



**ONTARIO COLLEGE OF TRADES**  
**ORDRE DES MÉTIERS DE L'ONTARIO**

Apprenticeship  
Training Standard

Schedule of Training

Draftsperson –  
Mechanical

Trade Code: 614A

Development Date: March 2000

## **NOTICE OF COLLECTION OF PERSONAL INFORMATION**

1. At any time during your apprenticeship training, you may be required to show this training standard to the Ministry of Training, Colleges and Universities (the Ministry). You will be required to disclose the signed Apprenticeship Completion form to the Ministry in order to complete your program. The Ministry will use your personal information to administer and finance Ontario's apprenticeship training system, including confirming your completion and issuing your certificate of apprenticeship.
2. The Ministry will disclose information about your program completion and your certificate of apprenticeship to the Ontario College of Trades, as it is necessary for the College to carry out its responsibilities.
3. Your personal information is collected, used and disclosed by the Ministry under the authority of the Ontario College of Trades and Apprenticeship Act, 2009.
4. Questions about the collection, use and disclosure of your personal information by the Ministry may be addressed to the:

Manager, Employment Ontario Contact Centre  
Ministry of Training, Colleges and Universities  
33 Bloor St. E, 2nd floor, Toronto, Ontario M7A 2S3  
Toll-free: 1-800-387-5656; Toronto: 416-326-5656  
TTY: 1-866-533-6339 or 416-325-4084.

Please Note: Apprenticeship Training and Curriculum Standards were developed by the Ministry of Training, Colleges and Universities (MTCU). As of April 8th, 2013, the Ontario College of Trades (College) has become responsible for the development and maintenance of these standards. The College is carrying over existing standards without any changes.

However, because the Apprenticeship Training and Curriculum Standards documents were developed under either the Trades Qualification and Apprenticeship Act (TQAA) or the Apprenticeship and Certification Act, 1998 (ACA), the definitions contained in these documents may no longer be accurate and may not be reflective of the Ontario College of Trades and Apprenticeship Act, 2009 (OCTAA) as the new trades legislation in the province. The College will update these definitions in the future.

Meanwhile, please refer to the College's website (<http://www.collegeoftrades.ca>) for the most accurate and up-to-date information about the College. For information on OCTAA and its regulations, please visit: <http://www.collegeoftrades.ca/about/legislation-and-regulations>



## SCHEDULE OF TRAINING APPRENTICESHIP TRADE

### DRAFTSPERSON - MECHANICAL - 614A

#### A. Description/Duties:

A **Draftsperson - Mechanical** performs some or all of the following duties:

- \* Develops and prepares engineering designs and drawings.
- \* Operates computer-aided design and graphics drafting stations.
- \* Develops and prepares drawings of industrial machines, engines, tools, and mechanical equipment.
- \* Develops and prepares design sketches.
- \* Completes documentation packages and produces drawing sets.
- \* Checks and verifies design drawings to conform to specification and design data.
- \* Writes technical reports.
- \* Checks prepared contract and tender documents.

#### 2. Is knowledgeable in:

- Occupational Health and Safety Act.
- Fire Codes and Regulations.
- Accident prevention and safe practices.
- Bio/Chemical Hazards and Hazardous materials.
- First Aid/CPR.
- Government regulations and protocols.
- Environmental legislation and protocols.
- Computer drafting and design techniques.

Benchmark/Guideline Total Training Time Frames (Min/Max) (On-the-Job and In-School)  <div style="text-align: center; padding: 10px 0;">6,000 - 8,000 hours</div>	<b>Company/Sector/IC Name</b>  <div style="height: 40px; border-bottom: 1px solid black;"></div>	
<b>Originating TC/IC/PDSU</b>  <div style="border-bottom: 1px solid black; height: 20px; margin-bottom: 5px;"></div> <b>Date</b> <div style="border-bottom: 1px solid black; width: 150px; display: inline-block;"></div>	<b>District Manager/PDSU Manager</b>  <div style="border-bottom: 1px solid black; height: 20px; margin-bottom: 5px;"></div> <b>Date</b> <div style="border-bottom: 1px solid black; width: 150px; display: inline-block;"></div>	
<b>Program Standards Approval</b>  <b>By</b> <div style="border-bottom: 1px solid black; width: 150px; display: inline-block;"></div>  <b>Date</b> <div style="border-bottom: 1px solid black; width: 150px; display: inline-block;"></div>	<b>Director's Approval</b>  <b>By</b> <div style="border-bottom: 1px solid black; width: 150px; display: inline-block;"></div>  <b>Date</b> <div style="border-bottom: 1px solid black; width: 150px; display: inline-block;"></div>	<b>Assigned Trade Code</b>  <div style="text-align: center; padding: 10px 0;">614A</div>



