

**FAKULTI KEJURUTERAAN ELEKTRIK  
UNIVERSITI TEKNOLOGI MALAYSIA  
SEMESTER 1 2012/2013  
MICROPROCESSOR - SEE3223**

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**Objective**

This course introduces the principles and applications of microprocessors. Topics emphasized are processor architecture, assembly language and fundamentals of interfacing in a microprocessor-based embedded system

**Synopsis**

This course emphasizes on the following:

1. Understanding the fundamentals of microprocessor operation
2. Writing coherent and error-free assembly language programs
3. Designing basic interfacing circuits

**Course outcomes:**

At the end of the course the students should be able to:

- CO1 Describe and differentiate all the component of microprocessor-based systems.
- CO2 Analyze and design AVR ATmega32 assembly language programs.
- CO3 Analyze and design AVR ATmega32 based microcontroller systems.
- CO4 Work with AVR Studio and communicate effectively in a team to solve complex ATMEGA32 design problems.

**Mapping of CO to PO1-P10, emphasis and assessment method**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	1,a									
CO2			1,a							
CO3			1,a		2,a					
CO4				1,b	1,b	2,b	3,c			

1 = strong emphasis, 2 = medium emphasis, 3 = low emphasis

a = examinations, tests, quizzes; b = assignment, report; c = group presentation, laboratory, seminar;  
d=thesis

**Assessments**

Tests (4 units, best of 3 out of 4)	30%
Group assignment	20%
Final exam	50%

**Course Contents**

<b>Week</b>
<b>Week 1:</b> Introduction to Embedded Systems
<b>Week 2:</b> Introduction to AVR Architecture
<b>Week 3:</b> Addressing Mode
<b>Week 4:</b> Assembly Language Programming
<b>Week 5:</b> Arithmetic and Logic Instructions
<b>Week 6:</b> Shift and Rotate Instructions
<b>Week 7 :</b> Program Control Instructions
<b>Week 8:</b> Stacks & Subroutines
<b>Week 9:</b> System Integration and Planning
<b>Week 10:</b> General Purpose Input Output
<b>Week 11 :</b> Interrupts & Exceptions
<b>Week 12:</b> Timer/Pulse Width Modulation
<b>Week 13:</b> Analog to Digital Conversion
<b>Week 14:</b> Case Study and Review

**Prepared by:**

**Certified by:**

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Mr. Kamal Khalil  
(Course coordinator)

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Date: 10 September 2012

Date: