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)

__X__ Communications   _____ Personal Development

__X__ Critical Thinking   __X___ Quantitative Reasoning

_____ Cultural & Social Understanding   _____ Scientific Reasoning

__X__ Information Literacy

VI. LEARNER OUTCOMES   ## VII. EVALUATION

Learner outcome	Evaluation method
• Shall understand basic Windows operations including opening software applications and file management.	Lab exercises In class assignments
Learner outcome • Demonstrate ability to create basic solid models using SolidWorks and prepare files for export to CAD-CAM software.	Evaluation method Lab exercises In class assignments Written tests
Learner outcome • 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.	Evaluation method Lab exercises In class assignments Written tests
Learner outcome • Demonstrate the ability to transfer CNC code from computer stations to the machines using flash drives and network locations.	Evaluation method Lab exercises In class assignments Written tests
Learner outcome • Demonstrate the knowledge the Zoller tool pre-setter and Pilot software including machine set-up and operation and tool data transfer to CNC machines.	Evaluation method Lab exercises In class assignments Written tests

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