

# CNC MACHINING TECHNOLOGY AAS

This program provides training that prepares students to set up and operate machining equipment, handle inspection devices, analyze production problems, and move into supervision of machining. Students obtain a strong background in machining, engineering graphics, computers (CAD/CAM/CNC), quality control/quality assurance, material handling and processing, and leadership skills. The program provides a balance between practical training in manufacturing processes and technical education in manufacturing 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 MTHPT-137 and ENGL-101.
- Enrollment priority will be given to students on the basis of student's advising date.

Upon completion of the CNC Machining Technology A.A.S. Degree, 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

## General Education Requirements

Code	Title	Credits
<b>Written Communication</b>		
ENGL-101	WRITING AND RHETORIC I	3.00
<b>Oral Communication</b>		
Select one of the following:		3.00
COMM-101	FUNDAMENTALS OF ORAL COMMUNICATION	
COMM-203	SMALL GROUP COMMUNICATION	
COMM-204	PUBLIC SPEAKING	
<b>Mathematical Ways of Knowing</b>		
MTHPT-137	MATH FOR TECHNOLOGY	4.00
<b>Social &amp; Behavioral Ways of Knowing</b>		
Select one of the following:		3.00
ANTH-102	CULTURAL ANTHROPOLOGY	
ANTH-120	WORLD PREHISTORY	
ANTH-170	INTRODUCTION TO NATIVE AMERICAN STUDIES	
ECON-201	PRINCIPLES OF MACROECONOMICS	
ECON-202	PRINCIPLES OF MICROECONOMICS	
GEOG-102	INTRODUCTION TO GEOGRAPHY	
HIST-101	WORLD HISTORY I	
HIST-102	WORLD HISTORY II	
HIST-111	UNITED STATES HISTORY I	
HIST-112	UNITED STATES HISTORY II	
HRPT-184	DIVERSITY IN ORGANIZATIONS	
HRPT-185	HUMAN RELATIONS IN ORGANIZATIONS	
POLS-101	AMERICAN NATIONAL GOVERNMENT	

POLS-237	INTERNATIONAL POLITICS
POLS-285	COMPARATIVE GOVERNMENT
PSYC-101	INTRODUCTION TO GENERAL PSYCHOLOGY
PSYC-205	LIFESPAN DEVELOPMENTAL PSYCHOLOGY
SOC-101	INTRODUCTION TO SOCIOLOGY
SOC-102	SOCIAL PROBLEMS
SS-184	DIVERSITY IN ORGANIZATIONS
SS-185	HUMAN RELATIONS IN ORGANIZATIONS

**Additional General Education Core**

Select one of the following: 3.00-5.00

ANTH-360	RACE AND ETHNICITY
ART-100	INTRODUCTION TO ART
BIOF-100	INTRODUCTION TO BIOINFORMATICS
BIOL-100	CONCEPTS OF BIOLOGY
BIOL-120	PLANTS AND PEOPLE
BIOL-123	BIOLOGY IN FILM
BIOL-175	HUMAN BIOLOGY
BIOL-227	HUMAN ANATOMY AND PHYSIOLOGY I
CHEM-100	CONCEPTS OF CHEMISTRY
CHEM-105	GENERAL, ORGANIC AND BIOCHEMISTRY
CHEM-111	PRINCIPLES OF CHEMISTRY I
CITPT-108	INTRODUCTION TO COMPUTER SCIENCE
COMM-345	INTERCULTURAL COMMUNICATION
CS-108	INTRODUCTION TO COMPUTER SCIENCE
ENGL-175	LITERATURE AND IDEAS
ENGL-257	WORLD CLASSICS
ENGL-258	INTERNATIONAL LITERATURE
ENGL-260	NATIVE AMERICAN LITERATURE
ENGL-261	MYTHOLOGIES
ENGL-474	NATIVE AMERICAN WRITTEN LITERATURE
FSCI-101	INTRODUCTION TO FORENSIC SCIENCE
GEOL-101	PHYSICAL GEOLOGY
GEOL-120	INTRODUCTION TO EARTH SYSTEMS
GIS-271	GEOGRAPHIC INFORMATION SYSTEMS
HUM-101	THE ART AND HISTORY OF THE MOTION PICTURE
HUM-150	INTRODUCTION TO THE ARTS
ID-240	INTEGRATED SCIENCE II
ID-300C	ETHICS AND IDENTITY
ID-301A	HELLS CANYON INSTITUTE
KIN-220	SOCIAL-CULTURAL ASPECTS OF SPORTS
MUS-101	SURVEY OF MUSIC
MUS-102	MUSIC IN AMERICA
MUS-150	WORLD MUSIC
MUS-151	HISTORY OF MUSICAL THEATER
MUS-152	HISTORY OF JAZZ AND POPULAR MUSIC STYLES
NP-101	NEZ PERCE LANGUAGE AND CULTURE
NP-102	NEZ PERCE LANGUAGE AND HISTORY
NS-140	INTEGRATED SCIENCE I
NS-150	INTRODUCTION TO NATURAL SCIENCES
NS-174	NATURAL SCIENCE FOR ELEMENTARY EDUCATOR
PHYS-111	GENERAL PHYSICS I
or PHYS-112	GENERAL PHYSICS II

