

## Gateway to Tech Outline

### Information Technology (IT) Essentials (60 hrs)

These modules cover the fundamentals of computer and career skills for entry level IT jobs. This component includes hands-on lab activities that provide practical experience for youth to help them understand IT fundamentals. Simulation tools help youth hone their troubleshooting skills and allow them to practice what they learn. Youth will get immediate feedback on their learning through the activities.

Module high-level key learning outcomes include:

- Introduction to computer components and peripherals
  - Students will be able to:
    - Identify, install and troubleshoot the core components of a personal computer
    - Understand and configure the basic management elements of a personal computer, including disk management, file systems, boot management, and OS configuration
- Introduction to wireless networking
  - Students will be able to:
    - Understand the basic elements of wireless network planning and design
    - Understand basic configuration elements and troubleshooting processes for wireless networks
    - Configure a wireless router
- Introduction to local area network management
  - Students will be able to:
    - Understand the core components of a local area network infrastructure
    - Configure the basic elements of a Windows Server for the purposes of local area network management
    - Configure foundational group policy for the purposes of client and network management.
- Introduction to computer and Internet security
  - Students will be able to:
    - Understand the most common computer and network threats and invasion techniques, and then learn to install and configure simple applications to protect against viruses, malware, phishing and social engineering attacks.
- Introduction to scripting for network and system administrators
  - Students will be able to:
    - Write simple batch files and PowerShell scripts to accomplish, automate, and simplify routine tasks

## Introduction to Coding (60 hrs)

According to the 2016 ICTC Digital Talent Strategy Report, Canada needs 10 million skilled coders in the next 10 years. These modules build coding literacy and provide the fundamentals of web development. Youth will gain a solid foundation in coding skills to enhance and broaden their tech skills.

Module high-level key learning outcomes include:

- Developing Android Apps with MIT App Inventor - Students will get hands on experience in developing Android applications using a block based programming tool.
  - Learning objectives:
    - Introduction of simple programming concepts
    - Gain familiarity with User Interface Design
- Intro to Linux and LAMP - Students will be introduced to the Linux environment and the command line. They will learn how to install and use their own LAMP (Linux Apache MySQL PHP) Server software.
  - Learning Objectives:
    - Become familiar with the LINUX operating system
    - Understand a computer's file structure
    - Learn to change the file structure and environment using the command line.
    - Practice installing and using LAMP software
- HTML - HTML is the standard markup language for creating Web pages. Students will learn to create web pages from scratch.
  - Learning objectives:
    - Gain the knowledge to create their own web page
    - Create hyperlinks and blocks
    - Insert graphics and video
- CSS - Cascading Style Sheets is a language that describes the style of an HTML document. Students will learn to beautify their HTML documents.
  - Learning objectives:
    - Work with colours and fonts
    - Create dynamic buttons and menus
    - Create different CSS files for different looks
- JavaScript I – Variables, Control Flow and Loops - JavaScript is a powerful programming language that adds dynamic interactivity to millions of sites on the web. This module will introduce the basics of JavaScript.
  - Learning objectives
    - Define variables, initialization and assignment
    - Be able to write and understand decisions and Boolean conditions
    - Utilize iterations
- JavaScript II – Arrays, Functions and Objects - This module will delve a bit deeper into more advanced JavaScript programming concepts.
  - Learning objectives
    - Understand arrays
    - Create and use functions
    - Design and utilize objects

# Gateway to Technology



- SQL - SQL (Standard Query Language) is a standard language for storing, manipulating and retrieving data in databases. Students will gain an understanding of what a database is, how to create a database and how to retrieve data from it.
  - Learning Objectives:
    - Understand what a database is
    - Database creation
    - Using SQL to retrieve data
    - Creating normalized databases

**Total hours:** 120

**Assessment:**

Youth are assessed by instructors through a variety of hands-on evaluation, quizzes and projects. Attendance and active participation are expected.

**Credit:**

Students will receive high school credits upon completion of the Gateway to Tech training.