Apprenticeship Training Standard

Information Technology Hardware Technician

Trade Code: 634B

Development Date: 2007
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
INFORMATION TECHNOLOGY HARDWARE TECHNICIAN

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1. **Program Definition: Hardware Technician** is defined as a person who:

- assembles, repairs, and upgrades microcomputer systems, components, and peripherals;
- installs operating systems and application software

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

2. **Program Guidelines**

- **On-the-Job Training Duration (for apprentices)**
  The Industry Committee has identified 6,420 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 630 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.
3. **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 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 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 Standard or Schedule of Training; and
• 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 before program entry. For details, see the document Apprenticeship Subject Pathways.
**COMPETENCY ANALYSIS PROFILE**

Information Technology Hardware Technician – 634B

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

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PREFACE

This Training Standard was developed by the Ministry of Training, Colleges, and Universities (MTCU), in partnership with the Industry Advisory Committees and in consultation with representatives from the industry. This document is intended to be used by 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 skills 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 apprentices acquisition of skills of the trade.
DEFINITIONS

ACA
Apprenticeship and Certification Act, 1998

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

Certificate of Qualification (C of Q)
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

1. 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.

2. It is the responsibility of the apprentice to inform the local Apprenticeship Client Services Office regarding the following changes:
   - change of sponsor/employer address;
   - change of apprentice name or address;
   - transfer to a new sponsor/employer.

3. 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.

4. 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 & 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 when 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

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NOTE ON SHADED PERFORMANCE OBJECTIVES AND SKILLS

- Shaded performance objectives and skill sets are optional. The shaded skills do not have to be demonstrated or signed off on for completion of the on-the-job component of the apprenticeship.
- The in-school curriculum learning outcomes will cover all 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.
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6270.00 PROTECT SELF AND OTHERS

GENERAL PERFORMANCE OBJECTIVE

Comply with occupational health and safety procedures by identifying potential workplace health and safety hazards; handling, storing, and disposing of hazardous materials; applying fire hazard prevention methods; wearing and maintaining personal protective equipment; complying with workplace-related legislation; interpreting and applying service-related information; practising good housekeeping in the workplace; and complying with Environmental Protection Act and Workplace Hazardous Materials Information System (WHMIS) guidelines, according to the Occupational Health and Safety Act, manufacturers’ recommendations and specifications, and government regulations.

SKILLS

6270.01 Identify and take preventative action against potential workplace environmental, health, and safety hazards, including adhesives, dust, soldering fumes, sound levels, and electrical and mechanical hazards (e.g., damaged electrical cables and/or inadequate ventilation), so that the potential for personal injury and damage to equipment and the environment are minimized, according to the Occupational Health and Safety Act, manufacturers’ recommendations and specifications, and government regulations.

Date Completed Apprentice Supervisor/Trainer

6270.02 Handle, store, and recycle hazardous workplace materials, including new and used lubricants and fluids, gases, toners, inks, solvents, filters, and adhesives, by using personal protective equipment and specified handling, storing, and recycling equipment, so that individuals are protected from injury and the environment from contamination, and safety procedures are followed, according to the Occupational Health and Safety Act, manufacturers’ recommendations and specifications, and government regulations.

Date Completed Apprentice Supervisor/Trainer
PROTECT SELF AND OTHERS (cont.)

6270.03  Wear and maintain personal protective equipment, including eye, ear, hand, respiratory, body, and foot protection, and ensure that correct fit and optimum protection is provided to the wearer for the specific task performed, according to the Occupational Health and Safety Act, manufacturers’ recommendations and specifications, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6270.04  Comply with workplace-related legislation, including the Occupational Health and Safety Act and the Environmental Protection Act, by identifying the personal and legal liabilities of technicians and employers when performing and/or conducting work estimates and repairing and/or replacing damaged components, according to the Occupational Health and Safety Act, manufacturers’ recommendations and specifications, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6270.05  Practise and apply fire-hazard prevention methods, including maintaining a clean and orderly work area; identifying, removing, and disposing of potential fire hazards; cleaning up grease, oil, and/or fluids, ensuring work area is free of obstructions; and safely using, storing, and maintaining all tools and equipment to minimize accident or injury to self and others, according to the Occupational Health and Safety Act, manufacturers’ recommendations and specifications, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer
6270.00 PROTECT SELF AND OTHERS (cont.)

