

COCONINO COMMUNITY COLLEGE

COURSE OUTLINE

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Effective Term: Fall 2020

A. **Identification:**

1. Subject Area: Engineering (EGR)
2. Course: 215
3. Course Title: Microprocessors
4. Credit Hours: 4
5. Catalog Description: Pre-requisites: EGR 122, EGR 110. Pre or Co-requisites CIS 215 or CIS 220, and MAT 220 (Calc I). Theory, design, and applications of microprocessors and microprocessor-based computers and systems; programming techniques for microcomputers; commercial microprocessors and semiconductor memory systems. 3 lecture, 3 lab. Letter grade only.

B. **Course Goals:**

Provide foundational learning in microprocessor architecture and functions. Builds on previous digital logic and circuit analysis courses. Students acquire an understanding of the arithmetic logic unit (ALU), Assembly language commands, and their effect on hardware.

C. **Course Outcomes:**

Students will be able to:

1. Explain basic functioning of micro-processor components and fetch/execute cycle.
2. Create and write assembly language programs to solve algorithms with the understanding what the effect is in the microprocessor hardware.
3. Develop C programs to use microprocessor input/output and peripherals.
4. Find relevant information in manufacturer data sheets.
5. Identify microprocessor architecture components and explain functions of each one.

D: **Course Outcomes Assessment:**

Must include:

Exams, homework assignments, and lab/project reports.

E. **Course Content:**

Will include:

1. Register transfer logic, ALU design, instruction cycle
2. Assembler directives and simple instructions
3. Addressing modes, status register, conditional branch
4. Microprocessor architecture
5. C coding, Subroutines, ADC
6. Sampling, LCD displays
7. Interrupts, low power modes
8. Peripherals and Communications: SPI, I2C, UART, memory.