Apprenticeship Training Standard

Instrumentation & Control Technician

Trade Code: 447A

Development Date: September 2003
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## SKILL SETS

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APPRENTICESHIP PROGRAM SUMMARY/GUIDELINES

Program Definition: Instrumentation and Control Technician is defined as a person who works with:

- safe working practices and procedures
- environmental protection procedures
- occupational skills
- process measurement and indicating devices
- process, quality control, or environmental emission analyzers
- safety systems and security systems
- energy delivery systems
- communication systems and devices
- final process controls
- process control systems

Instrumentation and Control Technician is an approved apprenticeship program for the purposes of the Apprenticeship and Certification Act, 1998 (ACA).

Program Guidelines

- On-The-Job Training Duration (for apprentices)
  The Industry Committee has identified 8,000 hours as the duration generally necessary for any apprentice to become competent in the skills required. There may be individual circumstances where the duration varies from this guideline.

- In-School Training Duration
  The Industry Committee has identified 720 hours of in-school training as the duration generally necessary for an apprentice to complete the in-school curriculum for this program, except where an apprentice has been exempted from any level of that curriculum.

- Ratio
  The Industry Committee has identified a journeyperson-to-apprentice ratio of one journeyperson or individuals who are deemed equivalent to a journeyperson status to one apprentice as the ratio generally necessary for an apprentice to be properly trained on the job in this program. There may be individual circumstances where the ratio varies from this guideline.
Program Requirements

- **Restricted Skill Sets**
  This program does not contain any restricted skill sets as per Ontario Regulation 565/99, Restricted Skill Sets. Therefore, an individual is not required to be a registered apprentice or possess certification in order to perform skills contained in the program.

- **Academic Standard**
  The Industry Committee has identified the minimum academic standard for entry to this program as completion of Grade 12 or ministry-approved equivalent.

  (See ACA Policy 102, Confirming Academic Requirements)

- **Eligibility for Exam Challenge (for Non-apprentice C of Q Applicants)**
  The challenger must:
  - provide proof of competency in all mandatory (unshaded) skills as identified in the Training Standard or Schedule of Training; and
  - demonstrate that he/she has acquired 8,000 hours of on-the-job training.

  (See ACA Policy 150, Assessing Applicants for the Certificate of Qualification)

- **Eligibility for Program Completion (for Apprentices)**
  The apprentice must:
  - achieve competency in all mandatory (unshaded) skills as identified in the Training Standard or Schedule of Training.
  - complete the in-school training as outlined in the industry and ministry-approved Curriculum Standard.

  (ACA Policy 309, Completion of an Apprenticeship Program)

- **Other Information**

- **Other Resources**
  Complete program requirements, policies, and standards can be obtained by referring to the following resources:
  - *Apprenticeship and Certification Act, 1998 (ACA)*;
  - ACA General Regulation 573/99;
  - ACA Exemption Regulation 566/99;
  - Program-specific Apprenticeship Training Standards or Schedules of Training; and
  - ACA Program and Policy Manual
- Other Required Certification
  N/A

- Academic Background
  Industry has identified relevant secondary school course(s) likely to increase an individual’s chances of success if completed prior to program entry. For details, see the document Apprenticeship Subject Pathways.
# INSTRUMENTATION AND CONTROL TECHNICIAN

## COMPETENCY ANALYSIS PROFILE

**INSTRUMENTATION AND CONTROL TECHNICIAN – 447A**

*(All unshaded skill sets must be demonstrated/completed)*

<table>
<thead>
<tr>
<th>SKILL SETS</th>
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</thead>
<tbody>
<tr>
<td><strong>SAFE WORKING PRACTICES AND PROCEDURES</strong></td>
<td>Work around workplace health and safety hazards</td>
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<td>Handle workplace hazardous materials</td>
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<td>Follow procedures for handling worksite waste</td>
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<td>Comply with federal, provincial, and municipal workplace legislation and regulations</td>
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<td>Use personal protective equipment</td>
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<td>U6551.0</td>
<td>U6551.01</td>
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<td></td>
<td>Practice good housekeeping in the workplace</td>
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<td>Shut down equipment</td>
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<td>Follow fire safety procedures</td>
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<td>Identify climatic extremes</td>
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<td>Work around energy sources</td>
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<td>U6551.06</td>
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<td>U6551.07</td>
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<td>U6551.09</td>
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<td>U6551.10</td>
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<tr>
<td><strong>OCCUPATIONAL SKILLS</strong></td>
<td>Use hand tools</td>
</tr>
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<td></td>
<td>Use portable and stationary power tools</td>
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<td>Maintain calibration, configuration, and test equipment</td>
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<td></td>
<td>Interpret schematics and engineered drawings</td>
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<td>Use job documentation</td>
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<td>U6552.0</td>
<td>U6552.01</td>
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<td></td>
<td>Install mounting hardware</td>
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<td>Install process connections</td>
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<td>Use specialized computer equipment and software</td>
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<td>Operate material handling equipment</td>
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<td>U6552.06</td>
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<td>U6552.07</td>
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Ontario College of Trades ©
**SKILL SETS**

**INSTRUMENTATION AND CONTROL TECHNICIAN**

*(All unshaded skill sets must be demonstrated/completed)*

<table>
<thead>
<tr>
<th>PROCESS</th>
<th>SKILLS</th>
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<tbody>
<tr>
<td>MEASUREMENT AND INDICATING DEVICES</td>
<td>Perform preventative maintenance on motion, speed, position, or vibration measuring and indicating devices</td>
</tr>
<tr>
<td></td>
<td>Install motion, speed, position, or vibration measuring and indicating devices</td>
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<tr>
<td></td>
<td>Troubleshoot pressure, temperature, level, or flow measuring and indicating devices</td>
</tr>
<tr>
<td></td>
<td>Install pressure, temperature, level, or flow measuring and indicating devices</td>
</tr>
<tr>
<td></td>
<td>Perform preventative maintenance on pressure, temperature, level, or flow measuring and indicating devices</td>
</tr>
<tr>
<td></td>
<td>Install mass, density, or consistency measuring and indicating devices</td>
</tr>
<tr>
<td></td>
<td>Troubleshoot mass, density, or consistency measuring and indicating devices</td>
</tr>
<tr>
<td></td>
<td>Troubleshoot process, quality control, or environmental emission analyzers</td>
</tr>
<tr>
<td></td>
<td>Install process analyzers</td>
</tr>
<tr>
<td></td>
<td>Install quality control analyzers</td>
</tr>
<tr>
<td></td>
<td>Install environmental emission analyzers</td>
</tr>
<tr>
<td></td>
<td>Troubleshoot process, quality control, or environmental emission analyzers</td>
</tr>
<tr>
<td></td>
<td>Perform preventative maintenance on analyzers</td>
</tr>
</tbody>
</table>

**U6553.0**  
**U6553.01**  
**U6553.02**  
**U6553.03**  
**U6553.04**  
**U6553.05**  
**U6553.06**  
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**U6554.06**  
**U6554.01**  
**U6554.02**  
**U6554.03**  
**U6554.04**  
**U6554.05**

Calibrate analyzers

**U6554.06**  
**U6554.01**  
**U6554.02**  
**U6554.03**  
**U6554.04**  
**U6554.05**

**SAFETY SYSTEMS AND SECURITY SYSTEMS**

**U6555.0**  
**U6555.01**  
**U6555.02**  
**U6555.03**  
**U6555.04**
(All unshaded skill sets must be demonstrated/completed)

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<thead>
<tr>
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<tbody>
<tr>
<td><strong>ENERGY DELIVERY SYSTEMS</strong></td>
<td>Install hydraulic equipment</td>
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<td>U6556.0</td>
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<tr>
<td></td>
<td>Perform preventative maintenance on pneumatic equipment</td>
</tr>
<tr>
<td></td>
<td>U6556.06</td>
</tr>
<tr>
<td><strong>COMMUNICATION SYSTEMS AND DEVICES</strong></td>
<td>Interpret job specifications</td>
</tr>
<tr>
<td>U6557.0</td>
<td>U6557.01</td>
</tr>
<tr>
<td></td>
<td>Perform preventative maintenance on signal converters</td>
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<td></td>
<td>U6557.06</td>
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<tr>
<td><strong>FINAL CONTROL DEVICES</strong></td>
<td>Install valves</td>
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<tr>
<td>U6558.0</td>
<td>U6558.01</td>
</tr>
<tr>
<td></td>
<td>Troubleshoot positioners</td>
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<td>U6558.06</td>
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</table>
### INSTRUMENTATION AND CONTROL TECHNICIAN

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<tr>
<td><strong>PROCESS CONTROL SYSTEMS</strong></td>
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<tr>
<td>Configure stand-alone controllers</td>
<td>U6559.03</td>
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<td>Install PLCs</td>
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PREFACE

This Training Standard was developed by the Ministry of Training Colleges and Universities (MTCU), in partnership with the Industry Committee and in consultation with representatives from the industry. This document is intended to be used by the apprentice, supervisor/trainer and sponsor/employer as a "blueprint" for training and as a prerequisite for completion and certification.

