Apprenticeship

Training Schedule

Schedule of “off the job” courses

Information Technology

Hardware Technician

Trade Code: 634B

Course Summary

Level 1 - Common Core

S0791.0	Information Technology Contact Centre Environment
S0792.0	Communications
S0793.0	Information Technology Contact Centre Technologies
S0794.0	Workplace Professionalism
S0795.0	Customer Service

Level 2 – Technical Support Agent

S0796.0	Computing Technologies
S0797.0	Desktop and Mobile Platforms
S0798.0	Operating Systems
S0799.0	Software Applications
S0800.0	Troubleshooting Techniques

Level 3 – Hardware Technician (Trade Code 634B)

S0801.0	Basic Electronics
S0802.0	Electronics Theory
S0803.0	Digital Concepts
S0804.0	Microcomputer Hardware & Peripheral
S0805.0	Data Communications
S0806.0	Upgrading Microcomputer Hardware
S0807.0	Troubleshooting Hardware

INFORMATION TECHNOLOGY

HARDWARE TECHNICIAN

COMMON CORE

LEVEL 1

MTCU Code S0791.0 INFORMATION TECHNOLOGY CONTACT CENTRE ENVIRONMENT

Duration: 30 Total Hours
Theory: 30 Hours
Practical: 0 Hours
Prerequisites: None

Evaluation Structure:

Formative Assessment (Quizzes and Assignments) 75%
Final Assessment 25%

S0791.1 Information Technology Contact Centre Environment

Duration: Total Hours: 24
Cross Reference to On-the-Job Performance Objectives: 1.2, 1.3, 1.4, 1.8, 2.8

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to describe how an IT contact centre functions and the roles and responsibilities of customer service agents, sales agents and technical support agents within an IT contact centre environment.

LEARNING OUTCOMES

1.1.1 Describe different types of contact centres.
- inbound and outbound
- in-house and outsourced

1.1.2 Describe the roles of customer service agents, sales agents and technical support agents.

1.1.3 Identify the workplace pressures specific to a contact centre.

1.1.4 Describe strategies for dealing with workplace pressures.

1.1.5 Identify the benefits of developing a network of peers and support resources.

1.1.6 Identify various types of products or services supported by a contact centre.

1.1.7 Identify the roles and responsibilities of support teams.

1.1.8 Define common contact centre terminology and metrics.

1.1.9 Describe IT contact centre software / hardware technology including:
- customer relationship management (CRM) / information management software

- knowledge management including on-line reference materials
- quality monitoring
- workforce management
- telephony
- network operations

S0791.2 Privacy and Security

Duration: Total Hours: 6
Cross Reference to On-the-Job Performance Objectives: 1.8, 6.1, 6.2

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to recognize potential privacy and security issues within an IT contact centre environment.

LEARNING OUTCOMES

1.2.1 Explain the significance of federal and provincial legislation that outlines the responsibilities of both employers and employees as it relates to privacy and security in an IT contact centre environment.

1.2.2 Explain the importance and relevance of compliance, security, privacy, confidentiality and disaster recovery policies within an IT contact centre environment.

1.2.3 Describe ethical issues related to information technology.

1.2.4 Outline personal and professional ramifications of unethical practices.

MTCU Code S0792.0 COMMUNICATIONS

Duration: 45 Total Hours
Theory: 30 Hours
Practical: 15 Hours
Prerequisites: None

Evaluation Structure:

Formative Assessment (Quizzes and Assignments) 45%
Practical Assessment 30%
Final Assessment 25%

S0792.1 Effective Listening

Duration: Total Hours: 15
Cross Reference to On-the-Job Performance Objectives: 2.1, 2.3, 3.1, 3.2, 3.3, 3.4, 3.7

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to use active listening skills when interacting with customers, colleagues, supervisors and industry representatives in an IT contact centre environment.

