

PRAIRIE STATE COLLEGE

# MANUFACTURING TECHNOLOGY



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## AT PRAIRIE STATE COLLEGE

Today's industries rely on trained and skilled machinists, machine operators, and manufacturers to produce precision components for everything from household appliances to aircraft parts. Prairie State College (PSC) prepares students for a career in manufacturing technology with training that includes computer numerical controlled (CNC) operation and programming, robotics, computer-aided manufacturing (CAM), and computer-aided design (CAD systems).

## DEGREES AND CERTIFICATES

### ASSOCIATE IN APPLIED SCIENCE (A.A.S.)

Manufacturing Technology

### CERTIFICATES OF ACHIEVEMENT

Manufacturing Technology

CNC Programmer/Operator

Machinist

Millwright

Hydraulics

*Students who wish to pursue a bachelor's degree in this program should consult an enrollment advisor regarding transfer information.*

## Manufacturing Technology

A.A.S. Degree

### I. General Education Core 20 credits

#### Area A: Communication 6

ENG 101	Composition I - with a grade of C or better	3
COMM 101	Principles of Communication	3

#### Area B: Humanities and Fine Arts 3

Select one course from the list for Area B

#### Area C: Mathematics 4

TECH 109	Technical Mathematics I (required)	4
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#### Area D: Physical and Life Sciences 4

PHYSI 120	College Physics I (required)	4
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#### Area E: Social and Behavioral Sciences 3

Select one course from the list for Area E (3)

### II. Area of Concentration/Program Requirements 39 credits

CADMD 141	Technical Drafting I	3
CADMD 243	Introduction to AutoCAD	3
MT 101	Metal Working Processes I	3
MT 102	Metal Working Processes II	3
MT 105	Metal Working Processes III	3
MT 210	CNC Programming I	3
MT 211	CNC Programming II	3
MT 212	Introduction to Robotics	3
MT 214	CAD/CAM Systems	3
MT 215	Manufacturing Systems	4
MATH 151	College Algebra	4
PHYSI 130	College Physics II	4

### III. Electives 2-3 credits

Choose one of the following:

CADMD 244	Intermediate AutoCAD	3
HYDR 101	Fundamentals of Hydraulics	2
WELD 101	Principles of Flat Welding	2

### Program Total 61-62 credits

## Manufacturing Technology

Certificate

### Program Requirements 19 credits

CADMD 141	Technical Drafting I	3
MT 101	Metal Working Processes I	3
MT 102	Metal Working Processes II	3
MT 210	CNC Programming I	3
MT 212	Introduction to Robotics	3
TECH 109	Technical Mathematics	4

### Electives 12 credits

Select from:

CADMD 243	Introduction to AutoCAD	3
CADMD 244	Intermediate AutoCAD	3
CET 103	Alternating Current	2
ELECT 103	Alternating Current	2
HYDR 101	Fundamentals of Hydraulics	2
MT 211	CNC Programming II	3
MT 214	CAD/CAM Systems	3
MT 215	Manufacturing Systems	4
MT 220	Metallurgy-Ferrous	2
WELD 101	Principles of Flat Welding	2

### Program Total 31 credits

# CNC Programmer/Operator

## Certificate

### Program Requirements

CADMD 243	Introduction to Auto CAD	3
MT 101	Metal Working Processes I	3
MT 102	Metal Working Processes II	3
MT 210	CNC Programming I	3
MT 211	CNC Programming II	3
MT 214	CAD/CAM Systems	3
TECH 109	Technical Mathematics I	4
MATH 151	College Algebra	4

**26 credits**

### Electives

Select from:

CADMD 244	Intermediate AutoCAD	3
CADMD 245	Computer Aided Design	3
MT 212	Introduction to Robotics	3
MT 215	Manufacturing Systems	4

**6 credits**

### Program Total

**32 credits**

# Machinist

## Certificate

### Program Requirements

AMATH 100	Basic Math for the Skilled Trades	2
AMATH 101	Algebra for the Skilled Trades	2
AMATH 103	Geometry for the Skilled Trades	2
DRAFT 115	Blueprint Reading for Mechanical Trades	2
CADMD 141	Technical Drafting I	3
CADMD 243	Introduction to AutoCAD	3
MT 101	Metal Working Processes I	3
MT 102	Metal Working Processes II	3
MT 105	Metal Working Processes III	3
MT 210	CNC Programming I	3
MT 211	CNC Programming II	3
MT 220	Metallurgy - Ferrous	2