6270.06 Comply with Workplace Hazardous Materials Information System (WHMIS) guidelines, including reading and interpreting labels and Material Safety Data Sheets (MSDS) and ensuring receipt of training in WHMIS regulations and practices, according to the Occupational Health and Safety Act.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
INFORMATION TECHNOLOGY HARDWARE TECHNICIAN

6271.00 DEMONSTRATE QUALITY CUSTOMER SERVICE AND COMMUNICATION SKILLS

GENERAL PERFORMANCE OBJECTIVE

Demonstrate quality customer service and communication skills, including listening, speaking, writing, teamwork, public relations, conflict resolution, logical reasoning, critical thinking, and problem solving, by professionally interacting with customers, colleagues, supervisors, and manufacturers, according to company policies and procedures and customer satisfaction.

SKILLS

6271.01 Use active listening techniques, including focusing to avoid distractions; interrupting only to redirect or refocus; carefully clarifying, paraphrasing, and summarizing when necessary; visualizing the user’s screen based on a verbal description of the problem; and taking notes, to assist in accurate interpretation to establish resolution or enable further diagnosis and/or communication when interacting with customers, colleagues, supervisors, and manufacturers, according to company policies and procedures.

6271.02 Use effective speaking techniques, including a pleasant, professional tone; appropriate clarity, volume, and speed of speech; proper business language, avoiding the use of jargon; creating simple visuals to illustrate equipment or procedures; and leading a client or peer through technical procedures by using telephones, voice-mail recordings, and formal presentations, when interacting with customers, colleagues, supervisors, and manufacturers, according to company policies and procedures.

6271.03 Prepare written and typed communications, including memos, letters, time sheets, and inspection, testing, performance, progress, and incident reports, by using proper business and technical language, and recording required information accurately by using internal and external forms and format when communicating with customers, colleagues, supervisors, and manufacturers, according to company policies and procedures.
6271.00  DEMONSTRATE QUALITY CUSTOMER SERVICE AND COMMUNICATION SKILLS (cont.)

6271.04  Work as part of a team by communicating effectively with others, identifying methods for developing personal networks, cooperating with colleagues as a team member or leader, and dealing effectively with workplace stress and conflict resolution, according to company policies, procedures, and customer satisfaction.

Date Completed   Apprentice   Supervisor/Trainer

6271.05  Liaise with vendors to acquire hardware and software components by accessing and researching vendor databases to project specifications, identifying key industry contacts, determining costs of materials that comply with project specifications, and practising personal and professional ethics specific to the industry, according to company policies and procedures, manufacturers’ specifications, and customer satisfaction.

Date Completed   Apprentice   Supervisor/Trainer

6271.06  Handle workload completion to meet target deadlines and ensure customer satisfaction by employing methods to prioritize tasks, developing strategies to cope with multitasking, scheduling and coordinating response time, determining time lines for problem solving, identifying service-level objectives, escalating problems to appropriate level and person, and conducting quality service follow-up, according company policies procedures and customer satisfaction.

Date Completed   Apprentice   Supervisor/Trainer

Sponsor/Employer Name   Sponsor/Employer Signature
INFORMATION TECHNOLOGY HARDWARE TECHNICIAN

6272.00 CREATE AND MAINTAIN DOCUMENTATION

GENERAL PERFORMANCE OBJECTIVE

Create and maintain accurate documentation by reviewing and documenting issue resolution according to customer satisfaction, industry standards, and within manufacturers’ recommendations and specifications, safety requirements, and government regulations.

SKILLS

6272.01 Create documentation, including customer information, product and installation specifications, workstation environment, and operating system data, by using internal and external forms and formatting according to company policy and procedures, customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6272.02 Record issue diagnosis and resolution, including hardware and software information, user data, peripherals, cabling, and client situation, by interacting with client and capturing pre-defined solutions by using quality customer service standards, manufacturers’ manuals, resource database and diagnostic tools, according to company policy and procedures, customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6272.03 Verify accuracy of issue and document resolution, including customer feedback through testing and analysing performance and function, by using quality customer service standards, manufacturers’ manuals, resource database and diagnostic and operating system troubleshooting tools, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer
6272.00 CREATE AND MAINTAIN DOCUMENTATION (cont.)