LEARNING OUTCOMES

2.1.1 Identify the elements of active listening and their importance.

2.1.2 Outline the procedures for applying active listening skills.

2.1.3 Describe the use of minimal encouragers when applying active listening skills.

2.1.4 Identify core issues expressed by customers, colleagues, supervisors and industry representatives.

2.1.5 Interpret instructions and procedures.

S0792.2 Verbal Communications

Duration: Total Hours: 15
Cross Reference to On-the-Job Performance Objectives: 3.1, 3.2, 3.3, 3.4, 3.7

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to use professional business language and information gathering techniques when interacting verbally with customers, colleagues, supervisors and industry representatives in an IT contact centre environment.

LEARNING OUTCOMES

2.2.1 Describe questioning techniques and when to use them.

2.2.2 Apply questioning techniques to gather information about the customer, customer issues or products using professional business language, speaking style, tone, volume and clarity.

2.2.3 Summarize detailed or complex information to confirm accurate interpretation and understanding of information provided.

2.2.4 Explain technical instructions within the context of resolving customer issues.

S0792.3 Written Communications

Duration: Total Hours: 15
Cross Reference to On-the-Job Performance Objectives: 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 4.1, 4.2, 4.3

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to use reading, comprehension and writing skills to interact with customers, colleagues, supervisors and industry representatives in an IT contact centre environment.

LEARNING OUTCOMES

2.3.1 Describe the importance of reading, comprehension and writing skills within an IT contact centre environment.

2.3.2 Create written case notes that summarize the steps taken to address the issues and the outcomes of customer service.

2.3.3 Simplify detailed or complex written communications.

2.3.4 Prepare various types of internal correspondence using professional language in response to a variety of customer needs.

MTCU Code S0793.0 IT CONTACT CENTRE TECHNOLOGIES

Duration: 36 Total Hours
Theory: 18 Hours
Practical: 18 Hours
Prerequisites: None

Evaluation Structure:

Formative Assessment (Quizzes and Assignments) 25%
Practical Assessment 50%
Final Assessment 25%

S0793.1 Technological Resources

Duration: Total Hours: 12
Cross Reference to On-the-Job Performance Objectives: 1.4, 1.5, 1.8, 2.1, 3.6, 3.8, 4.1, 4.2, 4.3

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to use technology and on-line resources within an IT contact centre environment.

LEARNING OUTCOMES

3.1.1 Use internet and intranet to research and obtain information.

3.1.2 Locate required information on approved websites.

3.1.3 Explain the use of key words and how search results are organized.

3.1.4 Describe features of different search portals.

3.1.5 Describe the characteristics of customer relationship management (CRM)/ information management systems and its relevance within a contact centre environment.

S0793.2 Technical Systems

Duration: Total Hours: 12
Cross Reference to On-the-Job Performance Objectives: 1.3, 1.4, 1.8, 3.8, 4.1, 4.2, 4.3

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to use information management systems and technologies within an IT contact centre environment.

LEARNING OUTCOMES

3.2.1 Describe the following telephony systems.

- interactive voice response (IVR)
- automatic call distributor (ACD)
- skills based routing
- computer telephony integration (CTI)
- predictive diallers
- private branch exchange (PBX)

3.2.2 Use the basic features of customer relationship management (CRM)/information management systems.

3.2.3 List types of data stored in customer relationship management (CRM)/ information management systems.

3.2.4 Describe the relationship between customer data and transactional uses.

3.2.5 Describe the supporting contact centre systems that include:

- quality control monitoring
- workforce management/scheduling
- email management
- statistics and report management
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S0793.3 Documentation

Duration: Total Hours: 12
Cross Reference to On-the-Job Performance Objectives: 3.8, 4.1, 4.2, 4.3

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to create and maintain documentation using information management systems and technological resources within an IT contact centre environment.

