MACHINE TOOL OPERATION

Overview

Machine Tool Operation Technical Diploma

Program Code: 31-420-1

For more information: wctc.edu/machine-tool *(*http://www.wctc.edu/machine-tool*/)*

Machinists, or machine tool operators, produce parts to precise specifications, generally from setup to operation. In this program, acquire skills for the safe operation of engine lathes, vertical milling machines and surface grinders. Learn to operate computer numerical control (CNC) machines, interpret engineering drawings and use applied mathematics.

The minimum required course grades and program grade point average (GPA) for students under this catalog are:

Core Courses = C
General Studies Courses = C-
Program GPA = 2.0

Build your degree along a career pathway. Start with a couple of courses or an entry-level credential to enter the job market in your area of interest, then continue with higher credentials on your educational path for job advancement and higher wages.

Career Pathway

1. CNC Setup Technician Technical Diploma 23
2. Machine Tool Operation Technical Diploma 33
3. Tool and Die Making Technical Diploma 60

Related Certificate that can be earned along the way.

- CNC Operator Technical Certificate (https://catalog.wctc.edu/programs/cnc-operator/)

Learning Outcomes
Program Outcomes

1. Apply basic safety practices in the machine shop.
2. Interpret industrial/engineering drawings.
3. Apply precision measuring methods to part inspection.
4. Perform basic machine tool equipment set up and operation.
5. Perform programming, set-up and operation of CNC machine tools.

Critical Life Skills

To help our students prepare for success in a workplace and society that is **increasingly global, multi-cultural, and collaborative,** all students are given opportunities to develop and demonstrate Critical Life Skills, both in and out of the classroom. The following Critical Life Skills are learning outcomes for WCTC students.

- **Communication:** Demonstrate appropriate communication.
- **Critical Thinking/Problem Solving:** Demonstrate critical thinking skills to analyze situations and solve problems.
- **Relationships:** Demonstrate effective interpersonal skills.
- **Self-management:** Demonstrate responsible and respectful behavior.

Required Courses

Listed below are the required courses for the program. To view the recommended sequence for taking courses click on the plan of study tab(s) above. Work with your Academic Advisor to design a program plan!

View your **Program Matrix** to find out when each course will be offered (term and time of day).

Code	Title	Credits
Core Courses		
420-126	Machine Tool Theory	1
Approved Substitute: 420-326		
420-127	Machine Tool Theory 2	1
Approved Substitute: 420-128		
420-130	Industrial Blueprint Reading 1	2
Approved Substitute: 420-330		
420-186	CNC Machining Ctr Programming	2
Approved Substitute: 420-386		
420-316	CNC Machining Center Operation	2
420-317	CNC Turning Center Operation	2
420-320	Machine Tool Operation 1	4
420-321	Machine Tool Operation 2	4
420-323	Machine Tool Operation 3	4
420-324	Machine Tool Operation 4	4
420-387	CNC Turning Center Programming	2
439-181	SolidWorks for Tool Design 1	2
General Studies		
804-107	College Mathematics	3
Approved Substitutes: 804-115 OR 804-116 OR 804-118 OR 804-195 OR 804-198 OR (804-304 AND 804-305)		
Total Credits		**33**

Full-time Plan

First Year

Summer Term		**Credits**
804-107	College Mathematics	3
	Credits	**3**
Fall Term 1		
420-130	Industrial Blueprint Reading 1 This course runs 16 weeks.	2
420-126	Machine Tool Theory	1
420-320	Machine Tool Operation 1	4
	Credits	**7**
Fall Term 2		
420-316	CNC Machining Center Operation	2
420-321	Machine Tool Operation 2	4
	Credits	**6**
Spring Term 1		
420-186	CNC Machining Ctr Programming This course runs 16 weeks.	2
420-127	Machine Tool Theory 2	1

420-323	Machine Tool Operation 3	4
	Credits	**7**
Spring Term 2		
420-317	CNC Turning Center Operation	2
420-324	Machine Tool Operation 4	4
	Credits	**6**
Second Year		
Summer Term		
420-387	CNC Turning Center Programming	2
439-181	SolidWorks for Tool Design 1	2
	Credits	**4**
	Total Credits	**33**