



**Skilled
Trades**
Ontario

**Métiers
spécialisés**
Ontario

Apprenticeship
Training Standard
Logbook

Construction Millwright

426A

2007

Apprenticeship Training Standard

The Apprenticeship Training Standard or herein after referred to as “Logbook” is a document issued to Apprentices who sign a Registered Training Agreement in the Province of Ontario as an official record of training. It is to be used by the Apprentice and Sponsor/trainer to guide the process of skills development in a particular trade.

Training As An Apprentice

- ✓ Ensure you, your sponsor, and your witness sign a Training Agreement with the Ministry of Labour, Immigration, Training and Skills Development. Once it is registered, you will receive a copy of the registered Training Agreement for your records.
- ✓ Notify the local Service Delivery Office **immediately** if any changes to contact information or training agreement, especially if you change sponsors.
- ✓ Review the Logbook regularly with your trainer and sponsor to discuss your progress, ask questions, seek feedback and have the trainer **sign-off on competencies**
- ✓ Keep an accurate record of the hours you work.
- ✓ Attend classroom training when it is offered.
- ✓ Apply for the financial incentives for which you are eligible.



Completing Your Logbook

- ✓ **Complete the Sponsor Record Form** – A form must be completed for each Sponsor/Trainer used during your apprenticeship.
- ✓ **Confirm Skill Sign-off is Complete**
 - **You and your trainer** sign-off each required skill to confirm that you have demonstrated competency in that skill.
 - Shaded boxes in your Logbook mean the skills are optional and do not have to be confirmed by your trainer or sponsor. However, you are encouraged to complete them as part of your training.
- ✓ **Confirm Skill Set Sign-off is Complete**
 - After you and your trainer have signed-off all the required skills in a skill set, your sponsor signs the signature box on the form in **Appendix C – “Skill Set Completion for Sponsors”** to confirm your completion of all competencies within each skill set.

This document is the property of the apprentice named inside and represents the official record of your training. For information about completing your apprenticeship, see inside of back cover.



Apprentice Name: _____

Address: _____

Phone Number: _____

Email Address: _____

Trade: _____

Training Agreement # (for Compulsory and Non-Compulsory trades):

STO Account No. (for Compulsory trades only):

This document is the property of the Apprentice named herein and represents the official record of their training.

If you have questions about the use of this Logbook or about your Apprenticeship program, contact your local Service Delivery Office (see Appendix D in this book) or the Employment Ontario hotline at: 1-800-387-5656.

Apprenticeship Pathway to a Certificate of Qualification

Phase 1: Registration

Submit Application for Apprenticeship Training through the on-line portal or to local Service Delivery Office

For on-line portal, please follow instructions for registration. You will need to create a *My Ontario* account to access online services.

Training agreement signed and registered by both apprentice and sponsor

Access your Apprenticeship Training Standard Logbook**
skilledtradesontario.ca/about-trades/trades-information

** This is the official record of your training progress. You are responsible for keeping it up-to-date.

Complete on-the-job training

Demonstrate and receive sign-off on the competencies/skills in your Apprenticeship Training Standard Logbook

Complete in-school training

Attend and complete the in-class training set out in the Curriculum Training Standard

Apprentices eligible to apply for apprenticeship incentive grants (Red Seal trades) and loans.

Review and finalize your logbook with your sponsor

Submit proof of apprenticeship completion via email, in-person or digital portal

Your Apprenticeship Training Standard Logbook details completion requirements. Submit the following:

- completed Apprenticeship Training Standard Logbook with signatures
- proof of hours

Certificate of Apprenticeship is issued

Trades without examination

CofA is the final step of the program

Trades with examination (compulsory and non-compulsory trades)*

Provisional Certificate of Qualification issued for a 12 month term

To prepare for the CofQ examination download the Provincial and/or Red Seal Exam preparation guides.

Make payment for your Certificate of Qualification examination

Call to make a payment (647-847-3000 or 1-855-299-0028)

Schedule a date to write your Examination

To schedule your examination, contact your local Service Delivery Office.

Pass Certificate of Qualification examination

Apprentices eligible to apply for Apprenticeship Completion Grant (Red Seal trades) or Apprentice Completion Bonus (non-Red Seal)

Certificate of Qualification is issued

Upon completion, Sponsors may be eligible for Apprenticeship grants, incentives, bonuses or tax credits

Phase 2: Apprenticeship

Phase 3: Certification

* For a list of trades subject to a certification examination, visit: skilledtradesontario.ca

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Please Note: This Standard has been revised to reflect the visual identity of Skilled Trades Ontario (STO) which replaced the Ontario College of Trades on January 1, 2022. The content of this Standard may refer to the former organization; however, all trade specific information or content remains relevant and accurate based on the original date of publishing.

Please refer to STO's website: skilledtradesontario.ca for the most accurate and up to date information. For information about BOSTA and its regulations, please visit [Building Opportunities in the Skilled Trades Act, 2021 \(BOSTA\)](#).

Any updates to this publication are available on-line; to download this document in PDF format, please follow the link: [Skilled Trades Ontario.ca](https://skilledtradesontario.ca).

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Maintained with transfer to Skilled Trades Ontario 2007 (V100)

Foreword: Purpose, Terms and Conditions of the registered Training Agreement

Purpose:

- Prior to starting official apprenticeship activities, the apprentice, sponsor and a witness are required to sign a Training Agreement.
- The Training Agreement that you have signed is an important legal document that outlines your responsibilities as an apprentice and the responsibilities of your sponsor.
- Once registered, this training agreement (or contract) marks the start of your formal agreement between the apprentice, the sponsor and the Ministry.
- For compulsory trades, the apprenticeship registration document must be accessible when working.

The Apprentice agrees:

- **To inform the local Service Delivery Office of any change to your contact information or change in sponsor within 7 days;**
- To follow the Sponsor's and Trainer's lawful instructions and make every effort to acquire the skills identified in the Logbook for the Trade which is part of the apprenticeship program established by Skilled Trades Ontario for the trade;
- To obtain written verification from the Sponsor and the Trainer(s) that the requirements in the Logbook for the trade have been met.
- When you receive an "Offer of Classroom Training", confirm your attendance by following the instructions in the offer. Failure to do so may result in losing your opportunity to attend school which delays the completion of your apprenticeship.

The Sponsor agrees:

- To ensure that the Apprentice is provided with the training required as part of the apprenticeship program established by Skilled Trades Ontario for this trade;
- To review the progress of training with the Apprentice, and with the Trainer(s) where the Sponsor and the Trainer are not the same party.
- Release your apprentice from work to attend in-school training without penalty to the apprentice.
- To maintain the journeyperson/apprentice ratio for your trade, if applicable.
- To monitor their apprentice(s) progress
- To ensure that the Trainer(s) verifies, in writing, when each skill identified in the Logbook for the trade has been successfully completed by the Apprentice;
- To contact the Ministry should any changes in your capacity to train, your contact information, or your apprentice's status in the program change.

Trade Specific Resources and Links

Trade Specific Resource	Link
Red Seal Program	red-seal.ca
Apprenticeship in Ontario	ontario.ca/page/apprenticeship-ontario
Employment Ontario	employmentontario.ca
Service Canada	servicecanada.gc.ca
<i>Building Opportunities in the Skilled Trades Act, 2021</i>	Building Opportunities in the Skilled Trades Act, 2021, S.O. 2021, c. 28 - Bill 288 (ontario.ca)
Ministry of Labour, Immigration, Training and Skills Development	Ministry of Labour, Immigration, Training and Skills Development ontario.ca
Exam Preparation Guide	Exam Resources – Skilled Trades Ontario
Skills Zone (Ontario Skills Passport)	http://www.skillszone.ca/

**Please note, all website addresses are current at time of printing*

Methodology-Standard Development

A standard is developed with a broad group of trade representatives who form the initial working group. This includes subject matter experts/ tradespeople/ instructors and employers from a cross section of the sector/industry, with varying years of work experience in the field. The working group reviews, develops and recommends revision to the content of the standard. Their role also involves harmonizing and updating other supporting content for the product.

An essential part of the standard development is the validation process. This is the opportunity to have a broader representation of the sector provide feedback on the content of draft standard. This process is conducted in various ways and may include sending out a survey or the draft document (or both) directly to the sector. The comments received are reviewed by the working group and revisions are made as required based on a consensus model.

Introduction to the Logbook

This “on-the job” Logbook is the training standard for Construction Millwright 426A and was developed by Skilled Trades Ontario in consultation with representatives from industry. It identifies all the skills associated with and required to learn the trade.

The Logbook is divided into skill sets, which are further divided into skills. These skill sets and skills are written in statements that describe what the Apprentice must perform and to what standard, in order to be considered competent in that skill.

The successful performance of these skills is tracked in the Logbook. Once achieved, this skills’ sign-off, along with the completion of in-school program requirements or equivalent, is how the apprenticeship program is completed and apprentices receive a Certificate of Apprenticeship.

The Sponsor/trainer and Apprentice are required to sign-off and date each skill after the Apprentice has demonstrated proficiency in these skills. However, if a skill is shaded, it is optional and does not need to be signed-off, though it has been defined as a part of the scope of practice for the trade.

All practices described in this standard must be performed by the apprentice according to the specific criteria identified. In general, the standard of performance for this trade is to be performed according to all applicable jurisdictional codes and standards and all health and safety standards must be respected and observed.

All skills within the Apprenticeship Training Standard are to be performed, as applicable, according to and in compliance with the following:

- Occupational Health and Safety Legislation and Regulations;
- Other applicable legislation, regulation, codes and standards;
- Industry best practices;
- Company policies and procedures.

The information presented in this standard is, to the best of our knowledge, current at time of printing and is intended for general application. Please refer to the Skilled Trades Ontario website for the most accurate and up-to-date information: skilledtradesontario.ca

Roles and Responsibilities

Under the [Building Opportunities in the Skilled Trades Act, 2021 \(BOSTA\)](#)

Skilled Trades Ontario (STO) is responsible for:

- Establishing and maintaining qualifications;
- Establishing Apprenticeship Programs and other training programs including training Standards, curriculum standards and certifying examinations;
- Issuing certificates for the purposes of this Act such as Certificates of Qualification;
- Maintaining a Public Registry for compulsory trades skilledtradesontario.ca/public-register/;
- Determining whether the experience and qualifications obtained by applicants for a certificate of qualification who do not complete an apprenticeship are equivalent to those received through completing an apprenticeship (Trade Equivalency Assessments)
- Promoting the skilled trades and conducting research.
- Conducting research and evaluate whether a trade should be prescribed as a trade for the purposes of this Act and to make recommendations on these matters to the Minister.

Ministry of Labour, Immigration, Training and Skills Development (MLITSD)

is responsible for:

- Classifying trades as compulsory trades;
- Prescribing scopes of practice for trades;
- Approving which persons may provide in-class training for apprenticeship programs (TDAs);
- Registering Training Agreements;
- Providing those who successfully complete an apprenticeship program with a certificate of apprenticeship (CofA);
- Administering examinations, including certifying examinations;
- Promoting the skilled trades and conducting research;
- Exercising such other powers and perform such other duties and functions as are provided for in this Act or the regulations.

For any matter related to your registered Training Agreement or completing your apprenticeship, you must contact your local Service Delivery Office.

Roles and Responsibilities of the Apprentice

An Apprentice is an individual who has entered into a registered Training Agreement (refer to Foreword: *“Purpose, Terms and Conditions of TA” page 1*) with a Sponsor to receive training in a trade as part of an apprenticeship program established by Skilled Trades Ontario. As an Apprentice, you have certain roles and responsibilities to follow throughout your apprenticeship training:

1. As an Apprentice, you signed the Training Agreement and have entered into a contract with the Ministry of Labour, Immigration, Training and Skills Development and your Sponsor.
2. If you are registered as an Apprentice in a compulsory trade, your name will automatically appear in the Skilled Trades Ontario Public Register.
3. You are responsible for informing the staff at your local Service Delivery Office regarding changes to the following:
 - Your Sponsor’s address;
 - Your name and address; and/or,
 - Your Sponsor, including starting employment with a new Sponsor
4. As an Apprentice, you are responsible for completing skills or skill sets in this Logbook (as detailed in the *“Eligibility for Apprenticeship Program Completion”* section of this document) and ensuring that they are dated and signed by both you and your Trainer.
5. Once you have demonstrated competency in all the mandatory skills and received a sign off on each skill by your sponsor/trainer, you must have the Skill Set Completion Form completed and signed by your current Sponsor.
6. Submit your Logbook to your local Service Delivery Office.
7. Present your Apprentice Completion Form (Please refer to Appendix B), along with your authorized Logbook to your local Service Delivery Office.

Roles and Responsibilities of Sponsors and Trainers

Sponsors are responsible for ensuring all terms are met as per the registered Training Agreement. They are named on the registered Training Agreement as the entity responsible for ensuring Apprentices receive the training required as part of an apprenticeship program. As a signatory to this agreement, they are designated as the 'Signing Authority' for the Apprentice's Skill Set Completion Form and are required to attest to successful achievement by signing the appropriate box at the completion of each skill set. Some sponsors may also act as the Trainer.

A **Trainer** is an individual who oversees the performance of a task and sets the workplace expectations and practices for the Apprentice.

In compulsory trades, a Trainer must hold a valid Certificate of Qualification and be registered with Skilled Trades Ontario.

In non-compulsory trades, a Trainer is an individual who holds one of the following:

- A Certificate of Qualification;
- A Certificate of Apprenticeship in the trade; or,
- Has completed both the workplace-based training (competencies and/or hours as applicable) and classroom training components of the trade's apprenticeship program; or,
- Has workplace experience equivalent to the apprenticeship program) and has the skills outlined in the Logbook.

Competency means being able to perform to the required standard (please refer to *"Introduction to the Logbook"*). Trainers/Sponsors and Apprentices are required to sign-off and date the skills in the Logbook following each successful acquisition. The Logbook forms a record of this achievement.

The Trainer must provide their signature based on their assessment and professional judgment that the apprentice is competent in the skills described above. The Trainer's signature is not a general warranty or guarantee of the apprentice's future conduct.

Sponsors participating in this training program will be designated as the Signing Authority and are required to attest to successful achievement by signing the appropriate box included at the end of each skill set.

Health and Safety

Safe working procedures and conditions, accident prevention and the preservation of health are of primary importance for apprenticeship programs in Ontario. These responsibilities are shared and require the joint efforts of government, sponsors, employers, supervisors, workers, apprentices and the public to achieve the goal of making Ontario's workplaces safe and healthy.

