

Program Number 50-439-3
5-Year Contract
Work Hours (including related instruction): 10,000
Related Instruction Hours: 576 • Night School Hours: 8

ABOUT APPRENTICESHIP

Apprenticeships are employer-sponsored training programs. You must have a contract before being invited to school. A special application process is used for these programs. Please contact the Apprenticeship Office for the proper forms. Apprenticeship means you earn while you learn. If you want a career in a skilled trade, apprenticeship is the best way to get there. You'll combine on-the-job training with on-campus learning—you'll have the best of both worlds when it comes to learning the skills you need to get ahead. And even better, you'll earn a paycheck while you learn those skills.

ABOUT THE CAREER

Tool and die makers are vital to the metal-working industry because they produce the tools, dies, and special grinding and holding devices used in mass production. The Tool and Die Apprenticeship program is an employer-sponsored, hands-on training program. If you like working with mechanical technology/ manufacturing processes and you value and can work with exacting precision, your talents fit perfectly with a career as a journey-level tool and die maker.

CAREERS

Graduates of Lakeshore's Tool and Die Apprenticeship program work as journey-level tool and die makers in a variety of manufacturing/industrial settings.

INDUSTRIAL APPRENTICE ACCEPTANCE REQUIREMENTS

- Determined by employer
- Wisconsin Apprentice Contract

PROGRAM OUTCOMES

- Inspect parts and material.
- Apply knowledge of milling machine operations, including manual and/or CNC controlled.
- Apply principles of drilling machine operations, including manual and/or CNC controlled.
- Compare turning machine operations, including manual and/or CNC controlled.
- Explore precision grinding machine operations including manual and/or CNC controlled.
- Compare cut-off machine operations, including manual and/or CNC controlled.
- Apply metallurgical principles to materials and work processes.
- Compare practices for assembling parts per specifications.
- Design jigs and fixtures.
- Summarize practices to produce dies for a variety of machining and manufacturing operations.

APPROXIMATE COSTS

Contact the Lakeshore Apprenticeship office or visit www.lakeshore.edu/apprenticeship for detailed information.

SPECIAL NOTE

You must have a sponsoring employer and a contract before attending school.

CAREER & EDUCATION ADVANCEMENT OPPORTUNITIES

Lakeshore credits transfer to over 30 universities. For more information visit lakeshore.edu/future-students/transfer.

Catalog No.	Class Title	Credit(s)
Term 1		
50420714	Engineering Drawings for Machine Trades Apprentice 1	1
50420713	Precision Measurement for Machine Tool Trades	1
		2
Term 2		
50420780	Mathematics for Machine Trades	1.25
50420781	Cut-Off Machines for Machine Trades Apprentices	0.25
50420782	Metallurgy & Materials for Machine Trades Apprentices	0.5
		2
Term 3		
50420783	Turning Machines for Machine Trades Apprentices	1
50420784	Milling Machines for Machine Trades Apprentices	1
		2
Term 4		
50420724	CNC Programming and Operations 1 for Machine Tool Trades Apprentices	1
50420719	Grinding Machines for Machine Trades Apprentices	0.5
50420723	Intro to CAM for Machine Trades Apprentices	0.5
		2
Term 5		
50420725	CAD/CAM for Machine Trades Apprentices	1
50420726	Tooling and Workholding for Machine Trades Apprentices	0.5
50420727	Geometric Design and Tolerancing for Machine Trade Apprentices	0.5
		2
Term 6		
50420785	CNC Programming and Operations 2 for Machine Tool Trades Apprentices	2
		2
Term 7		
50420732	Electrical Discharge Machining for Machine Trades	1
50420728	Basic Stamping Die-making for Machine Trades	1
		2
Term 8		
50420730	Stamping Die Design Applications for Machine Trades Apprentices	1
50420729	Mold Making for Machine Trades Apprentices	1
		2
		TOTAL 16

*Curriculum and program acceptance requirements are subject to change.
Program start dates vary; check with the Apprenticeship Office for details.
The tuition and fees are approximate based on 2026-2027 rates and are subject to change prior to the start of the academic year.*

BASIC STAMPING DIEMAKING FOR MACHINE TRADES...introduces the basics of stamping diemaking. Topics include basic terminology, blanking, piercing, bending and related basic operations. In addition, learners will discover the basics of the theory and background knowledge related to stamping diemaking. CONDITION: 504393 Tool and Die Apprentice program requirements met

CAD/CAM FOR MACHINE TRADES APPRENTICES...is designed to provide concepts and techniques used in computer-aided design (CAD) and computer-aided manufacturing (CAM) as part of their related instruction. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

