

PROGRAM OBJECTIVES

The Advanced Systems Management and Cybersecurity program will provide students with the skills and knowledge to pursue certifications and careers in server and network administration, and cybersecurity. Students receive training on enterprise operating systems including Microsoft Windows Server and Linux in addition to learning how to configure and secure network infrastructures based on industry best practices. Students will learn how to properly manage Microsoft Exchange Server, Microsoft SQL server, as well as how to automate administration using PowerShell (Microsoft) and the Bash shell (Linux). The program also covers the procedures and technologies that can be used to secure access to data and respond to security breaches.

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

CERTIFICATIONS

Students who successfully complete this program will be eligible to write certification exams leading to the following designations: CompTIA A+ (2 vouchers), CompTIA Network+, CompTIA IT Project+, CompTIA Linux+, CompTIA Security+, CompTIA Cybersecurity Analyst, Cisco CCNA, and Microsoft Desktop Administrator Associate (MDAA): Windows 10 (2 vouchers).

In total, the program covers 10 individual certification examinations. Students are provided with 10 exam vouchers to write the certifications they wish to pursue.

CAREER OPPORTUNITIES

Graduates of our program would have the opportunity to start careers in Enterprise Help Desk and Infrastructure Support, Linux or Windows Server Administration, Specialty Administration (SQL Server, Exchange Server, Messaging, etc.), and Network Design, Administration and Security.

PREREQUISITES

1. Student has Grade 12 or equivalent or meets criteria for Mature Student Status.
2. Mature students must be 19 years of age, pass a qualifying test, and provide a Letter of Intent OR resume that supports their skills and aptitudes to be successful in the program.
3. The approved qualifying test for this program is the Wonderlic test. A passing score for this program is 16.

GRADUATION REQUIREMENTS

A student must attain an overall average in each module of at least 70% in order to graduate and receive a diploma. A student must complete all requirements of Student Success Strategies as well as the Field Placement requirements for this program.

PROGRAM OVERVIEW

Course	Hours
Student Success Strategies	20
Digital Literacy for Professionals	40
A+	100
Windows 10 Administration & PowerShell Scripting	140
Technology Management for IT Professionals	80
Network, Mobile & Cisco Technologies	160
Installing and Configuring Windows Server	80
Windows Server Administration	80
Configuring Advanced Windows Server Services	80
Exchange Server Design and Administration	80
SQL Server Administration	80
Wireless Infrastructure Design & Administration	80
Linux Administration	140
Security and Ethical Hacking	100
Career Planning and Preparation Level I	20
Career Planning and Preparation Level II	20
Advanced Systems Management and Cybersecurity	
Field Placement	16 weeks
TOTAL WEEKS	81

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COURSE OVERVIEW**Student Success Strategies****(20 hours)**

In this orientation module, you will focus on achieving success from day one. You will develop non-technical skills to enhance your personal, academic, and career success. You will explore learning styles, including visual, auditory, and kinesthetic learning. You will also enhance your 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. You will also explore techniques for managing change, stress, and conflict.

Digital Literacy for Professionals**(40 hours)**

This course has four units that introduces you to the fundamental concepts and principles of learning and working in a digital environment. The first unit introduces you to using devices and handling information with topics on operating systems (Windows, MAC, and Linux), computer organization (folder management and naming conventions), cloud storage (including Microsoft OneDrive), types of web browsers including Google Chrome, Mozilla Firefox, and Apple Safari), and fundamental troubleshooting. In the second unit, you will become familiar with creating and editing information through learning about file formats (pdf, mp4, docx), productivity (including iWork and Microsoft Office Suite) and creativity (Adobe, Canva, iMovie) platforms, and basic introduction to Microsoft Word, Excel, and PowerPoint. The third unit on communicating and collaborating will introduce you to web conferencing applications (Slack, Zoom, Microsoft Teams), mail applications (including Microsoft Outlook and Gmail), project management tools (Trello, Asana), and time management tools (including Todoist, Outlook Calendar, and iCal), and building rapport virtually. In the final unit, you will gain an understanding on netiquette, cybersecurity, and digital wellness. After completing this course, you will have enhanced digital literacy skills as a professional in the working and learning environment.