The [Occupational Health and Safety Act](#) (OHSA) provides us with the legal framework and the tools to do this. It sets out the rights and duties of all parties in the workplace, placing ultimate responsibility on the employer for the health and safety of workers (in this case apprentices) by ensuring procedures, controls, and training are established for dealing with workplace hazards. Therefore, it is imperative that all parties become aware of circumstances that may lead to injury, illness or harm. Safe learning experiences and environments can be created by controlling the variables and behaviours that may contribute to or cause an accident injury or illness.

A sponsor who is not the employer is reminded that the employer has legal responsibilities respecting health and safety over the apprentice who is their worker. The sponsor should encourage safe work habits and adherence to the employer's occupational health and safety requirements for the workplace.

It is generally recognized that a positive attitude about safety in partnership with health and safety competency contributes to an accident-free environment. Everyone will benefit as a result of a healthy attitude towards the prevention of accidents.

Workers and apprentices can be exposed to a multitude of hazards and, therefore, should be familiar with the Occupational Health and Safety Act and regulations.

The Internal Responsibility System:

One of the primary purposes of the Occupational Health and Safety Act (OHSA) is to facilitate a strong Internal Responsibility System (IRS) in the workplace. To this end, the OHSA lays out the duties of employers, supervisors, workers, apprentices, constructors and workplace owners.

Workplace parties' compliance with their respective statutory duties is essential to the establishment of a strong IRS in the workplace.

Simply put, the IRS means that everyone in the workplace has a role to play in keeping workplaces safe and healthy. Workers and apprentices in the workplace who see a health and safety problem such as a hazard or contravention of the OHSA in the workplace have a statutory duty to report the situation to the employer or a supervisor. Employers and supervisors are, in turn, required to address those situations and acquaint workers with any hazard in the work that they do.

The IRS helps support a safe and healthy workplace. In addition to the workplace parties' compliance with their legal duties, the IRS is further supported by well-defined health and safety policies and programs, including the design, control, monitoring and supervision of the work being performed.

Roles and Responsibilities under the Occupational Health and Safety Act

Employer's Responsibilities include but are not limited to the following:

- Instruct, inform and supervise workers and apprentices to protect their health and safety.
- Appoint competent persons as supervisors.
- Inform a worker, apprentice, or a person in authority, about any hazard in the workplace and train them in the handling, storage, use, disposal and transport of any equipment, substances, tools, material, etc.
- Take every precaution reasonable in the circumstances for the protection of a worker/apprentice.
- In workplaces in which more than five workers are regularly employed, prepare and post a written occupational health and safety policy and set up and maintain a program to implement it.
- Prepare and post policies with respect to workplace violence and workplace harassment and develop programs supporting workplace harassment and workplace violence policies.
- Ensure knowledge of applicable legislative, regulatory, codes and standards so requirements to be followed are clear to all workers/apprentices.

Trainer/Supervisor Responsibilities include but are not limited to the following:

- Ensure that a worker or apprentice works in compliance with the Act and regulations.
- Ensure that any equipment, protective device or clothing required by the employer is used or worn by the worker or apprentice.
- Advise a worker/apprentice of any potential or actual health or safety dangers known by the supervisor.
- Take every precaution reasonable in the circumstances for the protection of workers.

Worker/Apprentice Responsibilities include but are not limited to the following:

- Work in compliance with the Act and regulations.
- Use or wear any equipment, protective devices or clothing required by the employer.
- Report to the employer or supervisor any known missing or defective equipment or protective device that may endanger the worker or another worker.
- Report any hazard or contravention of the Act or regulations to the employer or supervisor.
- Not remove or make ineffective any protective device required by the employer or by the regulations.
- Not use or operate any equipment or work in a way that may endanger any worker.

The Three Rights of Workers/Apprentices

The OHSA gives workers and apprentices three important rights:

1. The right to know about hazards in their work and get information, supervision and instruction to protect their health and safety on the job.
2. The right to participate in identifying and solving workplace health and safety problems either through a health and safety representative or a worker member of a joint health and safety committee.
3. The right to refuse work that they believe is dangerous to their health and safety or that of any other worker in the workplace.

For construction projects applying to construction trades a Constructor is also identified

On all projects, either the owner or someone hired by the owner is the constructor.

The intent of the Occupational Health and Safety Act is to have one person with overall authority for health and safety matters on a project. This person is the constructor of the project.

The constructor is the party with the greatest degree of control over health and safety at the entire project and is ultimately responsible for the health and safety of all workers and apprentices. The constructor must ensure that all the employers, apprentices and workers on the project comply with the Act and its regulations.

Constructor's duties include the following:

- To ensure that the measures and procedures in the Act and regulations are carried out.
- To ensure that every employer, apprentice and worker on the project complies with the Act and regulations.
- To ensure that the health and safety of workers/apprentices on the project are protected.

Ministry of Labour, Immigration, Training and Skills Development

The Ministry of Labour, Immigration, Training and Skills Development conducts periodic inspections of workplaces to ensure that safety acts and regulations are being followed. Please direct any questions to the Occupational Health and Safety Contact Centre at 1-877-202-0008.

Apprenticeship Program Summary/Guidelines

Scope of Practice

The Scope of Practice for the trade of Construction Millwright is set out in section 33 of Ontario Regulation 875/21 under BOSTA and reads as follows:

33. The scope of practice for the trade of construction millwright includes the initial installation of industrial mechanical machinery and equipment by performing the following:

1. Installing, maintaining, retrofitting and removing conveyor systems and other manufacturing equipment.
2. Assembling or disassembling turbines and generators in power plants.
3. Performing precision work in nuclear plants.
4. Rigging and moving heavy equipment and machinery.
5. Placing, setting and aligning heavy equipment.
6. Welding.

*While the Logbook draws on the scope of practice regulation (Section 33 of Ontario Regulation 875/21 under BOSTA). The Logbook does not purport to add to or modify the scope of practice as provided in regulation. *

Program Guidelines

On-the-Job Training Duration

Industry has identified 7280 hours as the benchmark necessary for any Apprentice to become competent in the skills required. There may be circumstances in which the duration varies from this guideline.

In-Class Training Duration

Industry has identified 720 hours of in-school training as the duration necessary for an Apprentice to complete the in-school curriculum for this program.

Total Training Hours

8000 hours

Journeyman to Apprentice Ratio

Ratios in Regulation:

If a trade has been prescribed as being subject to an apprentice to journeyman ratio, the number of apprentices who may be sponsored or employed by a person in the trade in relation to the number of journeymen employed or otherwise engaged by the person in the trade **shall not exceed one apprentice for each journeyman**; Further information can be found in the Apprenticeship section of the Government of Ontario website at ontario.ca/page/hire-apprentice

Program Requirements

Compulsory and Non-compulsory Classification

Regulations under the *Building Opportunities in the Skilled Trades Act, 2021*, classify each trade as either “compulsory” or non-compulsory.” This trade is non-compulsory.

It is the responsibility of an Apprentice to maintain a training record in the form of a Logbook. The Sponsor and Trainer are required to sign-off when competencies in the trade are achieved.

Skills for Success Summary

Skills for Success are needed in a quickly changing world for work, learning and life. They are foundational for building other skills and important for effective social interaction. Everyone benefits from having these skills as they help individuals get a job, progress at their current job and change jobs. They also help individuals become active members of their community and succeed in learning.

Through extensive research and consultations, the Government of Canada launched the new Skills for Success model renewing the previous Essential Skills framework to better reflect the needs of the current and future labour market.

The occupational specific Essential Skills profiles are available online. These will be updated over time to align with the new Skills for Success model found here: [Skills for Success model](#)

Standard of Performance

In general, the standard of performance for the trade of Construction Millwright are to be performed, as applicable, according to and in compliance with the following:

Industry Safety Standards which are based upon:

- Occupational Health and Safety Legislation and Regulations;
- Jurisdictional legislation and regulations, codes and standards (municipal bylaws etc.)
- Company policies and procedures
- All applicable manufacturers specifications and engineering specifications

Training the Apprentice - Tips for Apprentices, Sponsors and Trainers

Tips for Apprentices

Remember, it takes time to learn. The following is a list of additional tips and tools to help make the most of your apprenticeship training:

- Practice safe work procedures early to create good habits;
- Use your Logbook as a journal to keep track of the skills you have achieved;
- Review your training plan with your Training Consultant, Trainer, or Sponsor;
- Discuss your training needs with your Trainer and/or Sponsor;
- Listen to the suggestions of your Trainer;
- Ask your Trainer questions if you are unsure of any skill you need to perform or any tools or equipment you need to use to perform your duties;
- Show enthusiasm and develop good work habits; and,
- Upon demonstration of competency, ensure that you and your Trainer sign-off the individual skills.

To get the most from this mentoring experience, request exposure to the full scope of the trade; meet regularly with your Sponsor/Trainer to discuss your progress, ask questions and seek feedback.

Tips for Sponsors

- Select Trainers with good communication skills and who work well with others;
- Ensure that the Apprentice always works under the direction of or has access to a qualified Trainer;
- Encourage Trainers to take upgrading courses (e.g. Train the Trainer, Mentor, Coach, etc.);
- Set out clear expectations and involve both the Apprentice and Trainer in developing the training plan
- Encourage safe work habits;
- Allow time for the Trainer to train and demonstrate skills to the Apprentice;
- Provide opportunities and time for the Apprentice to learn the trade;
- Ensure that the Apprentice receives the varied on-the-job trade training experience outlined in this document;
- Recognize good performance;
- Observe frequently;
- Provide constructive feedback and conduct regular performance reviews involving the Apprentice and Trainer;
- Use the Logbook as a monitoring tool and a part of regular performance evaluations; and,
- Complete the Skill Set Completion Form once the Apprentice has demonstrated competency in the skills.

- The detailed content listed for each skill is not intended to represent an inclusive list; rather, it is included to illustrate the intended direction for the skill acquisition.

Tips for Trainers

Trainers are responsible for ensuring the Apprentice is developing the skills outlined in this document. Here is a list of tips and tools to help Trainers in their supervision of Apprentices:

- Demonstrate model safe work habits;
- Provide opportunities and time for the Apprentice to learn the trade;
- Treat Apprentices fairly and with respect;
- Review the Logbook with the Apprentice and develop a training plan;
- Set out clear expectations and recognize good performance;
- Expose Apprentices to the full scope of the trade by providing training on the skills outlined in this document;
- Encourage and respond to all questions;
- Be patient;
- Explain, show and demonstrate the skill;
- **Meet regularly with the Apprentice to discuss the apprentice's progress**
- Provide continuous feedback;
- Sign-off skills when your Apprentice demonstrates competency, and,
- Use the Logbook as a guide to evaluate competence in each skill area. By using the Logbook, Trainers will be able to guide the process to and assist Apprentices to develop skills outlined in this document.

The best mentoring experience is when an Apprentice is given as much training/exposure to the full scope of the trade as possible. If this is not possible, help them to determine other ways this may be possible.

Notice of Collection of Personal Information

1. At any time during your apprenticeship training, you may be required to show this Logbook to the local Service Delivery Office. You will be required to submit the signed Apprenticeship Completion form to the Service Delivery Office in order to complete your program. The Service Delivery Office 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 Service Delivery Office will disclose information about your program completion and your Certificate of Apprenticeship to Skilled Trades Ontario, as it is necessary for Skilled Trades Ontario to carry out its responsibilities.
3. Your personal information is collected, used and disclosed by the Ministry of Labour, Immigration, Training and Skills Development under the authority of the *Building Opportunities in the Skilled Trades Act, 2021 (BOSTA)*.
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 Labour, Immigration, Training and Skills Development
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

U6141.0 Demonstrate Safe Working Practices and Procedures

General Performance Objective

Demonstrate safe working practices and procedures by complying with acts, regulations, codes, standards, and directives; controlling hazards and hazardous conditions, equipment, and materials; following company or worksite fire safety procedures; performing housekeeping duties; manually moving equipment, supplies and components; utilizing personal protective equipment; maintaining personal protective equipment; employing simple first aid relating to illness and occupational injury; reporting injuries to supervisor or first-aid personnel; applying machinery and equipment lockout procedures according to safety and regulatory and safety requirements, job expectations, site procedures, manufacturers' recommendations and specifications, and company policies and procedures.