This training document becomes the apprentice’s only record of workplace training performance.

The supervisor/trainer and apprentice are required to sign off and date the skill following each successful acquisition, unless a skill is marked shaded (optional).

The care and maintenance of this training document are the joint responsibility of the apprentice and the sponsor/employer. By signing off the skill, the supervisor/trainer and the apprentice are indicating that the apprentice has demonstrated competence in the skill.

This training standard has been developed specifically for documenting the apprentice’s acquisition of skills of the trade.

The technical and work processes that this apprenticeship program occupation/trade performs have been reviewed to include requirements for emerging “green” technologies, managing surplus, or scrap materials, conservation and preventing spills or escape of contaminated, toxic or hazardous gases and waste.

As apprenticeable trades and occupations are more mindful of the need for environmental sustainability, they are adopting materials, tools and procedures that offer environmental harm reduction.

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

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

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

ACA
Apprenticeship and Certification Act, 1998

Certificate of Apprenticeship (CofA)
Certification issued to individuals who have demonstrated that they have completed an apprenticeship in Ontario.

Certificate of Qualification (CofQ)
Certification issued to C of Q applicants who have achieved a passing grade on the certification exam for their trade.

Competency Analysis Profile
A document that identifies the training needs of an individual trade and details the skills/skill sets that must be demonstrated.

Competence
The ability of an individual to perform a skill repeatedly and without assistance in the workplace to the standard set out in the Training Standard or Schedule of Training.

General Performance Objective (On-the-job Skill Set)
Describes set of skills which include all performance objectives under that skill set.

Industry Committee (IC) - under the ACA and Provincial Advisory Committee (PAC) under the TQAA
Under the ACA and TQAA, the Minister may appoint a provincial committee in any trade or group of trades to advise the Minister in matters relating to the establishment and operation of apprenticeship training programs and trades qualifications.

Journeyperson or Equivalent
A person who has acquired the knowledge and skills in a trade, occupation or craft as attested to by a provincial or territorial authority.

Mandatory
Status assigned to unshaded individual skills, skill sets or general performance objective which must be signed off for the apprentice to complete their program.

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

Sign-off
Signature of the sponsor/employer of record or an individual, to whom that sponsor or employer has delegated signing authority, indicating an apprentice’s achievement of competence.
Skill
Individual skill described in the Training Standard (note: does not mean the larger skill groups referred to in the Training Standard as Skill Sets, Training Units, or General Performance Objective, but the individual skills that make up those groups).

Skill Sets
Group of individual skills found in the Training Standard (may also be called Training Unit or General Performance Objective)

Skill Set Completion Form
Lists all skill sets and includes space for sign-off by sponsor/employer of record.

Sponsor/Employer
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, other occupation or skill set as part of an apprenticeship program approved by the Director.

Sponsor/Employer of Record
Refers to the sponsor or employer documented as the signatory to the current training agreement or contract. In order for an sponsor/employer to be considered for the training of apprentices, they must identify that the workplace has qualified journeypersons or equivalent on site and can identify that the workplace has the tools, equipment, materials, and processes which have been identified by Provincial Advisory Committees (PACs) or Industry Committees (ICs) to be required for the trade.

Supervisor
An individual who oversees the execution of a task, oversees the actions or work of others.

Trainer
A qualified trainer in a compulsory trade is a journeyperson with a Certificate of Qualification or in a voluntary trade is an individual who is considered equivalent to a journeyperson with a Certificate of Qualification.

TQAA
Trades Qualification and Apprenticeship Act.

Training Standard
A document that has been written in concise statements, which describe how well an apprentice must perform each skill in order to become competent. In using the document, trainers will be able to ensure that the apprentice is developing skills detailed for the occupation.
IMPORTANT DIRECTIONS

Apprentice

All complete skills or skill sets must be signed and dated by both the apprentice and sponsor/employer when either all terms of the contract have been completed or the apprentice leaves the employ of the employer.

It is the responsibility of the apprentice to inform the apprenticeship staff at the local Ministry of Training, Colleges and Universities office regarding the following changes:

- change of sponsor/employer address;
- change of apprentice name or address;
- transfer to a new sponsor/employer.

The Skill Set Completion Form must be completed and signed by the current sponsor/employer and presented to the local Apprenticeship Client Services Office at the fulfillment of all terms of a Contract of Apprenticeship/Training Agreement.

The apprentice completion form with the Completed and Authorized Training Standard must be presented to the local Apprenticeship Client Services Unit.

Sponsors/Employers and Supervisors/Trainers

The Training Standard identifies skills required for this trade/occupation and its related training program.

This Training Standard has been written in concise statements which describe how an apprentice must perform each skill in order to become competent. Competence means being able to perform the task to the required standard.

In using this Training Standard, supervisors/trainers will be able to ensure that the apprentice is developing the skills detailed for the trade/occupation.

Supervisors/Trainers and apprentices are required to sign off and date the skills following each successful acquisition.

Sponsors/Employers 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.
NOTICE OF COLLECTION OF PERSONAL INFORMATION

1. At any time during your apprenticeship training, you may be required to show this training standard to the Ministry of Training, Colleges and Universities (the Ministry). You will be required to disclose the signed Apprenticeship Completion form to the Ministry in order to complete your program. The Ministry will use your personal information to administer and finance Ontario’s apprenticeship training system, including confirming your completion and issuing your certificate of apprenticeship.

2. The Ministry will disclose information about your program completion and your certificate of apprenticeship to the Ontario College of Trades, as it is necessary for the College to carry out its responsibilities.

3. Your personal information is collected, used and disclosed by the Ministry under the authority of the Ontario College of Trades and Apprenticeship Act, 2009.

4. Questions about the collection, use and disclosure of your personal information by the Ministry may be addressed to the:

Manager, Employment Ontario Contact Centre
Ministry of Training, Colleges and Universities
33 Bloor St. E, 2nd floor, Toronto, Ontario M7A 2S3
Toll-free: 1-800-387-5656; Toronto: 416-326-5656
ROLES AND RESPONSIBILITIES OF APPRENTICE, SPONSOR/EMPLOYER AND SUPERVISOR/TRAINER

**Apprentice** “Apprenticeship is Learning On-the-job”

- Practice safe work habits.
- Use your apprenticeship training standard as a journal to keep track of which skills you have achieved.
- Talk over your training plan with your Training Consultant, Employer, Union, or Sponsor.
- Know what tools are required for your trade and how to use them.
- Ask questions and keep asking.
- Talk to your employer about your training needs.
- Demonstrate enthusiasm and good work habits.
- Ensure that you and your supervisor/trainer sign off skill/skill sets upon demonstration of competency.

**Sponsor/Employer** “Training is an Investment”

- Demonstrate safe work habits.
- Attest to successful achievement by signing the skill/skills sets.
- Provide opportunities and time for the apprentice to learn the trade.
- Offer practical trade training experiences that cover all of the skill sets.
- Foster work ethics that support training while minimizing productivity losses.
- Set out clear expectations, then recognize or reward performance excellence.
- Involve both the apprentice and supervisor/trainer in developing the training plan.
- Use the Training Standard as a monitoring tool and part of regular performance evaluations.
- Select supervisors/trainers with good communication skills and who work well with others.
- Encourage supervisors/trainers to take upgrading courses - (e.g. Train the Trainer, Mentor Coach, etc).
- Complete the Skill Set Completion Form once the apprentice has demonstrated competency in the training.
- Ensure that the apprentice always works under the direction of or has access to a qualified supervisor/trainer.
- Vary the apprentice’s exposure to all the skills set out in the training standard.
**Supervisor/Trainer**

- Demonstrate safe work habits.
- Treat apprentices fairly and with respect.
- Use the Training Standard as a guide to evaluating competence in each skill area. In using the Training Standard, supervisors/trainers will be able to ensure that the apprentice is developing skills detailed for the trade/occupation.
- Review the Training Standard with the apprentice and develop a training plan.
- Respond fully to all questions.
- Be patient. Explain what is to be done then, show how it is done, and then let the apprentice demonstrate the task.
- Provide continuous feedback.
- Sign off individual skills/skill sets once the apprentice demonstrates competence in the skill.

