ADVANCED MANUFACTURING: ENGINEERING AND CNC TECHNOLOGIES (AAS)

Associate of Applied Science

Career-Technical Program
The Advanced Manufacturing: Engineering and CNC Technologies program prepares students for entry level positions in the rapidly growing fields of CNC machining and computerized manufacturing. The curriculum emphasizes key areas such as basic machining practices, CNC operation, CAD/CAM systems, and geometric dimensioning and tolerancing (GDT). Students will learn to create 3D models as well as operate and program CNC machines and create and interpret blueprints. Additionally, the program covers advanced topics like multi-axis machining, giving students the skills needed to handle complex manufacturing processes.

Contact Information:
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Parker Technical Education Center
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Phone: (208) 769-3448
Program Website (https://www.nic.edu/programs/machining-and-cnc-technology/)

Course	Title	Credits
Semester 1		
MCTE-105	Technical Mathematics for Machining and Computer Aided Design Technologies	3
MDET-110	SolidWorks Basic	4
MDET-150	Machining Technology Theory I	4
MDET-151L	Machining Technology Lab I	5
	Credits	**16**
Semester 2		
MDET-115	Basic Mechanical Design	4
MDET-120	Intermediate SolidWorks	3
GEM 1 - A.A.S. Written Communication		3-4
GEM 3 - A.A.S. Mathematical Ways of Knowing		3-5
A.A.S. Institutionally Designated		3
	Credits	**16-19**
Semester 3		
COMM-101	Fundamentals of Oral Communication	3
MACH-234	Computers in Machining	2
MACH-253L	Computer Numerical Control Lab	5
MACH-283	Computer Numerical Control	5
	Credits	**15**
Semester 4		
MACH-274	Geometric Dimensioning and Tolerancing	3
MACH-284	Advanced Numerical Control	5
MACH-254L	Advanced Computer Numerical Control Lab	5
GEM 6 - A.A.S. Social and Behavioral Ways of Knowing		3
	Credits	**16**
	Total Credits	**63-66**

Course Key

GEM	AAS Institutionally Designated	Gateway	Milestone

1. Read, interpret, and apply various views, lines, symbols, terms, and abbreviations commonly found on blueprints to the American National Standards Institute (ANSI) standards.
2. Navigate CNC controls with confidence and create and utilize G-code to direct and manipulate CNC machine tool movements.
3. Demonstrate basic three-dimensional (3D) computer aided design (CAD) software commands to generate geometric constructs and toolpaths for CNC mill and lathe operations.
4. Analyze and apply tolerances for features on geometric dimensioning and tolerancing (GD&T) blueprints according to ASME Y14.5 standards.
5. Demonstrate basic three-dimensional (3D) Computer Aided Design (CAD) software commands, in a related pedagogical sequence to generate geometric constructs to create parametric feature-based geometry methodology for parts, assemblies, and drawings.
6. Interpret and apply American National Standards Institute (ANSI) standards to produce detailed working drawings used in contemporary manufacturing industries.