

## IT Systems Administrator

### PROGRAM OBJECTIVES

The IT Systems Administrator program will provide students with the skills and knowledge to pursue certifications and careers in computer and network-related administration. Students receive training on popular operating systems including Microsoft Windows, Microsoft Windows Server and Linux. Moreover, students learn how to configure computer and network technologies such as Cisco routers and switches, Microsoft Exchange Server, Microsoft SQL server, as well as how to automate administration using PowerShell scripts.

Students will also learn how to communicate effectively and manage time and IT-related projects.

### CERTIFICATIONS

Students who successfully complete this program will be eligible to write certification exams leading to the following designations: CompTIA A+, CompTIA Network+, CompTIA IT Project+, CompTIA Linux+, Cisco CCNA, Microsoft Certified Solutions Associate (MCSA): Windows 10, MCSA: Server 2012. Students who obtain both the Windows Server 2012 MCSA and Exchange Server 2013 certifications will automatically receive the MCSE: Productivity designation from Microsoft

In total, the program covers 17 individual certification examinations. Students are provided with 17 exam vouchers to write the certifications they wish to pursue.

### CAREER OPPORTUNITIES

In addition to careers in PC and Networking Administration, opportunities for successful graduates include Windows Server Administrator, Active Directory Administrator, Windows Network Administrator, Windows Systems Engineer, Smartphone Administrator, Messaging Administrator, Email Server Administrator, Linux Administrator, Open Source Specialist, SQL Server Administrator, and Data Mining Specialist.

### PREREQUISITES

If a student does not have Grade 12 or equivalent, he/she must achieve a score of 18 on the Wonderlic Test.

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### GRADUATION REQUIREMENTS

A student must attain an overall average in each module of at least 70%, and successfully complete certification exams for A+ and Network+, in order to graduate and receive a diploma. A student must complete all requirements of the Student Success Strategies, Career Planning and Preparation modules, the Field Placement requirements, as well as meeting the attendance requirements as outlined by the Department of Labour and Advanced Education throughout the duration of his/her program.

### PROGRAM OVERVIEW

Course	Hours
Student Success Strategies	20
Software Lab – Computer Fundamentals	40
Software Lab – Word Fundamentals	20
Software Lab – Excel Fundamentals	20
Software Lab – PowerPoint Fundamentals	20
Software Lab – Access Fundamentals	20
A+	80
Network+	100
Cisco CCNA	120
Mobile Device Support	20
Technology Management for IT Professionals	80
Windows 10 Administration	140
Windows PowerShell Scripting	20
Installing and Configuring Windows Server (70-410)	80
Windows Server Administration (70-411)	80
Configuring Advanced Windows Server Services (70-412)	80
Microsoft Exchange Server 2013 Administration (70-341)	80
Microsoft Exchange Server 2013 Design (70-342)	80
Linux Administration	120
Querying Microsoft SQL Server 2012 (70-461)	80
Administering Microsoft SQL Server 2012 (70-462)	80
SharePoint Essentials	40
Career Planning and Preparation Level I	20
Career Planning and Preparation Level II	20
Field Placement	16 weeks
<b>TOTAL WEEKS (without breaks)</b>	<b>89</b>
<b>TOTAL WEEKS (with maximum scheduled breaks*)</b>	<b>95</b>

\*Number of study break weeks will depend on student start date.

\*\*Work terms/internships are scheduled for a minimum of 20 hours per week, but the total number of hours worked and the timing of hours scheduled are at the discretion of the employer/host to a maximum of 40 hours per week.

## COURSE OVERVIEW

### **Student Success Strategies**

*Instructor Led*

In this orientation module, emphasis is placed on thinking about achieving success from Day One. This module stresses the importance of developing non-technical skills to enhance personal, academic, and career success. This includes understanding learning styles and honing practical study skills, such as memory, reading, note-and test-taking techniques. Personal exercises will focus on teamwork, decision making and problem solving skills, setting SMART goals and maintaining a positive attitude; techniques for managing change, stress and conflict will also be explored. Students will be evaluated through a variety of assignments, projects, presentations, quizzes and exams in addition to their participation throughout the course.

