Lecture

<table>
<tr><td>Module designation</td><td colspan="3">CE432 Microprocessor System</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td colspan="3">4</td></tr>
<tr><td>Person responsible for the module</td><td colspan="3">Dareen Kusuma Halim</td></tr>
<tr><td>Language</td><td colspan="3">English & Indonesian</td></tr>
<tr><td>Relation to curriculum</td><td colspan="3">Compulsory</td></tr>
<tr><td>Teaching methods</td><td colspan="3">Lecture</td></tr>
<tr><td>Workload (incl. contact hours, self-study hours)</td><td colspan="3">Total workload: 90.72 hours
- 23.34 hours of synchronous lecture.
- 56.04 hours of self-study and assignments in the form of essays.
- 11.34 hours related to exam and self study</td></tr>
<tr><td>Credit points</td><td colspan="3">2 SKS (3.36 ECTS)</td></tr>
<tr><td>Required and recommended prerequisites for joining the module</td><td colspan="3">Required:
- CE332 Computer Architecture & Organization</td></tr>
<tr><td rowspan="3">Module objectives/intended learning outcomes</td><td rowspan="2">Course Learning outcome</td><td colspan="2">Related ELOs</td></tr>
<tr><td>ELO</td><td>Performance Indicator</td></tr>
<tr><td>Students are able to analyze the working principle of components in the microprocessor system (8051)</td><td>G</td><td>Understand the concept of electronics, analog systems, and digital systems in designing embedded systems.</td></tr>
<tr><td>Students are able to evaluate programming structure in assembly language for microprocessor system (8051)</td><td>G</td><td>Understand the concept of electronics, analog systems, and digital systems in designing embedded systems.</td></tr>
<tr><td>Content</td><td colspan="3">This course teaches the organization, architecture, design, and application of microprocessor systems. It includes registers, addressing, bus structure, memory, I/O interfacing, as well as hardware related techniques and assembly programming language.
Specifically, this course contain these topics:
1. Definition and applications of microprocessor systems
2. History and organization of the 8051 microcontroller family
3. JUMP, LOOP, and CALL instructions
4. I/O port programming</td></tr>
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	5. Addressing modes 6. Arithmetic instructions 7. Logic instructions 8. Timer 9. Serial communication 10. Interrupt and Polling 11. External hardware interfacing and interrupt priority 12. Real-world applications of microprocessor and microcontroller systems
Examination forms	Written test
Study and examination requirements	Total score ≥ 55 must be satisfied. The total score is the weighted average of the assignments (30%), the midterm exam (30%), and the final exam (40%).
Reading list	1. M Ali Mazidi. 2013. The 8051 Microcontroller and Embedded System Using Assembly and C 2nd Edition, Pearson

Lab

Module designation	CE432L Microprocessor System Lab		
Semester(s) in which the module is taught	4		
Person responsible for the module	Dareen Kusuma Halim		
Language	English & Indonesian		
Relation to curriculum	Compulsory		
Teaching methods	Demonstration		
Workload (incl. contact hours, self-study hours)	Total workload: 45.36 hours - 23.35 hours of lab module (and in-class assistance) and group project - 16.34 hours of self-lab and assignments - 5.67 hours related to exam and self study		
Credit points	1 SKS (1.68 ECTS)		
Required and recommended prerequisites for joining the module	Required: - CE332 Computer Architecture & Organization		
Module objectives/intended learning outcomes	**Course Learning outcome**	**Related ELOs**	
		ELO	**Performance Indicator**
	Students are able to evaluate the working principle of microprocessor system (8051)	J	Understand the principles of computer system elements and their inner

			workings to solve engineering problems.
Content	This course teaches hands-on programming in assembly language for the 8051 microcontroller family through guided / incremental, simple problems that can be solved with the written programs. Specifically, this course contains these topics: 1. Programming in microprocessor systems 2. Assembly language directives 3. JUMP, LOOP, and CALL instructions 4. I/O port programming 5. Addressing modes 6. Arithmetic instructions 7. Logic instructions 8. Timer 9. Serial communication 10. Interrupt and Polling 11. External hardware interfacing and interrupt priority 12. Real-world applications of microprocessor and microcontroller systems		
Examination forms	Project		
Study and examination requirements	Total score ≥ 55 must be satisfied. The total score is the weighted average of the assignments (30%), the midterm exam (30%), and the final exam (40%).		
Reading list	1. M Ali Mazidi. 2013. The 8051 Microcontroller and Embedded System Using Assembly and C 2nd Edition, Pearson		