

MACHINE SHOP - TOOL AND DIE APPRENTICESHIP

Program: TDAP

Credential: Ontario College Certificate

Delivery: Full-time

Work Integrated Learning: Apprentice Placement

Length: 720 hours

Effective: Fall 2023

Location: Barrie

Description

A Tool and Die Maker designs, creates, repairs and tests prototypes and production tools such as dies, cutting tools, jigs, fixtures, gauges and specialty tools using various metals, alloys and plastics. This 720-hour program consisting of three 240-hour levels is designed to provide apprentices with the theoretical knowledge of all aspects of the tool and die maker trade, as well as practical training necessary to complement the on-the-job training experience.

Tool and Die Maker is a trade regulated by the Ontario College of Trades and Apprenticeship Act, 2009. Qualified individuals may obtain a Certificate of Qualification, which confirms its holder has the skills, knowledge and experience that meet industry standards of practice for the trade.

Career Opportunities

Graduates of this program may be employed in small machining shops or in advanced manufacturing industries where they read and interpret complex engineering drawings and work-process documentation; cut, shape, and finish metal to make precision machining parts and components; and set up and operate conventional and numerically controlled metal-cutting machines and equipment.

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. solve routine technical problems related to shop environments using a variety of systematic approaches;
2. interpret and produce basic graphics and other standard technical documents necessary for the routine installation, maintenance, repair, and manufacture of components;
3. complete all work in compliance with health and safety legislation and prescribed organizational practices and procedures to ensure safety of self and others;
4. perform basic technical measurements using appropriate tools;
5. use shop tools and equipment for basic installation, manufacture, and repair of components to required specifications;
6. work responsibly and effectively within a shop environment in accordance with appropriate practices and procedures;
7. develop and implement a plan for CNC programming;
8. perform procedures for linear and circular machining in manufacturing;
9. perform various machining procedures, such as milling, turning and cutting according to plan;

10. design and fabricate jigs, fixtures, and press die tooling according to required specifications.

External Recognition

Upon successful completion of their Level 3 in school training, apprentices must complete the remainder of the required skills outlined in the Training Standard Log Book to qualify for their Apprenticeship Certificate. Thereafter, they are eligible to write their Certificate of Qualifications exam for this Red Seal Trade.

Admission Requirements

- Ontario Secondary School Diploma (OSSD) or equivalent, mature student status
- Prospective students must be registered apprentices with the Ministry of Labour, Training, and Skills Development

Additional Information

An apprenticeship involves practical training provided on-the-job by a skilled worker, or trainer. The skills or competencies to be developed are set out by the trade's Apprenticeship Training Standard and are recognized by the industry as being essential to the practice of the trade.

As these essential skills are developed, the apprentice's sponsor or trainer signs the relevant sections of the training standard to indicate that the apprentice has met the individual training objectives by demonstrating the skills required of a skilled worker, or journeyman, in the trade.

Graduation Requirements

Students must successfully complete all three levels to receive a certificate.

- Tool and Die Maker Apprentice Level 1 - Basic (TDAB)
- Tool and Die Maker Apprentice Level 2 - Intermediate (TDAI)
- Tool and Die Maker Apprentice Level 3 - Advanced (TDAA)

Graduation Eligibility

Students must successfully complete all required courses as noted below. Further details, if applicable, are noted under "Additional Information" above.

Program Tracking Level 1 - Basic (TDAB)

Program Courses	Hours
GMTD 1003 Applied Trade Safety Practices	6
GMTD 1007 Metal Cutting Saw Technology	6
GMTD 1012 Applied Trade Calculations, Charts, and Tables	42
GMTD 1013 Engineering Drawings/CAD Data/Layout Processes	42
GMTD 1014 Metallurgy	12
GMTD 1015 Metrology (Measuring and Checking)	24
GMTD 1016 Benchworking Techniques	12
GMTD 1017 Drilling Technology	12
GMTD 1018 Turning Technology	36
GMTD 1019 Vertical Milling Technology	36

GMTD 1020	Surface Grinding Technology	12
Hours		240
Total Hours		240

Level 2 - Intermediate (TDAI)

Program Courses	Hours	
TDAI 1000	Applied Trade Calculations, Charts, Tables	30
TDAI 1001	Engineering Drawings/CAD Data	30
TDAI 1002	Metallurgy.Jig/Fix Components	12
TDAI 1007	Ram/Sink EDM Technology	6
TDAI 1009	Tooling Techy (Jig/Fixtures)	12
TDAI 1016	Metrology (Measuring/Checking)	6
TDAI 1017	Turning Technology	6
TDAI 1018	Milling Technology	12
TDAI 1019	Grinding Technology	21
TDAI 1020	Machining Centre CNC Techy	24
TDAI 1021	Tooling Assembly Techniques for Jig and Fixtures	18
TDAI 1022	Jig and Fixture Building	63
Hours		240
Total Hours		240

Level 3 - Advanced (TDAA)

Program Courses	Hours	
TDAA 1003	Metrology (Measuring/Checking)	6
TDAA 1017	Complex Engineering Drawings	30
TDAA 1018	Metallurgy of Tool or Die Components	12
TDAA 1025	Appl Trade Calc,Charts,Tables	24
TDAA 1026	CNC Tecy for OptA adn OptB	30
TDAA 1027	Stamping Technology	21
TDAA 1028	Mech Assembly Technology	30
TDAA 1029	Tooling/Die Bldg Tchy/Proc	87
Hours		240
Total Hours		240

Disclaimer: *The information in this document is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs.*

Program outlines may be subject to change in response to emerging situations, in order to facilitate student achievement of the learning outcomes required for graduation. Components such as courses, progression, coop work terms, placements, internships and other requirements may be delivered differently than published.