Performance Objectives

Skills

U6141.01 Comply with safety legislation and directives, such as the *Occupational Health and Safety Act (OHSA)*, *Environmental Protection Act (EPA)*, *Dangerous Goods Transportation Act (DGTA)*, *Workplace Safety Insurance Act (WSIA)*, *Trades Qualification and Apprenticeship Act (TQAA)*, *Apprenticeship and Certification Act (ACA)*, Ontario Building Code (OBC), Canadian Electrical Code, Ontario Electrical Safety Code (OESC), Ontario Fire Code (OFC), and Workplace Hazardous Materials Information System (WHMIS), the Construction Safety Association of Ontario (CSAO), municipal requirements, and company policies, by reading, interpreting, and following direction, according to the written content of documents and verbal direction of regulatory authorities and supervisor.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

U6141.02 Lock out, tag and de-energize mechanical equipment, including all sources of stored, electrical, compressed air, hydraulic or kinetic energy for repair or maintenance, by shutting down and tagging machines or manufacturing processes, ensuring that no materials can enter the equipment being repaired or maintained, no damage is caused to the machine, and accidents are prevented, according to safety and regulatory requirements, manufacturers’ recommendations and specifications, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.03 Perform work in confined spaces by following recommended safety procedures, such as the use of breathing apparatuses and assessment of a confined space, according to safety and regulatory requirements, manufacturers’ recommendations and specifications, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.04 Control hazards and hazardous conditions, including worksite conditions, heavy equipment operations, hoisting and lifting operations, overhead operations, material handling, and storage, by visually inspecting and analysing performance and function of equipment and materials; checking for obstructions; and taking remedial action, according to safety and regulatory requirements, site conditions, manufacturers’ recommendations and specifications, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.05 **Inspect mobile equipment**, including powered lift trucks, hoisting equipment and power-elevated work platforms, by visually inspecting for damage or deficiency, in accordance with regulatory and safety regulations, manufacturers' recommendations, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.06 **Follow company or worksite fire safety procedures** by determining the potential for fire posed by the work being performed, assessing the type and severity of the fire, taking action to suppress a minor fire, activating the alarm system, reporting the fire, and following evacuation procedures, according to safety and regulatory requirements, site procedures, manufacturers' recommendations and specifications, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.07 Perform housekeeping duties by removing and disposing of excess or unwanted materials, positioning equipment, identifying the location of first-aid supplies and equipment, erecting protective barriers and signs, and ensuring work area is free of obstructions, according to safety and regulatory requirements, job specifications, site procedures, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.08 Move equipment, supplies and components by utilizing safe lifting, lowering, carrying, pushing, and pulling techniques to protect self and others against injury, according to safety and regulatory requirements, job specifications, site procedures, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.09 Utilize personal protective equipment, including hard hats, gloves, glasses, goggles, masks, face shields, ear protectors/plugs, coveralls, reflector vests, safety footwear, fall- arrest protection equipment, respirators, harnesses, breathing apparatus, air samplers, gas detectors, and radiation badges, by inspecting, selecting, wearing, and adjusting to ensure the safety of self and others, according to safety and regulatory requirements, site conditions, manufacturers' recommendations and specifications, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.10 Maintain personal protective equipment, including hard hats, gloves, glasses, goggles, masks, face shields, ear protectors/plugs, coveralls, reflector vests, safety footwear, fall-arrest protection equipment, respirators, harnesses, breathing apparatus, air samplers, gas detectors, and radiation badges, by checking for wear, breaks, tears, cracks, leakage, and loose and defective components; by inspecting and analysing performance and function; and by storing or noting/tagging deficiencies and removing devices and components from service to ensure the safety of self and others, according to safety and regulatory and requirements, manufacturers’ recommendations and specifications, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.11 Employ simple first aid relating to illness and occupational injuries such as sudden illness, burns, cuts, sprains, chemical and smoke inhalation, and contaminants in eyes, by stabilizing the condition and preparing the victim for further first-aid treatment, and by obtaining emergency medical assistance as required, according to the victim’s condition, safety and regulatory requirements, manufacturers’ recommendations and specifications, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6141.12 Report injuries to supervisor or first-aid personnel promptly and clearly by describing precisely how the incident occurred, and by ensuring that the injured person is attended to, according to safety and regulatory requirements, company policies and procedures, and site conditions.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6142.0 Communicate in the Workplace

General Performance Objective

Communicate in the workplace by communicating orally, or in writing, using graphics, through the use of computer, mechanical and electronic devices, or hand signals, by building and maintaining interpersonal relationships, by presenting a professional image, and by coaching and mentoring co-workers, according to safety and regulatory requirements, job, workplace and site conditions, international hand signal standards, manufacturers' recommendations and specifications, business etiquette, netiquette, and company policies and procedures.

Performance Objectives

Skills

U6142.01 Communicate orally by speaking clearly and concisely, listening attentively, seeking validation of the conversation to ensure understanding, conveying and summarizing information accurately, and by engaging in constructive feedback, according to business etiquette, workplace standards, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

U6142.02 Communicate in writing through the use of correspondence, memoranda, work and change orders, project reports, check-off forms/sheets, proposals, estimates, and accident forms, by writing clearly and concisely; by interpreting and verifying details; by editing correspondence/documentation; by checking for appropriate language usage, completeness, and accuracy; and by checking that all documentation requiring signature has been completed, according to job requirements, business etiquette, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6142.03 Communicate through the use of graphics, such as sketches, construction drawings, three-dimensional models, by using orthographic, isometric and sectional views and dimensions and notes, according to job requirements and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6142.04 Communicate by computer, using keyboards, touch screens, Internet, e-mail, scanners, printers, and other software and peripheral equipment, by verifying that instructions and procedures are conveyed accurately and efficiently, according to job requirements, manufacturers' recommendations and specifications, netiquette, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6142.05 **Communicate by mechanical and electronic devices**, including public address systems, telephones, pagers, radios, and wireless devices, ensuring that clear, concise, and accurate instructions and procedures are conveyed safely and efficiently, according to safety and regulatory requirements, job specifications, site conditions, manufacturers' recommendations, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6142.06 **Perform hand signals**, so that information is given and received in full view and on a timely basis, according to safety and regulatory requirements, job specifications, international hand signal standards, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6142.07 Build and maintain interpersonal relationships by networking, maintaining confidentiality, respecting others, collaborating, consulting, participating at meetings, demonstrating availability, explaining problems and procedures; by utilizing conflict resolution and problem-solving methodologies, identifying and recommending alternative solutions; by listening effectively, using verbal and non-verbal methods to convey messages/meaning, using language acceptable in the workplace; by recognizing and respecting the chain of authority on the job site, and by obtaining approvals from clients, according to business etiquette, workplace standards, and company policies.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6142.08 Coach and mentor co-workers by demonstrating and/or explaining workplace practices, procedures, and requirements; by promoting company policies and procedures; by assessing workplace performance and progress; and by ensuring timely feedback is provided through the use of communication skills and physical demonstration, according to business etiquette, workplace standards, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6143.0 Interpret Drawings and Perform Mathematical Calculations

General Performance Objective

Interpret drawings and perform mathematical calculations by interpreting engineering, machine and component drawings and symbols, drawing and sketching assembly and component parts, interpreting technical and manufacturers' manuals, interpreting schematics and logic diagrams and, calculating gear ratios, horsepower requirements, and final speeds for gear boxes, drivers, and motors.

Performance Objectives

Skills

U6143.01 Interpret engineering, machine and component drawings and symbols by reading and analyzing requirements when overhauling and assembling machinery and equipment, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

U6143.02 Draw and sketch, assembly and component parts by using orthographic, isometric, and sectional views; and by using equipment or techniques, such as free hand drawing instruments, drafting tables, or computer-aided drafting; and by adhering to relevant dimensions and notes, so that sketches or drawings can be interpreted and parts produced by other tradespersons, according to safety and regulatory requirements, job requirements, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6143.03 Interpret technical and manufacturers' manuals by reading and analyzing when overhauling machinery and updating equipment, according to safety and regulatory requirements, job requirements, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6143.04 Interpret schematics and logic diagrams by reading and analyzing when assembling and maintaining electro hydraulic/pneumatic systems, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6143.05 Perform mathematical calculations including gear ratios, horsepower requirements, and final speeds for gear boxes, drivers, and motors, by measuring and applying trade calculations, using charts and specification data, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.0 Use Hand and Power Tools

General Performance Objective

Use hand and power tools by selecting, maintaining, and using fastening tools, hand tools, metal forming tools, measurement tools, power tools, and impact tools and/or power actuated tools, portable seating, lapping, facing equipment, threading machines, dies and pipe cutters, to assemble, install and maintain machinery and equipment.

Performance Objectives

Skills

U6144.01 Utilize fastening tools, such as sockets, spanners, wrenches, torque multipliers, and manual and/or hydraulic torque wrenches, when installing, maintaining, and overhauling machinery; and adhering to established bolt-tightening sequences, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6144.02 Utilize hand tools, such as screwdrivers, chisels, hammers, punches, pliers, levers, scrapers, and pry bars, in a safe and efficient manner when installing, maintaining, and overhauling machinery, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.03 Utilize metal forming tools, such as files, hand saws, drills, power sanders and chippers, reamers, taps, tapping chucks, dies, and snips, to manufacture and shape components, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.04 Maintain metal-forming tools, such as files, hand saws, drills, power sanders and chippers, reamers, taps, tapping chucks, dies, and snips, by cleaning, replacing, sharpening, inspecting for damage, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.05 Utilize measurement tools, including tapes, rules, plumb bobs, and squares when measuring and aligning components, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.06 Maintain measurement tools, including tapes, rules, plumb bobs, and squares when measuring and aligning components, by cleaning, replacing, checking for accuracy using calibration devices, and wipers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.07 Utilize power tools, including shears, magnetic base drills, drills, and grinders, by shearing, drilling and grinding, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.08 Maintain power tools, including shears, magnetic base drills, drills and grinders, by inspecting, adjusting, cleaning and replacing using manufactures’ tools, wipers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.09 Utilize portable seating, lapping, facing equipment, threading machines, dies and pipe cutters, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.10 Maintain portable seating, lapping, facing equipment, threading machines, dies and pipe cutters by inspecting, adjusting, cleaning and replacing, using manufactures’ tools and wipers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.11 **Select and use metal working equipment and saws**, including shears, universal iron worker, band saw, chop saw, chain saw, rolls, and brake, by shearing, sawing, bending, by manipulating using material specific blades, feeds, speeds, and coolants; by cleaning, and setting up and operating shears and universal ironworker, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6144.12 **Maintain metal working equipment and saws**, including shears, universal iron worker, band saw, chop saw, chain saw, rolls, and brakes, by cleaning, checking for tolerances, and damage and wear, by using hand tools, measuring tools and wipers, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6145.0 Set Up and Use Machine Tools

General Performance Objective

Set and use machine tools by interpreting and applying feed, speed, thread cutting, drill and tap chart information and specifications, applying specific trade calculations and formulas, setting up and performing lathe operations, setting up milling operations, setting up and operating pedestal and radial drilling machines, surface grinders, pedestal grinders and setting up and operating machine tool accessories.

Performance Objectives

Skills

U6145.01 Interpret and apply feed, speed, thread cutting, drill and tap chart information and specifications for a variety of machine tool operations, by calculating and applying imperial/metric conversions as required, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6145.02 Apply trade calculations and formulas when machining, fitting, setting up, laying out, aligning, and establishing gear ratios, by ensuring compliance with engineering drawings, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6145.03 Set up and perform lathe operations, such as turning, boring, facing, threading, cutting tapers, knurling, grinding, and form cutting, using high speed steel (H.S.S.) and carbide tool bits, by machining to within plus or minus .002" or within prescribed tolerances and specifications, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6145.04 Set up and perform milling operations, such as slotting, facing, boring, cutting keyways and gears, by machining to within plus or minus .002" or within prescribed tolerances and specifications, using high speed steel (H.S.S.) and carbide tool bits, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6145.05 Set up and operate pedestal and radial drilling machines using clamps, vices, jigs, and angle plates, to drill, ream, tap, countersink, and bore, by using high speed steel (H.S.S.), cobalt and titanium drills and reamers, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6145.06 Set up and operate surface grinders to grind flats, shims, and valves by using grinding wheels and by machining tolerances to be within plus or minus .0005", or within prescribed tolerances, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6145.07 Set up and operate pedestal grinders to sharpen and grind tools and drills by machining tolerances to be within plus or minus .0005", or within prescribed tolerances, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6145.08 Set up and operate machine tool accessories, including dividing heads, taper turning attachments, three- and four-jaw chucks, magnetic chucks, faceplates, wheel dressing attachments, and drill and tool sharpening attachments, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6146.0 Operate and Maintain Precision Measuring Equipment

General Performance Objective

Operate and maintain precision measuring equipment by utilizing and maintaining internal and external micrometres, verniers, dial indicators and computer dials, laser and computer alignment equipment, gauge blocks and surface plates, by utilizing, maintaining and setting up of machine optical levels, and total station, and by defining bench marks and turning points.

Performance Objectives

Skills

U6146.01 Operate and maintain internal and external micrometres by making minor adjustments and calibration, and by taking linear and reading measurements in imperial and metric accurately to within plus or minus .0002" or the metric equivalent, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6146.02 Operate and maintain verniers by taking inside and outside measurements to an accuracy of plus or minus .001", by transferring linear measurements using vernier and vernier height gauge to an accuracy of plus or minus .001", and by reading callipers to an accuracy of plus or minus .001", according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6146.03 Operate and maintain dial indicators and computer dials by setting up dial indicators using 2-dial set up, using instruments to align couplings to prescribed tolerances, ensuring care and preservation of precision master levels, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6146.04 Operate and maintain laser and computer alignment equipment by levelling and aligning, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6146.05 Operate and maintain gauge blocks and surface plates for laying out, angle solving, verifying accuracy, and comparing and transferring measurements, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6146.06 Operate and maintain setup of machine optical levels such as dumpy automatic, and theodolite, for levelling and elevation transfer, by using tilting precision level for levelling of equipment to an accuracy of plus or minus .001", according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6146.07 Operate maintain setup of total station and accessories such as prisms and jig fixtures by measuring angles and distance; by levelling, recording, interpreting data and calibrating equipment; by peg testing and using a self-diagnosis program, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6146.08 Define and install bench marks and turning points, including total station and theodolite, by applying transits for transferring lines and turning angles, including horizontal and vertical, to specifications in degrees, minutes and seconds; by using rods, prisms, carriers, tribachs, plummets, precision scales, jig fixtures, tapes and precision scales, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6147.0 Plan, Prepare, and Set Up for Job

General Performance Objective

Plan, prepare and set-up for job by assessing job site, interpreting and analyzing specifications and structural, mechanical and architectural drawings, planning, preparing and scheduling activities, identifying the specific erection procedure and sequence, sorting, blocking and inventorying materials, preparing and arranging for installation, setting-up equipment, and performing specific start-up procedures.

Performance Objectives

Skills

U6147.01 Assess job site by analysing to ensure accessibility and location of auxiliary equipment, and grade base area; and by selecting and placing anchors, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

U6147.02 Interpret and analyze specifications and drawings, including structural, mechanical and architectural drawings, diagrams and details, by identifying and determining the required assembly, installation, erection and/or necessary modifications, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6147.03 Plan, prepare and schedule activities by determining the human resource, material and equipment requirements to perform the work, using the scope of work and estimate documentation, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6147.04 Identify the specific erection procedure and sequence required to complete installation and removal of equipment or machinery by interpreting and analyzing drawings and specifications, and by using the estimate documentation, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6147.05 Sort, block and inventory materials by unloading and shaking out materials; by preparing for assembly, installation and erection using cranes, forklifts, dollies, chain falls and jacks, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6147.06 Prepare and arrange for installation by cleaning and laying out lines; scheduling and inspecting for readiness using transit and levels, as required by drawings, specifications and installation sequence, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6147.07 Set up equipment, including conveyors, presses, robots, and turbines, by assembling, securing and anchoring all components and attachments; by conducting pre- operational checks to ensure safe and effective operations; and by using hand tools, cranes, rigging equipment, jacks, transit and levels, according to safety and regulatory requirements, job and drawing specifications, manufacturers’ recommendations, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6147.08 Perform specific start up procedures such as sequential testing and jogging for rotation, for various machinery including conveyor systems, presses, robotic systems, and injection mould systems, by turning on hydraulics, electrical, pneumatic systems, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6148.0 Select and Use Materials and Fasteners

General Performance Objective

Use materials and fasteners by selecting and utilizing ferrous and non-ferrous metals, heat treating metals and alloys, stress-relieving steel, by manufacturing non-metallic components, applying screw thread systems, and applying and installing fasteners and adhesives.

