# COURSE SYLLABUS

<table>
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<tr>
<th><strong>Course Title:</strong></th>
<th>Manufacturing Machinery: CNC II</th>
<th><strong>Date submitted:</strong></th>
<th>May 2019 (AAC: 19-25)</th>
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<tbody>
<tr>
<td><strong>Department:</strong></td>
<td>Advanced Manufacturing Technology</td>
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<tr>
<td><strong>Curriculum:</strong></td>
<td>Technology Studies</td>
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## Course Code: (eg. ACC 101)

<table>
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<tr>
<th>Course Code</th>
<th>MFG*256</th>
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## Prerequisites:

CNC I - (MFG*168)

## Course Descriptors:

Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.

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<th><strong>Course Type:</strong></th>
<th>X</th>
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<td><strong>Elective Type:</strong></td>
<td>G</td>
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### Credit Hours:

- Lecture: 3
- Lab: 3
- Total: 6

### Other Requirements:

- Class Maximum: 24
- Semesters Offered: Fall, Spring

### Catalog Course Description:

Manufacturing Machinery: CNC II is the second course in CNC programming. A further study of CNC programming for the Lathe and Vertical Machining Center. Topics include setup and tooling, programming simple parts, canned drilling cycles, circular interpolation, special milling cycles, cutter compensation, looping and macros, and special features.

### Topical Outline:

**INSTRUCTIONAL UNITS:**

1. Trigonometry
2. Programming a CNC Lathe
3. Programming a CNC Vertical Machining Center
4. Circular Interpolation
5. Drilling canned cycles
6. Programming with a Fanuc Controlled VMC
7. Cutter diameter compensation
8. Looping
9. Macros

LABORATORIES:
1. Programming a CNC Lathe
2. Programming a CNC Vertical Machining Center
3. Programming Circular Interpolation
4. Programming Drilling canned cycles
5. Programming Cutter diameter compensation
6. Programming Looping
7. Programming Macros
8. Programming (3) projects

Upon successful completion of this course, the student will be able to do the following:
1. Establish Points of Origin
2. Set Tool Length Offsets
3. Safely operate a CNC Lathe and a CNC Vertical Machining Center
4. Program simple parts for a “Conversational” lathe control
5. Program simple parts in “G-Code” for a CNC VMC
6. Program canned drilling cycles
7. Program circular interpolation
8. Program cutter compensation
9. Program looping and macros
10. Program a Fanuc Controlled VMC
11. Use Mastercam Mill 2D to program parts

PROGRAM: *Electronics Technology Certificate and A.S. Degree*
1. Demonstrate an understanding of Shop Safety.

2. Demonstrate an understanding the theory of electrical structure, voltage, current, resistance, and electrical circuit and their measurement.

3. Demonstrate an understanding of the basic laws of arithmetic.

4. Demonstrate an understanding of several number systems and codes that are the foundation of digital theory and digital applications.

5. Make comparisons with personal computers; as well as, develop an understanding of its origin and growth since conception.

6. Demonstrate an understanding of the fundamentals of Automated Manufacturing systems.

GENERAL EDUCATION: *(Numbering reflects General Education Outcomes as they appear in the college catalog)*
No General Education outcomes.
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<th>Evaluation:</th>
<th>Assessment will be based on the following criteria:</th>
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<tbody>
<tr>
<td></td>
<td>1. Quizzes</td>
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<td>2. Lab Projects</td>
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<th>Instructional Resources:</th>
<th>Required: Manufacturing lab with CNC machines and accessories.</th>
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<td>Desired: None</td>
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| Textbook(s)               | Programmers manual for CNC machine – determined by brand.     |