### **Software Lab: Computer Fundamentals**

*Instructor Facilitated*

Through a combination of theory and hands-on-practice, this module examines the role and use of the computer in today's workplace. Emphasis is placed on those computers outfitted with the Microsoft Windows operating system. Students will review basic computer concepts, Windows OS usage, and complete hands-on training exercises in business-standard software applications, including Microsoft Outlook and Microsoft Word. Keyboarding skills are also honed via daily keyboarding exercises and drills. Students will be evaluated through a variety of assignments, projects, quizzes and exams in addition to their participation throughout the course.

### **Software Lab – Word Fundamentals**

*Instructor Facilitated*

This course consists on online training and assessment in Microsoft Word, and builds on the skills first introduced in Computer Fundamentals. Focus is on basic Word Processing skills, with emphasis on formatting text and paragraphs, inserting and modifying tables, inserting and modifying pictures, header and footer content, and page set-up features. Students will be evaluated through a variety of assignments, projects, quizzes and exams in addition to their participation throughout the course.

### **Software Lab – Excel Fundamentals**

*Instructor Facilitated*

This course consists on online training and assessment in Microsoft Excel. Focus is on spreadsheet basics, with emphasis on creating, formatting and printing worksheets, creating formulas, sorting and filtering data, creating and modifying charts, and using basic mathematical and logical functions. Students will be evaluated through a variety of assignments, projects, quizzes and exams in addition to their participation throughout the course. Students will be evaluated through a variety of assignments, projects, quizzes and exams in addition to their participation throughout the course.

### **Software Lab – PowerPoint Fundamentals**

*Instructor Facilitated*

This course consists on online training and assessment in Microsoft PowerPoint. Students are introduced to essential tools for creating attractive, professional looking slideshow presentations, with a focus on creating and formatting slides, tables, charts, and shapes, as well adding animations and transitions to slideshows. Students will be evaluated through a variety of assignments, projects, presentations, quizzes and exams in addition to their participation throughout the course.

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**Software Lab – Access Fundamentals**

*Instructor Facilitated*

This course consists on online training and assessment in Microsoft Access. Students are introduced to database concepts, and review basic functionality for the end-user, including creating and modifying database tables, queries, reports and forms. Students will be evaluated through a variety of assignments, projects, quizzes and exams in addition to their participation throughout the course.

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**A+**

*Instructor Led*

This course provides the essential skills required of a microcomputer hardware and software service technician and covers the concepts necessary to achieve the CompTIA A+ Certification (Exams 220-701 and 220-702). More specifically, students learn the features of various hardware devices, as well as their configuration, maintenance, and troubleshooting practices. In addition, students learn how to use, configure, upgrade, troubleshoot and maintain the Windows family of operating systems. Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Network+**

*Instructor Led*

In this course, students will learn the theory and concepts required to successfully administer and troubleshoot TCP/IP-based networks. In addition, this course provides the conceptual foundation for later networking courses and introduces the concepts covered on the CompTIA Network+ Certification Exam (N10-005). Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Cisco CCNA**

*Instructor Led*

This course introduces students to the configuration of Cisco technologies. More specifically, this course allows students to expand their understanding of the TCP/IP, switching and routing concepts learned in Network+ to apply Cisco technologies. In addition, this course covers the concepts tested on the Cisco Certified Network Associate (CCNA) certification exam (200-120). Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Mobile Device Support**

*Instructor Led*

This course introduces students to the structure and function of ActiveSync and the BlackBerry Infrastructure, as well as the concepts and procedures required to support BlackBerry and non-BlackBerry smartphones in corporate and non-corporate environments. Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Technology Management for IT Professionals**

*Instructor Led*

Communication as well as time and project management skills are vital for success in today's IT industry. Through the use of examples, demonstrations, projects and group activities, students will examine various communication, time and project management strategies and techniques that are commonly used within the IT industry. Moreover, this course introduces students to the concepts necessary to achieve the CompTIA IT Project+ certification (PK0-003). Students will be evaluated through a variety of assignments, projects, presentations, practical components, quizzes and exams in addition to their participation throughout the course.

