

**Course Objectives/Course Outline  
Spokane Community College**

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**Course Title: Microcontrollers and Embedded Systems**  
**Prefix and Course Number: ELECT 233**

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**Course Learning Outcomes:**

**By the end of this course, a student should be able to:**

- Use proper microprocessor and DSP terminology
- State the characteristics of Microprocessor & DSP circuits
- Explain microprocessor and & DSP regulatory requirements
- Know basic AD/DA conversion techniques
- Calculate bandwidth for digital signals
- Explain basics of signal and line encoding
- Demonstrate basic troubleshooting techniques for microprocessor & DSP circuits

**Course Outline:**

- I. Course Overview
- II. Personal Safety
- III. Microprocessors
  - A. Architecture
  - B. Addressing Modes
  - C. ALU
  - D. Program Control
  - E. Memory Interface
  - F. Basic I/O
  - G. Interrupts
  - H. Troubleshooting
- IV. Digital Signal Processing for Communications
  - A. Filtering
  - B. Signal Sampling – AD/DAC
  - C. Bandwidth Characteristics
  - D. Signal Transmission Techniques
  - E. Troubleshooting
- V. Regulatory Requirements