

Wisconsin Technical College System Curriculum Standards Model & Program Design Summary

50-439-1 TOOL MAKER APPRENTICE

Program Information

Program Description

Tool makers analyze specifications, lay out metal stock, set up and operate machine tools, and fit and assemble parts to make and repair dies, gauges, jigs, fixtures (devices that hold metal while it is shaped, stamped or drilled), gauges, and machinist's hand tools. Die makers construct metal forms (dies) to shape metal in stamping and forging operations. A tool maker operates various machine tools to make and repair molds, special machinery, tools, dies, jigs, fixtures and die cast dies. In this apprenticeship, learn basic theory in machining, blueprint reading and metallurgy, in addition to knowledge in stamping, mold making blanking, jigs and fixtures, plastics and die casting. Computer-assisted CNC machining and die and mold design are also covered.

External Requirements

The Wisconsin Department of Workforce Development, Bureau of Apprenticeship Standards has the following training standards:

- 5 year training program
- 10,400 hours on-the-job training
- 576 hours paid related instruction
- Possible additional hours of unpaid related instruction

Entry Requirements

- Entry requirements vary by employer
- High school diploma or equivalent
- Physically able to perform trade
- Applicants apply directly to participating employers

Related Outcomes – Program Outcomes TBD & pending TSA and/or NIMS alignment

Program Configurations

50-439-xx WTCS Tool Maker Apprenticeship Related Instruction

Program Configuration Model for Related Instruction

This program configuration serves as a curriculum standards model for related instruction in the tool maker apprenticeships. The program includes trades associated with tool makers and designers, pattern makers, and mold makers, and provides for up to 576 hours of related instruction. The program configuration model outlines coursework in machine trades and tool and die theory and application. Courses in industrial math, applied communication and human relations are intended to support the apprentice in success as a future

Term 3

Course #	Course Title	Credits & Approved Hours	Course Description
50-439-570	Tool & Die Theory I	3.50 126 hours	Start on the path from tool and die apprentice to journeyman as you explore advanced trade theory in stamping, blanking, jigs and fixtures, plastics, and die casting. Become familiar with special machines used in the field.
50-801-500	Applied Communications	0.50 18 hours	Enhance interpersonal communication skills, especially the oral and listening skills needed by those in apprentice programs

Term 4

Course #	Course Title	Credits & Approved Hours	Course Description
50-439-575	Tool & Die Theory II	3.50 126 hours	Continue on the path from tool and die apprentice to journeyman by exploring advanced trade theory in stamping, blanking, jigs and fixtures, plastics, and die casting. Become familiar with special machines used in the field.
50-809-551	Human Relations - Apprentice	0.50 18 hours	Study the psychological principles of human relations that will assist in adaptation to the world of work and adjustment to personal and occupational relationships.

Additional Term(s)

Course #	Course Title	Credits & Approved Hours	Course Description
47-455-455	Transition to Trainer: Your Role as a Journey Worker	0.00 8 hours	<p>Apprenticeship training is a collaborative partnership: employer and employee associations, government, and educational institutions each play a part. In reality, most learning takes place through the daily interaction between an apprentice and his/her co-workers. Surveys have shown that the apprentices are least satisfied with the on-the-job portion of their training--particularly the ability of journey level workers and supervisors to pass on their knowledge of the trade.</p> <p>You have already learned to use the tools of your chosen trade. In this workshop you will be introduced to a new set of basic tools--the tools of a jobsite trainer. You will explore the skills that are necessary to be an effective trainer, discover how to deliver hands-on training, and examine the process for giving useful feedback. During the workshop you will build a Training Toolkit to take back to your work on the job.</p>

Wisconsin Technical College System

50-420-520 Metals Trade Theory I

Course Outcome Summary

Course Information

Description Become familiar with basic theory related to topics such as in machining, blueprint reading, metallurgy, foundry, measurement, and safety in order to establish a solid foundation on which more specialized units - such as plastic moldmaking, stamping dies, CNC machining, and jig and fixture design - can be built.

Total Credits 3.00

Wisconsin Technical College System

50-420-521 Metals Trade Theory II

Course Outcome Summary

Course Information

Description Explore topics including welding, milling machines, mechanical motions, electrical principles, layout, drill press, grinding, boring bar, jig boring, shapers, and planers.

Total Credits 3.00

Wisconsin Technical College System

50-439-570 Tool & Die Theory I

Course Outcome Summary

Course Information

Description Start on the path from tool and die apprentice to journeyperson as you explore advanced trade theory in stamping, blanking, jigs and fixtures, plastics, and die casting. Become familiar with special machines used in the field.

Total Credits 3.50

Wisconsin Technical College System

50-439-575 Tool & Die Theory II

Course Outcome Summary

Course Information

Description Continue on the path from tool and die apprentice to journeyman by exploring advanced trade theory in stamping, blanking, jigs and fixtures, plastics, and die casting. Become familiar with special machines used in the field.

Total Credits 3.50

Wisconsin Technical College System

50-801-500 Applied Communications

Course Outcome Summary

Course Information

Description Enhance interpersonal communication skills, especially the oral and listening skills needed by those in apprentice programs

Total Credits 0.50

Wisconsin Technical College System

50-804-504 Industrial Math 1

Course Outcome Summary

Course Information

Description Explore the topics of applied arithmetic and algebra. Study concepts related to measurement, fractions, decimals, percent, ratio and proportion, signed numbers, formula substitution, solutions to equations, tapers and gears. Calculate the areas and volumes of common geometric shapes.

Total Credits 1.00

Wisconsin Technical College System

50-804-505 Industrial Math 2

Course Outcome Summary

Course Information

Description Examine topics in geometry and trigonometry that are related to the metalworking trades. Practice applying geometric theorems and solving both right and oblique triangle problems

Total Credits 1.00

Wisconsin Technical College System

50-809-551 Human Relations - Apprentice

Course Outcome Summary

Course Information

Description Study the psychological principles of human relations that will assist in adaptation to the world of work and adjustment to personal and occupational relationships.

Total Credits 0.50

Wisconsin Technical College System

47-455-455 Transition to Trainer: Your Role as a Journey Worker

Course Outcome Summary

Course Information

Description Apprenticeship training is a collaborative partnership: employer and employee associations, government, and educational institutions each play a part. In reality, most learning takes place through the daily interaction between an apprentice and his/her co-workers. Surveys have shown that the apprentices are least satisfied with the on-the-job portion of their training--particularly the ability of journey level workers and supervisors to pass on their knowledge of the trade.

You have already learned to use the tools of your chosen trade. In this workshop you will be introduced to a new set of basic tools--the tools of a jobsite trainer. You will explore the skills that are necessary to be an effective trainer, discover how to deliver hands-on training, and examine the process for giving useful feedback. During the workshop you will build a Training Toolkit to take back to your work on the job.

Course Competencies

- 1 Value your role as a journey worker trainer
- 2 Serve as a mentor and job coach
- 3 Foster a positive work environment by acting as an ally/advocate
- 4 Provide hands-on skills training
- 5 Provide feedback on apprentice performance