Performance Objectives

Skills

U6148.01 Utilize ferrous, non-ferrous and specialty alloy materials, including stainless steel, plasma, mild steel, cast iron, copper, aluminium, and plastics, by welding, brazing, soldering, cutting and gluing using welding machines, plasma, MIG and TIG welding, cutting torches, grinders, band saws, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6148.02 Heat treat metal and alloys, including stainless steel, mild and alloy steels, cast iron, copper, aluminium, by observing colour changes through the use of colour charts to achieve specific conditions and temperatures; and by using furnaces, flames and ovens to heat, using air, oil and water cooling mediums to attain specific conditions, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6148.03 Stress-relieve steel to reduce distortion during hardening operations by heating material to required temperature using furnaces, oil baths, flames and ovens and using air, oil and water to control cooling and then checking and measuring dimensions of materials after the process with precision instruments for specific conditions required according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6148.04 Manufacture non-metallic components, including nylon, rubber and plastic from drawings and sketches by laying out, cutting or machining non-metallic materials using specialized tools such as cut off saws, lathes, drills and grinders, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6148.05 Identify, select, and apply screw thread systems, including Metric, UNC, and UNF, single or multi start and left or right hand by analyzing the specific purpose by following drawings, and by using lathes, threading machines, and thread gauges, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6148.06 Apply and install fasteners and adhesives, including bolts, nuts, screws, dowels, epoxy, glue, rivets and circlips, by preparing surface for fasteners and bonding, by applying chemical adhesives, using rollers, brushes, guns, trowels, spray guns and hand tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6149.0 Select and Apply Lubricants

General Performance Objective

Select and apply lubricants by identifying characteristics and compositions of lubricants, applying lubricants, identifying, utilizing special purpose lubricants, installing plant lubrication systems, and maintaining plant lubrication systems.

Performance Objectives

Skills

U6149.01 Select lubricants, including oil and grease, for specific applications to gear boxes, bearings, couplings, and wheels, by identifying characteristics and composition of various lubricants from charts and by applying to specific applications and conditions, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6149.02 Apply lubricants, including specific oils and greases to reduce friction and wear in moving parts, preventing corrosion and sealing out dirt and other contaminants, by using grease guns, automated or hand pumps, and by hand packing, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6149.03 Utilize special purpose lubricants for extremely high or low temperature, extreme pressure (E.P.), and high load applications, by identifying characteristics and composition of various lubricants from charts and standards, by using grease guns, automated or hand pumps, and by hand packing, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6149.04 Install plant lubrication systems, including pumps, flow indicators, spray valves, metering and dispensing equipment, by laying out, assembling, and erecting, by using fork lifts, cranes, rigging equipment, hand tools and transit and levels, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6149.05 Maintain plant lubrication systems, including pumps, flow indicators, spray valves, metering and dispensing equipment, by visually inspecting for wear and defects, by repairing or replacing parts, using hand tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6150.0 Weld, Braze and Solder

General Performance Objective

Weld, braze and solder by setting up and operating welding equipment, including arc, metal inert gas (MIG), tungsten inert gas (TIG), and plasma; gas welding equipment; gas cutting equipment, by assembling components to be welded for installation; non-metallic welding equipment and rods, selecting compatible materials for spray welding and operating spray welding equipment.

Performance Objectives

Skills

U6150.01 Set up and operate welding equipment, including arc, MIG, TIG, and plasma by preparing, assembling, and connecting equipment to power source, and welding materials in position, using electrodes to produce welds able to pass visual inspection and non-destructive testing, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

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U6150.02 Set up and operate gas welding equipment, including, MIG, TIG, and brazing and soldering torches, for both manual and automatic operation, by welding, brazing and soldering, using hand tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6150.03 Set up gas cutting equipment, including plasma, gas torches and arc air gouging equipment, for both manual and automatic operations, by producing clean cuts free from slag and heat distortion, by gouging, carbon arc, gas torch and plasma cutting, using hand tools for assembly, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6150.04 Assemble components to be welded for installation including brackets and specific machinery parts, by minimizing weld distortion, using drawings, layout, tack and fabrication materials, and by using arc welding machines, brazing and soldering torches, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6150.05 Select and set up non-metallic welding equipment and rods made of materials such as aluminium, brass, and copper, by interpreting and analyzing materials to be welded, and by hooking up regulators and torches to gas bottles, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6150.06 Utilize non-metallic welding equipment and rods made of materials such as aluminium, brass, and copper, by performing soldering and brazing of materials ensuring a quality suitable to pass inspection, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6150.07 **Select compatible materials for overlay/build-up welding** such as steel shafts and wear plates by choosing materials to support bonding, ensuring a quality suitable to pass inspection, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6150.08 **Apply overlay/build up welding to machine parts**, by building up material, using metal spray and welding equipment, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6151.0 Rig and Hoist

General Performance Objective

Rig and hoist, by planning lifts, identifying fibre and wire rope capacities and applications for rigging and hoisting, operating manual or power hoisting equipment, operating manual or power jacking equipment, performing standard hand signals and radio signal procedures and maintaining rigging and hoisting equipment.

Performance Objectives

Skills

U6151.01 Plan lifts by assessing load characteristics, including size and shape; by determining load weight and centre of gravity; and by removing obstacles and dangers using size and weight load SWL charts, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6151.02 Identify fibre and wire rope capacities and applications for rigging and hoisting, by interpreting characteristics and load charts, formulas, and manufacturer’s recommendations, according to safety and regulatory requirements, job expectations, manufacturers’ specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6151.03 Operate manual or power hoisting equipment, to perform lifts by selecting the ropes, fibre and wire, slings, thimbles, shackles, spreader bars, chains, hooks, hoists, rope blocks, and winches, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6151.04 Operate manual or power jacking equipment, including track jacks, hydraulic bottle jacks, hydraulic jacks, and air jacks, by matching the load to the jack and pumping, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6151.05 Perform standard hand signals and radio signal procedures, to convey directions and instructions to co-workers and equipment operators, ensuring that rigging/hoisting operations are performed safely, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6151.06 Maintain rigging and hoisting equipment by regularly inspecting, and checking for frayed cords, electrical malfunction, sharpness, lubrication, sparks, smoke, vibration, and other noticeable damage, and by exchanging, aligning, cleaning, or removing from service, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6152.0 Install and Maintain Material Handling Systems

General Performance Objective

Install and maintain material handling systems by installing, aligning and maintaining conveyor systems, by installing and maintaining conveyor components, and by maintaining cranes and hoists.

Performance Objectives

Skills

U6152.01 Install and align conveyor systems, including belts, rollers, buckets, chains, screws and air, by off-loading, aligning and assembling conveyor components, by adjusting, setting up and levelling using cranes, forklifts, rigging and hoisting equipment, transit and levels and hand and power tools such as wrenches, hammers, chisels, screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

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U6152.02 Maintain conveyor systems, including belts, rollers, buckets, chains, screws and air, by visually inspecting for wear and defects, and by repairing or replacing components using cranes, forklifts, rigging and hoisting equipments and hand and power tools such as wrenches, hammers, chisels, and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6152.03 Install conveyor components, including idlers, drives, belts, counter weights, take-up units, scrapers, tracking belts and skirting, by bolting, welding, adjusting, connecting and tracking belts using cranes, forklifts, rigging and hoisting equipment and hand and power tools such as wrenches, hammers, chisels, and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6152.04 Maintain conveyor components, including chutes, screens and vibrators, idlers, drives, belts, counter weights, take-up units, scrapers and skirting, by visually inspecting and analyzing vibrations; by identifying wear or defects, and by repairing or replacing components using and hand and power tools such as wrenches, hammers, chisels, and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6152.05 Maintain cranes and hoists, including overhead, jib, and gantry cranes, by visually inspecting and identifying wear or defects, and by repairing or replacing components using cranes, forklifts, rigging and hoisting equipment, and hand and power tools, such as wrenches, hammers, chisels and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6153.0 Install and Maintain Power Transmission Systems

General Performance Objective

Install and maintain power transmission systems by installing, aligning, and maintaining power transmission gears, pulleys, and sheaves, maintaining power transmission components, and installing and maintaining couplings, keys, splines, and bushings.

Performance Objectives

Skills

U6153.01 Install power transmission gears, pulleys and sheaves, including flat and timing belts, V-belts, pulleys, and chains, by calculating belt and chain tension, and by checking and adjusting alignment after installation using laser alignment, string and wire, straight edge, by assembling, aligning, fitting and adjusting, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

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U6153.02 Maintain power transmission gears, pulleys and sheaves, including flat and timing belts, V-belts, pulleys, and chains, by visually inspecting and calculating belt and chain tension, and by visually inspecting and identifying wear or defects, and by repairing or replacing components using cranes, forklifts, rigging and hoisting equipment and hand and power tools such as wrenches, hammers, chisels, screwdrivers, and by checking and adjusting alignment after installation, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6153.03 Install and align power transmission components, including shafts, speed reducers, clutches, brakes, ball screws, harmonic drives, and cams and followers, by assembling, fitting and adjusting components using conventional, and special tools and instruments, ensuring fitting and operation, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6153.04 Maintain power transmission components, including shafts, speed reducers, brakes, clutches, ball screws, harmonic drives, and cams and followers, by visually inspecting and identifying wear or defects, and by repairing or replacing components using conventional and special tools and instruments, ensuring installation and operation, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6153.05 **Install couplings**, including mechanical, magnetic, fluid, and centrifugal, by shimming, wedging, jack bolting, mounting coupling, verifying alignment, using specialized tools such as, oil baths, flame heat, optical, dial indicators, and alignment instruments such as lasers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6153.06 **Maintain couplings**, including mechanical, magnetic, fluid, and centrifugal, by visually inspecting and identifying wear or defects, and by repairing or replacing couplings, using specialized tools such as optical, dial indicators, and alignment instruments such as lasers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6153.07 **Install keys, splines, and bushings**, including half-moon, taper, and woodruff keys, by checking for clearances and fit by measuring, filing and fitting using conventional and specialized tools such as micrometers, verniers, callipers, files and grinders, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6153.08 Maintain keys, splines, and bushings, including half-moon, taper, and woodruff keys, by visually inspecting and identifying wear or defects, by removing and checking for clearances and fit, by measuring, filing, cleaning or replacing using conventional and specialized tools such as micrometres , verniers, callipers, files, grinders and emery cloth, solvents and rags, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6154.0 Install and Maintain Compressors and Pumps

General Performance Objective

Install and maintain compressors and pumps by installing and maintaining rotary and reciprocating compressors, primary filters and coolers, separators and receivers, unloading, distribution and lube systems, and hydrodynamic or hydrostatic pumps.

Performance Objectives

Skills

U6154.01 Install compressors, including rotary and reciprocating compressors, by hoisting, jacking, assembling, levelling, aligning and fastening, using cranes, forklifts, shims, optical equipment, and hoisting and rigging equipment, and hand and power tools such as wrenches, hammers, chisels and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6154.02 Maintain compressors, including rotary and reciprocating compressors, by inspecting for worn or defective parts, such as drive components, pistons, rings, bearings, valves and shafts, and by removing, repairing or replacing parts using hoisting and rigging equipment, and hand and power tools such as wrenches, feelers, gauges, verniers, and hammers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6154.03 Install primary filters and coolers, including oil and air filters, single and multi- pass coolers, by hoisting, mounting and connecting parts and lines, and filter elements, using hoisting and rigging equipment, and hand and power tools such as wrenches and screw drivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6154.04 Maintain primary filters and coolers, including oil and air filters, single and multi-pass coolers, by removing and inspecting for contaminants, by cleaning or replacing filters, anodes, tubes, and gaskets, using hand and power tools such as wrenches and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6154.05 Install separators and receivers, including oil and air, by hoisting, mounting and connecting parts and lines, and filter elements, using hoisting and rigging equipment, using hand and power tools such as wrenches and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6154.06 Maintain separators and receivers, including oil and air, including pressure gauges, bypass set-ups, and pipe systems, by inspecting gauges and valves for pressure, leaks, operating functions; by cleaning, replacing, draining, isolating, and de-energizing the equipment; by using wrenches and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6154.07 **Install unloading, distribution and lubrication systems**, including diaphragms, springs, valves, seals, and control linkages; by inspecting and replacing unloaders using hand and power tools such as wrenches, screwdrivers, and allen keys, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6154.08 **Maintain unloading, distribution and lubrication systems**, including diaphragms, springs, valves, seals, and control linkages, by inspecting for wear or defects, and by cleaning or replacing unloaders using hand and power tools such as wrenches, screwdrivers, and allen keys, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6154.09 Install pumps, including hydrodynamic or hydrostatic pumps, by setting, bolting, and aligning using wrenches, dial indicators, laser alignment equipment, and shims, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6154.10 Maintain pumps, including hydrodynamic or hydrostatic pumps, by visually inspecting for wear and defects, by checking alignment, bearings, and vibration, using hand and power tools such as wrenches, screwdrivers, feeler gauges, dial indicators, shims and pry bars, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6155.0 Install, Commission, and Maintain Machinery and Automated Robotic Systems

General Performance Objective

Install, commission, and maintain machinery and automated robotic systems by laying out and preparing base or foundation, installing machinery, levelling, aligning and securing machinery, checking rotation of motors and generators, commissioning and maintaining machinery and ancillary equipment, recording footprint/signature of machinery, and installing and maintaining robotic systems.