LEARNING OUTCOMES

3.3.1 Use customer relationship and information management systems to:

- create and maintain customer records
- search databases for customer accounts
- validate customer identities
- edit and update customer information
- create and maintain transactional functions

3.3.2 Use information management systems and technological resources including templates to create and maintain internal and external business documentation.

MTCU Code S07934.0 WORKPLACE PROFESSIONALISM

Duration: 18 Total Hours
Theory: 18 Hours
Practical: 0 Hours
Prerequisites: None

Evaluation Structure:

Formative Assessment (Quizzes and Assignments) 75%
Final Assessment 25%

S0794.1 Teamwork

Duration: Total Hours: 9
Cross Reference to On-the-Job Performance Objectives: 5.1, 5.2

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to interact with others to build professional relationships that help to meet performance objectives within an IT contact centre environment.

LEARNING OUTCOMES

4.1.1 Describe the importance of a team approach to achieving objectives.

4.1.2 Outline strategies for fostering cooperation in a team environment.

4.1.3 Outline the importance of clear communication among team members.

4.1.4 Describe coaching and mentoring techniques within the workplace.

4.1.5 Outline the importance of increasing awareness of and sensitivity to workplace diversity issues.

S0794.2 Time Management

Duration: Total Hours: 9
Cross Reference to On-the-Job Performance Objectives: 5.1, 5.2

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to manage time to maximize daily performance within an IT contact centre environment according to industry resources, procedures and standards.

LEARNING OUTCOMES

4.2.1 Describe time management requirements within an IT contact centre environment including:

- agent schedule adherence in the achievement of service level
- forecasting call volume and its impact on agent scheduling
- average handle time and its impact on service level

4.2.2 Outline strategies to achieve targets for average handle time and after-call work.

4.2.3 Describe strategies for managing several tasks simultaneously.

MTCU Code S0795.0 Customer Service

Duration: 21 Total Hours
Theory: 21 Hours
Practical: 0 Hours
Prerequisites: None

Evaluation Structure:

Formative Assessment (Quizzes and Assignments) 75%
Final Assessment 25%

S0795.1 Customer Service

Duration: Total Hours: 9
Cross Reference to On-the-Job Performance Objectives: 3.1, 3.2, 3.3, 3.4, 3.5, 3.7, 3.8

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to use strategies for building customer relationships, identifying customer needs and providing quality customer service in an IT contact centre environment.

LEARNING OUTCOMES

5.1.1 Explain the importance of customer satisfaction and its impact on customer retention.

5.1.2 Describe the relative value of customer retention compared to the cost of new customer acquisition.

5.1.3 Identify the roles of customer service agents, sales agents and technical support agents in customer retention.

5.1.4 Identify the value of customer information for all service strategies.

5.1.5 Identify the relationship of customer needs to services provided.

5.1.6 Identify several strategies that build rapport and enhance customer relationships.

5.1.7 Explain common practices for identifying and validating customer needs.

5.1.8 Explain the value of identifying unstated customer needs.

S0795.2 Handling Difficult Customers

Duration: Total Hours: 12
Cross Reference to On-the-Job Performance Objectives: 3.1, 3.2, 3.3, 3.4, 3.5, 3.7

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to describe basic strategies and techniques for handling difficult customers within an IT contact centre environment.

LEARNING OUTCOMES

5.2.1 Identify problem resolution techniques and resources.

5.2.2 Review customer data to identify history related to current issues.

5.2.3 Describe escalation strategies used for resolving customer issues.

5.2.4 Describe how an individual's behaviour impacts the behaviour of others.

5.2.5 Describe techniques used to control agent emotions during customer interactions.

5.2.6 Describe techniques used for calming customer emotions during customer interactions.

5.2.7 Identify common causes of customer dissatisfaction.

INFORMATION TECHNOLOGY

HARDWARE TECHNICIAN

Level II

MTCU Code S0796.0 COMPUTING TECHNOLOGIES

Duration: 30 Total Hours
Theory: 30 Hours
Practical: 0 Hours
Prerequisites: Level 1

Evaluation Structure:

Formative Assessment (Quizzes and Assignments) 75%
Final Assessment 25%

S0796.1 Computer Systems, Platforms & Networks

Duration: Total Hours: 30
Cross Reference to Training Standard: 7.1, 7.2, 8.1, 8.2

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to describe computing technologies as a foundation for supporting, servicing and troubleshooting computer systems.