**SCHEDULE OF TRAINING  
APPRENTICESHIP TRADE**

**DRAFTSPERSON - MECHANICAL - 614A**

**B. ON-THE JOB TRAINING**

Unit No	PERFORMANCE OBJECTIVES (ON-THE-JOB SKILL SETS)
<b>614A-1</b>	<p><b><u>Demonstrate Safe Working Practices and Techniques</u></b></p> <p>Recognize and handle potential health and safety hazards and hazardous materials; comply with government safety standards, regulations, policies and procedures; wear personal protective equipment and clothing; operate emergency safety equipment; maintain good housekeeping; use and maintain tools and equipment; assure protection from fire hazards; and in accordance with OHSA and company procedures. Follow environmental procedures and regulations.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p><b>Date</b></p> <p>_____</p> </div> <div style="width: 35%;"> <p><b>Apprentice's Signature</b></p> <p>_____</p> </div> <div style="width: 30%;"> <p><b>Sponsor's Signature</b></p> <p>_____</p> </div> </div>
<b>614A-2</b>	<p><b><u>Communicate Orally and Write Reports</u></b></p> <p>Prepare and deliver oral reports to fellow workers, clients, supervisors, and contractors; prepare written reports for supervisory personnel and other departments; complete inventory requisitions for replacement parts and supplies; and communicate effectively in accordance with customer and company requirements.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p><b>Date</b></p> <p>_____</p> </div> <div style="width: 35%;"> <p><b>Apprentice's Signature</b></p> <p>_____</p> </div> <div style="width: 30%;"> <p><b>Sponsor's Signature</b></p> <p>_____</p> </div> </div>
<b>614A-3</b>	<p><b><u>Demonstrate Drafting Principles</u></b></p> <p>Demonstrate drafting skills and principles by using lines, views, projections, sections, dimensions, lettering, symbols, and sketches, in accordance with company requirements.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p><b>Date</b></p> <p>_____</p> </div> <div style="width: 35%;"> <p><b>Apprentice's Signature</b></p> <p>_____</p> </div> <div style="width: 30%;"> <p><b>Sponsor's Signature</b></p> <p>_____</p> </div> </div>



## SCHEDULE OF TRAINING APPRENTICESHIP TRADE

### DRAFTSPERSON - MECHANICAL - 614A

#### B. ON-THE JOB TRAINING(cont'd)

Unit No	PERFORMANCE OBJECTIVES (ON-THE-JOB SKILL SETS)
<b>614A-4</b>	<p><b><u>Perform Precision Measurements</u></b></p> <p>Perform precision measurements; including CSAE and ASME conventions and standards, materials, numbering, threads, tolerances, machines fits, and surface finishes; detail mechanical fasteners and locking devices; detail assembly and installation drawings; perform measurement using required measuring and checking tools, manuals, and charts; in accordance with government regulations and company procedures.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p><b>Date</b></p> <p>_____</p> </div> <div style="width: 35%;"> <p><b>Apprentice's Signature</b></p> <p>_____</p> </div> <div style="width: 30%;"> <p><b>Sponsor's Signature</b></p> <p>_____</p> </div> </div>
<b>614A-5</b>	<p><b><u>Draft, Develop, and Prepare General Assembly and Detail Drawings and Sketches</u></b></p> <p><b>Draft general assembly and detailed drawings of gears, levers, pulleys, and reduction gears</b> by: indicating dimensions and tolerances, fasteners, and joining requirements and all other engineering data by: preparing working drawings showing methods of manufacturing, joining, and fastening: utilizing knowledge of machine shop practices; drafting drawings of machine parts and components; preparING design sketches and drawings; using engineering drawings, calculations and specifications sheets; preparing sketches and drawings using required drafting equipment, computer-aided drafting and design stations, and tools; and in accordance with company requirements and job specifications.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p><b>Date</b></p> <p>_____</p> </div> <div style="width: 35%;"> <p><b>Apprentice's Signature</b></p> <p>_____</p> </div> <div style="width: 30%;"> <p><b>Sponsor's Signature</b></p> <p>_____</p> </div> </div>



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**DRAFTSPERSON - MECHANICAL - 614A**

**B. ON-THE JOB TRAINING (cont'd)**

Unit No	PERFORMANCE OBJECTIVES (ON-THE-JOB SKILL SETS)
<b>614A-6</b>	<p><b><u>Develop and Prepare Engineering Designs</u></b></p> <p><b>Develop and prepare engineering designs and drawings</b> by: using preliminary concepts and sketches; performing engineering calculations; interpreting specification sheets; using other data; researching manufacture processes, production techniques, and material applications including tooling, metallurgy, schematics, heat treating, machine design, machine operations, non-destructive testing, welding, brazing, soldering techniques, and plastic or synthetic material application; developing and preparing designs and drawings using required drafting equipment, tools, and computer-aided drafting and design stations; and in accordance with manufacturing requirements, company specifications, and government regulations.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p><b>Date</b></p> <p>_____</p> </div> <div style="width: 30%;"> <p><b>Apprentice's Signature</b></p> <p>_____</p> </div> <div style="width: 30%;"> <p><b>Sponsor's Signature</b></p> <p>_____</p> </div> </div>
<b>614A-7</b>	<p><b><u>Complete Documentation Packages</u></b></p> <p><b>Complete documentation packages</b> by checking: dimensions, materials to be used, assembly and disassembly sequence of various parts. Check and verify design drawings to conform to specifications and design data. Write technical reports. Produce drawing sets.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p><b>Date</b></p> <p>_____</p> </div> <div style="width: 30%;"> <p><b>Apprentice's Signature</b></p> <p>_____</p> </div> <div style="width: 30%;"> <p><b>Sponsor's Signature</b></p> <p>_____</p> </div> </div>