Performance Objectives

Skills

U6155.01 Layout and prepare base or foundation, by locating center, by selecting and installing chemical and expanding anchors, by rechecking base of foundation dimensions and bolt locations, by using datum lines, reference points and bench marks, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

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U6155.02 Install machinery, including gear boxes, motors, robots and presses, by rigging, shoring and moving techniques to position on base, by ensuring base and feet are free of dirt and burrs, by maintaining coupling gap, by installing and adjusting mechanical, hydraulic and electronic governors using cranes, forklifts, rigging and hoisting equipment, and rigging and moving equipment such as machinery skates, dollies, creepers and rollers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6155.03 Level and align machinery, including gear boxes, motors, robots and presses, by checking for soft foot, correcting for pipe strain, allowing for thermal growth and alignment, using computer, laser, optical, reverse dial or piano wire alignment methods, and levelling base or components using shims, jacks, bolts, wedges, pads and hydraulic jacks, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6155.04 Secure machinery, including gear boxes, motors, robots and presses, by anchoring, bolting, fastening, grouting, using anchors, bolts, grout and epoxy resins, torque and tension charts, manual torque wrenches, hydraulic torquing and tensioning tools, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6155.05 Check rotation of motors and generators, including electric and pneumatic motors by jogging, visually inspecting, and adjusting for operational rotation, using hand and power tools such as wrenches and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6155.06 Initiate start-up or commission of machinery and ancillary equipment, such as gear boxes, motors, robots and presses, by operating the machine slowly and by adjusting, using hand and power tools such as wrenches, hammers, chisels and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6155.07 Maintain machinery, including gear boxes, motors, robots and presses, by visually inspecting for wear and defects, by checking bolts, alignment and orientation using wrenches, files, feeler gauges, and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6155.08 Record footprint/signature of machinery, including gear boxes, motors, robots and presses, by recording readings of vibration and alignment, using vibration and alignments instruments, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6155.09 Install automated robotic systems, including overhead, linear, and articulating systems, by rigging and setting in place, using cranes, forklifts, rigging and hoisting equipment, and rigging and moving equipment, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6155.10 Maintain automated robotic systems, including overhead, linear, and articulating systems, by visually inspecting for wear and defects, by cycling of equipment, and by adjusting using measuring tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.0 Install and Maintain Bearings, Seals and Packing

General Performance Objective

Install and maintain bearings, seals, and packing, by installing and maintaining packing, bearings, mechanical seals, plain bearings, bearing housing; preparing and fitting specialized bearings, maintaining specialized bearings, installing gaskets and seals, selecting and applying chemical sealants, inspecting and removing outside/inside packing, and selecting and installing outside /inside packing.

Performance Objectives

Skills

U6156.01 Install packing, bearings, and mechanical seals, by sizing, preparing, expanding clearances, and securing, using induction heaters, oil baths, direct heat, feeler gauges, temperature stick, and micrometres, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

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U6156.02 Maintain packing, bearings, and mechanical seals, by visually inspecting for wear and defects, checking tolerances, and replacing using packing pullers, feeler gauges, micrometres, and wrenches to specifications, according to safety and regulatory requirements, job expectations, manufacturers' recommendations, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.03 Install plain bearings, including brass, aluminium, bronze, babbitt and synthetic bearings, by identifying and matching materials to application, and by fitting tolerances to clearances using lead, plastiguage, and feeler gauges, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.04 Maintain plain bearings, including brass, aluminium, bronze, babbitt and synthetic bearings, by visually inspecting for wear and defects, by checking tolerances and scraping, using lead, plastiguage, feeler gauges and bearing scrapers, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.05 Install bearing housing, including pillow block or friction bearing, by aligning and securing using shims, wrenches and allen keys, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.06 Maintain bearing housing, including pillow block or friction bearing, by visually inspecting for wear or defects, by checking tolerances, by repairing and adjusting, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.07 Prepare and fit specialized bearings, including anti-friction, radial, axial, ball, roller, taper, spherical, needle and split bearings, by using bearing ovens, induction heaters, demag units, hot oil baths, arbour presses, pullers and hydraulic jack sets, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.08 Maintain specialized bearings, including anti-friction, radial, axial, ball, roller, taper, spherical, needle and split bearings, by checking for wear or defects, clearances, vibration and temperature abnormalities, using demag units, and feeler gauges, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.09 Install gaskets and seals, including stationary, rotating and step labyrinth seals, “O” rings, lip seals, magnetic bearing housing seals, mechanical seals, stationary and rotating bellows, pusher style, and dry gas seals, by setting up seal flush, buffer fluids, seal pots and product flush coolers, seal oil systems, using hazard bushings, packing, and floating carbon bushings, to specifications, vents and drains and graffoil, teflon and metal wedge seals, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.10 **Select and apply chemical sealants**, including liquid gasket materials, plastic or liquid metal fillers for static or dynamic conditions, by matching compatible materials and smearing using application tubes, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.11 **Inspect and remove outside, inside packing**, including neoprene, silicon, teflon, and nitrile, by visually inspecting for wear or signs of leakage, and by replacing, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6156.12 **Select, and install outside, inside packing**, including neoprene, silicon, teflon, and nitrile packing, by measuring, cutting and matching components to application, using knives and tape measures, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6157.0 **Install and Maintain Pipe Systems and Valves**

General Performance Objective

Install and maintain pipe systems and valves by installing piping, tubing, hose and support brackets, installing specialized fittings, inspecting and replacing specialized fittings, selecting and installing compression fittings and couplings, installing and maintaining specialized valves.

Performance Objectives

Skills

U6157.01 **Install piping, tubing, hose and support brackets**, including metal, plastic, rubber and synthetic brackets, by interpreting schematics, and by laying out, cutting, threading, supporting and assembling components using groovers, wrenches, threaders, benders, hangers and brackets, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6157.02 Install specialized fittings, including screwed, welded, cemented and bolted flanges, by cutting and setting up gasket materials, using screwdrivers, wrenches and welding machines, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6157.03 Inspect and replace specialized fittings, including screwed, welded, cemented and bolted flanges, by inspecting and replacing using screwdrivers, wrenches and welding machines, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6157.04 Select and install compression fittings and couplings, including pneumatic and hydraulic fittings, by matching capable components, by fitting and screwing, using wrenches, knives, rotary cutters and flaring tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6157.05 Install specialized valves, including ball, gate, needle, check, globe, plug and butterfly valves, automatic controls and steam traps, by matching, fitting and setting in capable components, using hoisting and rigging equipment, wrenches, pry bars and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6157.06 Maintain specialized valves, including, ball, gate, needle, check, globe, plug and butterfly valves, automatic controls and steam traps, by inspecting, replacing and repairing, using wrenches, hoisting and rigging equipments, lapping equipment, gasket cutters, scrapers and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6158.0 Install and Maintain Fans and Blowers

General Performance Objective

Install and maintain fans and blowers by inspecting, replacing and maintaining single and multi-stage fans and blowers, installing dust collection and related systems, maintaining dust collection, troubleshooting and balancing fans and blower systems, and maintaining controls.

Performance Objectives

Skills

U6158.01 Install single- and multi-stage fans and blowers, including axial, centrifugal and propeller types, for ventilation, material handling, wet and dry dust collection, induced forced and balanced draft, and cooling tower applications, by interpreting drawings to determine orientation and setting, and aligning, using cranes, forklifts, rigging and hoisting equipment, wrenches, shims, laser alignment and equipment, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor.**

U6158.02 Inspect, replace, and maintain single- and multi-stage fans and blowers, including axial, centrifugal and propeller types, for ventilation, material handling, wet and dry dust collection, induced forced and balanced draft, and cooling tower applications, by checking wheel and impeller clearances, by checking balances, by maintaining oil and lubrication, by checking bearing cooling systems, by inspecting and replacing worn bearings, filter systems, pedestals or mountings, and by ensuring environmental specifications, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6158.03 Install dust collection and related systems, by assembling components and setting in filter elements, shaker systems, conveying and disposal systems, using cranes, forklifts, rigging and hoisting equipment, wrenches, and power tools, according to safety and regulatory requirements, job expectations, environmental specifications, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6158.04 Maintain dust collection system, including filter elements, shaker systems, and conveying and disposal systems, by inspecting for wear or worn parts, and by replacing and repairing, using wrenches and power tools, according to safety, environmental and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6158.05 Troubleshoot and balance fans and blower systems, including axial, centrifugal and propeller types, for ventilation, material handling, wet and dry dust collection, induced forced and balanced draft, and cooling tower applications, by visually inspecting for worn components, and by analyzing vibrations using vibration measuring equipment, according to safety, environmental and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6158.06 Maintain fan and blower controls, including electrical, pneumatic and thermal louvre linkages, solenoid controls, air flow indicators, vacuum and pressure gauges, by inspecting for wear or defects, and by replacing or repairing using wrenches, screwdrivers, hoisting and rigging equipment, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6159.0 Install and Maintain Electric and Electronic Controls

General Performance Objective

Install and maintain electric and electronic controls; by operating lock-outs, programmable logic controllers, and processors, installing and maintaining actuators, and troubleshooting electric and electronic systems.

Performance Objectives

Skills

U615901 Operate lockouts, including electrical disconnects, circuit breakers and shut-off switches, by disengaging electrical power and controls, and by testing after securing, using lock-out locks and tags, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6159.02 Operate programmable logic controllers and processors, including automated or robotic lines, by programming or reprogramming, using electronic interface, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6159.03 **Install actuators**, including A.C. and D.C. motors and stepping motors, by setting in place and aligning couplings, using hoisting and rigging equipment, pry bars, wrenches, laser alignment, dial indicators and shims, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6159.04 **Maintain actuators**, including A.C. and D.C. motors and stepping motors, by checking rotation and alignment, visually inspecting for wear or defects, lubricating, ensuring amperage and voltage requirements, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6159.05 **Troubleshoot electric and electronic systems**, including production lines and operating equipment, by visually inspecting and testing for shorts and draws, directional phasing, using schematic diagrams and applying electric and electronic theory including Ohm’s Law; and measuring and testing instruments such as voltmeters, ammeters, megger meters and oscilloscopes, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6160.0 Install and Maintain Pneumatic Systems

General Performance Objective

Install and maintain pneumatic systems by installing and maintaining pressure and proportional control valves, regulators and linear and rotary actuators.

Performance Objectives

Skills

U6160.01 Install pneumatic systems, including conveyors, cylinders, and vacuum, by interpreting schematic drawings and symbols, by applying pneumatic principles such as force, weight, mass, pressure, and energy including Boyle’s Law and Charles’ Law; and by calculating forces, pressures, and related fluid power formulas and trade maintenance calculations, by assembling and setting in place using hoisting and rigging equipment, allen keys, drills, wrenches, screwdrivers, and dollies, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6160.02 Maintain pneumatic systems, including conveyor, cylinder, and vacuum systems, by applying pneumatic principles such as force, weight, mass, pressure, and energy including Boyle’s Law and Charles’ Law; and by calculating forces, pressures and related fluid power formulas and trade maintenance calculations, by visually inspecting for wear and defects, by replacing components using hoisting and rigging equipment, allen keys, drills, wrenches, screwdrivers, and dollies, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6160.03 Install and maintain pressure and proportional control valves, including spool or poppet types for relief, sequence or unloading operations; directional valves including sliding spool, poppet or rotary types using proper port configurations and varied controls such as manual, mechanical, electrical and pilot; and flow control valves by metering in and metering out and compensating for pressure and temperature variations, potentiometers and proximity switches using adjusting tools such as screwdrivers, wrenches, and hex keys according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6160.04 Install and maintain regulators, by adjusting pressure filters, by allowing for drainage of moisture and lubricators, by using oils, and by adjusting oil feeds, wrenches and screwdrivers, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6160.05 Install and maintain linear and rotary actuators, including single- and double- acting, single- and double-rod types, seals and packing, cup seals and O-rings, piston motors, vane motors, gear motors, lobe, and diaphragm, by testing, exchanging, and replacing using wrenches and screwdrivers, according to size such as hoisting equipment according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6161.0 Install and Maintain Hydraulic Systems

General Performance Objective

Install and maintain hydraulic systems and components by selecting and using hydraulic fluids, installing and maintaining power units and associated equipment, manual and electronic control valves, and hydraulic actuators.

Performance Objectives

Skills

U6161.01 Install hydraulic systems and components, including piping, tubing, hosing and fittings, by interpreting schematic drawings, by applying correct hydraulic principles such as force, pressure energy, friction, volume, velocity, Pascals Law and Bernoulli’s Principle; and by assembling components using wrenches, screwdrivers, and allen keys, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6161.02 Maintain hydraulic systems and components, including piping, tubing, hosing and fittings, by interpreting schematic drawings, by troubleshooting, testing and replacing components using wrenches, screwdrivers, and allen keys, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6161.03 Select and use hydraulic fluids, including petroleum based, fire resistant and synthetic fluids, by identifying fluid characteristics, and by applying hydraulic principles such as force, pressure, energy, friction, volume, and velocity; by applying trade calculations and formulas for pressure, force, flow rate and conductor size; and by interpreting hydraulic schematic drawings, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6161.04 Install hydraulic power units and associated equipment, including electric motors, pumps, filters, strainers, accumulators and reservoirs, by interpreting hydraulic schematic drawings, by fitting and assembling components using hoisting and rigging equipment, wrenches, screwdrivers, and allen keys, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6161.05 Maintain hydraulic power units and associated equipment, including electric motors, pumps, filters, strainers, accumulators and reservoirs, by visually inspecting for wear or defects, by applying hydraulic principles such as force, pressure, energy, friction, volume and velocity; by applying trade calculations and formulas for pressure, force, flow rate and conductor size; and by interpreting hydraulic schematic drawings, by troubleshooting and inspecting for wear and defects, and by replacing and assembling components using a logical sequence of elimination and test instruments, and wrenches, screwdrivers, and allen keys, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6161.06 Install manual and electronic control valves, including pressure, direction, proportional and flow control valves, by applying hydraulic principles such as force, pressure, energy, friction, volume and velocity; by applying trade calculations and formulas for pressure, force, flow rate and conductor size; by interpreting hydraulic schematic drawings, and by using and power tools such as wrenches, screwdrivers, and allen keys, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6161.07 Maintain manual and electronic control valves, including pressure, direction and flow control valves, by visually inspecting for wear or defects, by applying hydraulic principles such as force, pressure, energy, friction, volume and velocity; by applying trade calculations and formulas for pressure, force, flow rate and conductor size; and by interpreting hydraulic schematic drawings, and by trouble- shooting, inspecting and replacing using a logical sequence of elimination and test instruments, and by using hand and power tools such as wrenches, screwdrivers, and allen keys, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6161.08 Install hydraulic actuators, including linear and rotary actuators, by applying hydraulic principles such as force, pressure, energy, friction, volume and velocity; by applying trade calculations and formulas for pressure, force, flow rate and conductor size; by interpreting hydraulic schematic drawings, and by mounting and attaching using wrenches, screwdrivers and allen keys, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6161.09 Maintain hydraulic actuators, including linear and rotary actuators, by visually inspecting for wear or defects, by applying hydraulic principles such as force, pressure, energy, friction, volume and velocity; by applying trade calculations and formulas for pressure, force, flow rate and conductor size; by interpreting hydraulic schematic drawings, by troubleshooting, by inspecting for wear and defects, and by replacing using wrenches, screwdrivers and allen keys, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6162.0 Install and Maintain Power Generation Equipment

General Performance Objective

Install and maintain power generation equipment by installing and maintaining turbines, nuclear equipment and components, co-generation systems and components, and generators and components.