LEARNING OUTCOMES

6.1.1 Identify the components of a computer system and how they interact.

6.1.2 Identify the key differences among computing platforms.

6.1.3 Explain the types and characteristics of storage media.

6.1.4 Identify the uses and characteristics of various types of software.

6.1.5 Explain how computers communicate with other devices over a network.

6.1.6 List common types of basic networking hardware.

6.1.7 Describe the purpose and use of how basic networking software operates.

6.1.8 List typical security risks in a modern networked computer system including wireless technology.

6.1.9 Describe best practices for password security.

6.1.10 Describe firewall technologies.

MTCU Code S0797.0 DESKTOP AND MOBILE PLATFORMS

Duration: 27 Total Hours
Theory: 27 Hours
Practical: 0 Hours
Prerequisites: Level 1

Evaluation Structure:

Formative Assessment (Quizzes and Assignments) 75%
Final Assessment 25%

S0797.1 Configurations and Function of Components & Peripheral Devices

Duration: Total Hours: 27
Cross Reference to Training Standard: 7.1, 7.2

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to explain setup, configuration and upgrades to desktop and mobile hardware.

LEARNING OUTCOMES

7.1.1 Identify the configuration of computer components.

7.1.2 Explain the function of computer components.

7.1.3 Describe the function of communication ports and storage hardware.

7.1.4 Describe the difference between memory and hard disk storage.

7.1.5 Identify different types of mobile computing hardware.

7.1.6 Identify common hardware peripheral devices.

7.1.7 Describe the uses of common hardware peripheral devices.

7.1.8 Describe the hardware differences between desktops, notebooks and personal digital assistants (PDAs).

MTCU Code S0798.0 OPERATING SYSTEMS

Duration: 18 Total Hours
Theory: 18 Hours
Practical: 0 Hours
Prerequisites:
Level 1

Evaluation Structure:

Formative Assessment (Quizzes and Assignments) 75%
Final Assessment 25%

S0798.1 Installations, Configuration and Maintenance

Duration: Total Hours: 18
Cross Reference to Training Standard: 7.1, 7.2, 8.1

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to describe procedures for the installation, configuration and maintenance of computer operating systems.

LEARNING OUTCOMES

8.1.1 Identify various operating systems.

8.1.2 Outline the uses and features of operating system software.

8.1.3 Describe the common core components of any operating system.

8.1.4 Describe procedures for basic system back-up and restoration of files.

8.1.5 Describe the installation and configuration procedures of operating systems.

8.1.6 Identify issues pertaining to maintaining and upgrading operating systems.

MTCU Code S0799.0 SOFTWARE APPLICATIONS

Duration: 15 Total Hours
Theory: 15 Hours
Practical: 0 Hours
Prerequisites: Level 1

Evaluation Structure:

Formative Assessment (Quizzes and Assignments) 75%
Final Assessment 25%

S0799.1 Software Installations, Configuration and Maintenance

Duration Total Hours: 15
Cross Reference to Training Standard: 7.1, 7.2, 8.1, 8.2

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to describe procedures for installation, configuration and maintenance of computer software applications.