**31 credits**

### Program Total

**31 credits**

# Millwright

## Certificate

### Program Requirements

AMATH 100	Basic Mathematics for the Skilled Trades	2
AMATH 101	Algebra for the Skilled Trades	2
DRAFT 101	Drafting Essentials	2
DRAFT 102	Drafting Conventions & Symbols	2
DRAFT 115	Blueprint Reading for the Mechanical Trades	2
HYDR 101	Fundamentals of Hydraulics	2
HYDR 106	Pneumatics	2
MILL 101	Industrial Maintenance Techniques I	2
MILL 102	Industrial Maintenance Techniques II	2
MILL 103	Lubrication	2
MILL 105	Rigging	2
MILL 106	Power Train Elements	2
MILL 107	Machine Vibration Analysis I	2
WELD 101	Principles of Flat Welding	2
WELD 102	Horizontal Welding and Brazing	2

Select one course from:

MILL 108	Machine Vibration Analysis II	2
PLUMB 101	Fundamentals of Plumbing	2

**32 credits**

### Program Total

**32 credits**

# ABOUT THE CURRICULUM

The manufacturing technology degree coursework includes basic machine shop operations and processes, CNC machine operation and programming, CAD/CAM fundamentals, robotics and automated manufacturing applications. This program prepares technicians to operate, program, design and install manufacturing, assembly and materials handling equipment.

The manufacturing technology certificate program's curriculum provides instruction for such occupations as machine operator, machinist, and CN operator.

The CNC programmer/operator curriculum emphasizes programming and operation of both milling and turning CNC equipment. The student also will receive instruction in machine tool operation and applications, mathematics, and drafting/CAD.

The machinist certificate program teaches students to custom build metal devices in both a job shop and a manufacturing establishment.

The millwright certificate program trains students to dismantle, operate, repair, or lubricate industrial machinery. They are skilled in the use of basic tools and machinery and can read blueprints and schematic designs.

The hydraulics certificate program prepares students to work on machines in industries that have fluid control devices.



## Hydraulics

Certificate

### Program Requirements

34 credits

AMATH 100	Basic Math for the Skilled Trades	2
AMATH 101	Algebra for the Skilled Trades	2
AMATH 103	Geometry for the Skilled Trades	2
AMATH 106	Applied Trigonometry for the Skilled Trades	2
AMATH 107	Trigonometry & Shop Applications I	2
APHYS 100	Applied Physics	2
DRAFT 101	Drafting Essentials	2
DRAFT 102	Drafting Conventions and Symbols	2
ELECT 100	Electric Wiring I	2
ELECT 101	Fundamentals of Electricity I	2
HYDR 101	Fundamental of Hydraulics	2
HYDR 102	Hydraulic Pumps	2
HYDR 103	Hydraulic Controls	2
HYDR 104	Basic Hydraulic Circuits	2
HYDR 106	Pneumatics	2
MILL 101	Industrial Maintenance Techniques I	2
PLUMB 101	Fundamentals of Plumbing	2

**Program Total**

**34 credits**

## ADMISSIONS

PSC offers “open admission” that encourages diversity and admits all high school graduates or the equivalent.

Here’s how to start your college career at PSC:

- Provide a high school diploma or GED.
- Take the COMPASS Placement Test or submit a copy of ACT scores.
- Meet with an advisor from Counseling and Advising to select courses. For questions, contact an academic advisor at (708) 709-3506.

## Financial Aid Information

PSC’s tuition is affordable, and financial aid is available through a variety of sources. Additional information at [prairiestate.edu/finaid](http://prairiestate.edu/finaid).

### Gainful Employment Disclosure

Visit [prairiestate.edu/ge](http://prairiestate.edu/ge) for important information about our gainful employment programs.

**Find out more today by contacting**

**Dale Ballard**

Professor/Coordinator, Millwright/Tool and Die/Hydraulics/  
Plumbing, Mechanical Design  
(708) 709-3769  
[dballard@prairiestate.edu](mailto:dballard@prairiestate.edu)

 **Prairie State College**

202 South Halsted Street | Chicago Heights, IL 60411  
(708) 709-3500 | [prairiestate.edu](http://prairiestate.edu)