AEROSPACE TECHNOLOGY ADVANCED MANUFACTURING (ATC)

Advanced Technical Certificate

Career-Technical Program
Interest Areas:
Manufacturing and Trades
Science, Tech., Engr. and Math

This program prepares students for entry-level employment in the aerospace technology manufacturing specifically pertaining to composite fabrication and repair, Quality Assurance methods, CNC machine operation, and non-destructive testing and inspection. The curriculum provides students with the knowledge and skills necessary to work in various phases of the aerospace advanced manufacturing field. Students receive hands-on working knowledge from a qualified instructor in a lab setting where the focus is on manufacturing fabrication, repair, quality assurance, and non-destructive testing methods used by the aerospace industry.

Gainful Employment Information (https://www.nic.edu/programs/ge/83-CC2/Gedt.html)

Program Website (https://www.nic.edu/programs/viewprogram.aspx?program_id=83)

Program Requirements

Course	Title	Credits
Semester 1		
AERO-110	Safety/OSHA	1
AERO-111	Blueprint Reading	2
AERO-120	Introduction to Composites	3
AERO-121	Composite Fabrication Methods/Applications	2
AERO-122	Composite Finish Trim	1
AERO-123	Composite Assembly	2
AERO-130	Disassembly and Damage Removal Techniques	1
Select one of the following:		3-5
MCTE-101	Technical Mathematics	
MCTE-103	Technical Mathematics for Aerospace Technology	
MCTE-105	Technical Mathematics for Machining and Computer Aided Design Technologies	
MCTE-106	Technical Mathematics for Industrial Mechanic/ Millwright; HVAC; Welding	
GEM 3 - A.A.S. Mathematical Ways of Knowing		
	Credits	15-17
Semester 2		
AERO-131	Composite Repair	2
AERO-133	Electrical Bonding Repair	1
AERO-142	Composite Inspection	1
AERO-143	Advanced Composite Repair	3
AERO-144	Basics of Quality Assurance	2
ECTE-100 or ENGL-101	Fundamentals for Writing or English Composition	
	Credits	9
Semester 3		
AERO-191	Visual Inspection	1
Aerospace Technology Advanced Manufacturing Electives		10
	Credits	11
Semester 4		
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
ATEC-117	Occupational Relations and Job Search	2
	Credits	14
	Total Credits	49-51

Aerospace Technology Advanced Manufacturing Electives

Code	Title	Credits
AERO-101	Aviation Science	3
AERO-160	Introduction to 3-D Printing	3
AERO-192	Liquid Penetrant	1
AERO-193	Magnetic Particle	2
AERO-194	Eddy Current	3
AERO-195	Ultrasonic	4
CADT-104M	CAD Graphics I - Mechanical Applications	2
CADT-106M	CAD Graphics II - Mechanical Applications	2
CADT-250	SolidWorks I	2
CADT-252	SolidWorks II	2
CADT-253	Industrial Processes	3
MACH-153	Precision Measuring	1
MACH-231	Computers in Machining	3

Course Key

GEM | WCHE | AAS Institutionally Designated | Gateway | Milestone

Program Outcomes

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

- Fabricate and repair composites using industry recognized techniques.
- Demonstrate the skills and knowledge necessary to work in an entry-level quality assurance position for the composite fabrication industry.
- Apply quality assurance techniques to composite processes.
- Demonstrate the skills and knowledge necessary to repair composites necessary to the aerospace industry.
- Use basic communication skills to meet the needs of the workplace.
- Have 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 CNC mill operator in the Aerospace Industry.
- Efficiently setup and run a CNC mill and write simple programs.
- Apply quality assurance techniques to CNC Mill process.

- Demonstrate the skills necessary to enter the work force as an entry level I NDTI.
- Demonstrate knowledge of METHOD theory and concepts, standards, equipment calibration and calibration standards, testing process and limitations, indication interpretation and evaluation, and data reporting.
- Have general knowledge of the historical, environmental, and ethical importance of proper NDTI execution.