Computer Aided Production Technology Certificate program

Curriculum Map						
Course	Demonstrate sufficient proficiency to apply for and obtain entry-level employment in the field of computer numerical control and computer aided production technology.	Create a steam or stirling engine that involves parts using both the mill and the lathe.	Create a portfolio which may include printouts of Mastercam or other Computer Aided Manufacturing program part file drawings, numerical code files and operation sheets.	Solve formulas by using unknowns and apply this knowledge to solve problems encountered in technological areas and various fields of engineering.	Compose written assignments on occupation safety in general industry.	Establish a systematic approach to recognizing the essential information given on a blueprint.
ENE-51 Blueprint Reading	I					D, M
Develop basic blueprint reading ability along with a better understanding of prints, specifications, etc., used to in the general field of all industry.						
Establish a systematic approach to recognizing the essential information given on a blueprint.	I					D, M
Create in the individual a confidence in the ability to approach and analyze even a complex print.	I					
ENE-60 Math for Engineering Technology	I			D, M		
Solve arithmetic problems dealing with addition, subtraction, multiplication and division that are typical to the industrial setting.	I			D, M		
Solve formulas by using unknowns and apply this knowledge to solve problems encountered in technological areas and various fields of engineering.				D, M		
Solve problems by use of a scientific calculator.						
MAN/MAC-55 Occupational Safety and Health Administration					I, D, M	
Locate and apply OSHA Safety and Health standards, policies and procedures for general industry.					I, D, M	
Utilize OSHA standards and regulations to supplement an ongoing safety and health program.						
Identify common violations of OSHA standards and propose abatement actions.						
Analyze the common causes of accidents and fatalities in hazardous areas of general industry.					I, D, M	
MAN/MAC-56 CNC Machine Set-up and Operation	I, D	I, D, M				D
Analyze engineering drawings for content necessary for the set-up and operation of CNC machine tools.		I, D, M				D

Select, set, and install tooling as indicated by the engineering drawings and the CNC program while assessing the program for accuracy and editing when necessary.	I, D				
Recognize CNC machine codes and terminology for computerized machining and manufacturing.					
Demonstrate appropriate precision measurement instrument use.	I, D				
Convert to and from Metric and U.S. customary; fractional and decimal fractional units.	I, D				
Electives choose from below					
MAN-52 Computer-Aided Manufacturing-Mastercam	I, D	I, D	I, D, M		
Program turning centers using MasterCam Computer Aided Machining software.	I, D	I, D	I, D, M		
Program milling machine operations using MasterCam Computer Aided Machining (CAM) software.	I, D	I, D	I, D, M		
Set up and operate machining programs on CNC controlled machining centers.					
Create simple parts using software and machining equipment.					
MAN/MAC-57 CNC Program Writing	I, D	I, D	I, D, M		
Perform calculations necessary to develop coordinate charts for part geometry.	I, D				
Use canned cycles correctly in programs for CNC machine tools.	I, D				
Use subroutine techniques correctly in programs for CNC machine tools.	I, D	I, D	I, D, M		
Analyze CNC programs written by others to determine machining sequences.	I, D				
MAN-59 Computer-Aided Manufacturing-GibbsCAM	I, D	I, D	I, D, M		
Program turning centers using GibbsCAM Computer Aided Machining software.	I, D	I, D	I, D, M		
Program milling machine operations using GibbsCAM Computer Aided Machining (CAM) software.	I, D	I, D	I, D, M		
Set up and operate machining programs on CNC controlled machining centers.					
Create simple parts using software and machining equipment.					

I=Introduced
D=Developed and Practed with feedback

M=Demonstrated at the Mastery Level Appropriate for Graduation