



## PRECISION MACHINING & TOOLING TRADES

### Introduction:

- A small percentage of High School students enroll in University and College upon graduation.
- Almost 64% (6 out of 10) students enter the workforce (get a job).
- Apprenticeship training is a proven way to learn and build a successful career.
- Apprentices entering the tooling trades require Grade 12 education or higher.
- Skilled workers have more stable careers and earn better wages than untrained workers and are able to work in a variety of interesting and challenging jobs.
- To become an Apprentice **you** need to find an employer willing to train you; the Ministry of Training, Colleges & Universities - Apprenticeship Branch Offices can provide guidance and advice on how to start.

***Training Hotline: 1-888-JOBSGROW (1-888-562-4769)***

- Average Apprenticeship Wages in the Tooling Trades:

	<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>	<u>4th Year</u>	<u>Journey-</u> <u>person</u>
Tool & Die Maker	13.15	14.53	16.87	19.68	22.91
Mould Maker	13.38	15.67	18.17	19.00	22.98
General Machinist	12.70	14.77	16.95	18.55	23.99
Pattern Maker	11.05	15.50	15.50	18.50	22.50

- A typical apprenticeship is 8,000 hours (or 3½ to 4 years) of on-the-job training and involves a small portion of theory training, usually delivered by a local community college.

## **The Trades:**

Precision machining/tooling trades are the backbone of modern manufacturing. Skilled tradespeople use machine tools to make all kinds of industrial and consumer products ranging from plastic dish soap containers to airplane parts.

## **The Careers:**

Precision machining/tooling tradespeople use drills, lathes, milling and grinding machines and other specialized equipment to manufacture products designed by engineers. There are four individual trades:

- **General Machinists** cut, shape and finish metal to make machine parts used in all areas of manufacturing. Machinists set up and operate a variety of machine tools including Computer Numerically Controlled (CNC) tools to perform precision-machining operations.
- **Mould Makers** design, make and repair moulds and models to mass produce plastic or metal components and products.
- **Tool & Die Makers** make, repair and modify custom-made, prototype and special tools, dies, jigs, fixtures and gauges using a variety of machine tools and precision measuring instruments.
- **Pattern Makers** design and create metal, wood, plastic, or styrofoam foundry patterns and coreboxes to cast manufacturing parts and components from metal. They design and build precision checking and assembly fixtures and gauges used in all parts of the tooling industry.

Today, Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) technology is increasingly being used by precision machining/tooling tradespeople.

## **The Apprenticeship:**

An apprenticeship is an agreement between a person who wants to learn a skilled trade and an employer who needs a skilled tradesperson.

Apprentices must be 16 years of age and have completed Grade 12 (preferably with advanced mathematics and sciences).

A precision machining/tooling apprenticeship takes three to four years to complete and combines on-the-job training with three periods of classroom instruction, each lasting eight weeks. In-school training is spaced out over the apprenticeship and is provided by community colleges and other approved facilities.

Formal training standards, prepared by members of business and labour in the industry, clearly describe each skill an apprentice must learn. Qualified journeypersons supervise on-the-job training and “sign-off” each skill once it has been mastered by the apprentice.

Once training is complete, a Certificate of Apprenticeship is awarded by the Ministry of Training, Colleges & Universities under the Trades Qualification Act.

Qualified Machinists and Tool & Die Makers may also obtain inter-provincial trade certification (Red Seal) which provides for job mobility throughout the country.

### **The Employer:**

The employer oversees training of the apprentice who must be supervised by a journeyperson. A set ratio of journeypersons to apprentices exists for each trade and must be followed by the employer.

As in any other employer-employee relationship, the employer and the apprentice must reach a mutual agreement on wages. Wages are driven by labour market conditions.

Some employers may be able to get financial assistance from the Federal government for apprenticeship training. Contact Human Resources Development Canada for more information.

### **The Future:**

Tradespersons who create precision parts and tools for the manufacturing industry are skilled workers whose abilities are in great demand today as Ontario manufacturers strive to be globally competitive.

Entering a precision machining/tooling apprenticeship can lead to a rewarding career in an industry continually challenged by new technologies, new materials and the rapidly changing market demand for new products.

### **For More Information:**

To find out more about Apprenticeship training, talk to an Industrial Training Consultant at your local Apprenticeship and Client Services Branch at the Ministry of Training, Colleges & Universities. Call the Ministry's toll-free **Training Hotline at 1-888-JOBSGROW** for the office nearest you.