106/12/31	Large and Fast: Exploiting Memory Hierarchy	
16	107/01/01 ~ 107/01/07	Large and Fast: Exploiting Memory Hierarchy	
17	107/01/08 ~ 107/01/14	Large and Fast: Exploiting Memory Hierarchy	
18	107/01/15 ~ 107/01/21	Final Exam Week	

Requirement	Cheating or plagiarism will receive a semester grade of zero for this course. 作弊或抄襲者學期總成績為零分。 If a student's class absence reaches one-third of the total class hours (in a semester) for a particular course, the course instructor will notify the Office of Academic Affairs, and the student will not be allowed to take part in the remaining course examinations and will receive a semester grade (for that course) of zero. 學生對某一科目之缺課總時數達該科全學期授課時數三分之一，經該科教師通知教務處時即不准參加該科目之考試，該科目學期成績以零分計算。
Teaching Facility	Computer, Projector
Textbook(s)	Computer Organization and Design: The Hardware/Software Interface, by David Patterson and John Hennessy, Elsevier, 5th Edition, 2014.
Reference(s)	Computer Organization and Architecture: Designing for Performance, by William Stallings, Prentice Hall, 8th Edition, 2009 計算機組織與設計, David Patterson and John Hennessy 著, 鍾崇斌 譯, 東華書局, 2015
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： % ◆ Mark of Usual：40.0 % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 30.0 % ◆ 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 . **※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**