6272.04 Review and document issue resolution and any modifications, including manufacturers’ manuals, resource database, diagnostic tools, and operating system and troubleshooting tools, by communicating solution to user, identifying trends, and updating and recording internal and external resources, according to company-specific standard operating procedures, customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed        Apprentice        Supervisor/Trainer

Sponsor/Employer Name       Sponsor/Employer Signature
INFORMATION TECHNOLOGY HARDWARE TECHNICIAN

6273.00 CONFIGURE, SERVICE, AND/OR REPLACE MICROCOMPUTER SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Configure, service, and/or replace microcomputer systems by visually inspecting, diagnosing, troubleshooting, and verifying performance and function, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

SKILLS

6273.01 Visually inspect microcomputer systems, including peripherals, cabling, documentation and software, processors, memory subsystem, graphics, and direct-access storage devices, by checking for error indicators; power source; communications; hardware and software configuration; moving worn, loose, defective, damaged, and missing components; temperature; humidity; ventilation; dust; spillage; and environmental conditions, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

   Date Completed   Apprentice   Supervisor/Trainer

6273.02 Set up microcomputer systems and peripherals, including cabling, documentation and software, processors, memory subsystem, graphics, and direct-access storage devices, by assembling and installing components and using service and installation documentation, block/schematic diagrams, software media kit, vendor resources, and hand, power, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

   Date Completed   Apprentice   Supervisor/Trainer
CONFIGURE, SERVICE, AND/OR REPLACE MICROCOMPUTER SYSTEMS (cont.)

Diagnose and troubleshoot microcomputer systems, including peripherals, cabling, documentation, software, processors, memory subsystem, graphics, and direct-access storage devices, by visually inspecting, testing, and analysing performance and function; checking for error indicators; power source; communications; hardware and software configuration; moving, worn, loose, defective, damaged, and missing components; temperature; humidity; ventilation; dust; spillage; and environmental conditions, by using sensory indicators, manufacturers’ manuals, software, diagnostic utilities, customer applications, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Service and/or configure microcomputer systems, including peripherals, cabling, documentation, software, processors, memory subsystem, graphics, and direct-access storage devices, by exchanging, reconditioning, reconfiguring, or servicing by using sensory indicators, manufacturers’ manuals and software, diagnostic utilities, customer applications, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Verify service and/or configuration of microcomputer systems, including peripherals, cabling, documentation, software, processors, memory subsystem, graphics, and direct-access storage devices, by visually inspecting, testing, and analysing performance and function by using sensory indicators, manufacturers’ manuals and software, diagnostic utilities, customer applications, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.
INSTALL AND SUPPORT MICROCOMPUTER OPERATING SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Install and support microcomputer operating systems by visually inspecting, diagnosing, troubleshooting, and verifying performance and function according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

SKILLS

6274.01 Visually inspect microcomputer operating systems, including base operating system and device drivers, installation and/or configuration documentation, and software media kits, by checking for hardware and software specifications, licence agreements, preparation steps, and start-up sequence, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed Apprentice Supervisor/Trainer

6274.02 Install microcomputer operating systems, including device drivers and required supporting applications, by following preparation steps and installation and/or configuration documentation by using installation and/or configuration documentation, licence agreements, and software media kits, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed Apprentice Supervisor/Trainer

6274.03 Diagnose and troubleshoot microcomputer operating systems, including device drivers and software applications, by visually inspecting, testing, and analysing performance and function by checking for error indicators, hardware and software failures, viruses, device conflicts, system lockups, environmental conditions, and performance inhibitors, by using installation and/or configuration documentation, internal and external resources, and diagnostic utilities, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed Apprentice Supervisor/Trainer
6274.00 INSTALL AND SUPPORT MICROCOMPUTER OPERATING SYSTEMS
(cont.)

6274.04 Repair microcomputer operating systems, including device drivers and software applications, by exchanging, reinstalling, or configuring by using installation and/or configuration documentation, internal and external resources, and diagnostic utilities, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed ___________________ Apprentice ___________________ Supervisor/Trainer ___________________

6274.05 Verify the installation and repair of microcomputer operating systems, including device drivers, software applications, and vendor supported peripheral devices, by visually inspecting, testing, and analysing performance and function by using installation and/or configuration documentation, internal and external resources, and diagnostic utilities, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed ___________________ Apprentice ___________________ Supervisor/Trainer ___________________

Sponsor/Employer Name ___________________ Sponsor/Employer Signature ___________________
INFORMATION TECHNOLOGY HARDWARE TECHNICIAN