**Suggestions for Assessing the Progress of the Apprentice in the Workplace**

- Use informal daily observation.
- Provide constructive feedback to build confidence.
- Allow the supervisor/trainer time to teach and demonstrate the skills.
- Take prompt action wherever problems occur.
- Conduct regular performance reviews involving the apprentice, supervisor/trainer and sponsor/employer.
- Use the Training Standard as the reference for establishing the competency of the apprentice.
## SKILL SET COMPLETION FORM

<table>
<thead>
<tr>
<th>SKILL SET</th>
<th>TITLE</th>
<th>SIGNING AUTHORITY</th>
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**NOTE ON SHADED PERFORMANCE OBJECTIVES AND SKILLS:**

(See Skills Chart for Optional Skill Sets)

- Shaded performance objectives and skill sets are optional. The shaded skills do not have to be demonstrated or signed-off for completion of the on-the-job component of the apprenticeship.
- The in-school curriculum learning outcomes will cover all of the skill sets, both shaded and unshaded.
- The Certificate of Qualification examination will test the whole of the trade and may test both shaded and unshaded performance skill sets.
U6551.0 SAFE WORKING PRACTICES AND PROCEDURES

GENERAL PERFORMANCE OBJECTIVE

Demonstrate safe working practices and procedures by: working safely around workplace health and safety hazards; handling workplace hazardous materials; complying with federal, provincial, or municipal workplace legislation and regulations; using personal protective equipment; practising good housekeeping in the workplace; following fire safety procedures; shutting down equipment; identifying the impact of climatic extremes; and, working around energy sources.

PERFORMANCE OBJECTIVES

SKILLS

U6551.01 Work around workplace health and safety hazards including noxious fumes and dust, high-intensity light, fires, elevated worksites, suspended loads, poor lighting, extreme temperatures, inadequate ventilation, confined spaces, untidy worksites, and uncontrolled powers sources, by identifying hazards, taking corrective actions, documenting and posting hazardous conditions, so that the potential for person injury and damage to equipment, facilities, and environment are prevented, in accordance with applicable manufacturers’ specifications, safety legislation, and company standards/procedures.

Date Completed Apprentice Supervisor/Trainer

U6551.02 Handle workplace hazardous materials including lead, mercury, gases, acids, caustics, and solvents, by wearing personal protective equipment, disposing and storing hazardous materials, and preventing toxic spills/emissions, so that individuals are protected from injury, the environment from contamination, and safety practices are followed, in accordance with Workplace Hazardous Materials Information System (WHMIS) guidelines, safety legislation, manufacturers' specifications, and company standards/procedures.

Date Completed Apprentice Supervisor/Trainer
U6551.0 SAFE WORKING PRACTICES AND PROCEDURES …cont’d

U6551.03 Follow procedures for handling worksite waste by wearing personal protective equipment, disposing and storing hazardous materials, and preventing toxic spills/emissions, so that individuals are protected from injury, the environment from contamination, and safety practices are followed so that waste is recycled, reduced, and reused, in accordance with environmental protocols and company standards/procedures.

Date Completed Apprentice Supervisor/Trainer

U6551.04 Comply with federal, provincial, or municipal workplace legislation and regulations including Environmental Protection Act (EPA), Occupational Health and Safety Act (OHSA), Workers’ Compensation Act (WCA), Environmental Protection Act (EPA), Ontario Electrical Code (OEC), Provincial and Municipal Building Codes, Dangerous Goods Transportation Act (DGTA), Workplace Hazardous Materials Information System (WHMIS), and the Ontario Fire Code (OFC), so that all worksite-specific work is completed safely and efficiently.

Date Completed Apprentice Supervisor/Trainer

U6551.05 Use personal protective equipment including eye, ear, hand, respiratory, body and foot protection, by ensuring that a correct fit and optimum protection is provided to the wearer for the specific task, in accordance with applicable safety legislation, government regulations, manufacturers’ specifications and company standards/procedures

Date Completed Apprentice Supervisor/Trainer

U6551.06 Practice good housekeeping in the workplace, by ensuring that the workplace is clean, organized, and free of obstructions, spills, or fire hazard and that materials and equipment are cleaned and sorted in designated areas after use, and that protective barriers, UV shields, and guards are erected, so that accident or injury potential is prevented, in accordance with safety legislation and company standards/procedures.

Date Completed Apprentice Supervisor/Trainer
U6551.0  SAFE WORKING PRACTICES AND PROCEDURES …cont’d

U6551.07  **Shut down equipment** including mechanical, hydraulic or pneumatic equipment, by applying lockout, tag-out, and de-energizing procedures before commencing job, in accordance with the Ontario Electrical Code, safety legislation, manufacturers' specifications, and company standards/procedures.

Date Completed  Apprentice  Supervisor/Trainer

U6551.08  **Follow fire safety procedures** including: determining the potential for fire posed by the work being performed; locating and assessing the severity of the fire; selecting and operating fire extinguishing equipment; suppressing minor fires; activating alarms; following fire evacuation plans; and, reporting incidents; in accordance with applicable Acts, Regulations, Legislation, and Codes, OFC, manufacturers’ specifications, and company standards/procedures.

Date Completed  Apprentice  Supervisor/Trainer

U6551.09  **Identify the impact of climatic extremes** of wind, temperature, or precipitation on job functions, to ensure personal safety and efficient job performance.

Date Completed  Apprentice  Supervisor/Trainer

U6551.10  **Work around energy sources**, by observing limits and procedures for approaching energy sources, to ensure personal safety and protection of equipment, in accordance with safety legislation, applicable Acts, Regulations, Legislation, and Codes, and company standards/procedures.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
U6552.0 OCCUPATIONAL SKILLS

GENERAL PERFORMANCE OBJECTIVE

Perform occupational skills by: using hand, portable, and stationary power tools; maintaining calibration, configuration, or test equipment; interpreting schematics and engineered drawings; using job documentation; installing mounting hardware; installing process connections; using specialized computer equipment and software; and, commissioning new installations.

PERFORMANCE OBJECTIVES

SKILLS

U6552.01 Use hand tools by following required procedures including:
- selecting tools such as hammers, wrenches, screwdrivers, pliers, drills, saws, files, tube benders, tap and die sets, wire crimpers, cutters, and strippers, and reamers;
- inspecting tools;
- maintaining tools;
ensuring that the hand tools selected are the correct ones for the application and that the tools are ready for use to install, service, or maintain instrument and control systems, in accordance with work order, manufacturers’ specifications, company standards/procedures, and applicable Acts, Regulations, Legislation, and Codes.

Date Completed Apprentice Supervisor/Trainer

U6552.02 Use portable and stationary power tools by following required procedures including:
- selecting tools such as saws, drill presses, grinders, high pressure tools, pipe threaders, portable drills, portable generators, vacuum pumps;
- inspecting tools;
- maintaining tools;
- tagging for further repair or maintenance;
so that the power tools selected are the correct ones for the application and are ready for use to install, service, or maintain instrument and control systems, in accordance with work order, manufacturers’ specifications, company standards/procedures, and applicable Acts, Regulations, Legislation, and Codes.

Date Completed Apprentice Supervisor/Trainer
U6552.0 OCCUPATIONAL SKILLS...cont’d

U6552.03 Maintain calibration, configuration or test equipment by following required procedures including:
- selecting equipment such as manometers, process calibrators, multimeters, simulators, analyzers, function generators, deadweight testers, and handheld communicators;
- inspecting or testing equipment;
- verifying functionality of equipment;
- confirming versions and performing updates of software and firmware;
- identifying calibration procedures;
- storing calibration, configuration and test equipment;
- completing documentation;
so that the equipment is maintained and ready for use, in accordance with work order, manufacturers’ specifications, company standards/procedures, and applicable Acts, Regulations, Legislation, and Codes.

Date Completed ________ Apprentice ________ Supervisor/Trainer ________

U6552.04 Interpret schematics and engineered drawings including pipe drawings, wire schematics, process and instrumentation drawings (P&ID), loop sheets, CAD data, and specification sheets to identify:
- logical sequence;
- components and parts;
- location of equipment;
- full set of documentation;
- revision level and process;
so that information is obtained for the job, in accordance with ISA (Instrumentation Systems and Automation Society standards) and company standard/procedures.