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**Windows 7 Administration**

*Instructor Led*

This course provides the skills and knowledge necessary to install, configure, administer, and support Microsoft Windows 7. In addition, students will learn about the various tools for administering, configuring, and troubleshooting Windows 7, and how to deploy and upgrade to Windows 7, configure disks, users, drivers, printers, network interfaces and security. This course is a prerequisite for all other Microsoft courses and covers the material tested on the Microsoft Windows 7 MCTS Configuration Certification Exam (70-680) and the Microsoft Windows 7 MCITP Enterprise Desktop Administrator Certification Exam (70-686). Both exams are needed to obtain the Microsoft Certified IT Professional (MCITP) Enterprise Desktop Support Technician designation. Students will be evaluated through a variety of assignments, projects, quizzes and exams in addition to their participation throughout the course.

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**Windows PowerShell Scripting**

*Instructor Led*

This course provides students with the knowledge and skills necessary to write and maintain PowerShell scripts to automate all aspects of system administration for computers running the Microsoft Windows operating system. In addition to basic PowerShell concepts such as Cmdlets, Scripts and Pipelining, this course covers the interfaces built into the Windows operating system (eg. Windows Management Instrumentation - WMI and Active Directory Services Interfaces - ADSI) which scripts must call in order to manipulate the operating system. This course has been designed for system administrators and does not require an extensive background in programming.

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**Installing and Configuring Windows Server (70-410)**

*Instructor Led*

The goal of this course is to provide individuals who have successfully completed an introduction to Windows with an in depth look at the different installation and configuration tasks necessary to manage Windows Server 2012. These tasks include Windows Server deployment, server role configuration, Hyper-V virtualization configuration, as well as Active Directory installation and configuration. Additionally, this course covers the material on the Microsoft Certified Solutions Associate (MCSA) certification exam 70-410: Installing and Configuring Windows Server 2012. Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Windows Server Administration (70-411)**

*Instructor Led*

This course builds upon the Windows Server 2012 administration tasks covered within the “Installing and Configuring Windows Server” course by focusing on more comprehensive administration of Active Directory, file, print and network services. Moreover, students will examine advanced Windows Server 2012 deployment options and security features. Additionally, this course covers the material on the Microsoft Certified Solutions Associate (MCSA) certification exam 70-411: Administering Windows Server 2012. Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Configuring Advanced Windows Server Services (70-412)**

*Instructor Led*

This course introduces the advanced configuration and administration of Windows Server 2012 Active Directory, file and network services. Furthermore, this course introduces the concepts and tasks used to implement high availability, business continuity and identity access on Windows networks. Additionally, this course covers the material on the 70-412 certification exam required alongside 70-410 and 70-411 to obtain the Windows Server 2012 Microsoft Certified Solutions Associate (MCSA) designation. Students

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**Microsoft Exchange Server 2013 Administration (70-341)**

*Instructor Led*

This course introduces the skills and knowledge necessary to implement, manage and troubleshoot Microsoft Exchange Server 2013. It is also designed to help individuals preparing to take the certification exam: Core Solutions of Microsoft Exchange Server 2013 (70-341). To participate in this course, you must have successfully completed an introduction to the Windows operating system and understand computer networking concepts. Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Microsoft Exchange Server 2013 Design (70-342)**

