

Tamkang University Academic Year 112, 2nd Semester Course Syllabus

Course Title	MICROPROCESSORS	Instructor	WU, CHYAN-CHYI
Course Class	TEBXM1A MASTER'S PROGRAM, DEPARTMENT OF MECHANICAL AND ELECTRO-MECHANICAL ENGINEERING, 1A	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG4 Quality education SDG9 Industry, Innovation, and Infrastructure SDG12 Responsible consumption and production		
D e p a r t m e n t a l A i m o f E d u c a t i o n			
I. To prepare students who have a comprehensive understanding of the principles of applied sciences and engineering to be innovators in the field of mechanical and electromechanical engineering. II. To train emerging professionals who possess a high level of expertise and ethical standards who will become independent research and development leaders in the industry. III. To motivate students who will pursue continuing education as a means to stay on the cutting edge of global competitiveness and meet changes in their careers and the workplace with confidence and ease.			
Subject Departmental core competences			
A. Head: Knowledge of mechanical and electromechanical engineering.(ratio:40.00) B. Hand: Hands-on skills and practical realization.(ratio:30.00) C. Heart: Love of learning and innovation.(ratio:15.00) D. Eye: Vision of progress and improvements.(ratio:15.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:15.00) 2. Information literacy. (ratio:30.00) 3. A vision for the future. (ratio:5.00) 4. Moral integrity. (ratio:5.00) 5. Independent thinking. (ratio:30.00) 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 introduces fundamental principles and hardware configurations. This course focus on the practice implementation and related applications of the microprocessors.
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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	Students may learn of principles of microprocesors	Cognitive
2	Students may learn of interface techniques of microprocessors	Cognitive
3	Students may design microprocessor-based systems	Psychomotor
4	Students may design the interface circuits of the microprocessors	Psychomotor
5	Enhancing students' ability to read technical English especially in the realm of electric circuits	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	AD	125	Lecture, Discussion	Study Assignments
2	ABC	2356	Lecture, Practicum	Study Assignments
3	ABCD	123578	Lecture, Practicum	Study Assignments
4	ABCD	23568	Lecture, Practicum	Study Assignments, Report(including oral and written)
5	CD	134568	Lecture, Practicum	Study Assignments

Course Schedule			
Week	Date	Course Contents	Note
1	113/02/19 ~ 113/02/25	Introduction, 8051 hardware	
2	113/02/26 ~ 113/03/03	C language	
3	113/03/04 ~ 113/03/10	Assembly language	
4	113/03/11 ~ 113/03/17	Assembly language	
5	113/03/18 ~ 113/03/24	Interrupts	
6	113/03/25 ~ 113/03/31	Timer/counters	
7	113/04/01 ~ 113/04/07	Serial port, external memory, external IO	
8	113/04/08 ~ 113/04/14	Serial port, external memory, external IO	
9	113/04/15 ~ 113/04/21	ADC, DAC	
10	113/04/22 ~ 113/04/28	ADC, DAC	
11	113/04/29 ~ 113/05/05	期中考	
12	113/05/06 ~ 113/05/12	8255 interface	
13	113/05/13 ~ 113/05/19	HCTL 1010 encoder interface	
14	113/05/20 ~ 113/05/26	PLD devices	
15	113/05/27 ~ 113/06/02	Power electronics control	
16	113/06/03 ~ 113/06/09	Step motor drive design	
17	113/06/10 ~ 113/06/16	期末考	
18	113/06/17 ~ 113/06/23	教師彈性補充教學： 實作分組報告	
Key capabilities		self-directed learning Information Technology Problem solving Interdisciplinary	
Interdisciplinary		STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist)	

Distinctive teaching	Project implementation course
Course Content	Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking AI application
Requirement	本課程重實作，須編寫程式。
Textbooks and Teaching Materials	Self-made teaching materials:Presentations, Handouts Using teaching materials from other writers:Textbooks
References	林伸茂，8051單晶片徹底研究實習篇，旗標
Grading Policy	◆ Attendance : % ◆ Mark of Usual : 20.0 % ◆ Midterm Exam : 30.0 % ◆ Final Exam : 30.0 % ◆ Other 〈期末專題〉 : 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.