Date Completed ________ Apprentice ________ Supervisor/Trainer ________
U6552.05 **Use job documentation** including calibration sheets, data sheets, manufacturers’ or job specifications, maintenance practices and schedules, or work orders to identify:

- work to be performed;
- required materials and equipment;
- work schedules;
- isolation and make-safe procedures;
- environmental protocols;
- ISO quality standards;
- hazardous area classifications;
- required permits;
- disposal and recycling procedures;

so that job can be completed, in accordance with company standard/procedures and applicable Acts, Regulations, Legislation, and Codes.

Date Completed  Apprentice  Supervisor/Trainer

U6552.06 **Install mounting hardware** by following required procedures including:

- determining location for installation;
- identifying required system;
- selecting mounting hardware such as channels, supports, stands, clamps, brackets, u-bolts, adapters, and enclosures;
- using hand, power, or stationary tools;
- modifying, fabricating or fastening mounting hardware;

so that hardware is installed, in accordance with manufacturers’ and job specifications, drawings, schematics, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
U6552.0 OCCUPATIONAL SKILLS...cont’d

U6552.07 Install process connections by following required procedures including:
- identifying system requirements;
- selecting process connections such as welded, threaded, or surface-mounted fittings, instrumentation wiring, tubing, and fibre-optic cable;
- identifying limitations of piping and tubing;
- fabricating by cutting, bending, and flaring tubing;
- applying adhesives, sealants, and gaskets;
- using required hand tools;
- connecting to the process;
so that process connections are positioned and installed, in accordance with manufacturers’ and job specifications, drawings, schematics, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed

Apprentice

Supervisor/Trainer

U6552.08 Use specialized computer equipment and software by following required procedures including:
- selecting applicable diagnostic or configuration software;
- identifying required configuration licensing;
- using software such as spreadsheets, databases, and word processors;
- using interfaces such as handhelds, laptops, and modems;
- updating software and firmware;
- backing-up data and equipment configurations;
so that controls, instruments, equipment, and systems can be calibrated, configured, and tested, in accordance with manufacturers’ specifications, and company standards/procedures.

Date Completed

Apprentice

Supervisor/Trainer
U6552.09 Operate material handling equipment by following required procedures including:

- identifying required qualified licensed personnel;
- determining approximate weight of lift;
- identifying capacity of equipment;
- identifying type of lift and weight of workpiece;
- selecting handling equipment such as jacks, hoists, come-along, belts, ropes, cables, slings, pallet jacks, forklifts, or stationary cranes;
- inspecting equipment for defects and expiration dates;
- identifying potential hazards such as pinch points, load instability, obstructions, and overhead lines;

so that materials, parts, and equipment are moved and stored, in accordance with manufacturers’ and job specifications, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed ______________ Apprentice ______________ Supervisor/Trainer ______________

Sponsor/Employer Name ______________ Sponsor/Employer Signature ______________
GENERAL PERFORMANCE OBJECTIVE

Work with process measurement and indicating devices by: installing, troubleshooting, and performing preventative maintenance on pressure, temperature, level, or flow measuring and indicating devices; installing, troubleshooting, and performing preventative maintenance on motion, speed, position, or vibration measuring and indicating devices; and, installing, troubleshooting, and performing preventative maintenance on mass, density, or consistency measuring and indicating devices.

SKILLS

U6553.01 Install pressure, temperature, level, or flow measuring and indicating devices by following required procedures including:

- selecting required devices such as pressure gauges, manometers, electronic and pneumatic pressure transmitters, pressure switches, thermometers, thermostats, thermocouples, resistive thermal device (RTDs), pyrometers, temperature switches, sight glasses, mechanical level indicators, pneumatic/electronic level measuring devices, level switches, primary elements (annubars, orifice plates, venturi tubes, pitot tubes, flow nozzles, flumes, weirs), and flowmeters (magnetic, electronic, mechanical);
- using installation tools and equipment;
- determining locations for devices;
- modifying holding enclosures and panels;
- screwing, bolt, or bracketing to secure devices;
- applying sealants and gaskets;
- connecting device to the control system or indicator;
- configuring or calibrating devices;
- verifying operation;
- completing backup documentation;

so that devices are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.
U6553.02 Troubleshoot pressure, temperature, level, or flow measuring or indicating devices by following required procedures including:

- using tools and equipment;
- diagnosing source of problem;
- using specialized computer equipment and software;
- isolating device and performing make-safe procedures;
- clearing out obstructions/debris;
- cleaning the device;
- repairing/rebuilding defective devices;
- replacing consumables, parts or device;
- making required adjustments;
- calibrating or configuring using pressure calibrators, dead weight testers, multimeters, temperature baths, Wheatstone bridges, hand-held calibrators, and calibration software;
- performing a post-maintenance test to verify;
- returning to service;
- completing backup documentation;

so that devices are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed ___________ Apprentice ___________ Supervisor/Trainer ___________
U6553.03 Perform preventative maintenance on pressure, temperature, level, or flow measuring or indicating devices by following required procedures including:

- interpreting job documentation;
- inspecting the devices;
- using tools and equipment;
- verifying functionality;
- isolating device and performing make-safe procedures;
- cleaning;
- clearing out obstructions/debris from device and primary element;
- replacing out-of-specification device or components such as seals, electronic parts, springs, or mechanical devices;
- repairing/rebuilding devices;
- verifying calibration;
- returning to service;
- performing post-maintenance tests;
- completing backup documentation;
so that devices are maintained, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed
Apprentice
Supervisor/Trainer

U6553.04 Install motion, speed, position, or vibration measuring or indicating devices by following required procedures including:

- using installation tools and equipment;
- selecting devices such as torque switches, proximity switches, proximity probes, analog position sensors, tachometers, strobes, proximeters, chart recorders, digital displays, and gauges;
- determining locations for devices;
- performing make-safe procedures;
- modifying holding enclosures and panels;
- screwing, bolting, or bracketing to secure devices;
- applying sealants and gaskets;
- connecting device to the control system or indicator;
- configuring or calibrating devices;
- verifying operation;
- completing backup documentation;
so that devices are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed
Apprentice
Supervisor/Trainer
U6553.05 Troubleshoot motion, speed, position, or vibration measuring or indicating devices by following required procedures including:

- using required tools and equipment;
- diagnosing source of problem;
- using specialized computer equipment and software;
- isolating device and performing make-safe procedures;
- cleaning the devices;
- clearing out obstructions/debris;
- testing device and recording results;
- repairing or replacing out-of-specification components such as proximity switches and probes;
- repairing defective connections;
- calibrating or configuring using strobe lights, multimeters, tachometers, micrometers, feeler gauges, or calibration software;
- performing a post-maintenance test to verify;
- returning to service;
- completing backup documentation;

so that devices are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.
### U6553.06 Perform preventative maintenance on motion, speed, position, or vibration measuring or indicating devices by following required procedures including:

- interpreting job documentation;
- inspecting the devices;
- using required tools and equipment;
- verifying functionality;
- isolating device and performing make-safe procedures;
- cleaning probe faces, reflectors, optical lenses or fire-eyes;
- repairing defective connections;
- replacing out-of-specification components such as switches and probes;
- calibrating or configuring using strobe lights, multimeters, tachometers, micrometers, feeler gauges, or calibration software;
- returning to service;
- performing post-maintenance tests to verify;
- completing backup documentation;

so that devices are maintained, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

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### U6553.07 Install mass, density, or consistency measuring or indicating devices by following required procedures including:

- selecting devices such as load cells, scales, strain gauges, u-tube, displacer, nuclear gauges, refractometer, rotary blade and paddle consistency transmitters, chart recorders, digital displays, gauges, and display monitors;
- determining locations for devices;
- performing make-safe procedures;
- using required tools and equipment;
- selecting connections for piping and wiring;
- modifying enclosures and panels;
- screwing, bolting, or bracketing to secure devices;
- applying sealants and gaskets;
- configuring devices;
- calibrating devices;
- verifying operation;
- completing backup documentation;

so that devices are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

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U6553.08 Troubleshoot mass, density, or consistency measuring and indicating devices by following required procedures including:

- using required tools and equipment;
- diagnosing source of problem;
- isolating device and performing make-safe procedures;
- using specialized computer equipment and software;
- testing device and recording results;
- replacing out-of-specification components such as load cells, strain gauges, and bearings;
- identifying hazards of working with nuclear measuring devices;
- repairing defective connections;
- calibrating or configuring using handheld calibrators, Geiger counters, calibrated standards, or calibration software;
- performing a post-maintenance test to verify;
- returning to service;
- completing backup documentation;

so that devices are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed ___________ Apprentice ___________ Supervisor/Trainer ___________
U6553.0 PROCESS MEASUREMENT AND INDICATING DEVICES ...cont’d

