

**University of Arkansas - Fort Smith**  
**5210 Grand Avenue**  
**P. O. Box 3649**  
**Fort Smith, AR 72913-3649**  
**479-788-7000**

**General Syllabus**

**AMST 14504 Computer Numerical Control (CNC) I**

**Credit Hours:** 4      **Lecture Hours:** 2      **Laboratory or other types of Hours:** 4

**Prerequisite(s):** AMST 15504 Computer Numerical Control (CNC) II

**Effective Catalog:** 2021-2022

**I. Course Information**

**A. Catalog Description**

Designed to introduce Computer Numerical Control methods of the machine industry. Fundamentals include the Cartesian rectangular coordinate system, part programming using both absolute and incremental methods.

**II. Student Learning Outcomes**

**A. Subject Matter**

Upon successful completion of this course, the student will be able to:

1. Comply with required safety rules when operating in a machine shop environment, including the use of personal safety protection.
2. Read and interpret machine blueprints.
3. Write and edit Computer Numerical Control programs manually
4. Use the Cartesian Rectangular Coordinate System to write all Computer Numerical Control programs.
5. Set up and operate a Computer Numerical Control milling machine.
6. Set the absolute position preset.
7. Transfer programs to and from the Computer Numerical Control machine.
8. Solve machine alerts.

**B. University Learning Outcomes**

**This course enhances student abilities in the following areas:**

**Analytical Skills**

**Critical Thinking Skills:** Students will create and edit Computer Numerical Control programs using linear interpolation, feed rate, spindle speed and absolute programming.

**Ethical Decision Making**

Students will identify implications of producing and allowing defective components to be used.

**III. Major Course Topics**

- A. Safety
- B. Power Up and Power Down Sequence
- C. Pendant Module
- D. Control Operating States
- E. Word Descriptions (G Codes)
- F. Job Preparation - Manual Operate, Machine Home, Manual Data Input, Jog Incremental
- G. Job Set-Up – Block Delete, Tool and Fixture Offsets
- H. Program Editing
- I. Program Execution