

COURSE SYLLABUS
Microprocessor Systems EET: 253
Fall 2006

Class meetings: MW 02:30 p.m. – 4:25 p.m.
Rooms: Whalin 306 (lecture) & Whalin 403 (laboratory)

Credit Hours: Three (3) semester hours.
Prerequisites: EET 252

Instructor:	Dr. Ray Richardson
Phone:	859-622-1200
E-mail:	ray.richardson@eku.edu
Office:	Whalin 327
Office hours:	To Be Announced

Textbook: None
Lab Manual: Handouts

COURSE DESCRIPTION

The operation and application of the microprocessor in desktop and process control systems. Data, address, and control signals; memory expansion; digital and analog input and output ports; power control interface; and data communications are covered in the laboratory.

COURSE OBJECTIVES

Upon completion of EET 253 the student should be able to:

- A. Demonstrate an understanding of the fundamentals for a microprocessor-based system.
- B. Explain the use of RAM, ROM, and other memories in a system
- C. Explain the use of the primary busses in a microprocessor-based system
- D. Examine the memory and I/O map of a system and determine the appropriate expansion address assignments.
- E. Design and build address decoders.
- F. Explain the operation of discrete I/O devices in a microprocessor-based system
- G. Read and understand the specifications for programmable I/O ports.
- H. Design circuitry needed to add a programmable, parallel port to a system.
- I. Design circuitry needed to add analog I/O port to a system.
- J. Construct and test I/O circuits.
- K. Describe the operation of and build signal-conditioning circuits necessary for interfacing.
- L. Be able to perform closed-loop operations with the microcomputer.

COURSE OUTLINE:

1. Number systems, codes, and digital devices.
2. A microcomputer block diagram
3. The microprocessor task
4. Instruction execution
5. Timing diagrams
6. Address mapping
7. Address decoders: discrete and programmable
8. Simple I/O ports
9. Programmable I/O ports
10. Analog I/O ports
11. Communications: serial and parallel
12. Parallel communications
13. Interfacing and related I/O

COURSE REQUIREMENTS:

Students are expected to:

- Attend each lecture and laboratory session.
- Complete all reading and laboratory assignments on time.
- Complete all examinations.

EVALUATION:

Students will be evaluated by the following point total *estimates*:

Exam I	100
Exam II	100
Final Exam	150
Homework and/or Quizzes	50
Lab Assignments	200
Project	100
Attendance and Professional Evaluation	50

Total Points:	750

Exams

Test questions may be taken from any material covered in class, from any reading assignments, and from laboratory assignments. The final examination will be comprehensive.

Quizzes & Homework

There may be unannounced quizzes at any time during the class period. Homework may be assigned at any time.

Laboratory Assignments

There will be approximately 10 laboratory assignments. Laboratory assignments are due two weeks after they are distributed unless the instructor grants an extension.

Project

Students will be required to build an interfacing project utilizing the I/O capacity of the microprocessors used in laboratory. Details regarding this project will be distributed later in the semester.

Attendance and Professional Evaluation

Please refer to the attendance policy for explanation.

GRADES:

100%-90%	= A
89.9%-80%	= B
79.9%-70%	= C
69.9%-60%	= D
59.9%-0%	= F

Mid-term grades would be available through Banner for the students who wish to know their grades from the class for the first half of the semester.

ATTENDANCE POLICY:

- This class has a significant laboratory requirement. Regular attendance of this class is necessary to receive a passing grade.
- Should you need to miss a class due to an excused absence, please let the instructor know as far in advance as possible, in writing, of your absence. All materials due during the excused absence will have to be submitted before the absence to avoid late penalties. All assignments turned in late due to any absence will be penalized as late.
- If a student misses a class it is their responsibility to obtain all notes and missed assignments from their fellow students.
- There will be no makeup exams for students with unexcused absences.

- After the second unexcused absence, each unexcused absence will cause one percent deduction from the "Attendance and Professional Evaluation" evaluation.
- Five (5), or more unexcused absences may result in the lowering of one letter grade.
- Your grade will be an automatic F if you have more than Ten (10) unexcused absences.
- Late arriving to the class and leaving early results in a student missing important information as well as causing disruption to other class members. Therefore, frequent late arrivals or unexplained leaving early will be treated as unexcused absences when determining final course grades.

POLICY ON LATE ASSIGNMENTS:

In the "real world" late work will cost you your wages and ultimately your job. In this class, any assignment turned in late (without prior arrangement) will result in a lower grade, Ten Percent (10%) per school day. NOTE: Monday, Tuesday, Wednesday, Thursday, and Friday are all school days.

ACADEMIC HONESTY

Cheating will not be tolerated and will be dealt with decisively.

CELL PHONES

Cellular phones should be off or on silent ring during class in order to keep classroom distractions at a minimum. However, the instructor may give approval for phone uses in special circumstances (family illness, etc.).

DISABILITY STATEMENT

If you are registered with the Office of Services for Individuals with Disabilities, please make an appointment with the course instructor to discuss any academic accommodations you need. If you need academic accommodations and are not registered with the Office of Services for Individuals with Disabilities, please contact the office on the third floor of the Student Services Building, by email at disabilities@eku.edu or by telephone at (859) 622-2933 V/TDD. Upon individual request, this syllabus can be made available in alternative forms.

HARDWARE LIST

You will need many of the components found in your parts kit from EET 252 (Digital Electronics) course. Additional parts required for the I/O laboratory assignments and the project will need to be purchased by the student.