A+**(100 hours)**

This course introduces the essential operating system skills required of a computer support technician and covers the skills necessary to achieve the 1000-series A+ Certification (exams 220-1001 and 220-1002). More specifically, students learn how to use, configure, upgrade, troubleshoot and maintain computer hardware alongside the Windows family of operating systems, as well as basic configuration of Linux, MacOS, and mobile operating systems.

Windows 10 Administration & PowerShell Scripting**(140 hours)**

A secure infrastructure starts with a properly configured operating system. In this course you will learn about the various tools for administering, configuring, securing, and troubleshooting Windows 10, as well as how to deploy and upgrade to Windows 10 from legacy systems. Among other topics, you will learn how to properly configure disks, printers, and network interfaces, as well as how to properly secure Windows with users, groups, and file security. The course also introduces students to Microsoft's powerful scripting language: PowerShell, which can be leveraged to automate and streamline key system tasks and produce critical reports. This course is a prerequisite for all other Microsoft courses and covers the material tested on the MD-100 and MD-101 certification exams required to obtain the Modern Desktop Administrator Associate (MDAA) designation.

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Technology Management for IT Professionals**(80 hours)**

As individuals and business become more reliant on technology and its increasing importance, a successful Systems Administrator must know how to communicate advanced technology concepts, diagnoses, and project timelines to a diverse array of professionals with varying expectations and technical backgrounds. Using 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 (PK0-004).

Network, Mobile & Cisco Technologies**(160 hours)**

Business rely heavily on stable, secure, well-designed networks. In this course students will learn the theory and concepts required to successfully administer and troubleshoot TCP/IP-based networks. Students will then expand their knowledge of TCP/IP-based networks by learning the configuration and support of mobile devices that use the ActiveSync protocol, as well as Cisco routers, switches and services. Additionally, in addition this course provides the conceptual foundation for the advanced networking and security courses, and introduces the concepts covered on the CompTIA Network+ certification exam (N10-007) and Cisco Certified Network Associate (CCNA) certification exam (200-125).

Installing and Configuring Windows Server**(80 hours)**

Windows Server is the foundation for advanced Microsoft services such as Exchange Server and SQL Server. Improperly configured, Windows Server can put these services at risk concerning performance, cost effectiveness, security, and stability. It is therefore critical to deeply understand this platform and the critical tasks of deployment, storage configuration, Hyper-V virtualization configuration, as well as fault tolerance, maintenance and monitoring. Additionally, this course covers the material on the Microsoft Certified Solutions Associate (MCSA) certification exam 70-740: Installation, Storage, and Compute with Windows Server 2016.

Windows Server Administration**(80 hours)**

Building on a solid understanding of Windows Server configuration, this course focuses on ensuring stability and security through the ongoing administration and management of the server infrastructure. Students will focus on the configuration of networking and network services within Windows Server 2016. More specifically, students will learn how to configure IPv4 and IPv6, manage IP addressing and DNS name resolution services, as well as provide for secure remote connectivity.

Configuring Advanced Windows Server Services**(80 hours)**

This course focuses on Windows infrastructure security, access control, and desktop management through the configuration and administration of Windows Server Active Directory, and the configuration and management of Group Policy, certificates and identity access on Windows networks.

Exchange Server Design and Administration**(80 hours)**

This course introduces the skills and knowledge necessary to design, install, configure, administer, and support the Exchange Server 2016 messaging server within an enterprise environment. Students will also

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find that this course serves as an excellent foundation for managing corporate mailboxes in Microsoft's Office 365 platform. Additionally, this course covers the concepts tested on the Microsoft certification exam 70-345: Designing and Deploying Microsoft Exchange Server 2016.