PHYS-171	PHYS SCIENCES FOR ELEMENTARY EDUCATORS
PHYS-205	DESCRIPTIVE ASTRONOMY
PHYS-211	PHYSICS FOR SCIENTISTS AND ENGINEERS I
SPAN-101	ELEMENTARY SPANISH I
SPAN-102	ELEMENTARY SPANISH II
SPAN-201	INTERMEDIATE SPANISH I
SPAN-202	INTERMEDIATE SPANISH II
SS-184	DIVERSITY IN ORGANIZATIONS
SS-185	HUMAN RELATIONS IN ORGANIZATIONS
THEA-101	SURVEY OF THE THEATER

**Total Credits****16.00-18.00**

## Program Requirements

### Technical Core

Code	Title	Credits
AMFTI-110	MACHINING THEORY I	2.00
AMFTI-112	MACHINING THEORY II	2.00
AMFTI-122	ENGINEERING GRAPHICS WITH AUTOCAD	4.00
AMFTI-141	MACHINING LAB I	3.00
AMFTI-143	MACHINING LAB II	3.00
AMFTI-161	QUALITY CONTROL 1 METROLOGY	3.00
AMFTI-232	GD&T APPLICATION & INTERPRETATION	3.00
AMFTI-241	INTRODUCTORY CAD AND CAM	3.00
AMFTI-243	ADVANCED CAD AND CAM	3.00
AMFTI-245	CNC MACHINING PROCESSES	3.00
AMFTI-263	PROJECT PLANNING	3.00
AMFTI-265	MANUFACTURING PROJECT	6.00
ENGTE-106	DRAFTING FUNDAMENTALS	6.00
ENGTE-135	APPLIED PHYSICS	4.00

**Total Credits****48.00**

## Sequential Plan of Study

Course	Title	Credits
<b>First Year</b>		
<b>Fall</b>		
AMFTI-110	MACHINING THEORY I	2.00
AMFTI-112	MACHINING THEORY II	2.00
AMFTI-122	ENGINEERING GRAPHICS WITH AUTOCAD	4.00
ENGTE-106	DRAFTING FUNDAMENTALS	6.00
MTHPT-137	MATH FOR TECHNOLOGY	4.00
<b>Credits</b>		<b>18.00</b>
<b>Spring</b>		
AMFTI-141	MACHINING LAB I	3.00
AMFTI-143	MACHINING LAB II	3.00
AMFTI-161	QUALITY CONTROL 1 METROLOGY	3.00
CORE	Oral Communication	3.00
ENGTE-135	APPLIED PHYSICS	4.00
ENGL-101	WRITING AND RHETORIC I	3.00
<b>Credits</b>		<b>19.00</b>

**Second Year****Fall**

AMFTI-232	GD&T APPLICATION & INTERPRETATION	3.00
AMFTI-241	INTRODUCTORY CAD AND CAM	3.00
AMFTI-243	ADVANCED CAD AND CAM	3.00
AMFTI-245	CNC MACHINING PROCESSES	3.00
CORE	Additional General Education Course	3.00
CORE	Social & Behavioral Ways of Knowing	3.00
<b>Credits</b>		<b>18.00</b>

**Spring**

AMFTI-263	PROJECT PLANNING	3.00
AMFTI-265	MANUFACTURING PROJECT	6.00
<b>Credits</b>		<b>9.00</b>
<b>Total Credits</b>		<b>64.00</b>

Graduates from CNC Machining Technology (<https://www.careeronestop.org/toolkit/careers/occupations/Occupation-profile.aspx?keyword=Computer%20Numerically%20Controlled%20Machine%20Tool%20Programmers,%20Metal%20and%20Plastic&onetcode=51401200&ES=Y&EST=cnc+machining>) programs go on to obtain careers in a variety of fields:

- Manufacturing
- Millwright Positions
- Machining Center Positions
- Fluid Power Industry Positions
- CNC Programmer
- Process Engineer
- Machinist