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**DRAFTSPERSON - MECHANICAL - 614A**

**B. ON-THE JOB TRAINING (cont'd)**

Unit No	PERFORMANCE OBJECTIVES (ON-THE-JOB SKILL SETS)
614A-8	<p><b><u>Operate Computer-Aided Design and Drafting Stations</u></b></p> <p>Prepare layouts, designs, and detailed drawings, for application in manufacturing or other fields, from sketches, notes and job specifications, and using graphics terminal of a computer system. Review sketches and other data with engineering staff and make changes using conventional drafting techniques. Load disk or tape-drive units with selected data files and required programs. Use keyboard to retrieve and display required drawings and other graphics. Manipulate displayed graphics to develop designs or modify drawings. Input dimensions, locations, and other digitized geometric or analytic information. Redraw details and edit text. Verify drawings and store on disk. Reproduce finalized drawings, specified elevations, cross-sections, projections or other details in hard copy for engineering use. Produce dimensional information, codes, files, part identification, job times, and other programmed data as required.</p> <div> <div>Date</div> <div>Apprentice's Signature</div> <div>Sponsor's Signature</div> </div> <div> <div>_____</div> <div>_____</div> <div>_____</div> </div>
614A-9	<p><b><u>Check Prepared Contract and Tender Documents</u></b></p> <p>Examine drawings to check for errors and take corrective action. Use installation drawings to check for procedures, numbering systems, notes, bills of material, and drawing changes.</p> <div> <div>Date</div> <div>Apprentice's Signature</div> <div>Sponsor's Signature</div> </div> <div> <div>_____</div> <div>_____</div> <div>_____</div> </div>



## SCHEDULE OF TRAINING APPRENTICESHIP TRADE

### DRAFTSPERSON - MECHANICAL - 614A

#### C. Off-the-Job Learning Outcomes:

**CONTENT: (To be written in learning outcomes and benchmark timeframes). On successful completion of off-the-school (in-school) curriculum, the apprentice will demonstrate the ability to:**

#### **DRAFTING**

Interpreting lines, view position, conventions and standards found of prints, use of drawing tools and the application of scale and precision dimensioning. Assembly and detail drawings to illustrate print identification, holes, sections, tapers and casting. Employ pictorial drawings to enable three dimensional visualization interpretation. True position tolerance dimensioning based upon prints and drawings of single and double auxiliaries, weldments, and symmetrically opposite parts. The drawing and detailing of outline and working to assemblies to drafting standards; reading of tool assembly prints. 160 hrs.

#### **MATH**

Review of arithmetic, common and decimal fractions, linear and square measure, square root, ratio and proportion, percentage and checking calculations by excess of nines. Operations with positive and negative numbers, grouping symbols, algebraic axioms, addition, factoring, fractions, fractional and lateral equations, exponents and radicals, linear systems of equations and quadratic equations. Geometry, trigonometry and shop applications and logarithms. Compound angles. 160 hrs.

#### **MACHINE SHOP PRACTICE**

Hands on linear and precision measurement; layout and benchwork and bandsaw operational. Drill press set-up and operation; centre lathe basics. 60 hrs.

#### **ENGINEERING MATERIALS**

The structure of iron and heat treatment, iron carbide equilibrium diagram, classification of steels, properties of metal alloys. Classification of plastics, common groups, chemistry in the families, physical and mechanical properties of plastics, mould design for plastic production and industrial treatment. 60 hrs.



## SCHEDULE OF TRAINING APPRENTICESHIP TRADE

### DRAFTSPERSON - MECHANICAL - 614A

#### C. Off-the-Job Learning Outcomes (cont'd):

##### **CONTENT: (cont'd)**

##### **COMPUTER-AIDED PRODUCT DESIGN (CADD)**

Generate 2 and 3D wireframe geometric models using generic CAD operations such as: curve techniques, transformations, layer control, display control etc. Basic surfacing techniques as applied to a 3D model.

100 hrs.

##### **WELDING**

Basic welding fundamentals relative to shielded metal-arc welding in the FLAT position. (Include theory, practice, safety procedures and terms.)

33 hrs.

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Total 600 hrs.

**Source & Type (Specify in detail: block or day release; night school; in-plant; correspondence).**

600 hours, 2 nights per week, 3 hrs per night, 3 semesters per year

**Benchmark/Guideline Time-Frames of Off-The-Job/In-School Learning Outcomes**

600 hours theory

**Funding**

**Performance Objectives and Learning outcomes reached:**

**Date:**

\_\_\_\_\_

**Sponsor/Trainer/Employer signature:**

\_\_\_\_\_

**Apprentice signature:**

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You will be required to disclose this signed form to the Ministry of Training, Colleges and Universities in order to complete your program. The Ministry will use your personal information to administer and finance Ontario's apprenticeship training system. For further information please see the notice/declaration for collection of personal information that is referenced in the table of contents of this training standard.