Microsoft SQL Server Administration (80 hours)

A database can contain some of the most valuable assets a company can own, which makes its stability, security, and performance a critical priority. This course introduces the concepts and skills required to administer Microsoft SQL Server, including how to install/upgrade SQL Server, as well as create, manage, monitor, and optimize databases. Additionally, students will explore automation, security, replication, backup/restore, snapshots, log shipping and clustering

Wireless Infrastructure Design & Administration (80 hours)

For many organizations, mobile devices pose a security risk due to theft, or eavesdropping on unsecure/rogue wireless networks. Organizations today must provide configuration and support for mobile smartphone devices within their network environment. This course introduces students to the concepts and procedures used to administer ActiveSync smartphones within an enterprise environment that uses Microsoft Exchange Server. Moreover, this course examines the concepts and procedures used to provide a wireless infrastructure within an organization to support mobile technologies.

Linux Administration (140 hours)

When properly configured, Linux can serve as one of the most stable, secure, and performance-oriented operating systems available. It serves as a key component in enterprise virtualization and cloud service offerings and is used extensively in the computer forensics and cybersecurity space. In this course, students will learn how to install, configure, and administer the basic services of a Linux system. More specifically, they will gain a solid working knowledge of how the Linux operating system works, experience in navigating within the file structure, system and network administration skills, security tools and practices, and more. At course completion, students will have covered the topics covered on the CompTIA Linux+ (Powered by LPI) certification exam.

Security and Ethical Hacking (100 hours)

This course introduces students to the concepts and procedures used to implement and configure security within an enterprise environment. Focus will be placed on the procedures and technologies that can be used to secure access to data and mitigate security breaches, as well as the procedures used to assess the attack surface and perform a penetration test and vulnerability assessment for an organization. Additionally, this course covers the concepts tested on the CompTIA Security+ certification exam (SY0-501) and CompTIA Cyber Security Analyst+ certification exam (CS0-002).

Career Planning and Preparation Level I (20 hours)

This module will introduce you to and provide practice in using the tools required for a successful job search. The concepts covered in this module will help you maintain a career-focused approach throughout your studies so that you are better prepared to conduct a job search after graduating. Specifically, you will learn how to identify your soft and hard skills and how to articulate your abilities in a clear and concise Elevator Pitch that will appeal to employers and resonate with industry contacts. You will learn about the job search resources available to you including using career websites, creating Linked In profiles, accessing

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the “hidden” job market, and networking. You will examine sample resumes and cover letters and begin the process of creating your own professional resumes and cover letters that align with current conventions for content, organization, and formatting. You will also learn about the role of references, thank you letters, workplace philosophies, and strategies for success including maintaining a professional image and using proper etiquette when communicating with potential employers and industry contacts. An introduction to Occupational Health and Safety is also provided with specific focus on employees’ rights and responsibilities, workplace health and safety policy and programs, hazard identification and control, and safety training options such as WHIMIS and First Aid

Career Planning and Preparation Level II**(20 hours)**

This module builds on concepts and skills introduced in the Career Planning and Preparation Level 1 prerequisite module. In this subsequent module, you will update and refine your resume and LinkedIn Profile. You will continue writing cover letters and learn the value of customizing cover letters to specific job postings. You will have the opportunity to apply this knowledge as you conduct a job search and write a cover letter tailored to an ideal job post. Through research, you will create a list of top employers and target current industry opportunities. You will learn about current methods for applying to job postings using technology. You will also gain an understanding of the job interview process, typical interview questions and possible responses, and expectations of both the interviewer and interviewee. In addition, you will engage in practical application of the interview process through role-plays. Topics such as negotiating salary, self-management, and on-the-job success for placements and post-graduate employment will be also covered.

Advanced Systems Management and Cybersecurity Field Placement**(16 weeks)**

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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