LEARNING OUTCOMES

9.1.1 Explain basic features and operation of software applications.

9.1.2 Identify system requirements prior to installation of software.

9.1.3 Describe procedures for diagnostic testing of software using network and internet utilities.

9.1.4 Explain installation procedures of software applications.

MTCU Code S0800.0 TROUBLESHOOTING TECHNIQUES

Duration: 30 Total Hours
Theory: 21 Hours
Practical: 9 Hours
Prerequisites: Level 1
Evaluation Structure:

Formative Assessment (Quizzes and Assignments)	45%	
Practical Assessment	30%	
Final Assessment		25%

S0800.1 Hardware and Software Technical Support

Duration: Total Hours: 30
Cross Reference to Training Standard: 9.1, 9.2, 9.3, 9.4

GENERAL LEARNING OUTCOME

Upon successful completion the apprentice is able to identify and describe the causes and solutions of hardware and software failures.

LEARNING OUTCOMES

800.1.1 Explain the causes of common hardware and software failures.

800.1.2 Identify and isolate the probable cause of technical issues.

800.1.3 Decode and interpret error messages.

800.1.4 Describe how to use diagnostic software to test for errors.

800.1.5 Resolve customer technical issues using manuals and knowledge management systems.

800.1.6 Outline the procedures to confirm the resolution of hardware and software failures.

800.1.7 Identify preventative maintenance techniques for optimal performance of hardware and software technologies.

INFORMATION TECHNOLOGY

Hardware Technician

Level lll

Trade Code 634B

MTCU Code S0801.0 Basic Electronics

50 Hours
Units 2
Quizzes: 8
Final Assessment: 2 exams
Prerequisites: Level 1, 2

General Learning Outcome

Upon successful completion the apprentice is able to describe basic electrical principles and concepts, identify and explain the use of electrical measuring devices, power supplies and microcomputer electronic components. The apprentice is also able to describe safe work practices.

Learning Outcomes

1. Describe basic electrical principles, key terms and concepts.

2. Identify different measuring devices and explain their use.

3. Identify and explain the function of different power supplies.

4. Identify and explain different electronic components used in microcomputers.

5. Describe safe work practices as apply when working with electronic components.

Units

S0801.1 Basic Electronics Concepts

1. Electronics Building Blocks

2. Electrical Units

3. Measuring Devices

4. Power Supplies

S0801.2 Computer Electronics

1. The Electrical Sphere

2. Electronics in the Computer

3. Troubleshooting Electrical System

4. Safety Practices with Electrical Systems

MTCU Code S0802.0 Electronics Theory

60 Hours
Units 2
Quizzes: 8
Final Assessment: 2 exam
Prerequisites: Level 1, 2

General Learning Outcome

Upon successful completion the apprentice is able to describe DC and AC circuits, transistors, principles of magnetism, capacitors and inductors from a DC standpoint, transformers and semiconductors.

Learning Outcomes

1. Describe DC and AC circuits and their functions.

2. Recognize schematic symbols and interpret schematic diagrams.

3. Calculate DC circuits current and resistance.

4. Identify different types of transistors and their applications.

5. Explain the power of magnetism and electromagnetism.

6. Explain the semiconductor revolution its significance.

7. Apply systematic approach to troubleshooting.

Units

S0802.1 Electronic Circuits

1. Electronic Circuits Fundamentals

2. DC Circuits

3. Transistors

4. Altering Current

S0802.2 Advanced Electronics Theory

1. Magnetism

2. Semiconductors

3. Diodes

4. Troubleshooting Strategies

MTCU Code S0803.0 Digital Concepts

50 Hours
Units 2
Quizzes: 8
Final Assessment: 2 exam
Prerequisites: Level 1, 2

General Learning Outcome

Upon successful completion the apprentice is able to describe fundamental concepts in classical manual digital design including gates, binary numbers, flip-flops, counters and applications of Boolean algebra.