*Instructor Led*

This course builds upon the concepts introduced in the Microsoft Exchange Server Administration course. More specifically, this course introduces students to the design principles surrounding a Microsoft Exchange Server 2013 environment. In addition, the concepts within this course cover the material tested on the certification exam: Advanced Solutions of Microsoft Exchange Server 2013 (70-342). Together with the Windows Server 2012 MCSA certification (70-410, 70-411 & 70-412), the 70-341 and 70-342 certifications grant the MCSE: Messaging designation from Microsoft. Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Linux Administration**

*Instructor Led*

In this course, students learn how to install, configure and administer the basic services of a Linux system. More specifically, students will gain a solid working knowledge of how the Linux operating system works, experience in navigating within the file structure, as well as system and network administration skills, security tools and practices. In completing this course, students will also have covered the topics covered on the CompTIA Linux+ certification exams (LX0-101 and LX0-102). Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Querying Microsoft SQL Server 2012 (70-461)**

*Instructor Led*

This course introduces students to the Structured Query Language (SQL) using Microsoft SQL Server 2012. More specifically, students will learn how to perform SQL Queries on sample databases, mine for specific types of data, as well as use specific programs that can help mine for data and produce reports. Additionally, this course covers the material tested on the Microsoft certification exam 70-461.

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**Administering Microsoft SQL Server 2012 Databases (70-462)**

*Instructor Led*

This course introduces the concepts and skills required to administer Microsoft SQL Server 2012. More specifically, students will learn how to install/upgrade to SQL Server as well as create, manage, monitor, and optimize databases. Additionally, students will explore additional management tasks such as automation, security, replication, backup/restore, snapshots, log shipping and clustering. At course completion, students will have covered the material tested on the Microsoft certification exam 70-462. Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**SharePoint Essentials**

*Instructor Led*

This course will provide students with the knowledge and skills to configure and manage a Microsoft SharePoint Server 2013 environment. This course will teach students how to configure SharePoint Server 2013, as well as provide guidelines, best practices, and considerations that will help them optimize their SharePoint server deployment. Students will be evaluated through a variety of assignments, projects, practical components, quizzes and exams in addition to their participation throughout the course.

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**Career Planning and Preparation Level I**

*Instructor Led*

This module introduces tools for planning and preparing for a successful job search, so that students can maintain a career-focused approach throughout their education program. Students will learn about the "Hidden" Job Market and ways to access it in their upcoming job search, how to research opportunities and network for industry contacts, and use appropriate etiquette when communicating with prospective employers. Students will identify their personal skills, values and preferences for the workplace, begin preparation of a professional resume and references, and organize proof documents for their career portfolio. Class discussions on various self-management topics introduced in Student Success Strategies will round out this module, which is a pre-requisite for Career Planning and Preparation - Level II.

An introduction to Occupational Health and Safety will also be discussed, specifically the definition of occupational health and safety; an individual's safety rights; responsibilities under Nova Scotia law; hazard identification and control; WHMIS, First Aid and fire safety requirements. Students will be evaluated through a variety of assignments, projects, and quizzes in addition to their participation throughout the course.

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**Career Planning and Preparation Level II**

*Instructor Led*

This module continues to build on the concepts and skills introduced in Career Planning and Preparation - Level I. Students will learn how to conduct an effective job search and identify various methods of applying for work with today's technology. Students will create a personal list of "Top Employers" and target current industry opportunities, while finalizing their professional resume, portfolio and career correspondence. Students will learn to identify the different types and forms of interviews, practice responding to typical questions, and practice follow-up, evaluation and negotiation techniques they can use to ensure success. Self-management topics from Career Planning and Preparation - Level I will be reviewed, with a focus towards on-the-job success in both learner placements and post-graduate employment. Students will be evaluated through a variety of assignments, projects, and quizzes in addition to their participation throughout the course.

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**Field Placement**

At the successful completion of the classroom hours of this program, students will be placed on an internship at an outside organization. Students will have the opportunity to apply their new and developed skills in a real-world environment. Hosts include small, medium, and large organizations that have an Information Technology department, or organizations that provide technology and technology services.

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