Performance Objectives

Skills

U6162.01 Install turbines, including water, steam, wind, and gas turbines, by laying out, and checking anchor bolts, intake and exhaust valves, seats, steam and gas, motor turbine inlet valves and overspeed trip valves; by mating surfaces for warpage, steam cuts, burring and bruising, cylinder bores and liners and intake and exhaust valves; by timing assembly by lay out, by preparing base or foundation, level and alignment; by installing machinery and components, and by conducting final checks, start-up and run-in using hoisting and rigging, alignment equipment, torque wrenches, micrometres, and scrapers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6162.02 Maintain turbines, including water, steam, wind, and gas turbines, by visually checking for wear and defects on intake and exhaust valves and seats, steam and gas turbine inlet valves and overspeed trip valves; by mating surfaces for warpage, steam cuts, burring and bruising cylinder bores and liners; by timing assembly by inspecting, replacing, adjusting and aligning using hoisting and rigging, torque wrenches, micrometres, and scrapers, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6162.03 Install nuclear equipment and components, including Calandria, Primary Heat Transfer pumps, moderater pumps, fuel transfer systems and Air-Lock doors, by measuring, aligning, levelling, shimming, lifting, using hoisting and rigging equipment, wrenches, dial indicators, automatic and precision levels, verniers, mircrometres, laser alignment tool, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6162.04 Maintain nuclear systems and components, including Calandria, Primary Heat Transfer pumps, moderater pumps, fuel transfer systems and Air-Lock doors, by cleaning and inspecting for wear and tear, repairing and replacing, checking tolerances, clearances, alignments; by using hoisting and rigging equipment, and other tools such as wrenches, dial indicators, automatic and precision levels, verniers, micrometres, and laser alignment tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6162.05 Install co-generation systems and components, including turbines, intake and exhaust, rotors, and sound enclosure systems, by measuring, aligning, levelling, shimming; lifting using hoisting and rigging equipment, and other tools such as wrenches, dial indicators, automatic and precision levels, verniers, micrometres, laser alignment tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6162.06 Maintain co-generation systems and components, including turbines, intake and exhaust, rotors, and sound enclosure systems, by inspecting for wear and tear, repairing and replacing, checking tolerances, clearances, alignments, using hoisting and rigging equipment, and other tools such as wrenches, dial indicators, automatic and precision levels, verniers, micrometres, and laser alignment tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6162.07 Install generators and components, including solar, electric and motorized generators, by measuring, aligning, levelling, shimming; by lifting using cranes, forklifts and hoisting and rigging equipment; and by using other tools such as wrenches, dial indicators, automatic and precision levels, verniers, micrometres, and laser alignment tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6162.08 Maintain generators and components, including solar, electric and motorized generators, by inspecting, repairing and replacing, by measuring, aligning, levelling, shimming, lifting, by using hoisting and rigging equipment, and other tools such as wrenches, dial indicators, automatic and precision levels, verniers, micrometres, and laser alignment tools, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6163.0 Perform Preventive and Predictive Maintenance

General Performance Objective

Perform preventive and predictive maintenance by performing non-destructive testing, scheduling maintenance activities, predicting equipment failure, and identifying worn or defective components.

Performance Objectives

Skills

U6163.01 Perform predictive maintenance, including vibration and balancing equipment, by interpreting monitors for velocity, frequency and amplitude, and by recording footprint/signature using fixed and portable analysis devices, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

*** A Trainer may be a Supervisor or the competent employee designated by the Apprentice’s Sponsor.**

U6163.02 Perform non-destructive testing, including dye penetrant, magnaflux, ultrasonic, X-ray, fluoroscopic and oil analysis testing, by interpreting results of various source reports using spray cans, ultrasonic test equipment, and X-ray equipment, according to safety and regulatory requirements, manufacturers’ recommendations and specifications, job expectations, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6163.03 **Schedule maintenance activities**, including predictive and preventive checks, by administering, recording and monitoring activities, using computer maintenance software packages, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6163.04 **Predict equipment failure**, including electrical, mechanical and fluid power failures, by recording and analyzing noise patterns, using noise monitoring instruments, according to safety and regulatory requirements, job expectations, manufacturers’ recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

U6163.05 Identify worn or defective components, including bearings, gear boxes, shafts, and motors, by visually inspecting for wear or defects, by checking and mapping clearances, tolerances and temperature using fibre optic and infra-red cameras, thermometers and instruments, according to safety and regulatory requirements, job expectations, manufacturers' recommendations and specifications, site conditions, and company policies and procedures.

mm/dd/yy	Trainer Print Name	*Trainer Signature
mm/dd/yy	Apprentice Print Name	Apprentice Signature

Definitions

Apprentice

- An individual who, pursuant to a registered Training Agreement, is receiving or is to receive training in a trade that is required as part of an apprenticeship program
- Holds a Training Agreement in either a compulsory or non-compulsory trade;
- Are subject to any ratios that have been set out in regulation and or recommended by industry for their trade(s);
- Remain as an Apprentice until they receive their Certificate of Apprenticeship

BOSTA

Building Opportunities in the Skilled Trades Act, 2021 (BOSTA)

Certificate of Apprenticeship (C of A)

A certificate issued to individuals who have demonstrated that they have completed an apprenticeship program in Ontario.

Certificate of Qualification (C of Q)

A certificate issued to an individual who has completed an apprenticeship or equivalent AND passed the Certificate of Qualification examination.

Competence

The ability of an individual to perform a skill, consistently without assistance, in the workplace as set out in the Logbook.

Competency Analysis Profile (CAP Chart)

A chart that identifies the training needs of an individual trade and details the skills/skill sets that must be demonstrated during an apprenticeship program.

Journeyman

Journeyman means an individual who holds a certificate of qualification (in a compulsory or non-compulsory trade) and/or an individual who practices as a journeyman in a non-compulsory trade who does not hold a certificate of qualification and has equivalent experience in that trade.

Mandatory Skill

Status assigned to unshaded individual skills, skill sets or general performance objectives which must be signed-off for the Apprentice to complete their program.

Optional Skill

Status assigned to shaded individual skills, skills sets or general performance objectives for which sign-off is not required for the Apprentice to complete the program.

Provisional Certificates of Qualification

- A Provisional Certificate of Qualification is issued to an individual who has obtained a Certificate of Apprenticeship (in both compulsory and non-compulsory trades) in a program that has a Certificate of Qualification examination, to which the individual has not yet passed the Certificate of Qualification examination.
- A Provisional Certificate of Qualification shall have the prescribed term or, if no term is prescribed, a term of one year.
- In a compulsory trade, the Provisional Certificate of Qualification allows a person to continue working legally in the trade for up to 12 months while they work to pass the certifying exam.
- Individuals with a Provisional Certificate of Qualification are subject to any ratios that have been set out for their trade(s).

Ratios

For the purpose of an Apprenticeship program, a ratio is the maximum number of Journeypersons to Apprentices. The purpose of ratios is to provide consistent supervision, training and continuity of work.

Sign-off

Signature of the Sponsor of record, or an individual to whom that Sponsor has delegated signing authority, (e.g. Trainer) indicating an Apprentice's demonstration of competence.

Skill

Individual competency/task described in the Logbook.

Skill Sets

Group or selection of individual skills found in the Logbook.

Skill Set Completion for Sponsors

Listing for all skill sets and includes space for sign-off by Sponsor of record.

Sponsor

Means a person that has entered into a registered Training Agreement under which the person is required to ensure that an individual is provided with workplace-based training in a trade as part of an apprenticeship program.

Sponsor of Record

Refers to the Sponsor documented as being signatory to the registered Training Agreement or Contract of Apprenticeship. In order for a Sponsor to be considered for the training of Apprentices, they must identify that the workplace has qualified persons or the equivalent on site, and can identify that the workplace has the tools, equipment, materials, and processes which have been identified by the Industry representatives for the trade.

Trainer

An individual who oversees the performance of a task and sets the workplace expectations and practices for the Apprentice. For a compulsory trade, a qualified Trainer is an individual who holds a Certificate of Qualification. In a non-compulsory trade, a Trainer is an individual who either holds a CofQ, CofA, or is considered equivalent.

Ready to Write Your Exam?

Many of the skilled trades in Ontario have a final certification examination that you must pass to become certified in your trade. Passing the examination gives you the right to hold yourself out as a Journeyman and receive a Certificate of Qualification in your trade.

There are two types of trade certification examinations in Ontario:

1. Provincial (Ontario) examinations - which lead to a Certificate of Qualification.
2. Red Seal examinations – which lead to a Certificate of Qualification with an Interprovincial Red Seal endorsement.

If a trade is designated as Red Seal in Ontario, you will be writing the Red Seal examination. To access the Red Seal preparation guide please visit: red-seal.ca

Ontario's Exam Preparation Guide

[Exam Resources – Skilled Trades Ontario](#)

Basic Examination Details for You to Know

- You will have **up to four hours to write your examination.**
- Accommodations must be requested and approved prior to scheduling your examination.
- You can leave the examination centre if you complete the examination in less than four hours.
- Exam questions are multiple choice with four options from which you must choose the correct answer. Your examination may have between 90 and 150 multiple choice questions.
- You need a mark of 70% to pass.

Scheduling Your Examination

The examination scheduling process is currently outlined in detail on the Skilled Trades Ontario website: [Exam Scheduling – Skilled Trades Ontario](#)

Remember these 3 basic steps:

1. Confirm your eligibility to write the examination with Skilled Trades Ontario.
2. Contact Client Services at Skilled Trades Ontario to pay your examination fee.
3. Contact the local Service Delivery Office to schedule your examination in their examination centre: <https://www.ontario.ca/page/employment-ontario-apprenticeship-offices>

Instructions for Recording a Change in Sponsor

1. Record your first sponsor's information in Sponsor Record #1 – this would be the sponsor who has signed your initial apprenticeship Training Agreement for this trade.
2. If you do change sponsors prior to completing this apprenticeship, please contact your local Service Delivery Office immediately to update your sponsor record.
3. Please make sure you record all the information regarding any additional sponsors of record towards your apprenticeship using the Sponsor Records on the following pages (if applicable).

You must fill out a Change of Sponsor Record each time you change your sponsor.

Sponsor Record #1

Sponsor Information		
Apprentice Name		
Training Agreement #		Date (mm/dd/yy)
Sponsor Name		
Address		
Telephone		
E-mail Address		

Summary of Training	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	
Skill Sets Completed	

As the Sponsor, I hereby confirm that the above information is true and accurate to the best of my knowledge.

Signature: _____ Date: (mm/dd/yy) _____

The Sponsor is required to sign-off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

***If you need additional copies of the Sponsor Record, visit SkilledTradesOntario.ca and search Sponsor Record Form.**

Change of Sponsor Record #2

Sponsor Information		
Apprentice Name		
Training Agreement #		Date (mm/dd/yy)
Sponsor Name		
Address		
Telephone		
E-mail Address		

Summary of Training	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	
Skill Sets Completed	

As the Sponsor, I hereby confirm that the above information is true and accurate to the best of my knowledge.

Signature: _____ Date: (mm/dd/yy) _____

The Sponsor is required to sign-off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

***If you need additional copies of the Sponsor Record, visit SkilledTradesOntario.ca and search Sponsor Record Form.**

Change of Sponsor Record #3

Sponsor Information		
Apprentice Name		
Training Agreement #		Date (mm/dd/yy)
Sponsor Name		
Address		
Telephone		
E-mail Address		

Summary of Training	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	
Skill Sets Completed	

As the Sponsor, I hereby confirm that the above information is true and accurate to the best of my knowledge.

Signature: _____ Date: (mm/dd/yy) _____

The Sponsor is required to sign-off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

***If you need additional copies of the Sponsor Record, visit SkilledTradesOntario.ca and search Sponsor Record Form.**

Change of Sponsor Record #4

Sponsor Information		
Apprentice Name		
Training Agreement #		Date (mm/dd/yy)
Sponsor Name		
Address		
Telephone		
E-mail Address		

Summary of Training	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	
Skill Sets Completed	

As the Sponsor, I hereby confirm that the above information is true and accurate to the best of my knowledge.

Signature: _____ Date: (mm/dd/yy) _____

The Sponsor is required to sign-off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

***If you need additional copies of the Sponsor Record, visit SkilledTradesOntario.ca and search Sponsor Record Form.**

Appendix A — Instructions for Apprenticeship Program Completion

Once an Apprentice has completed all the classroom training and benchmark on-the-job hours specified for the trade and has acquired all the mandatory skills included in this Logbook.

The Apprentice and the Sponsor complete the Apprentice Completion Form and the Skill Set Completion for Sponsors Form located on the following pages.

1. They sign the forms and submit them to their local Service Delivery Office. To find the closest office, check the contact information at ontario.ca/page/employment-ontario-apprenticeship-offices or call the Employment Ontario toll free number at (1-800-387-5656).
2. For All Trades: All mandatory skills (or the combination indicated in the completion requirements for the trade) in the Logbook must be signed-off. The recommended hours are a benchmark. If the Sponsor is completing the Apprentice before the industry recommended training hours are done, staff may request further information regarding the Apprentice's on-the-job training. An example of a request would be a letter from the Sponsor confirming the Apprentice worked for some time in the trade before the initial Training Agreement was registered, thereby acquiring some skills beforehand.

If Apprentices are submitting the completion request form and supporting documentation to their local Service Delivery Office by mail, fax, or email (as a scanned document), they should not include their Logbook; if they are presenting this form in person at the local Service Delivery Office, they should bring their Logbook with them.

After staff verifies all the information in the completion request, they may contact either the Apprentice or the Sponsor for further information or documentation. Once the completion has been confirmed, the local Service Delivery Office will issue a Certificate of Apprenticeship to the Apprentice.

Skilled Trades Ontario will receive notification of this completion.

