

COMPUTER CONTROL AUTOMATION TECHNOLOGY (ITC)

Interm Technical Certificate

Career-Technical Program

Interest Areas:

Manufacturing and Trades

This program prepares students for entry-level employment in the Computer Numerical Control (CNC) machining and computerized manufacturing industries. Emphasis is placed on CNC, CAD/CAM systems, and geometric dimensioning and tolerancing (GDT). The coursework includes blueprint reading, GDT, machine tool controls and code (G-Code) required to manipulate them, precision measuring equipment, and multi-axis machine tools.

Successful completion of each semester or permission of the instructor is required to continue into the next semester. Prospective students should have solid math skill and demonstrate mechanical aptitude. Computer and keyboarding skills are recommended. Placement in specific English and math classes are determined by college assessment tests.

Current industry professions may enroll in individual courses on a space-available basis and with the instructor's permission.

Contact Information:

**Trades & Industry Division
Parker Technical Education Center
7064 West Lancaster Road
Rathdrum, ID 83858
Phone: (208) 769-3448**

Program Website (<https://www.nic.edu/programs/machining-and-cnc-technology/>)

Program Requirements

| Course | Title | Credits |
|-------------------|--|-----------|
| Semester 1 | | |
| MACH-230 | Tools in Manufacturing | 1 |
| MACH-234 | Computers in Machining | 2 |
| MACH-253L | Computer Numerical Control Lab | 5 |
| MACH-273 | Blueprints in Manufacturing | 3 |
| MACH-283 | Computer Numerical Control | 5 |
| MCTE-105 | Technical Mathematics for Machining and Computer Aided Design Technologies | 3 |
| Credits | | 19 |
| Semester 2 | | |
| MACH-254L | Advanced Computer Numerical Control Lab | 5 |
| MACH-274 | Geometric Dimensioning and Tolerancing | 3 |
| MACH-284 | Advanced Numerical Control | 5 |
| ATEC-117 | Occupational Relations and Job Search | 2 |

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|--------------------------|---|-----------|
| ENGL-101 or ENGL-101P | Writing and Rhetoric I or Writing and Rhetoric I | 3 |
| Credits | | 18 |
| Total Credits | | 37 |

Course Key



GEM



AAS
Institutionally
Designated



Gateway



Milestone

Program Outcomes

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

1. Illustrate shop terms, language, and vocabulary to describe processes and methods as well as the machinery, their accessories and use.
2. Interpret various views, lines, symbols, terms, and abbreviations routinely used on blueprints in the manufacturing industry.
3. Demonstrate capable navigation of CNC machine controls as well as compose and employ machine code (G-Code) to dictate and manipulate CNC machine tool motion.
4. Analyze and interpret admissible feature tolerances provided on geometric dimension and tolerancing (GD&T) blueprints to Y14.5 American Society of Mechanical Engineers (ASME) Standards.
5. Produce 3D models and develop practical NC code applying CAD/CAM software to CNC lathe and CNC mill toolpaths.
6. Compare and employ complex CNC machine tools such as EDM, screw machines, 5-axis and mill-turn machines.