CNC PROGRAMMING AND OPERATIONS 1 FOR MACHINE TOOL TRADES FOR APPRENTICES...is a classroom introduction to CNC programming for apprentices, with a focus on CNC turning and milling centers. Apprentices will create set up sheets, develop tool lists, calculate speeds and feeds, assign tool offsets and write CNC program. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

CNC PROGRAMMING AND OPERATIONS 2 FOR MACHINE TOOL TRADES APPRENTICES...is a classroom/lab introduction to CNC programming for apprentices, with a focus on CNC turning and milling centers. Apprentices will create setup sheets, develop tool lists, calculate speeds and feeds, assign tool offsets and write CNC programs. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

CUT-OFF MACHINES FOR MACHINE TRADES APPRENTICES...will acquaint the apprentice with the basic types of cutoff machines used in industry, cutoff machine applications, tooling, and machine safety. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

ELECTRICAL DISCHARGE MACHINING FOR MACHINE...is designed to give a basic understanding of the theory and process of sinker and wire EDM in toolmaking. This course uses the EDM Technical Manual distributed by POCO Graphite, Inc., which contains the most current information available in industry. CONDITION: 504393 Tool and Die Apprentice program requirements met

ENGINEERING DRAWINGS FOR MACHINE TRADES APPRENTICE 1...will acquaint the apprentice with the interpretation of engineering prints and other technical and manufacturing documentation. The primary focus of the course will be on that part of manufacturing most closely related to machining and tooling. Background information is provided relative to the process used to create and finish the product or piece part on the prints being studied. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

GEOMETRIC DESIGN AND TOLERANCING FOR MACHINE TRADES APPRENTICES...will acquaint the apprentice with the skills to interpret the geometric dimensions and tolerances found on engineering drawings and in other industrial documents. Instruction concentrates on interpreting the symbols, identifying tolerance zones and determining ways to check parts for conformity to the specified geometric controls. Reference is made to ASME Y14.5M - 1994. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

GRINDING MACHINES FOR MACHINE TRADES APPRENTICES...focuses on the safety, terminology, construction, and operation of grinding machines in the metal working industry. It instructs apprentices in the use of traditional grinding machines and the attachments and accessories frequently encountered in manufacturing operations that use the common grinding processes. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

INTRO TO CAM FOR MACHINE TOOLS TRADES APPRENTICES...is widely used in industry for creating G&M code programs for CNC machines. In this course the learner will explore the Mastercam interface. You will be determining the proper post processors for the work being done. Create and edit basic geometry. Create and edit tool paths for basic operations. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

MATHEMATICS FOR MACHINE TRADES...provides applied mathematics instruction from a review of basic arithmetic; basic algebra; applications, based on geometry; right triangle trigonometry, oblique angle trigonometry and compound angles. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

METALLURGY & MATERIALS FOR MACHINE TRADES APPRENTICES...provides the opportunity for the apprentice to develop the knowledge, skills, process, and understanding of hardness testing and heat treating of various materials. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

MILLING MACHINES FOR MACHINE TRADES APPRENTICES...will acquaint the apprentice with the basic principles of vertical and horizontal milling machines for the machine tool apprentice. Instruction includes safety, basic parts and functions of the machines, work holding devices, tooling requirements, and feeds and speeds. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

MOLD MAKING FOR MACHINE TRADES APPRENTICES...introduces the apprentice to the basic mold die making process consisting of mold construction, components, and materials. CONDITION: 504393 Tool and Die Apprentice program requirements met

PRECISION MEASUREMENT FOR MACHINE TOOL TRADES...is designed to acquaint the apprentice with the measurement systems and tools most frequently used in layout and machining processes. Learning outcomes relate to semi-precision through super-precision measuring tools and equipment combined with opportunities to investigate new technologies. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

STAMPING DIE DESIGN APPLICATIONS FOR MACHINE TRADES APPRENTICE...provides the stamping die maker apprentice with the opportunity to design from part specifications two elementary stamping dies. This course provides instruction for the tool and die, stamping die and mold makers apprenticeship. CONDITION: 504393 Tool and Die Apprentice program requirements met

TOOLING AND WORKHOLDING FOR MACHINE TRADES APPRENTICES...introduces the apprentice to the concepts of jig and fixture design as part of their apprentice related instruction. Topics include the basic elements of tool design, jig and fixture application, and the actual design of tooling. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met

TURNING MACHINES FOR MACHINE TRADES APPRENTICES...will acquaint the apprentice with the terminology, methods, and operations for turning machines used in the metal-working industry. Apprentices will learn to perform calculations needed to operate turning machines including speed and feed calculations. Apprentices will make calculations necessary to setup a turning machine for screw threads and taper operations. CONDITION: 504393 Tool and Die Apprentice or 504202 Machinist Apprentice program requirements met