- If the Apprentice has completed a program in a **compulsory trade**, Skilled Trades Ontario will automatically register the Apprentice for a Provisional Certificate of Qualification to continue to work legally for one year while preparing for the certification examination.
- If an Apprentice completes their apprenticeship in a **non-compulsory trade** and there is a Certificate of Qualification exam, they must write and pass the exam to receive a Certificate of Qualification from Skilled Trades Ontario.

For permission to schedule an exam once completion is confirmed, the individual must first contact the Skilled Trades Ontario Client Services Department at 647-847-3000 or toll free at 1-855-299-0028 to pay the certification examination fee. Once you have paid your exam fee with Skilled Trades Ontario, book your exam by contacting your nearest Employment Ontario local Service Delivery Office.

Appendix B — Apprentice Completion Form

Please fill out both sides of this form, including the Skill Set Completion for Sponsors (see back of form). Once both sides are completed, submit the form to your local Service Delivery Office (find contact information at ontario.ca/page/employment-ontario-apprenticeship-offices or by calling Employment Ontario at (1-800-387-5656).

Apprentice Information	
Name (print)	
Client ID # Issued by Ministry	
Telephone Number(s)	

Sponsor Information	
Legal Name	
Address	
Telephone Number(s)	
Sponsor's Signing Authority <i>(print name)</i>	
E-mail Address	

Program Information	
Trade Name	
Number of hours required as per Training Agreement <i>(hours-based trades only)</i>	
Hours completed? <i>(documentation attached)</i>	Yes () No () Not applicable ()
Classroom training completed or exempt?	Yes () No () Not applicable ()

I hereby confirm that the information submitted on both sides of this form is true and accurate.

X _____
Apprentice's Signature Date

X _____
Signature of Sponsor's Signing Authority Date

Appendix C — Skill Set Completion for Sponsors

You will find the skill set numbers and titles in the Logbook's Table of Contents. By signing off each skill set in the table below, you are providing final confirmation, as the Apprentice's Sponsor, that the Apprentice has demonstrated competency in all the mandatory skills included in the skill set.

Skill Set #	Skill Set Title	Signing Authority Signature
U6141.0	Demonstrate Safe Working Practices	
U6142.0	Communicate in the Workplace	
U6143.0	Interpret Drawings and Perform Mathematical	
U6144.0	Use Hand and Power Tools	
U6145.0	Set Up and Use Machine Tools	
U6146.0	Operate and Maintain Precision Measuring	
U6147.0	Plan, Prepare and Set Up for Job	
U6148.0	Select and Use Materials	
U6149.0	Select and Apply Lubricants	
U6150.0	Weld, Braze and Solder	
U6151.0	Rig and Hoist	
U6152.0	Install and Maintain Material	
U6153.0	Install and Maintain Power	
U6154.0	Install and Maintain Compressors	
U6155.0	Install, Commission, and Maintain Machinery	
U6156.0	Install and Maintain Bearings, Seals	
U6157.0	Install and Maintain Pipe Systems	
U6158.0	Install and Maintain Fans	
U6159.0	Install and Maintain Electric	
U6160.0	Install and Maintain Pneumatic	
U6161.0	Install and Maintain Hydraulic	
U6162.0	Install and Maintain Power	
U6163.0	Perform Preventive and Predictive	

Ministry of Labour, Immigration, Training and Skills Development use only:

Sponsor verified as most recent sponsor of record: Yes () No ()

Documentation to support completion of hours attached: Yes () No ()

Completion of classroom training verified: Yes () No ()

Staff Name _____ Signature _____

Date _____

Appendix D — Local Service Delivery Offices in Ontario

For current office listings visit: ontario.ca/page/employment-Ontario-apprenticeship-offices

Location	Contact	Location	Contact
Barrie 705-737-1431	55 Cedar Pointe Dr Unit 609, Barrie, ON L4N 5R7	Marathon 807-346-1550	52 Peninsula Road, Suite 103 Marathon, Ontario, P0T 2E0
Belleville 613-968-5558 1-800-953-6885	135 North Front St, Belleville, ON K8P 3B5	Markham 905-513-2695	140 Allstate Parkway, Suite 505, Markham, Ontario L3R 5Y8
Brantford 519-756-5197	505 Park Rd North Suite 201, Brantford, ON N3R 7K8	North Bay 705-495-8515 1-800-236-0744	200 First Ave West, North Bay, ON P1B 3B9
Chatham 519-354-2766 1-800-214-8284	870 Richmond St West 1st Floor, Chatham, ON N7M 5J5	Ottawa 613-731-7100 1-877-221-1220	Preston Square, 347 Preston Street, Suite 310, Ottawa, ON K1S 3H8
Cornwall 613-938-9702 1-877-668-6604	132 Second St East Ste 202, Cornwall, ON K6H 1Y4	Owen Sound 519-376-5790 1-800-838-9468	1450 1st Ave West, Suite 100, Owen Sound, ON N4K 6W2
Dryden 807-456-2665 1-800-734-9572	Provincial Government Building, 479 Government St, Dryden, ON P8N 3K9	Peel 905-279-7333 1-800-736-5520	The Emerald Centre, 10 Kingsbridge Garden Circle, Suite 404, Mississauga, ON L5R 3K6
Durham 905-433-0595 1-800-461-4608	78 Richmond Street West, Oshawa, ON L1G 1E1	Pembroke 613-735-3911 1-800-807-0227	615 Pembroke St East, Pembroke, ON K8A 3L7
Elliot Lake 1-800-236-8817	50 Hillside Dr North, Elliot Lake, ON P5A 1X4	Peterborough 705-745-1918 1-877-433-6555	901 Lansdowne St West, Peterborough, ON K9J 1Z5
Fort Frances 807-274-8634	922 Scott St 2nd Flr, Fort Frances, ON P9A 1J4	Sarnia 519-542-7705 1-800-363-8453	Bayside Mall, 150 Christina St North, Sarnia, ON N7T 7W5
Geraldton 807-854-1966	208 Beamish Avenue West Geraldton, Ontario P0T 1M0	Sault Ste. Marie 705-945-6815 1-800-236-8817	477 Queen St East 4th Flr, Sault Ste Marie, ON P6A 1Z5
Halton 905-842-5105 1-844-901-5105	700 Dorval Dr., Suite 201, Oakville, ON L6K 3V3	St Catharines 905-704-2991 1-800-263-4475	Garden City Tower, 301 St Paul St East, 10th Flr, St Catharines, ON L2R 7R4
Hamilton 905-521-7764 1-800-668-4479	Ellen Fairclough Bldg, 119 King St West 8th Flr, Hamilton, ON L8P 4Y7	Sudbury 705-564-3030 1-800-603-5999	159 Cedar St Ste 506, Sudbury, ON P3E 6A5
Kapuskasing 705-465-5785 705-235-1950	Ontario Government Complex, 122 Government Rd West, Kapuskasing, ON P5N 2X8	Thunder Bay 807-346-1550 1-800-439-5493	189 Red River Rd Suite 103, Thunder Bay, ON P7B 1A2
Kenora 807-468-2879 1-800-734-9572	227 1/2 Second St South, Kenora, ON P9N 1G4	Timmins 705-235-1950 1-877-275-5139	Ontario Government Complex, 5520 Highway 101 East Wing B, South Porcupine, ON P0N 1H0
Kingston 613-548-1151 1-866-973-4043	Alliance Business Centre, 299 Concession St Ste 201, Kingston, ON K7K 2B9	Toronto Centre 416-927-7366 1-800-387-5656	2 St Clair West, 11 th floor Toronto, ON M4A 1L5
Kitchener 519-653-5758 1-866-877-0099	4275 King St East, Kitchener, ON N2P 2E9	Toronto South 416-326-5800	625 Church St 1st Fl, Toronto, ON M7A 2B5
London 519-675-7788 1-800-265-1050	1200 Commissioners Rd E, Unit 72, London, ON N5Z 4R3	Windsor 519-973-1441	Roundhouse Centre, 3155 Howard Ave 2nd Fl, Suite 200, Windsor, ON N8X 4Y8

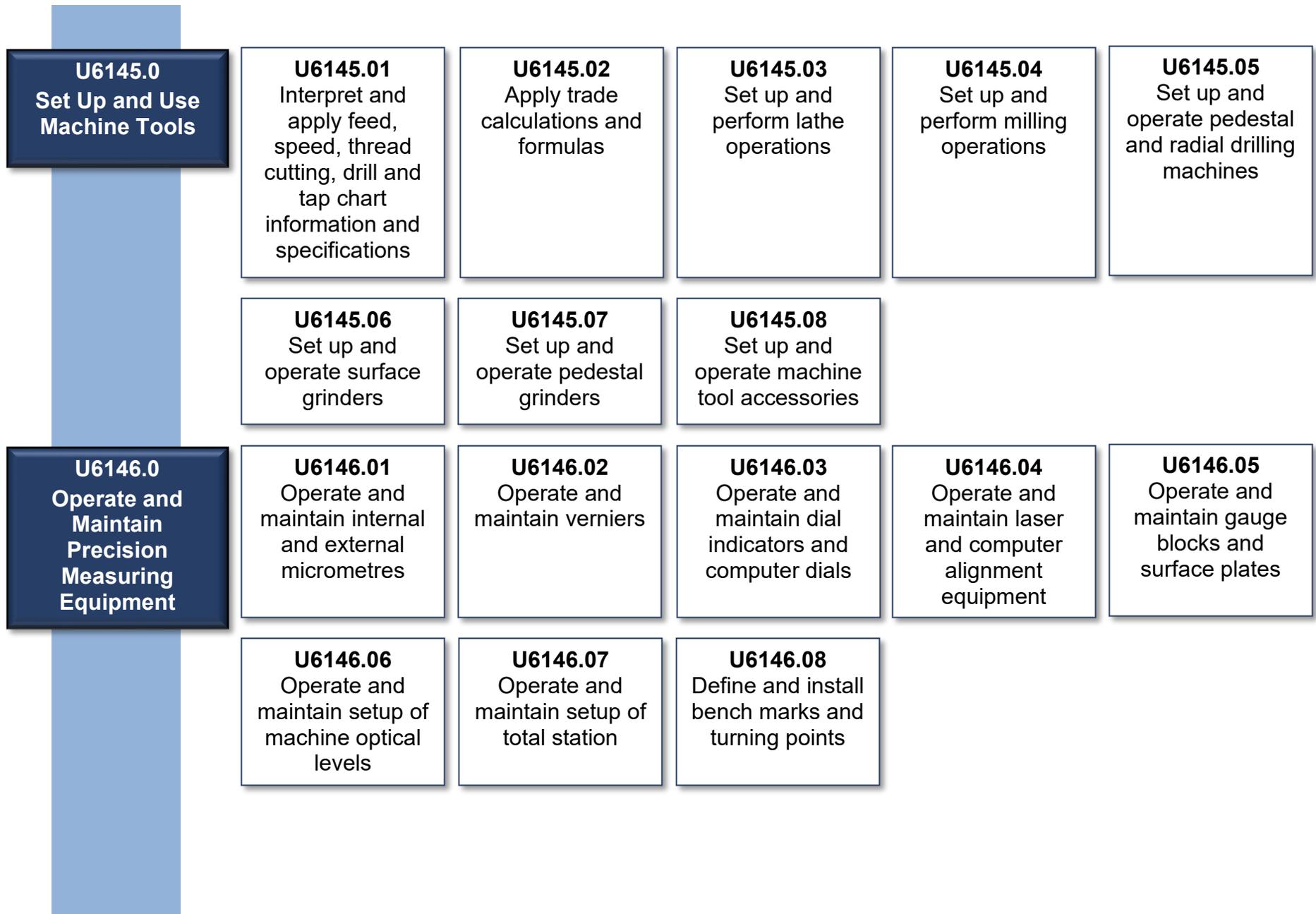
Competency Analysis Profile (CAP) Chart

<p>U6141.0 Demonstrate Safe Working Practices and Procedures</p>	<p>U6141.01 Comply with workplace-related legislation and directives</p>	<p>U6141.02 Lock out, tag and de-energize mechanical equipment</p>	<p>U6141.03 Perform work in confined spaces</p>	<p>U6141.04 Control hazards and hazardous conditions</p>	<p>U6141.05 Inspect mobile equipment</p>	
	<p>U6141.06 Follow company or worksite fire safety procedures</p>	<p>U6141.07 Perform housekeeping duties</p>	<p>U6141.08 Move equipment, supplies, and components</p>	<p>U6141.09 Utilize personal protective equipment</p>	<p>U6141.10 Maintain personal protective equipment</p>	
	<p>U6141.11 Employ simple first aid</p>	<p>U6141.12 Report injuries to supervisor or first-aid personnel</p>				
	<p>U6142.0 Communicate in the Workplace</p>	<p>U6142.01 Communicate orally</p>	<p>U6142.02 Communicate in writing</p>	<p>U6142.03 Communicate through the use of graphics</p>	<p>U6142.04 Communicate by computer</p>	<p>U6142.05 Communicate by mechanical and electronic devices</p>
		<p>U6142.06 Perform hand signals</p>	<p>U6142.07 Build and maintain interpersonal relationships</p>	<p>U6142.08 Coach and mentor co-workers</p>		

Competency Analysis Profile: Construction Millwright 426A (all unshaded skill sets must be completed)

U6143.0 Interpret Drawings and Perform Mathematical Calculations	U6143.01 Interpret engineering, machine, and component drawings and symbols	U6143.02 Draw and sketch assembly and component parts	U6143.03 Interpret technical and manufacturers' manuals	U6143.04 Interpret schematics and logic diagrams	U6143.05 Perform mathematical calculations
U6144.0 Use Hand and Power Tools	U6144.01 Utilize fastening tools	U6144.02 Utilize hand tools	U6144.03 Utilize metal forming tools	U6144.04 Maintain metal forming tools	U6144.05 Utilize measurement tools
	U6144.06 Maintain measurement tools	U6144.07 Utilize power tools	U6144.08 Maintain power tools	U6144.09 Utilize portable seating, lapping, facing equipment, threading machines, dies and pipe cutters	U6144.10 Maintain portable seating, lapping, facing equipment, threading machines, dies and pipe cutters
	U6144.11 Select and use metal working equipment and saws	U6144.12 Maintain metal working equipment and saws			

Competency Analysis Profile: Construction Millwright 426A (all unshaded skill sets must be completed)



Competency Analysis Profile: Construction Millwright 426A (all unshaded skill sets must be completed)

