

SYLLABUS

DIVISION: Business and Engineering Technology

REVISED: Spring 2014

CURRICULA IN WHICH COURSE IS TAUGHT: Precision Machining Technology

COURSE NUMBER AND TITLE: MAC 150 – Introduction to Computer-Aided Manufacturing

CREDIT HOURS: 3 **HOURS/WK LEC:** 2 **HOURS/WK LAB:** 3 **LEC/LAB COMB:** 5

I. CATALOG DESCRIPTION:

- Introduces computer aided manufacturing (CAM) with emphasis on programming of numerical control machinery.
- Teaches program writing procedures using proper language and logic and Feature-CAM programming software to produce numerical control code for machines.
- Teaches basic computer usage, 2 1/2-D and 3-D CAD-CAM integration, and code-to-machine transfer.

II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES:

- This course is intended to develop a basic knowledge of computer aided manufacturing with emphasis on generating G and M code programs for CNC milling centers.
- Code generation and transfer to the machine tool and the hardware necessary to perform the task.

III. REQUIRED BACKGROUND/PREREQUISITES:

- MAC 122, MAC 222

IV. COURSE CONTENT:

- A. Windows Operation
- B. SolidWorks Modeling
 1. Basic part models
 2. Preparing file for export
- C. Feature-CAM Software
 1. Importing files
 2. Tool cribs
 3. Stock
 4. Geometry
 5. Curves
 6. Features
 7. Tool paths
 8. Post-processors and CNC code generation
- D. CNC Code Transfer
- E. Zoller Tool Pre-setter
 1. Pilot software
 2. Machine setup and operation
 3. Tool data transfer

V. THE FOLLOWING GENERAL EDUCATION OBJECTIVES WILL BE ADDRESSED IN THIS COURSE (Place X by all that apply)

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| <input checked="" type="checkbox"/> Communications | <input type="checkbox"/> Personal Development |
| <input checked="" type="checkbox"/> Critical Thinking | <input checked="" type="checkbox"/> Quantitative Reasoning |
| <input type="checkbox"/> Cultural & Social Understanding | <input type="checkbox"/> Scientific Reasoning |
| <input checked="" type="checkbox"/> Information Literacy | |

VI. LEARNER OUTCOMES

VII. EVALUATION

<p>Learner outcome</p> <ul style="list-style-type: none"> • Shall understand basic Windows operations including opening software applications and file management. 	<p>Evaluation method</p> <p>Lab exercises In class assignments</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> • Demonstrate ability to create basic solid models using SolidWorks and prepare files for export to CAD-CAM software. 	<p>Evaluation method</p> <p>Lab exercises In class assignments Written tests</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> • Demonstrate the knowledge of Feature-CAM to import solid models, create tool cribs, setup stock, create part geometry including curves and features, generate tool paths, and manipulate post processors for CNC code generation. 	<p>Evaluation method</p> <p>Lab exercises In class assignments Written tests</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> • Demonstrate the ability to transfer CNC code from computer stations to the machines using flash drives and network locations. 	<p>Evaluation method</p> <p>Lab exercises In class assignments Written tests</p>
<p>Learner outcome</p> <ul style="list-style-type: none"> • Demonstrate the knowledge the Zoller tool pre-setter and Pilot software including machine set-up and operation and tool data transfer to CNC machines. 	<p>Evaluation method</p> <p>Lab exercises In class assignments Written tests</p>

VIII. Over 90% of students will successfully complete this class.