6275.00  INSTALL AND USE SOFTWARE APPLICATIONS

GENERAL PERFORMANCE OBJECTIVE

Install and use software applications by visually inspecting, diagnosing, troubleshooting, and verifying performance and function, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

SKILLS

6275.01  Visually inspect software applications, including word processor, spreadsheet, database, web browser, utilities, email, messaging, and graphic/video applications, by checking for installation and licence agreements, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6275.02  Install software applications, including word processor, spreadsheet, database, web browser, utilities, email, and graphic/video applications, by installing and/or configuring by using installation and/or configuration documentation, licence agreements, software media kits, and internal and external resources, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6275.03  Diagnose and troubleshoot software applications, including word processor, spreadsheet, database, web browser, utilities, email, and graphic/video applications, by visually inspecting, testing, and analysing performance and function by checking for error indicators, compatibility, valid licence agreements, viruses, and configuration and security devices by using installation and/or configuration documentation, licence agreements, software media kits, and internal and external resources, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer
6275.00 INSTALL AND USE SOFTWARE APPLICATIONS (cont.)

6275.04 Configure software applications, including word processor, spreadsheet, database, web browser, utilities, email, and graphic/video applications, by adding licences, modifying permissions and/or configuration, verifying security devices, removing viruses, verifying compatibility, recommending user training, adding or applying service pack or patch level, restoring data, and installing or reinstalling software applications by using installation and/or configuration documentation, licence agreements, software media kits, and internal and external resources, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6275.05 Verify configuration of software applications, including word processor, spreadsheet, database, web browser, utilities, email, and graphic/video applications, by visually inspecting, testing, and analysing performance and function by using installation and/or configuration documentation, licence agreements, software media kits, and internal and external resources, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
6276.00 OPERATE A NETWORKING ENVIRONMENT

GENERAL PERFORMANCE OBJECTIVE

Operate a networking environment by visually inspecting, diagnosing, troubleshooting, controlling, and verifying performance and function, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

SKILLS

6276.01 Visually inspect a networking environment, including server platform, network hardware and software components, power source, network interface cards, network attached peripherals, and end-user data, by checking connectivity and environmental conditions, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6276.02 Diagnose and troubleshoot a networking environment, including server platform, network hardware and software components, power source, network interface cards, network-attached peripherals, and end-user data, by visually inspecting, testing, and analysing performance and function by checking for power sources, error indicators, connectivity, configuration, compatibility, security, environmental conditions, and user information by using software utilities, configuration documentation, internal and external resources, and sensory indicators, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer
6276.00 OPERATE A NETWORKING ENVIRONMENT (cont.)

6276.03 Control a networking environment, including server platform, network hardware and software components, power source, network interface cards, network-attached peripherals, and end-user data, by inspecting, deploying, and migrating by using software utilities, configuration documentation, internal and external resources, and sensory indicators, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

   Date Completed   Apprentice       Supervisor/Trainer

6276.04 Verify the operation of a networking environment, including server platform, network hardware and software components, power source, network interface cards, network-attached peripherals, and end-user data, by visually inspecting, testing, and analysing performance and function by using software utilities, configuration documentation, and internal and external resources, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

   Date Completed   Apprentice       Supervisor/Trainer

_____________________________    _____________________________
Sponsor/Employer Name                  Sponsor/Employer Signature
6277.00 IMPLEMENT LOGICAL TROUBLESHOOTING TECHNIQUES

GENERAL PERFORMANCE OBJECTIVE

Perform logical troubleshooting techniques by diagnosing, troubleshooting, and verifying performance and function, and reviewing and documenting issue resolution, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

SKILLS

6277.01 Obtain preliminary information, including customer and product information, by checking operating system, workstation environment, and product installation specifications, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6277.02 Diagnose, troubleshoot, prioritize, and plan issue resolution, including hardware, software, user, peripherals, cabling, workstation environment, and client situation, by interacting with client and suggesting pre-defined solutions, and checking for error indicators, sensory indicators, connectivity, and performance inhibitors by using diagnostic tools, hardware and software utilities, manufacturers’ manuals, and internal and external resources, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer
6277.00 IMPLEMENT LOGICAL TROUBLESHOOTING TECHNIQUES (cont.)