U6553.09 Perform preventative maintenance on mass, density, or consistency measuring and indicating devices by following required procedures including:

- interpreting job documentation;
- inspecting the devices;
- using required tools and equipment;
- verifying functionality;
- isolating device and performing make-safe procedures;
- identifying hazards of working with nuclear measuring devices;
- cleaning;
- repairing defective connections;
- rebuilding devices;
- replacing out-of-specification components such as load cells, strain gauges, or bearings;
- calibrating or configuring using strobe lights, multimeters, tachometers, micrometers, feeler gauges, or calibration software;
- returning to service;
- performing post-maintenance tests;
- completing backup documentation;

so that devices are maintained, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed _______________ Apprentice _______________ Supervisor/Trainer _______________

Sponsor/Employer Name _______________ Sponsor/Employer Signature _______________
INSTRUMENTATION AND CONTROL TECHNICIAN

U6554.0 PROCESS ANALYZERS, QUALITY CONTROL ANALYZERS, AND ENVIRONMENTAL EMISSION ANALYZERS

GENERAL PERFORMANCE OBJECTIVE

Work with process analyzers, quality control analyzers, & environmental emission analyzers by installing process analyzers, quality control analyzers, & environmental emission analyzers; troubleshooting and performing preventative maintenance on process analyzers, quality control analyzers, & environmental emission analyzers; and calibrating analyzers.

PERFORMANCE OBJECTIVES

SKILLS

U6554.01 Install process analyzers by following required procedures including:

- identifying environmental conditions such as extreme ambient temperature, cleanliness, and contamination;
- identifying process analyzers such as pH, conductivity, turbidity, or oxidation reduction potential (ORP);
- identifying sampling systems, conditions, and methods;
- determining locations for analyzers;
- using tools and equipment such as mounting jigs and calibration standards;
- screwing, bolting, or bracketing to secure devices;
- applying sealants and gaskets;
- connecting analyzer to the control system or indicator;
- configuring analyzers;
- calibrating analyzers;
- verifying operation;
- completing backup documentation;

so that process analyzers are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, MISA (municipal and industrial strategy for abatement) and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
### U6554.02 Install quality control analyzers by following required procedures including:

- selecting quality control analyzers such as oil and gas (chromatographs and spectrometers);
- identifying environmental conditions such as extreme ambient temperature, cleanliness, or contamination;
- identifying sampling systems, conditions and methods;
- determining locations for devices;
- using tools and equipment such as mounting jigs and calibration standards;
- screwing, bolting, or bracketing to secure devices;
- applying sealants and gaskets;
- connecting analyzer to the control system or indicator;
- configuring analyzers;
- calibrating analyzers;
- verifying operation;
- completing backup documentation;

so that quality control analyzers are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, MISA (municipal and industrial strategy for abatement) and applicable Acts, Legislation, Codes, and Regulations.

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U6554.03 Install environmental emission analyzers by following required procedures including:

- selecting environmental emission analyzer such as noise, hazardous gases (CO, H₂S, NH₃), or greenhouse gases;
- identifying environmental conditions such as extreme ambient temperature, cleanliness, and contamination;
- identifying sampling systems, conditions and methods;
- determining locations for devices;
- using tools and equipment such as mounting jigs and calibration standards;
- screwing, bolting, and bracketing to secure devices;
- applying sealants and gaskets;
- connecting analyzer to the control system or indicator;
- configuring analyzers;
- calibrating analyzers;
- verifying operation;
- completing backup documentation;

so that environmental emission analyzers are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, MISA (municipal and industrial strategy for abatement) and applicable Acts, Legislation, Codes, and Regulations.

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U6554.0 PROCESS ANALYZERS, QUALITY CONTROL ANALYZERS, AND ENVIRONMENTAL EMISSION ANALYZERS …cont’d

U6554.04 Troubleshoot process analyzers, quality control analyzers, or environmental emission analyzers by following required procedures including:
- diagnosing source of problem;
- isolating analyzer and performing make-safe procedures;
- removing, cleaning, or replacing components such as filters, conditioners, solenoids, valves, tubing, chillers, and sampling system components;
- clearing and flushing sample lines;
- determining and preparing a reference standard;
- connecting calibration equipment to analyzer;
- connecting sample devices and carrier gases;
- calibrating analyzers using multimeters, calibrated standard, water, oil, analyzer device, handheld calibrators, or calibration software;
- storing sampling and calibration materials;
- returning to service;
- completing backup documentation;
so that analyzers are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed ___________ Apprentice __________ Supervisor/Trainer __________

U6554.05 Perform preventative maintenance on process analyzers, quality control analyzers, or environmental emission analyzers by following required procedures including:
- interpreting job documentation;
- inspecting the analyzers;
- isolating analyzer and performing make-safe procedures;
- using required materials, carrier gases, calibrated standards, tools, and equipment;
- determining and preparing a reference standard;
- configuring using software and handheld devices;
- removing, cleaning, or replacing analyzer components;
- verifying functionality;
- returning to service;
- completing backup documentation;
so that analyzers are maintained, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed ___________ Apprentice __________ Supervisor/Trainer __________
U6554.06 Calibrate analyzers by following required procedures including:

- identifying type and function of the analyzer;
- obtaining calibration procedures and materials;
- obtaining calibration standards, limitations, and parameters;
- determining and preparing a reference standard;
- isolating analyzer and performing make-safe procedures;
- connecting calibration equipment to analyzer;
- connecting sample devices;
- calibrating analyzers using multimeters, calibration standard, analyzer device, handheld calibrators, or calibration software;
- interpreting results;
- returning to service;
- completing backup documentation;

so that analyzers are calibrated, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
SAFETY SYSTEMS AND SECURITY SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Work with safety systems and security systems by: installing safety systems and security systems; and, troubleshooting and performing preventative maintenance on safety systems and security systems.

PERFORMANCE OBJECTIVES

SKILLS

U6555.01 Install safety systems by following required procedures including:

- identifying environmental conditions;
- selecting safety systems such as gas (infrared and catalytic bead), fire (ultraviolet and infrared), heat (thermal pencils and heat sensors), smoke (ionic and particle detectors), and spill detection;
- identifying operational parameters and acceptable limits;
- determining locations for devices;
- using required tools and equipment;
- screwing, bolting, or bracketing to secure devices;
- applying sealants and gaskets;
- connecting safety systems to the control system or indicator;
- verifying alarming method such as stench gas, flashing lights, or audible alarms;

so that safety systems are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed Apprentice Supervisor/Trainer
U6555.0 SAFETY SYSTEMS AND SECURITY SYSTEMS …cont’d

**U6555.02 Install security systems** by following required procedures including:
- identifying installation conditions;
- selecting security such as intruder alarms, remote monitoring, cameras, motion sensors, or access systems;
- identifying operational parameters and acceptable limits;
- determining locations for devices;
- using required tools and equipment;
- screwing, bolting, or bracketing to secure devices;
- applying sealants and gaskets;
- connecting security systems to the control system or indicator;
- configuring security system using specialized equipment and software;

so that security systems are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

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**U6555.03 Troubleshoot safety systems and security systems** by following required procedures including:
- using required tools and equipment;
- assessing system reaction to alarms;
- diagnosing source of problem;
- isolating systems and performing make-safe procedures;
- performing functional checks of systems;
- determining systems operational parameters and alarm points;
- removing and replacing system components;
- calibrating systems;
- configuring systems;
- returning to service;
- completing backup documentation;

so that systems are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

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U6555.04 Perform preventative maintenance on safety systems and security systems by following required procedures including:

- interpreting job documentation;
- inspecting the devices;
- isolating systems and performing make-safe procedures;
- using software and handheld devices;
- removing and replacing systems components;
- verifying functionality;
- returning to service;
- completing backup documentation;

so that systems are maintained, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed ___________________ Apprentice ___________________ Supervisor/Trainer ___________________

Sponsor/Employer Name ___________________ Sponsor/Employer Signature ___________________
GENERAL PERFORMANCE OBJECTIVE

Work with energy delivery systems by: installing, troubleshooting, and performing preventative maintenance on hydraulic equipment; installing, troubleshooting and performing preventative maintenance on pneumatic equipment; installing and troubleshooting electrical and electronic equipment.

