SYLLABUS

REVISED 2012

CURRICULA IN WHICH COURSE IS TAUGHT: Precision Machining Technology
COURSE NUMBER/TITLE: MAC 128-01 Adv. CNC Programming, Lathe Cad-Cam
DIVISION: Business & Engineering Technologies

CREDIT HOURS: 3 HOURS/WEEK LECTURE: 2 HOURS/WEEK LAB: 0 LEC/LAB COMB: 2

I. CATALOG DESCRIPTION:

MAC 128 provides in-depth study of programming computerized numerical control machines using CAD-CAM software to generate the programming.

II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES IN WHICH IT IS TAUGHT:

This course teaches the use of a CAD-CAM software package that allows the computer to generate a CNC program directly from a drawing drawn into the software or DXF-ed into the software.

III. REQUIRED BACKGROUND:

MAC 101 and MAC 121 or the equivalents.

IV. COURSE CONTENT:

The following items will be covered in this course, though not necessarily in this order:

1. Creating a part file, or drawing in the system
2. Creating features of the part:
   a. turning
   b. facing
   c. boring
   d. parting
   e. drilling
   f. threading
   g. tapping
   h. grooving
3. Ordering operations
4. Part documentation
5. Creating NC code
6. Changing post processors and saving NC code
7. Saving the Feature Cam turn part program
8. Loading the program into simulators and executing a simulation of the part
9. Setting up the chuck, tooling and offsets to run a part
10. Loading the program into the HAAS lathe and running an actual part
11. Safety in using CNC lathes with CAD/CAM software.

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

___X____ Communications **___X____ Information Literacy**

___X____ Culture and Social Understanding

___X____ Critical Thinking **___X____ Scientific reasoning**

___X____ Quantitative Reasoning **___X____ Personal Development**

VI. LEARNER OUTCOMES

VII. EVALUATION

Learner outcome • Draw and DXF a part drawing into the computer using CAD-CAM software	**Evaluation method** • Lab exercises
Learner outcome • Create feature of the part and set the parameters of the software that select speeds and feeds for the various lathe tools such as turning, facing, boring, etc	**Evaluation method** • Lab exercises
Learner outcome • **Create, download and print out part documentation:** **a. manufacturing operation sheet** **b. tool list** **c. NC code**	**Evaluation method** • Lab exercises
Learner outcome • Set up and change the order of operations of the various machining features	**Evaluation method** • Lab exercises
Learner outcome • Pick out correct post processor for the HAAS lathe, save the NC code to a disk, and download the NC code to HAAS simulators and the HAAS CNC lathe.	**Evaluation method** • Lab exercises

VIII. Over 90% of our students complete our program.