Learning Outcomes

1. Describe the basic concepts of digital logic.

2. Explain number representation and conversion.

3. Describe logic gates and the process of logic signals.

4. Design small logic circuits.

5. Describe flip-flops and memory elements.

Units

S0803.1 Digital Design

1. Design Concepts

2. Variables and Functions

3. Boolean Algebra

4. Digital Logic Gates

S0803.2 Logic Circuits

1. Verilog

2. Numbering Systems and Conversions

3. Combinational Circuits Basics

4. Sequential Circuits

MTCU Code S0804.0 Microcomputers Hardware and Peripherals

50 Hours
Units 2
Quizzes: 8
Final Assessment: 2 exam
Prerequisites: Level 1, 2

General Learning Outcome

Upon successful completion the apprentice is able to identify and use different PC hardware components that involve input, output, processing, storage, electrical supply, communication and peripheral devices.

Learning Outcomes

1. Identify major microcomputer hardware components.

2. Describe the architecture of typical PC systems.

3. Assemble microcomputer systems from standard components.

4. Describe the technical and operating characteristics of various peripheral devices.

Units

S0804.1 PC System

1. PC Components

2. Microprocessors

3. Motherboards

4. BIOS, Memory and Hard Disk Storage

S0804.2 Power Supplies and Peripherals

1. Power Supply Function and Operation

2. Power Supply Specifications

3. I/O Devices

4. Multimedia and Storage

MTCU Code S0805.0 Data Communication

50 Hours
Units 2
Quizzes: 8
Final Assessment: 2 exam
Prerequisites: Level 1, 2

General Learning Outcome

Upon successful completion the apprentice is able to describe how communication protocols are used, how to install and use gateways, proxy and routers and how to troubleshoot broadband and dial-up connections.

Learning Outcomes

1. Describe computer communications concepts.

2. Explain the TCP/IP suite of protocols.

3. Identify and explain the different types of internet connections including: cable modem, DSL, dial-up.

4. Explain the use of communication devices for internet sharing.

5. Outline common internet related problems and troubleshooting procedures.

Units

S0805.1 Communications System

1. Physical Network Architecture

2. Internet & LAN

3. Windows on a Network

4. Modem Standards

S0805.2 Devices and Troubleshooting

1. Getaways and Proxy

2. Routers

3. Troubleshooting Connectivity Problems

4. Troubleshooting Modem Related Problems

MTCU Code S0806.0 Upgrading Microcomputers Hardware

50 Hours
Units 2
Quizzes: 8
Final Assessment: 2 exam
Prerequisites: Level 1, 2

General Learning Outcome

Upon successful completion the apprentice is able to upgrade and/or build a microcomputer system as well as troubleshoot new installation.

Learning Outcomes

1. Outline procedures for system assembly and disassembly.
2. Outline procedures for motherboard installation.
3. Outline procedures for memory upgrade.
4. Describe troubleshooting techniques for new installations.

Units

S0806.1 Upgrading Microcomputers

1. System Components
2. System Assembly and Disassembly
3. Motherboard Installation and Memory Upgrade
4. Troubleshooting New Installation

S0806.2 Installation and Troubleshooting

1. Installing the Operating System
2. Installing and Supporting I/O Devices
3. Troubleshooting New Installation
4. Troubleshooting I/O Devices

MTCU Code S0807.0 Troubleshooting hardware

50 Hours
Units 2
Quizzes: 8
Final Assessment: 2 exam
Prerequisites: Level 1, 2

General Learning Outcome

Upon successful completion the apprentice is able to develop preventative maintenance plan, apply troubleshooting techniques to PC problems and use diagnostics software and other technician's tools.

Learning Outcomes

1. Recognize and use different diagnostics software.

2. Describe the steps for solving a PC problem.

3. Recognize the required steps to take apart a computer and the steps required to put a computer back together.

4. Outline and explain the use of PC maintenance tools.

5. Develop preventive maintenance plan.

Units

S0807.1 Technician Tools

1. Diagnostics Software

2. PC Technician Tools

3. Working inside a Computer Case

4. The Boot Process

S0807.2 Troubleshooting

1. Troubleshooting a Failed Boot

2. Preventative Maintenance

3. PC Troubleshooting Procedures

4. Common Troubleshooting Problems