

# MACHINING TECHNOLOGIES (AAS)

(91-97 credits)

## Program Description

Do you have a keen eye for detail? Do you like to work with your hands, use your creativity to solve challenging problems, and work with high-tech equipment? Get involved in the fast-paced and evolving industry of machining technology and learn to design, create, and refine products for leading industries around the world.

At SPSCC, our students are provided instructors with real-world experience and state-of-the-art Computer Numerical Control (CNC) equipment.

The certificate and degree program provides the knowledge and skills for students to design and create products for the manufacturing industry. Students will use MASTERCAM CAD/CAM software to operate multi-axis numerical control machines. Training will utilize manufacturing related math, industry blueprint reading, CAD geometry, CAM tool paths, precision measurement, machine setup and operation, and quality control procedures. Students can further pursue the creation of detailed industry standard blueprints from 3-D solid models, as well as work with metal processes.

## Career Opportunities

Completion of the Basic Machining Technologies certificate prepares students for entry-level work as a machinist and is aligned with Boeing's knowledge, skills, and abilities for precision machining. The AAS prepares students for advanced level work in this same field and may lead to a career as a CNC Operator, CAD/CAM Computer Programmer, or CNC service technician.

- Industrial Machinery Mechanic
- Machine Setter
- Machine Operator

## Additional Costs

Include textbooks plus approximately \$900.00 upon entry into the program for personal protective equipment, tools, and supplies. Please contact faculty to get a list of the items and the costs.

## Outcomes

South Puget Sound Community College believes that all students need to develop a broad range of abilities that will not only make them more effective in their professional pursuits but will enhance their capacity to relate well to others in their daily lives.

At the completion of the Machining Technologies Program, the successful student will be able to:

- Communicate with diverse audiences and in a variety of contexts, both orally and through writing, within the machining and manufacturing environment
- Identify, analyze, and synthesize relevant data and inputs within a machining and manufacturing environment and troubleshoot identified issues
- Select and safely operate appropriate tools, equipment, and software used in machining and manufacturing industries
- Demonstrate proficiency of quality control and process management systems utilized in machining and manufacturing
- Accurately use precision measurement methods and interpret information presented in spreadsheets, graphs, charts, and blueprints
- Identify and adapt to workplace, co-worker, and supervisor cultural differences to be an effective team member
- Demonstrate ethical, environmentally sustainable, and socially responsible work habits
- Recognize how machining fits within the whole of a manufacturing project

The SPSCC college-wide abilities are embedded into each program:

- Effective Communication
- Information Literacy
- Analytical Reasoning
- Multicultural Awareness
- Social Responsibility

## Courses by Quarter Courses by Quarter

Code	Title	Credits
<b>Quarter 1</b>		
Transition Studies		
<b>Quarter 2</b>		
MATH 101	Technical Mathematics I	5
ENGL 090 or ENGL 095	Integrated Reading and Writing I Integrated Reading and Writing II	5
CCS 101	Pathways to Success	3
<b>Quarter 3</b>		
CMT 100	Survey of Advanced Manufacturing	5
ENGL 098 or ENGL& 101	Transitional English Composition English Composition I	5
Select one of the following:		5
KINS 150	Intro to Adaptive Physical Activity: Diversity	
PSYC 116	Psychology of Human Relations: Diversity	
CMST& 210	Interpersonal Communication: Diversity	
CMST& 240	Intercultural Communication: Diversity	
HUM 121	Multicultural America: Diversity	
<b>Quarter 4</b>		
CMT 101	Introduction to Machining	5
CMT 102	Measurement, Materials and Safety	5
CMT 103	Print Reading for Machine Trades	3
<b>Quarter 5</b>		
CMT 105	Inspection/Quality Control	3
CMT 106	Fundamental of Machining	5

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CMT 107	Job Planning, Benchwork, and Layout	5
<b>Quarter 6</b>		
CMT 109	CNC Mills and Lathes	6
CMT 110	CNC Programming	6
<b>Quarter 7</b>		
CMT 201	Advanced Machining (Mills and Lathes)	6
CMT 130	3D Printing - Additive Manufacturing	5
CMT 230	Survey of Manufacturing Specializations	6
<b>Quarter 8</b>		
CMT 250	Machining Production	7
Select at least two of the following:		6-12
CMT 231	Programming Specialization	
CMT 232	Repair Specialization	
CMT 233	Set-Up Specialization	
CMT 234	Additive Manufacturing Specialization	

## Pathway Maps

South Puget Sound Community College has provided pathways and associated recommended courses for ease of student selection based upon a student's career interest. Please review the pathway maps for required and recommended courses.

**Machining Technologies Pathway Map**  
Associate in Applied Science  
91-97 Credits

Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 5	Qtr. 6	Qtr. 7	Qtr. 8
<b>Transition Studies</b>	MATH 101 (3cr) Technical Mathematics	CMT 100 (3cr) Survey of Advanced Machining Fall only	CMT 101 (3cr) Introduction to Machining Winter only	CMT 105 (3cr) Inspector/Quality Control Spring only	CMT 109 (3cr) CNC Mills and Lathes Fall only	CMT 201 (6cr) Advanced Machining (Mills and Lathes) Winter only	CMT 250 (7cr) Machining Production Spring only
ENGL 090 (3cr) Integrated Reading and Writing ENGL 095 (3cr) Integrated Reading and Writing II	ENGL 098 (3cr) Transitional English Composition ENGL 101 (3cr) English Composition I	CMT 102 (3cr) Measurement, Materials and Safety Winter only	CMT 106 (3cr) Fundamentals of Machining Spring only	CMT 110 (3cr) CNC Programming Fall only	CMT 130 (3cr) 3D Printing-Additive Manufacturing Summer, Winter	Choose AT LEAST TWO (3cr - 12cr) CMT 231 (3cr) Programming Specialization CMT 232 (3cr) Repair Specialization CMT 233 (3cr) Set-up Specialization CMT 234 (3cr) Additive Manufacturing Specialization	
CCS 101 (3cr) Pathways to Success	Choose One (3cr): (Human Relations/Diversity, Recommended) HNS 150 (3cr) Introduction to Adaptive Physical Activity: Diversity PSYC 116 (3cr) Psychology of Human Relations: Diversity CMST 200 (3cr) Interpersonal Communication: Diversity CMST 240 (3cr) Intercultural Communication: Diversity HISM 141 (3cr) Multicultural America: Diversity	CMT 103 (3cr) Print Reading for Machine Trades Winter only	CMT 107 (3cr) Job Planning, Benchwork, and Layout Spring only		CMT 230 (6cr) Survey of Manufacturing Specializations Winter only		Spring only