

**LE 350 Microprocessor****Credits:3(3-0) Major Course  
Second Semester****Lecture:** Assistant Professor Narong Buabthong

Office Hours: 1.00 - 4.00pm Monday, Engineering Building Room 611

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**Course Prerequisite:** *Junior Student***Course Aims & Objectives:**

To train the students to be familiar with the software, hardware of microprocessors and peripheral interface so that they can gain enough experiences and techniques to meet the demand and the trend of the microprocessor era. The purposes of this course are :

1. To understand the concept of microprocessor, microcomputer and microcontroller.
2. To understand the basic operation of microprocessor architectures.
3. To understand how microprocessor work.
4. To understand the concept of the memory system.
5. To understand the basic operation of peripheral devices and the method of controlling them.
6. To understand how to design microprocessor systems and the application of interfacing circuits.

**Course Description:**

Introduction to microprocessors .CPU architecture. Instruction set. Assembly language programming techniques. Interrupts processing. CPU system architecture. Memory interface. Input/output interface using parallel ports. Serial communications. A/D and D/A conversions. Introduction to microcontroller and microprocessor application.

**Schedule**

Week 1	Introduction to Microprocessor and Microcontroller
Week 2	Instruction set
Week 3	Assembly Language
Week 4-5	C Language for microcontroller
Week 6	<i>Midterm Examination</i>
Week 7	Interrupts & DMA
Week 8	Memory Interface
Week 9	Interfacing I/O Devices
Week 10	Serial I/O and Data Communication
Week 11	D/A, A/D Conversions
Week 12 -13	Advanced Microprocessor Systems
Week 14 -15	Microprocessor projects
Week 16	<i>Final Examination</i>

**Related Courses:** LE351 Microprocessor Laboratory**Textbook and References of interest :**

1. Narong Buabthong, Microprocessor sheet
2. Ramesh Gaonkar, "The Z80 Microprocessor," Macmillan, 1993
3. Charles M. Gilmore, "Microprocessors," McGraw-Hill, 2nd Edition
4. Douglas V. Hall, "Microprocessors And Interfacing," McGraw-Hill, 2nd Edition
5. James W. Stewart, "The 8051 microcontroller hardware software and interfacing," Prentice hall, 1993.
6. Jonathan W. Valvano, "Embedded Microcomputer Systems motorola 6811 and 6812 simulation", Thomson, 2003.
7. Barry Brey, "The Intel Microprocessors: 8086/8088, 80186, 80286, 80386, 80486, Pentium and Pentium Pro Architecture, Programming and Interfacing," Fourth Edition, Merrill, 1997.

**Evaluation:**

1. Attendance & Assignment	10 %
2. Midterm examination	40 %
2. Final examination	40 %
3. Projects	10 %

**Class Room :** 310**Major Facilities:**