

# CNC MACHINING TECHNOLOGY ITC

This program provides training that prepares students to set up and operate both manual and CNC machining equipment, handle inspection devices, analyze production problems, and move into supervision of machining. Students obtain a background in manual machining, engineering graphics, computer aided machining (CAD/CAM/CNC), quality control, material handling and leadership skills. This program provides a balance between practical training in manufacturing processes and technical education in analysis, planning, and control with supporting emphasis in communications, mathematics, science, and business.

To prepare for entry into the program courses in metal or wood shop, mechanical drawing, English, mathematics, physics, and computers are strongly recommended. Activity in clubs or organizations which emphasize leadership skills is also recommended. There is an opportunity for students to work in industry for a specified time and receive college credit, or to convert work and life experience into college credit for this program. Those interested in such an opportunity are encouraged to contact their advisor for further details at the time of registration.

Entrance requirements for degree seeking students in the CNC Machining Technology program include:

- Aleks score in Math of 30 or higher, Writing Placement Exam of 2 or higher, or qualify for Math (PT) 137 and English 101.
- Enrollment priority will be given to students on the basis of student's advising date.

Upon completion of the CNC Machining Technology Intermediate Technical Certificate, the student will be able to demonstrate ability to:

- Knowledge of safety in work place and use of tools safely
- Material knowledge of metals and synthetics to relate to the machining process
- Machine cutting tools and their designed use including speeds and feeds
- Knowledge of work holding as it relates to machine shop equipment which include jigs and fixturing and correct machining order
- Ability to program, edit, setup, and operate CNC lathes and milling machines. Students will be able to produce a variety of parts from 2-D CAD files
- Able to create swept surfaces, ruled surfaces, projected surfaces, surfaces of revolution, and Coons surfaces
- Application of proper utilization of tool length libraries and tool step-over distances to produce 3-D parts within specified surface finish requirements
- Analysis and planning of manufacturing procedures in the development of a project plan, schedule and control of the project

## Intermediate Technical Certificate Requirements

Code	Title	Credits
<b>Technical Core</b>		
HRPT-184	DIVERSITY IN ORGANIZATIONS	3.00
or HRPT-185	HUMAN RELATIONS IN ORGANIZATIONS	
Select one of the following:		3.00-5.00
MTHPT-130	FINITE MATHEMATICS	
MTHPT-137	MATH FOR TECHNOLOGY	
MTHPT-153	STATISTICAL REASONING	
MATH-123	MATH IN MODERN SOCIETY	
MATH-130	FINITE MATHEMATICS	
MATH-147	PRECALCULUS (or MATH-147A & MATH-147B)	
MATH-153	STATISTICAL REASONING	
MATH-170	CALCULUS I	
MATH-253	STATISTICAL METHODS FOR THE SCIENCES	
MATH-257	MATHEMATICS FOR ELEMENTARY TEACHERS II	
<b>Program Requirements</b>		
Select 25 credits from the following:		25.00
AMFTI-110	MACHINING THEORY I	
AMFTI-112	MACHINING THEORY II	
AMFTI-121	INTRODUCTION TO CAD	
AMFTI-122	ENGINEERING GRAPHICS WITH AUTOCAD	
AMFTI-124	APPLIED BLUEPRINT READING	
AMFTI-141	MACHINING LAB I	
AMFTI-143	MACHINING LAB II	
AMFTI-145	INTRODUCTION TO NC AND CNC	

AMFTI-241	INTRODUCTORY CAD AND CAM	
AMFTI-243	ADVANCED CAD AND CAM	
AMFTI-245	CNC MACHINING PROCESSES	
AMFTI-261	QUALITY CONTROL	
AMFTI-263	PROJECT PLANNING	
AMFTI-265	MANUFACTURING PROJECT	
ENGTE-135	APPLIED PHYSICS	
Total Credits		31.00-33.00