



# Machine and Metals Technology

Study in the field of machine and metals technology is designed as preparation for entrance into metalworking occupations. Graduates may enter the fields dealing with industrial production, prototype construction, special die work, or research and development. The courses in welding are designed to provide opportunity for the development of skills, knowledge, and experience for employment in the occupation and as auxiliary experience for persons in other majors.

## Job Opportunities

WHAT JOBS ARE AVAILABLE IN THIS FIELD?	HOW MUCH DO THEY EARN?	HOW MANY PEOPLE CURRENTLY WORK IN THIS POSITION IN THE AREA?	HOW MANY NEW JOBS WILL OPEN BY 2022 IN THE AREA?	GROWTH INDICATOR
Welder*	\$107,000 yearly	1,462	110	▲ Strong
Welders use hand-welding or flame-cutting equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.				
Machinist*	\$92,000 yearly	919	146	▲ Strong
Machinists set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures.				
CNC Operator*	\$31,158 yearly	201	36	▲ Strong
CNC operators Operate computer-controlled machines or robots to perform one or more machine functions on metal or plastic work pieces.				

To explore these professions in more detail or find out about other growing professions, visit [onetonline.org](http://onetonline.org). The College of Marin Career and Technical Education department can be contacted at (415) 457-8811 x8200 for more information about this and other Workforce and Career Technical Education programs.

\*Labor data and potential median income sourced from Economic Modeling Specialists International ([www.economicmodeling.com](http://www.economicmodeling.com)) and includes the North Bay Region and San Francisco County. For more information about graduation rates, median debt of students who have completed the program, and other important information, visit our website at [www1.marin.edu/gainful-employment](http://www1.marin.edu/gainful-employment)

## Program

CERTIFICATE PROGRAM LENGTH	ESTIMATED TUITION AND FEES*	ESTIMATED BOOKS AND SUPPLIES*
3 Semesters 40 Units	\$2,002	\$350

\*These expenses may not reflect your actual cost to attend College of Marin. For information about opportunities for financial aid, please contact Enrollment Services at (415) 457-8811 Ext. 8822 or via email [admissions@marin.edu](mailto:admissions@marin.edu)

## Projected full-time course rotation

CLASS TITLE	COMPLETED	COURSE #	COURSE UNITS	SEMESTER OFFERED	DAYS OFFERED	TIME OF CLASS	REQUIRED FOR CERTIFICATE OR ASSOCIATE DEGREE <sup>1</sup>
<b>SEMESTER 1</b>			<b>(12)</b>				
Welding I	<input type="checkbox"/>	MACH 130	2	Fall, Spring	MT	Evening	X
Intermediate Machine Tool Processes	<input type="checkbox"/>	MACH 140	4	Fall	M-R	Evening	X
Computer Numerical Control Machining/Mill	<input type="checkbox"/>	MACH 145	4	Fall	W	Evening	X
Blueprint Reading for the Machine Trades	<input type="checkbox"/>	MACH 165	2	Fall	M	Evening	X
<b>SEMESTER 2</b>			<b>(14)</b>				
Introduction to Personal Computers and Operating Systems	<input type="checkbox"/>	CIS 101	3	Spring	M, S	Morning	X
Career Math	<input type="checkbox"/>	AUTO 100	4	Spring	T	Evening	X
Computer Numerical Control Machining/Lathe	<input type="checkbox"/>	MACH 155	3	Spring	W	Evening	X
Advanced Machine Tool Processes	<input type="checkbox"/>	MACH 240	4	Spring	M-W	Evening	X
<b>SEMESTER 3</b>			<b>(14)</b>				
Engineering Materials	<input type="checkbox"/>	ENGG 245	4	Spring	M, W	Afternoon	X
Fundamentals of Electronics	<input type="checkbox"/>	ELEC 120	3	Spring, Fall	W	Evening	X
Welding II	<input type="checkbox"/>	MACH 131	2	Fall, Spring	R, TR	Afternoon, Evening	X
Applications of Machine Tool Technology	<input type="checkbox"/>	MACH 250	2	Fall, Spring	TWR, TW	Evening	X
Occupational Work Experience B	<input type="checkbox"/>	WE 298B	2	Fall, Spring	T	Afternoon, Evening	X

<sup>1</sup>Associates Degree and Administration of Justice for Transfer Associate in Science Degree both require completion of additional general education coursework. Please refer to the course catalog or consult your counselor for requirements.

For assistance with creating your educational plan and choosing the program that is right for you, stop in and see your counselor. To schedule an appointment, call the counseling office at (415) 485-9432.