6277.03 Implement issue resolution, including hardware, software, peripherals, workstation environment, and client situation, by communicating, servicing, exchanging, reinstalling, configuring, and escalating by using quality customer service standards, manufacturers’ manuals, resource database, and diagnostic and operating system troubleshooting tools, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed   Apprentice   Supervisor/Trainer

6277.04 Verify the implementation of issue resolution by inspecting, testing, and analysing performance and function by using customer feedback, quality customer service standards, manufacturers’ manuals, resource database, and diagnostic and operating system troubleshooting tools, according to customer satisfaction and industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed   Apprentice   Supervisor/Trainer

6277.05 Document and report issue resolution by communicating the solution to the user, and updating and reporting to internal and external resources, by using company specific standard operating procedures according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed   Apprentice   Supervisor/Trainer

Sponsor/Employer Name   Sponsor/Employer Signature
IDENTIFY AND SERVICE CABLES AND CONDUITS

GENERAL PERFORMANCE OBJECTIVE

Identify and test cables and conduits by visually inspecting, diagnosing, troubleshooting, repairing, and verifying performance and function according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

SKILLS

6278.01 Visually inspect cables and conduits, including labelling, network, serial, parallel, USB/USB2, fire wire, optical fibre, and data cables, by checking connectivity, cable type, breaks, fraying, shielding, environmental interference, connector types, length, and fastening and mounting devices, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed   Apprentice       Supervisor/Trainer

6278.02 Diagnose and troubleshoot cables and conduits, including labelling, network, serial, parallel, USB/USB2, fire wire, optical fibre, and data cables, by visually inspecting, testing, and analysing performance and function by checking connectivity, cable type, breaks, fraying, shielding, environmental interference, connector types, and fastening and mounting devices, by using software utilities, environmental measurement tools, documentation, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed   Apprentice       Supervisor/Trainer
6278.00 IDENTIFY AND SERVICE CABLES AND CONDUITS (cont.)

6278.03 Repair and/or replace cables and conduits, including labelling, network, serial, parallel, USB/USB2, fire wire, optical fibre, and data cables, by replacing, reconditioning, or servicing by using software utilities, environmental measurement tools, documentation, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed ____________ Apprentice ____________ Supervisor/Trainer ____________

6278.04 Verify the repair and/or replacement of cables and conduit, including labelling, network, serial, parallel, USB/USB2, fire wire, optical fibre, and data cables, by visually inspecting, testing, and analysing performance and function by using software utilities, environmental measurement tools, documentation, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed ____________ Apprentice ____________ Supervisor/Trainer ____________

Sponsor/Employer Name ____________________________ Sponsor/Employer Signature ____________________________
6279.00 RESTORE ELECTRICAL AND ELECTRONIC ASSEMBLIES AND COMPONENTS

GENERAL PERFORMANCE OBJECTIVE

Restore electrical and electronic components by visually inspecting, diagnosing, troubleshooting, and verifying performance and function according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

SKILLS

6279.01 Visually inspect electrical and electronic components, including transistors, resistors, capacitors, diodes, circuit-protection devices, jumpers, cables, switches, motors/fans, solenoids, isolators, circuit boards, memory, display/control modules, proximity and auditory alarms, diagnostic lights, sensors, lighting/illumination, and fastening and mounting devices, by checking for moving, worn, loose, and missing components, discoloration, contamination, and environmental conditions, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed __________  Apprentice __________  Supervisor/Trainer __________

6279.02 Diagnose and troubleshoot electrical and electronic components, including transistors, resistors, capacitors, diodes, circuit-protection devices, jumpers, cables, switches, motors/fans, solenoids, isolators, circuit boards, memory, display/control modules, proximity and auditory alarms, diagnostic lights, sensors, lighting/illumination, and fastening and mounting devices, by visually inspecting, testing, and analysing performance and function by checking for error indicators, power source, load and consumption, shorts, opens, grounds, resistance, voltage, amperage, continuity, connectivity, compatibility, configuration, sensory indicators, environmental conditions, and physical limitations, by using sensory indicators, service documentation, block/schematic diagrams, software and hardware utilities, diagnostic tools, internal and external resources, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed __________  Apprentice __________  Supervisor/Trainer __________
6279.00  Restore electrical and electronic assemblies and components (cont.)

