

Machining

Degree Type

Certificate of Completion

Associate of Technical Science Degree

WVC's Industrial Technology Machining program is designed to meet the needs of those entering or working in the machining industry. With advances in machine and computer technology, the machining industry is undergoing change and creating job opportunities for skilled employees.

The machining program will provide students with foundational machining skills and experiences using current machining technologies and techniques. A graduate of the program will be prepared for entry into the machining industry as a conventional (manual) or CNC (computer numerical control) machinist. Instruction covers conventional turning, milling and grinding, as well as basic programming, set up and operation of CNC machine tools. Other subjects include shop safety, reading engineering drawings, shop mathematics, machine tool theory, as well as lean manufacturing and other skills currently required by the machining/manufacturing industry. In addition, students will be required to complete a job shadowing experience and a program culmination capstone project.

This program offers a two-year associate of technical science degree as well as a certificate of completion in conventional (manual) machining that can be completed in one year. Both are designed to prepare students by integrating theory and practical applications for immediate employment in the machining industry.

To be eligible for the ATS degree or certificate, students must earn a grade of "C" (2.0) or better in all required program core courses and maintain a cumulative 2.0 grade point average.

Required Course Sequence:

Associate of Technical Science Degree (requires all first- and second-year courses)

Certificate of Completion (entire first year)

Offered at Wenatchee campus

Total Credits		90
Course Sequencing		

Year 1 - First Quarter

Course ID	Title	Credits
MACH 101	Introduction to Machining	5.0
MACH 133	Machining Fundamentals and Manual Machines	1.0-10

Year 1 - Second Quarter

Course ID	Title	Credits
MACH 199	CNC Operation, Setup and Programming	1.0-15

Year 1 - Third Quarter

Course ID	Title	Credits
MACH 266	CAM Programming and Introduction to Multiaxis	1.0-15

Total Credits for Certificate: 45

Year 2 - All Three Quarters

Required Support Courses for Associate of Technical Science Degree Credits

MATH 100T, MATH 98, or higher	5
OCED 102, ENGL 101, or higher	5
BCT 116, CMST 210, CMST220, or higher	3-5
CWE 196 Coop. Work Experience: Job Shadow	1
CWE 296 Coop. Work Experience: Practicum	3
Subtotal	17-19

[MATH 98](#), [MATH 100](#), [OCED 102](#), [ENGL& 101](#): Placement score required.

[WELD 128](#): Students may find it useful to take WELD 128 in winter quarter of the first year since it is a morning offering in winter and fall quarters.

Elective Support Courses of Associate of Technical Science Degree

Total Credits for ATS Degree: 90

Choose Emphasis categories below to complete the 90 credits required.

Emphasis on Welding

Course ID	Title	Credits
WELD 128	Basic Welding	3.0
WELD 131	Gas Welding	3.0
WELD 132	Arc Welding	3.0
WELD 134	Intermediate GTA Welding (TIG)	3.0
WELD 220	Welding Certification Prep Course	2.0

Emphasis on Fabrication

Course ID	Title	Credits
INDT 135	Metal Fabrication I	5.0
INDT 136	Metal Fabrication II	5.0
INDT 137	Metal Fabrication III	3.0

Emphasis on Computer Aided Drafting

Course ID	Title	Credits
ENGR 102	Interpreting Engineering Graphics	2.0
ENGR 105	Computer-Aided Design (CAD)	5.0
ENGR 106	Computer Aided Design: Solid Modeling	4.0

Emphasis on Computer Systems

Course ID	Title	Credits
CTS 110	Computer Hardware	5.0
CTS 115	Computer Software	5.0
CTS 120	Introduction to Networking	5.0

Emphasis on Industrial Maintenance

Course ID	Title	Credits
OCED 130	Industrial Safety	5.0
INDT 164	Plant Maintenance	5.0
ELEC 115	Applied Electricity	5.0
ELEC 125	Wiring Diagrams and Schematics	5.0
ELTRO 240	Industrial Hydraulics & Pneumatics	5.0

Emphasis on Entrepreneurship

Course ID	Title	Credits
BUS 230	Introduction to Entrepreneurship	5.0
BUS 240	Principles of Management	5.0
BUS 245	Small Business Management	5.0

Emphasis on Advanced Manufacturing

Special Projects - 15 Credits

Course ID	Title	Credits
MACH 288	Special Projects	1.0-15

Program outcomes

Upon successful completion of the Wenatchee Valley College Machining Associate of Technical Science Degree, the graduate will be able to:

- Practice safe and professional conduct required of a machinist.
- Accurately interpret engineering drawings.
- Calculate applied equations and formulas.
- Measure with precision.
- Properly manage documentation.
- Setup, program, operate, troubleshoot, and maintain machinery.
- Operate computers systems efficiently.

Upon completion of the WVC Machining Certificate a successful student should be able to:

- Maintain professional conduct required for a machinist.
- Use basic shop hand tools and layout accurately.
- Properly operate and read precision measuring instruments.
- Recognize dull or broken tooling and replace or sharpen when needed.
- Create detailed process plans.
- Operate manual machinery safely.
- Demonstrate a practical and technical math reasoning ability.

- Heat treat and check the properties of a piece of metal.
- Basic understanding of G-code programming.
- Read and interpret traditional and GD&T blueprints.
- Professionally communicate with coworkers and management.
- Be certified to operate a forklift.
- Handle, dispose of and/or safely use most hazardous and non-hazardous shop materials.
- Recognize, troubleshoot and rectify machine cutting problem.