U6147.0 Plan, Prepare and Set Up for Job	U6147.01 Assess job site	U6147.02 Interpret and analyze specifications and drawings	U6147.03 Plan, prepare and schedule activities	U6147.04 Identify the specific erection procedure and sequence	U6147.05 Sort, block and inventory materials
	U6147.06 Prepare and arrange for installation	U6147.07 Set up equipment	U6147.08 Perform specific startup procedure		
	U6148.0 Select and Use Materials and Fasteners	U6148.01 Utilize ferrous and non-ferrous and specialty alloy materials	U6148.02 Heat treat metal and alloys	U6148.03 Stress-relieve steel	U6148.04 Manufacture non-metallic materials
	U6148.06 Apply and install fasteners and adhesives				
U6149.0 Select and Apply Lubricants	U6149.01 Select lubricants	U6149.02 Apply lubricants	U6149.03 Utilize special purpose lubricants	U6149.04 Install plant lubrication systems	U6149.05 Maintain plant lubrication systems

Competency Analysis Profile: Construction Millwright 426A (all unshaded skill sets must be completed)

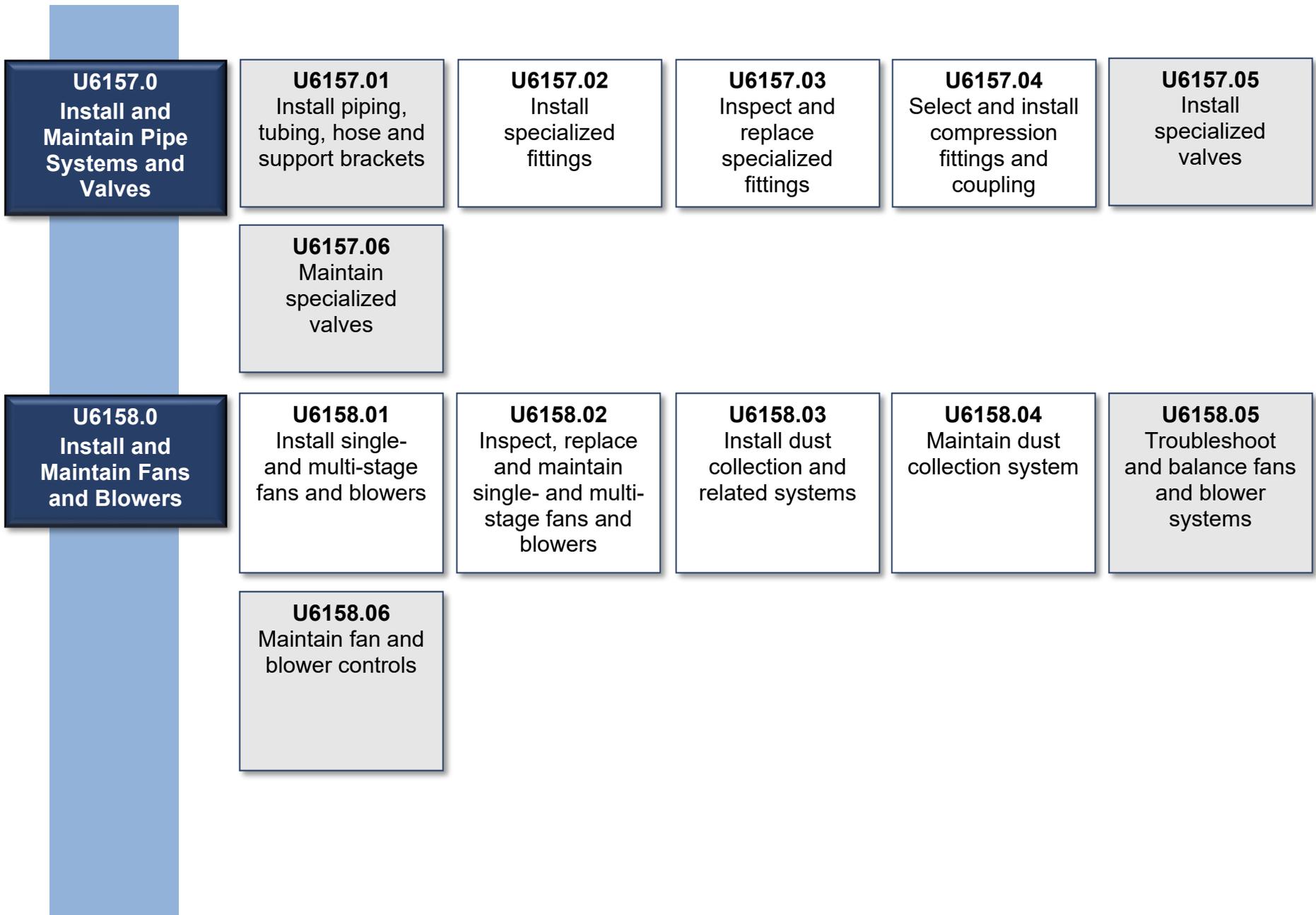
U6150.0 Weld, Braze and Solder	U6150.01 Set up and operate welding equipment	U6150.02 Set up and operate gas welding equipment	U6150.03 Set up gas cutting equipment	U6150.04 Assemble components to be welded for installation	U6150.05 Select and set up non-metallic welding equipment and rods
	U6150.06 Utilize non-metallic welding equipment and rods	U6150.07 Select compatible materials for overlay/build-up welding	U6150.08 Apply overlay/build-up to machine parts		
U6151.0 Rig and Hoist	U6151.01 Plan lifts	U6151.02 Identify fibre and wire rope capacities and applications for rigging and hoisting	U6151.03 Operate manual or power hoisting equipment	U6151.04 Operate manual or power jacking equipment	U6151.05 Perform standard hand signals and radio signal procedures
	U6151.06 Maintain rigging and hoisting equipment				
U6152.0 Install and Maintain Material Handling Systems	U6152.01 Install and align conveyor systems	U6152.02 Maintain conveyor systems	U6152.03 Install conveyor components	U6152.04 Maintain conveyor components	U6152.05 Maintain cranes and hoists

Competency Analysis Profile: Construction Millwright 426A *(all unshaded skill sets must be completed)*

U6153.0 Install and Maintain Power Transmission Systems	U6153.01 Install power transmission gears, pulleys and sheaves	U6153.02 Maintain power transmission gears, pulleys and sheaves	U6153.03 Install and align power transmission components	U6153.04 Maintain power transmission components	U6153.05 Install couplings
	U6153.06 Maintain couplings	U6153.07 Install keys, splines and bushings	U6153.08 Maintain keys, splines, and bushings		
U6154.0 Install and Maintain Compressors and Pumps	U6154.01 Install compressors	U6154.02 Maintain compressors	U6154.03 Install primary filters and coolers	U6154.04 Maintain primary filters and coolers	U6154.05 Install separators and receivers
	U6154.06 Maintain separators and receivers	U6154.07 Install unloading, distribution and lubrication systems	U6154.08 Maintain unloading, distribution and lubrication systems	U6154.09 Install pumps	U6154.10 Maintain pumps

Competency Analysis Profile: Construction Millwright 426A *(all unshaded skill sets must be completed)*

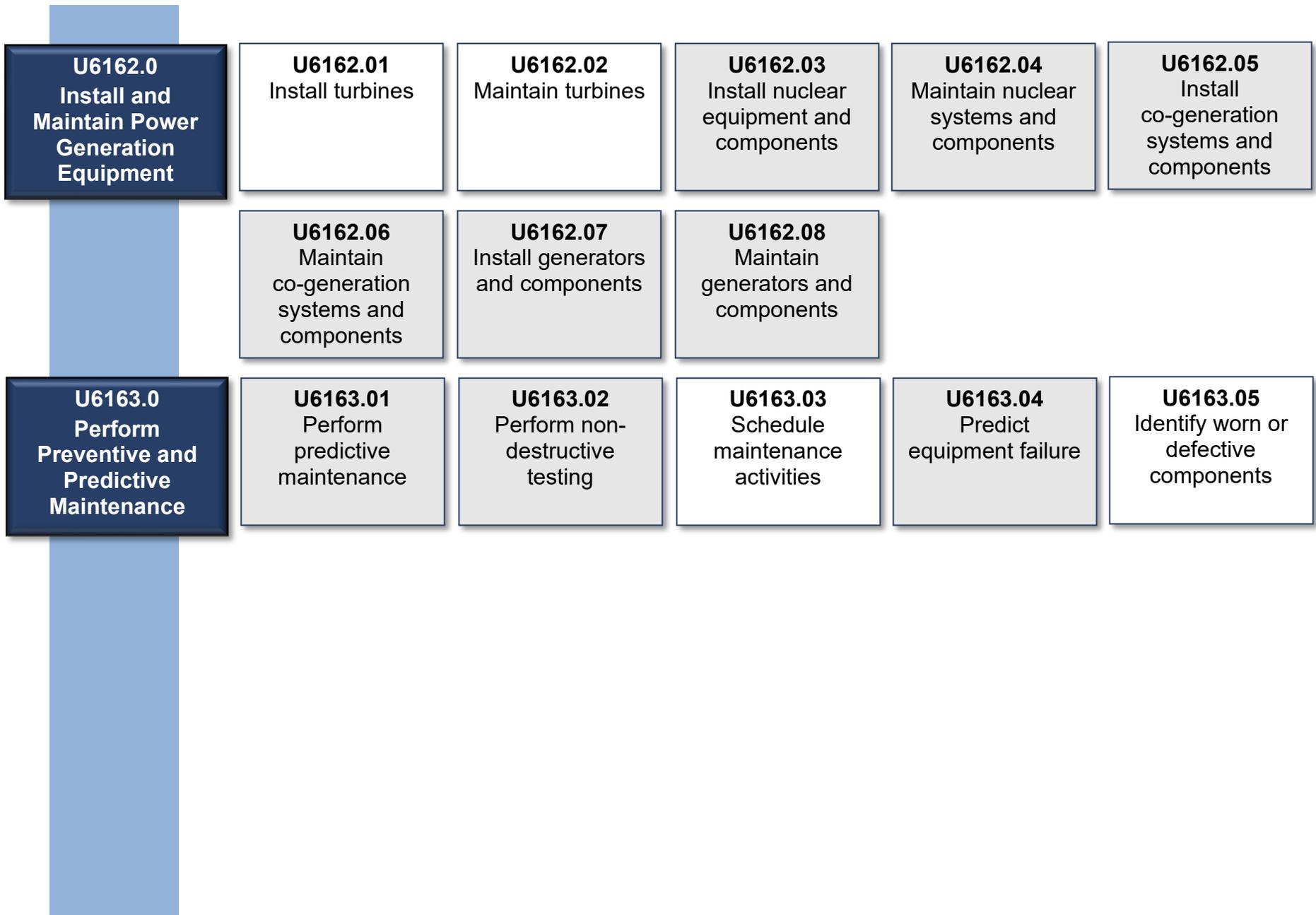
U6155.0 Install, Commission, and Maintain, Machinery and Automated Robotic Systems	U6155.01 Layout and prepare base or foundation	U6155.02 Install machinery	U6155.03 Level and align machinery	U6155.04 Secure machinery	U6155.05 Check rotation of motors and generators
	U6155.06 Initiate start up or commission of machinery and ancillary equipment	U6155.07 Maintain machinery	U6155.08 Record footprint/signature of machinery	U6155.09 Install automated robotic systems	U6155.10 Maintain automated robotic systems
U6156.0 Install and Maintain Bearings, Seals and Packing	U6156.01 Install packing, bearings, and mechanical seals	U6156.02 Maintain packing, bearings, and mechanical seals	U6156.03 Install plain bearings	U6156.04 Maintain plain bearings	U6156.05 Install bearing housing
	U6156.06 Maintain bearing housing	U6156.07 Prepare and fit specialized bearings	U6156.08 Maintain specialized bearings	U6156.09 Install gaskets and seals	U6156.10 Select and apply chemical sealants
	U6156.11 Inspect and remove outside, inside packing	U6156.12 Select, and install outside, inside packing			



Competency Analysis Profile: Construction Millwright 426A (all unshaded skill sets must be completed)

U6159.0 Install and Maintain Electric and Electronic Controls	U6159.01 Operate lockouts	U6159.02 Operate programmable logic controllers and processors	U6159.03 Install actuators	U6159.04 Maintain actuators	U6159.05 Troubleshoot electric and electronic systems
U6160.0 Install and Maintain Pneumatic Systems	U6160.01 Install pneumatic systems	U6160.02 Maintain pneumatic systems	U6160.03 Install and maintain pressure and proportional control valves	U6160.04 Install and maintain regulators	U6160.05 Install and maintain linear and rotary actuators
U6161.0 Install and Maintain Hydraulic Systems	U6161.01 Install hydraulic systems and components	U6161.02 Maintain hydraulic systems and components	U6161.03 Select and use hydraulic fluids	U6161.04 Install power units and associated equipment	U6161.05 Maintain power units and associated equipment
	U6161.06 Install manual and electronic control valves	U6161.07 Maintain manual and electronic control valves	U6161.08 Install hydraulic actuators	U6161.09 Maintain hydraulic actuators	

Competency Analysis Profile: Construction Millwright 426A *(all unshaded skill sets must be completed)*



Completing Your Apprenticeship Program

Once your sponsor agrees you are competent in the required skills, your hours are complete and you have completed all the levels of classroom training required for your trade:

- ✓ Follow the completion instructions on the Completion Form (Appendix A) in the Logbook.
- ✓ Answer any questions that MLITSD staff may have and provide any additional completion documentation that may be required.
- ✓ Once completion is confirmed, MLITSD will issue you a Certificate of Apprenticeship and notify Skilled Trades Ontario.

After Your Apprenticeship

If you are in a trade with a certification exam, Skilled Trades Ontario will receive notice of your completion.

For compulsory trades, you will be issued a Provisional Certificate of Qualification which will allow you to work legally for up to 12 months until you write and pass your examination.

For a non-compulsory trade, once you pass your examination, you will be issued a Certificate of Qualification for your trade.

Preparing For Your Exam

- **To pay for a Certificate of Qualification examination, contact Skilled Trades Ontario** Client Services Department at: 647-847-3000 or toll free at 1-855-299-0028
- **To schedule your exam:** Once you have paid, contact your local Service Delivery Office to book your exam.
- **Download Skilled Trades Ontario exam preparation guide at:** [Exam Resources – Skilled Trades Ontario](#) and/or view the exam preparation guide for Red Seal trades at: red-seal.ca



**Skilled
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