AEROSPACE TECHNOLOGY COMPUTER NUMERICAL CONTROL (CNC) MILL OPERATION (BTC)

Basic Technical Certificate

Career-Technical Program
Interest Areas:
Manufacturing and Trades

This program prepares students for entry-level employment in the Aerospace manufacturing industries utilizing Computer Numerical Control (CNC) Mills. The curriculum will provide students with the fundamental skills necessary to setup and run CNC milling machines including setting work and cutter offsets, cutter and tool holder selection, speeds and feeds, the use of work holding fixtures and vises, handwork and inspection, along with the basics of G-code and an intro to Mastercam. The program will also provide students with an understanding of machining aircraft alloys and composites along with the basics of 5-axis and using a probe. Students will participate in a blended learning environment. Some courses are delivered in an online delivery format. Prospective students should have solid math skills and demonstrate mechanical aptitude. Computer and keyboarding skills are recommended.

Program Website (https://www.nic.edu/programs/viewprogram.aspx?program_id=96)

Program Requirements

Code	Title	Credits
AERO-110	Safety/OSHA	1
AERO-111	Blueprint Reading	2
AERO-141	Geometric Dimensioning and Tolerance	1
AERO-150	Computer Numerical Control (CNC) Mill Basics	2
AERO-152	CNC Mill Setup and Operation	3
AERO-153	Aerospace CNC Mill Operation	3
AERO-154	5-Axis Mill Setup and Operation	3
Total Credits		15

Course Key

GEM	WCHE	AAS Institutionally Designated	Gateway	Milestone

Program Outcomes

Upon completion of the program, students will be able to:

- Have a knowledge of the fundamental concepts in the Computer Numerical Control (CNC) milling process and demonstrate the skills necessary to enter the work force as an entry level Computer Numerical Control Mill Operator in the Aerospace Industry.
- Efficiently setup and run a Computer Numerical Control Mill.
- Be able to read and interpret blueprints.
- Understand basic terms and principles of Geometric Dimensioning and Tolerance and its applications.
- Read, interpret and edit Computer Numerical Control programs.
- Operate tools and equipment safely. This includes personal and shop safety standards related equipment use, and the handling storage of materials.
- Apply quality assurance techniques to Computer Numerical Control Mill process.
- Demonstrate an understanding of, and define and utilize Computer Numerical Control Mill and advanced manufacturing terminology/vocabulary.
- Consistently demonstrate precision manufacturing processes such as measuring, drilling, and cutting components.