6279.03  Restore electrical and electronic components, including transistors, resistors, capacitors, diodes, circuit-protection devices, jumpers, cables, switches, motors/fans, solenoids, isolators, circuit boards, memory, display/control modules, proximity and auditory alarms, diagnostic lights, sensors, lighting/illumination, and fastening and mounting devices, by exchanging, restoring, or servicing, by using sensory indicators, service documentation, block/schematic diagrams, software and hardware utilities, diagnostic tools, internal and external resources, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

6279.04  Verify restoration of electrical and electronic components by visually inspecting, testing, and analysing performance and function by using sensory indicators, service documentation, block/schematic diagrams, software and hardware utilities, diagnostic tools, internal and external resources, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
REPAIR, UPGRADE, AND MAINTAIN MICROCOMPUTER SYSTEMS AND PERIPHERALS

GENERAL PERFORMANCE OBJECTIVE

Repair, upgrade, and maintain microcomputer systems and peripherals by visually inspecting, setting up, diagnosing and troubleshooting, repairing, and verifying performance and function, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

SKILLS

6280.01 Visually inspect microcomputer systems and peripherals, including power supply, circuit boards, processors, memory, installed internal components, input/output devices, and fastening and mounting devices, by checking for error indicators; power source; communications; hardware and software configuration; moving, worn, loose, defective, damaged, and missing components; temperature; humidity; ventilation; dust; spillage; and environmental conditions, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed   Apprentice       Supervisor/Trainer

6280.02 Diagnose and troubleshoot microcomputer systems and peripherals, including power supply, circuit boards, processors, memory, installed internal components, input/output devices, and fastening and mounting devices, by visually inspecting, testing, and analysing performance and function, collecting and documenting facts, and checking for error indicators; power source; communications; hardware and software configuration; viruses; moving, worn, loose, defective, damaged, and missing components; temperature; humidity; ventilation; dust; spillage; and environmental conditions by using sensory indicators, service documentation, block/schematic diagrams, software and hardware utilities, internal/external resources, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed   Apprentice       Supervisor/Trainer
6280.00 REPAIR, UPGRADE, AND MAINTAIN MICROCOMPUTER SYSTEMS AND PERIPHERALS (cont.)

6280.03 Repair microcomputer systems and peripherals, including power supply, circuit boards, processors, memory, installed internal components, input/output devices, and fastening and mounting devices, by exchanging, reconditioning, servicing, documenting, and reporting facts by using sensory indicators, service documentation, block/schematic diagrams, software and hardware utilities, internal/external resources, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed ________________ Apprentice ________________ Supervisor/Trainer ________________

6280.04 Verify the assembly and/or repair of microcomputer systems and peripherals, including power supply, circuit boards, processors, memory, installed internal components, input/output devices, and fastening and mounting devices, by visually inspecting, testing, and analysing performance and function by using sensory indicators, service documentation, block/schematic diagrams, software and hardware utilities, internal/external resources, ad hand, power, electrical, and electronic service tools and equipment, according to logical troubleshooting techniques, customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed ________________ Apprentice ________________ Supervisor/Trainer ________________

6280.05 Maintain microcomputer systems and peripherals, including power supply, circuit boards, processors, memory, installed internal components, input/output devices, and fastening and mounting devices, by reconditioning, exchanging, servicing, optimizing, and upgrading, and training the end user by using preventative maintenance schedule, sensory indicators, service documentation, block/schematic diagrams, software and hardware utilities, internal/external resources, and hand, power, electrical, and electronic service tools and equipment, according to customer satisfaction, industry standards, manufacturers’ recommendations and specifications, safety requirements, and government regulations.

Date Completed ________________ Apprentice ________________ Supervisor/Trainer ________________

Sponsor/Employer Name ____________________________ Sponsor/Employer Signature ____________________________
# INFORMATION TECHNOLOGY HARDWARE TECHNICIAN

## APPRENTICE RECORD

**APPRENTICE NAME (Print):**

### SPONSOR/EMPLOYER INFORMATION

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Date Completed  Apprentice  Supervisor/Trainer
APPRENTICE RECORD

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## INFORMATION TECHNOLOGY HARDWARE TECHNICIAN

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Date Completed    
Apprentice    
Supervisor/Trainer
APPRENTICE COMPLETION FORM

APPRENTICE INFORMATION

| Name (Print) |  |
| Signature |  |
| Social Insurance Number |  |

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.

In-School Completed (Proof to Be Provided): Yes ( ) No ( ) Not applicable ( )

Hours Completed as per Contract: Yes ( ) No ( ) Not applicable ( )

SPONSOR/EMPLOYER INFORMATION

| Name (Print) |  |
| Address |  |
| Telephone |  |
| E-mail Address |  |
| Signature of Signing Authority |  |

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.