PERFORMANCE OBJECTIVES

SKILLS

U6556.01 Install hydraulic equipment by following required procedures including:
- interpreting job documentation and manufacturers’ specifications;
- selecting hydraulic equipment such as hydraulic fluids and filters, controls, valves, lines, pumps, relays, and regulators;
- determining locations for hydraulic equipment;
- connecting equipment such as solenoids, accumulators, servo-valves, motors, and pumps to the control system;
- making adjustments to flow and pressure;
- verifying operation of system;
so that hydraulic equipment is installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
Troubleshoot hydraulic equipment by following required procedures including:
- diagnosing source of problem;
- isolating hydraulics and performing make-safe procedures;
- replacing out-of-specification components such as seals, springs, and pistons;
- replacing consumables such as fluids, filters, and strainers;
- repairing defective connections;
- rebuilding hydraulic equipment;
- cleaning;
- making adjustments to out-of-specification components such as pressure regulators, relief valves, and flow regulators;
- performing a post-maintenance test to verify;
- returning to service;
- completing backup documentation;
so that hydraulic equipment is operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed
Apprentice
Supervisor/Trainer

Perform preventative maintenance on hydraulic equipment by following required procedures including:
- interpreting job documentation;
- inspecting the hydraulic equipment;
- using required tools and equipment;
- isolating hydraulics and performing make-safe procedures;
- removing and replacing components such as seals, springs, or pistons;
- replacing consumables such as fluids, filters, and strainers;
- cleaning equipment;
- repairing defective connections;
- rebuilding hydraulic equipment;
- making adjustments to out-of-specification components such as pressure regulators, relief valves, and flow regulators;
- returning hydraulic equipment to service;
- performing post-maintenance tests to verify;
- completing backup documentation;
so that hydraulic equipment is maintained, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed
Apprentice
Supervisor/Trainer
U6556.0  ENERGY DELIVERY SYSTEMS … cont’d

U6556.04 Install pneumatic equipment by following required procedures including:
- interpreting job documentation and manufacturers’ specifications;
- using required tools and equipment;
- selecting pneumatic equipment according to the application and materials such as air dryers, conditioning components (filter assemblies, volume boosters, relays), compressors, solenoid valves, regulators, seals, springs, flapper nozzles, links, levers, diaphragms, and pistons;
- determining locations for pneumatic equipment;
- screwing, bolting, or bracketing to secure pneumatic equipment;
- connecting components such as regulators, separators, or tubing;
- making adjustments;
- verifying operation;
- completing backup documentation;
so that pneumatic equipment is installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer

U6556.05 Troubleshoot pneumatic equipment by following required procedures including:
- diagnosing source of problem;
- isolating pneumatics and performing make-safe procedures;
- using required tools and equipment;
- replacing or repairing defective connections;
- rebuilding pneumatic equipment;
- cleaning equipment;
- making adjustments;
- performing a post-maintenance test to verify;
- returning to service;
- completing backup documentation;
so that pneumatic equipment is operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
U6556.0  ENERGY DELIVERY SYSTEMS … cont’d

U6556.06  Perform preventative maintenance on pneumatic equipment by following required procedures including:
- interpreting job documentation and manufacturers’ specifications;
- inspecting the pneumatic equipment;
- using required tools and equipment;
- isolating pneumatics and performing make-safe procedures;
- removing and replacing components;
- cleaning equipment;
- repairing defective connections;
- returning to service;
- performing post-maintenance tests to verify;
- completing backup documentation;
so that pneumatic equipment is maintained, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer

U6556.07  Install electrical and electronic equipment by following required procedures including:
- interpreting job documentation and manufacturers’ specifications;
- using required tools and equipment;
- selecting electrical and electronic equipment such as AC/DC power supplies, uninterruptible power supplies (UPS), solenoids, relays, cabling, fuses, resistors, circuit boards, and transformers;
- determining locations for electrical and electronic equipment;
- screwing, bolting, or bracketing to secure equipment;
- connecting equipment to the control system;
- making adjustments to equipment settings;
- completing backup documentation;
so that electrical and electronic equipment is installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
U6556.0 ENERGY DELIVERY SYSTEMS…cont’d

U6556.08 Troubleshoot electrical and electronic equipment by following required procedures including:

- diagnosing source of problem;
- isolating equipment and performing make-safe procedures;
- using required tools and equipment;
- replacing out-of-specification components such as relays, capacitors, and fuses;
- repairing defective connections;
- cleaning equipment;
- making adjustments;
- performing a post-maintenance test to verify;
- returning equipment to service;
- completing backup documentation;

so that electrical and electronic equipment is operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed ________________ Apprentice ________________ Supervisor/Trainer ________________

Sponsor/Employer Name ________________ Sponsor/Employer Signature ________________
U6557.0 COMMUNICATION SYSTEMS AND DEVICES

GENERAL PERFORMANCE OBJECTIVE

Work with communication systems and devices by: interpreting job specifications; installing and troubleshooting signal transmissions systems; installing, troubleshooting, and performing preventative maintenance on signal converters.

PERFORMANCE OBJECTIVES

SKILLS

U6557.01 Interpret job specifications to identify:
- types of signal transmission systems such as networks, and signal transmitters, communication protocols and media (RS232, RS422/485, MODBUS, TCP/IP, and Highway Addressable Remote Transducer (HART);
- wiring, connection, and tubing methods;
- fibre-optics;
- potential causes of interference;
- grounding methods;
- addressing methods and components;
- programming;

to ensure that system selected is the correct one for the application, in accordance with communication protocols, manufacturers’ and job specifications, company standards/procedures and applicable Acts, Legislation, Codes, and Regulations.

Date Completed ___________________________ Apprentice ___________________________ Supervisor/Trainer ___________________________
U6557.02 Install signal transmissions systems by following required procedures including:
- locating wireless transmission and antennas;
- selecting system components such as wireless transmission and antennas, panels, modems, fibre-optic cable, tubing, RF filters, IC chips, circuit boards, taps, software, or firmware;
- connecting transmission systems;
- mounting and testing transmission and antennas;
- planning the tubing runs;
- routing the wiring;
- bending the tubing;
- stripping the wire;
- connecting fibre-optic cabling, wiring, and tubing;
- bringing system online;
- completing backup documentation;
so that signal transmission systems are installed, avoiding interferences with other systems and processes, in accordance with communication protocols, manufacturers’ and job specifications, company standards/procedures and applicable Acts, Legislation, Codes, and Regulations.
U6557.0 COMMUNICATION SYSTEMS AND DEVICES …cont’d

U6557.03 Troubleshoot signal transmissions systems by following required procedures including:
- performing system diagnostics;
- identifying installation problems and deficiencies;
- isolating equipment and performing make-safe procedures;
- testing system using specialized test equipment;
- testing wireless signal strength;
- performing upgrading of software and firmware;
- removing and replacing components such as IC chips, circuit boards, and taps;
- cleaning components such as panels, fibre-optic connections and environmental filters;
- clearing tubing lines;
- bending, replacing, or connecting tubing;
- torquing tubing and cable connectors;
- configuring system using configuration software and hardware;
- returning system to service;
- complete backup documentation;
so that the signal transmission system is operational and functioning, in accordance with communication protocols, manufacturers’ and job specifications, company standards/procedures and applicable Acts, Legislation, Codes, and Regulations

Date Completed  Apprentice  Supervisor/Trainer
COMMUNICATION SYSTEMS AND DEVICES — cont’d

Install signal converters by following required procedures including:
- identifying features and limitations of the converters;
- selecting signal converter components such as digital to analog, analog to digital, current to pneumatic, pneumatic to electrical, current transformers, potential transformers, and voltage to pneumatic, and converter components such as wiring, tubing, connections, IC chips, circuit boards, software or firmware;
- connecting converters;
- planning tubing runs;
- bending the tubing;
- routing and stripping wiring;
- connecting wiring and tubing;
- mounting signal converter components;
- verifying operation;
- completing backup documentation;
so that the signal converters are installed avoiding interferences with other systems and processes, in accordance with communication protocols, manufacturers’ and job specifications, company standards/procedures and applicable Acts, Legislation, Codes, and Regulations.

