Minnesota North College

PROGRAM PLANNER
ACADEMIC YEAR 2026-27

Manufacturing Technologies

Diploma | 43 credits

Campus: Mesabi Range, Eveleth | The Forge, Grand Rapids

FALL SEMESTER			CREDITS	HOURS LEC	HOURS LAB
MANU 1210	Industrial Tools and Machine Tools	Full Term	3	1	4
MANU 1220	Manufacturing Math and Materials	Full Term	3	3	0
MANU 1230	Industrial Manufacturing Systems	Block 1	2	1	2
MANU 1240	Welding Technologies	Block 1	3	1	4
MANU 1250	CNC Fundamentals	Block 2	3	2	2
MANU 1260	Introduction to SolidWorks	Block 2	2	1	2
		TOTAL SEMESTER CREDITS	16		
SPRING SEMESTER					
MANU 1310 *	Milling	Full Term	3	1	4
MANU 1320 *	Turning	Full Term	3	1	4
MANU 1330 *	CAD and CAM for Manufacturing	Block 1	2	1	2
MANU 1340 *	Fabrication, Assembly, and the Production Line	Block 2	3	1	4
MANU 1370	Introduction to Mechatronics	Block 1	2	2	0
MANU 1390 *	Manufacturing Capstone	Block 2	1	.5	1
COMM 1400	Communication for Career Success	Full Term	3	3	0
HLTH 1100	Wellness	Full Term	2	2	0
		TOTAL SEMESTER CREDITS	19		
SUMMER SEMESTER					
MANU 2210 *	Manufacturing Internship 1	Block 1	4		
MANU 2220 *	Manufacturing Internship 2	Block 2	4		
		TOTAL SEMESTER CREDITS	8		

PROGRAM DESCRIPTION

The Manufacturing Technologies program provides students with the knowledge, skills, and experience needed to begin careers in manufacturing trades. Students will become well-versed in manufacturing theory and practice, and will develop machining, welding, fabrication, assembly, CAD/CAM and other manufacturing skills within the coursework, as well as develop professionally for entry into today's workforce.

PROGRAM LEARNING OUTCOMES

Upon completion of the Manufacturing Technologies program the graduate will be able to demonstrate entry-level competencies in the following areas of manufacturing trades:

1. Apply safe working practices with shop machine tool equipment and general manufacturing hand and power tools.
2. Independently completing multi-step manufacturing projects, as well as contributing as a team member to projects.
3. Demonstrate knowledge of manufacturing theory and practice related to the effective operation of shop machine tools.
4. Demonstrate welding to AWS D1.1 standard.
5. Create CAD/CAM design, generate toolpath code, and deploy to CNC machine tool.
6. Demonstrate basic tooling repairs and toolpath troubleshooting.
7. Explain systems and system designs found and utilized in today's production and assembly lines.
8. Explain the integration of mechatronics/robotics/automation for accelerating manufacturing processes in industry.

PROGRAM NOTES:

- Course sequence: Courses must be taken in the order/semester above.
- * Course has prerequisite(s).
- Students will be required to purchase some tooling for the program. Please see the program webpage for an up-to-date tool list.

EMPLOYMENT OPPORTUNITIES

Manufacturing career trends and outlooks are excellent. Graduates may seek careers as CNC machinists, welders, fabricators, production line or assembly line workers, or many other roles within manufacturing. Graduates are prepared for work in many different industry sectors, including small manufacturing shops, large manufacturing plants, mining maintenance, construction maintenance, aviation manufacturing or aviation maintenance, and many other sectors. Skilled machinists, welders, production line workers, and fabricators are in high-demand and have an increasing pay average. These high-technology jobs are considered high-paying, depending on skill and experience. Graduates may also choose to start their own business.

PROGRAM FACULTY