Troubleshoot signal converters by following required procedures including:
- performing system diagnostics;
- identifying installation problems and deficiencies;
- isolating equipment and performing make-safe procedures;
- upgrading software and firmware;
- removing and replacing components such as IC chips and circuit boards;
- clearing tubing lines;
- calibrating signal converters using instruments such as current and voltage simulators and pneumatic test equipment;
- making adjustments;
- returning system to service;
- completing backup documentation;
so that signal converter is operational and functioning, in accordance with communication protocols, manufacturers’ and job specifications, company standards/procedures and applicable Acts, Legislation, Codes, and Regulations.
U6557.0 COMMUNICATION SYSTEMS AND DEVICES …cont’d

U6557.06 **Perform preventative maintenance on signal converters** by following required procedures including:

- interpreting job documentation and manufacturers’ specifications;
- inspecting converters and connections;
- performing system diagnostics;
- isolating equipment and performing make-safe procedures;
- upgrading software and firmware;
- removing and replacing components such as IC chips, circuit boards, restrictors, and air filters;
- clearing the tubing lines;
- bending, replacing, and connecting tubing;
- torquing tubing and cable connectors;
- returning signal converters to service;
- completing backup documentation;

so that the signal converter is maintained, in accordance with communication protocols, manufacturers’ and job specifications, company standards/procedures and applicable Acts, Legislation, Codes, and Regulations.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature
GENERAL PERFORMANCE OBJECTIVE

Work with Final Control Devices by: installing and troubleshooting valves; installing and troubleshooting actuators (pneumatic, hydraulic or electric); and, installing and troubleshooting positioners (pneumatic, electric/electronic, VFDs, VSDs).

PERFORMANCE OBJECTIVES

SKILLS

U6558.01 Install valves by following required procedures including:
- identifying process equipment operations and performance expectations;
- selecting valves for the application such as sliding stem (globe, plug, gate) and rotary (ball, butterfly, v-ball);
- installing gaskets;
- applying sealants;
- positioning valve in the process system;
- securing valves in system;
- checking functionality of valves;
- completing backup documentation;
so that the valves are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
U6558.0 FINAL CONTROL DEVICES …cont’d

U6558.02 Troubleshoot valves by following required procedures including:
- interpreting job documentation and manufacturers’ specifications;
- identifying type and characteristics of valves;
- identifying faults such as leaking packing, valve passing, and worn or damaged parts;
- function-testing the valve for faults;
- isolating valve and performing make-safe procedures;
- repacking the valves using Teflon, graphite, or rope;
- replacing valve components such as cages, plugs, seats, and stems;
- cleaning components;
- lubricating components;
- making adjustments;
- performing post-maintenance tests by stroking the valve;
- completing backup documentation;
so that the valves are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed    Apprentice        Supervisor/Trainer

U6558.03 Install actuators (pneumatic, hydraulic or electric) by following required procedures including:
- selecting the actuator for the application such as spring return, double-acting, rotary, fail-open and fail-close;
- selecting actuator components such as cylinders, diaphragms, pistons, plates, couplings, springs, motors, brake assemblies, bushings, and o-rings;
- configure the actuator for the applications;
- connecting actuator to the valve;
- bench-setting the actuators;
- verifying operation of the actuators;
- completing backup documentation;
so that actuators are matched and connected to the valve, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed    Apprentice        Supervisor/Trainer
U6558.0 FINAL CONTROL DEVICES…cont’d

U6558.04 Troubleshoot actuators (pneumatic, hydraulic or electric) by following required procedures including:
- inspecting the actuators;
- isolating equipment and performing make-safe procedures;
- diagnosing source of problem;
- identifying faults such as air supply, leaking diaphragms, broken springs, and defective o-rings;
- removing and replacing components such as o-rings, diaphragms, pistons, motors, brake assemblies, and springs;
- cleaning actuator components;
- lubricating components;
- re-assembling actuator;
- returning actuator to service;
- performing post-maintenance tests;
- completing backup documentation;
so that the actuators are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed	Apprentice	Supervisor/Trainer

U6558.05 Install positioners, by following required procedures including:
- selecting positioners for application and actuator type;
- selecting positioner components such as levers, nozzles, flappers, diaphragms, feedback linkages, I/P transducers, cams, rollers, regulators, limit switches, and bellows;
- selecting the auxiliaries such as position locks and boosters;
- orientating and mounting the positioner to the actuator;
- connecting the positioner to the signal and supply lines;
- configuring the positioners;
- verifying operation of positioners;
- completing backup documentation;
so that the positioners are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed	Apprentice	Supervisor/Trainer
U6558.0   FINAL CONTROL DEVICES…cont’d

U6558.06 Troubleshoot positioners by following required procedures including:
- identifying type and parameters of positioners;
- identifying faults such as leaks, faulty connections, and defective parts;
- isolating equipment and performing make-safe procedures;
- removing and replacing components such as seals, flappers, nozzles, springs, relays, motors, and brake assemblies;
- cleaning positioner components;
- calibrating positioners using equipment such as handheld calibrators, computers, and hand pumps;
- making adjustments;
- returning positioner to service;
- performing post-maintenance tests;
- completing backup documentation;
so that positioners are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed    Apprentice    Supervisor/Trainer

U6558.07 Install VFDs (variable frequency drives), or VSDs (variable speed drives) by following required procedures including:
- selecting drives for the application;
- selecting drive components such as fans, environmental filters, wiring, fuses, circuit boards, panels, and enclosures;
- selecting auxiliaries such as dynamic braking unit and harmonic filters;
- screwing, bolting, or bracketing to secure the drives;
- connecting the drives to the signal and supply lines;
- configuring the drives;
- verifying operation of the drives;
- completing backup documentation;
so that drives are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed    Apprentice    Supervisor/Trainer
Troubleshoot VFDs (variable frequency drives), or VSDs (variable speed drives) by following required procedures including:

- identifying type and parameters of the drives;
- identifying faults such as faulty connections and defective parts;
- isolating equipment and performing make-safe procedures;
- removing and replacing components such as fans, environmental filters, wiring, circuit boards, dynamic braking unit, and fuses;
- verify configuration;
- making adjustments;
- performing post-maintenance test;
- returning the drives to service;
- completing backup documentation;

so that the drives are operational and functioning, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.
INSTRUMENTATION AND CONTROL TECHNICIAN

U6559.0 PROCESS CONTROL SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Work with Process Control Systems by: determining and configuring process control strategy; installing, calibrating/configuring, and troubleshooting stand-alone controllers (electronic, pneumatic); installing, configuring, and troubleshooting programmable logic controllers (PLCs); installing, configuring, troubleshooting, and performing preventative maintenance on distributed control systems (DCSs); installing, configuring, troubleshooting, and performing preventative maintenance on human machine interfaces (HMIs)

PERFORMANCE OBJECTIVES

SKILLS

U6559.01 Determine process control strategy by following required procedures including:
- reading and interpreting job documentation and manufacturers’ specifications;
- identifying type of control strategy such as Proportional, Integral, Derivative (PID), feed forward/back, cascade, ratio, continuous, batch, single-loop and multi-loop;
- identifying process to be controlled;
- identifying control equipment characteristics and limitations;
- identifying memory restrictions and number of input/output points;
- using specialized equipment such as computers and software;
so that the end results of the control strategy are identified in accordance with manufacturers’ and job specifications, drawings, and documentation.

Date Completed Apprentice Supervisor/Trainer

U6559.02 Configure process control strategy by following required procedures including:
- identifying configuration methods and requirements;
- identifying specific control strategies and interaction of other processes;
- identifying control limits such as PID, alarm settings, and limits;
- using specialized equipment such as computers and software;
- programming control strategy using configuration software and routines;
- verifying the end results;
- complete backup documentation;
so that process control strategies are configured, in accordance with manufacturers’ and job specifications, drawings, and documentation.

Date Completed Apprentice Supervisor/Trainer
U6559.03 **Install stand-alone controllers (electronic, pneumatic)** by following required procedures including:
- identifying type of inputs and outputs;
- identifying environmental conditions such as extreme ambient temperature, cleanliness, or contamination;
- selecting controllers according to application, process, and control strategy;
- selecting required power supply;
- determining locations for controllers;
- screwing, bolting, or bracketing to secure controllers;
- connecting controller to the process system;
- configuring controllers;
- calibrating controllers;
- verifying operation;
- completing backup documentation;
so that stand-alone controllers are installed, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer

U6559.04 **Configure stand-alone controllers** by following required procedures including:
- identifying configuration techniques applied to specific control strategies;
- using specialized equipment such as computers and software;
- configuring controllers using handheld programmers and computers;
- identifying control parameters and process limitations;
- isolating equipment and performing make-safe procedures;
- tuning controllers to the process conditions;
- returning controller to service;
- completing backup documentation;
so that stand-alone controllers are configured, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
U6559.0  PROCESS CONTROL SYSTEMS …cont’d

U6559.05  Troubleshoot stand-alone controllers by following required procedures including:
- identifying controller functions, process controls, and process control strategy;
- performing system diagnostics;
- isolating equipment and performing make-safe procedures;
- identifying controller deviations, faults, and errors;
- identifying process upset conditions and limitations;
- removing and replacing controller;
- tuning controller parameters to varying process conditions;
- upgrading software and firmware;
- calibrating controller;
- restoring controller to process system;
- completing backup documentation;
so that stand-alone controllers are maintained, in accordance with manufacturers’ and job specifications, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer

U6559.06  Install programmable logic controllers (PLCs) by following required procedures including:
- identifying type of PLC, architecture, and capabilities;
- identifying PLC language such as ladder, function block, sequential function chart, and script;
- identifying environmental conditions such as heat, cleanliness, and contamination;
- selecting PLC and components for the process;
- selecting required power supply;
- determining locations for PLCs;
- connecting PLC and terminating I/O;
- mounting PLC;
- completing backup documentation;
so that PLCs are installed, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
Configure programmable logic controllers (PLCs) by following required procedures including:
- identifying PLC language such as ladder, function block, sequential function chart and script;
- identifying PLC programs and associate software such as word processors, spreadsheets, and databases;
- using specialized equipment such as computers and software;
- configuring PLCs using programming/configuring software;
- identifying control parameters and process limitations;
- isolating the controller from the process;
- interpreting results;
- returning controller to service;
- performing tests to verify the program;
- completing backup documentation;
so that PLCs are configured, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer

Troubleshoot programmable logic controllers (PLCs) by following required procedures including:
- identifying computer applications related to PLC functions;
- identifying communication systems used by PLCs;
- identifying PLC language;
- identifying configuration parameters;
- using programming/configuring software, diagnostic tools, and equipment;
- interpreting software reports and documentation to identify network programs;
- forcing, disabling, or bypassing I/Os;
- performing shut-down and start-up of PLCs;
- upgrading software and firmware;
- making program modifications;
- removing and re-installing components;
- replacing batteries, fans, and environmental filters;
- backing-up programs and completing backup documentation;
so that PLCs are returned to operating specifications, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
U6559.0  **PROCESS CONTROL SYSTEMS** …cont’d

**U6559.09 Install distributed control systems (DCSs)** by following required procedures including:

- identifying types of DCS, architectures, and capabilities;
- identifying DCS language such as ladder, function block, and script;
- identifying DCS components such as power supply, processor, memory, and I/O;
- selecting required power supply and grounding methods;
- identifying digital, discrete, or analog signals;
- determining compatibility with other process control systems;
- identifying environmental conditions such as heat, cleanliness, or contamination;
- confirming installation details of DCS components such as cabinets, operator stations, and servers;
- mounting DCS components such as I/O cards and power supplies;
- connecting wiring and network to DCS;

so that DCSs are installed, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

**Date Completed**  **Apprentice**  **Supervisor/Trainer**

**U6559.10 Configure distributed control systems (DCSs)** by following required procedures including:

- identifying DCS programs and associated software;
- identifying DCSs language such as ladder, function block, and script;
- updating operating software;
- creating and validating DCS configuration according to rack and cabinet layout;
- programming DCS to include comments and displays;
- configuring external communication with other systems and devices;
- backing-up and restoring configurations;
- determining if the DCS controls the process;
- completing backup documentation;

so that DCSs are configured, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, environmental protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

**Date Completed**  **Apprentice**  **Supervisor/Trainer**
U6559.0 PROCESS CONTROL SYSTEMS …cont’d

U6559.11 Troubleshoot distributed control systems (DCSs) by following required procedures including:
- identifying computer programs and software related to DCS functions;
- identifying DCS language such as function block and script;
- backing-up and restoring program and configuration;
- forcing, disabling, and bypassing I/Os;
- shutting down and starting up DCS components;
- upgrading software and firmware;
- making program modifications;
- removing and re-installing devices;
- replacing backup batteries;
- cleaning fans and environmental filters;
- completing backup documentation;
so that DCSs are returned to operating specifications, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed                  Apprentice                  Supervisor/Trainer

U6559.12 Perform preventative maintenance on distributed control systems (DCSs) by following required procedures including:
- using diagnostic tools and software;
- investigating symptoms and conditions such as network and communication problems;
- isolating problem by reviewing error codes, logs, and status lights;
- using diagnostic procedures such as forcing I/O and setting traps or counters;
- checking power source for appropriate voltage level;
- running and interpreting self-diagnostic and alarm indicators;
- identifying probable root cause;
- locating faults;
- backing-up program and configuration;
- shutting down and starting up controllers;
- upgrading software and firmware;
- making program modifications;
- completing backup documentation;
so that DCS is maintained, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed                  Apprentice                  Supervisor/Trainer
U6559.0  PROCESS CONTROL SYSTEMS …cont’d

U6559.13  Install human machine interfaces (HMIs) by following required procedures including:

- identifying types of HMI software, hardware, design, and capabilities;
- identify data types such as boolean, integer, and floating point;
- determining compatibility with other process control systems;
- identifying communication networks and protocols;
- identifying environmental conditions such as heat, cleanliness, and contamination;
- selecting HMI software and operator interface equipment;
- installing software;
- connecting communication links;
- screwing or bolting to secure the HMI;

so that HMIs are installed, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, communication networks and protocols, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer

U6559.14  Configure human machine interfaces (HMIs) by following required procedures including:

- identifying HMI programs and associated software;
- identifying data types and addressing scheme;
- updating programming/configuring software and firmware;
- generating operator displays;
- validating HMI configuration and displays;
- configuring external communication;
- backing-up and restoring configurations;
- commissioning HMI;
- complete backup documentation;

so that HMIs are configured, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed  Apprentice  Supervisor/Trainer
Troubleshoot human machine interfaces (HMIs) by following required procedures including:

- identifying HMI programs and associated software;
- investigating faulty configuration or errors;
- updating programming and configuring software and firmware;
- determining interaction with PLCs and DCS systems;
- using diagnostic procedures, tools, and software;
- isolating problem by reviewing error codes, logs, and status lights;
- identifying probable root cause;
- locating faults;
- backing-up program and configuration;
- returning to service;

so that HMIs are interacting with PLCs and DCS, in accordance with manufacturers’ and job specifications, licensing, drawings, schematics, company standards/procedures, and applicable Acts, Legislation, Codes, and Regulations.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature
# Instrumentation and Control Technician

## Apprentice Record

### Apprentice Name (Print):

#### Sponsor/Employer Information

<table>
<thead>
<tr>
<th>Training Agreement #</th>
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#### Summary of Training

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<td>Employment End Date</td>
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<td>Total hours of training &amp; instruction between dates of employment.</td>
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Date Completed: 
Apprentice: 
Supervisor/Trainer: 

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Ontario College of Trades ©
## APPRENTICE RECORD

### APPRENTICE NAME  (Print):

### SPONSOR/EMPLOYER INFORMATION

<table>
<thead>
<tr>
<th>Information</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Agreement #</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
</tr>
<tr>
<td>E-mail Address</td>
<td></td>
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</tbody>
</table>

### SUMMARY OF TRAINING

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Employment Start Date</td>
<td></td>
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<tr>
<td>Employment End Date</td>
<td></td>
</tr>
<tr>
<td>Total hours of training &amp; instruction between dates of employment.</td>
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Date Completed: [ ]
Apprentice: [ ]
Supervisor/Trainer: [ ]
## APPRENTICE RECORD

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Date Completed | Apprentice | Supervisor/Trainer
**APPRENTICE COMPLETION FORM**

### APPRENTICE INFORMATION

<table>
<thead>
<tr>
<th>Name (Print)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
<td></td>
</tr>
<tr>
<td>Social Insurance Number</td>
<td></td>
</tr>
</tbody>
</table>

Skill Sets when completed should be signed by the Supervisor/Trainer and presented with this completion form to your local Apprenticeship Client Services Office. Any supporting documentation should also be attached.

<table>
<thead>
<tr>
<th>In-school Completed</th>
<th>Yes ( )</th>
<th>No ( )</th>
<th>Not applicable ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Proof to be Provided)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hours completed as Per Contract:</th>
<th>Yes ( )</th>
<th>No ( )</th>
<th>Not applicable ( )</th>
</tr>
</thead>
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<td>E-mail Address</td>
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</tr>
<tr>
<td>Signature of Signing Authority</td>
<td></td>
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</table>

You will be required to disclose this signed form to the Ministry of Training, Colleges and Universities in order to complete your program. The Ministry will use your personal information to administer and finance Ontario’s apprenticeship training system.

For further information please see the notice/declaration for collection of personal information that is referenced in the table of contents of this training standard.