Manitoba Institute of Trades and Technology

Program Information

Network and Systems Administrator (Winnipeg and Morden locations)

2025/2026

Program Overview	The Network and Systems Administrator Diploma program provides learners with comprehensive skills in IT infrastructure design and support. Students engage in hands-on advanced labs with industry-grade hardware and software from recognized technology leaders such as Cisco, Microsoft, Red Hat, and AWS.
Area of Study	Information and Communication Technologies
Credential	Diploma
Program Length	2 Years | Full time (16 months) This program runs for 16 consecutive months, excluding student success weeks and holidays.
Delivery	In-Classroom This program is primarily taught in person during full-day sessions, with less than 10% of course content delivered online.
Work-Integrated Learning	8-week practicum
Accreditation	The program prepares students for several industry-recognized certifications, including: • Cisco CCNA • AWS Certified Cloud Practitioner

	• CompTIA Security+ • CompTIA Server+ • Microsoft Azure Fundamentals
Open to International Students	Yes
CIP Code	11.1001

Career Outcomes

- Network Analyst
- Network Technician
- System Analyst
- Help Desk Specialist
- Computer Analyst
- System Support Specialist
- Systems Administrator
- Cloud Administrator
- Incident Handler
- Intrusion Analyst

All Courses

Course Name	Description	Hours
Introduction to Computer Systems (NSA-500)	This course introduces students to fundamental computer hardware and software concepts. Students develop beginner-level IT skills essential for success in the program and their future careers.	84 hours

Networking and IT Essentials (NSA-510)	Students learn to assemble a computer and connect it securely to a network. The course provides an introduction to networking in a Cisco environment, covering key concepts and configurations.	84 hours
Introduction to Programming Using Python (CBRS-1150)	Students will learn the basics of programming using the Python Programming Language. Students will solve problems, explore real-world software development challenges, and create practical and contemporary applications.	56 hours
Microsoft Azure Fundamentals (NSA-530)	Students gain foundational skills in managing Microsoft Azure, including securing identities, configuring virtual networking, implementing storage solutions, and deploying cloud-based applications.	42 hours
Microsoft Azure Administration (NSA-540)	Building on Microsoft Azure Fundamentals, this course covers designing and implementing solutions using Azure for computing, networking, storage, and security applications.	42 hours
CCNA I: Introduction to Networks (NSA-600)	Students learn fundamental networking concepts, including LAN setup, router and switch configuration, and IP addressing, to build a strong networking foundation.	84 hours
CCNA II: Switching, Routing, and Wireless Essentials (NSA-610)	Students explore advanced router and switch configurations, troubleshooting techniques, and security best practices in IPv4 and IPv6 networks.	96 hours

CCNA III: Enterprise Networking, Security & Automation (NSA-620)	This course covers large-scale network architecture, security, and automation, including WAN technologies, virtualization, APIs, and configuration management tools.	96 hours
CompTIA Security+ (NSA-550)	Students develop core cybersecurity skills, including risk assessment, security implementation, and incident response in hybrid and cloud environments, with a focus on compliance and governance.	84 hours
Red Hat Linux I (NSA-560)	Students develop essential Linux administration skills, including command-line navigation, system management, and enterprise-level tools for Linux environments.	84 hours
PowerShell Scripting (NSA-640)	This course introduces students to Windows PowerShell as a robust command-line shell and scripting language designed for system administration and automation. Students will explore PowerShell's object-oriented architecture, scripting fundamentals, and command structures to perform a wide range of administrative tasks. Through hands-on practice, students will learn to write scripts, automate repetitive tasks, manage remote systems, and utilize advanced features such as error handling, pipelines, scheduled tasks, and module management. The course is ideal for those seeking to streamline system management and gain practical scripting experience in a Windows environment.	65 hours

Windows Server Administration (CBRS-1110)	This course provides hands-on experience in configuring and managing Windows Server roles and services. Students will deploy Active Directory, configure DNS and DHCP, manage NTFS permissions, virtualization, and deploy Windows Server on Microsoft Azure, building foundational skills in Windows Server and cloud infrastructure.	91 hours
Technical Writing and Documentation (NSA-590)	This course is designed for IT professionals seeking to enhance their technical writing skills, with a focus on language use within the IT and cyber-security industries. Participants will explore the linguistic aspects of creating high-quality technical documents, such as proposals, manuals, process guides, and cyber-security-related materials. Through hands-on practice, students will learn the structure and format of these specialized documents and gain practical experience by crafting them. This approach equips participants with the skills to effectively and precisely communicate complex information tailored to technical and cyber-security contexts.	42 hours
IT Project Management (CBRS-1050)	This course equips cybersecurity professionals with the skills and knowledge to successfully manage projects from initiation to completion. Participants will learn how organizational factors influence project success, develop essential initiation documents, and build project teams. The course covers key project management processes, including planning, scheduling, resource allocation, risk management, communication, and	49 hours

	change management. Participants will also gain practical experience in executing projects, addressing challenges, and ensuring successful project closure through reviews and lessons learned. By the end, learners will have the tools to effectively lead and contribute to projects in cybersecurity environments.	
Cloud Fundamentals (AWS) (CBRS-1020)	The Cloud Fundamentals (AWS) course is designed to provide a comprehensive understanding of cloud computing with a focus on Amazon Web Services (AWS). This course covers the essential concepts of cloud computing, the benefits of adopting AWS for business operations, and practical skills for leveraging AWS services to optimize and transform business processes.	49 hours
AWS Cloud Architecting (CBRS-1120)	This course covers the fundamentals of building IT infrastructure on Amazon Web Services (AWS). The course is designed to teach students how to optimize their use of the AWS Cloud by understanding AWS services and how they fit into cloud-based solutions. Throughout the course, students will engage with a practical environment that offers hands-on opportunities to design, build, and secure various types of network infrastructure, reinforcing both theoretical concepts and practical skills.	84 hours
Network and Systems Administrator Capstone (NSA-630)	Students in this course will troubleshoot hardware, software, and network issues through hands-on practice and collaborative learning. Working in teams, they will design and build a simulated	42 hours

	enterprise network using skills gained in previous courses. They will then apply industry best practices to diagnose and resolve a range of simulated network problems, strengthening their technical and problem-solving abilities.	
Network and Systems Administrator Applied Practicum (NSA 690)	The Work Practicum is an integral pathway to transition students from the MITT learning environment to the workplace. It offers students the opportunity to gain industry-relevant experience with a recognized employer and build on their technical skills while increasing confidence, employability, and job readiness.	280 hours
Network and Systems Administrator Applied Project (NSA-650)	The Applied Capstone Course is the final integration of the Network and System Administration Diploma Program, designed for students to apply the comprehensive knowledge and skills they have acquired. Students will address a real-world challenge related to network and system administration by employing advanced methodologies to develop, implement, and evaluate innovative solutions. Throughout this course, students are expected to document their project processes in detail and develop presentations that are appropriate for both technical and non-technical audiences. The focus on practical application, problem-solving, and communication skills prepares students for professional roles in the IT field.	280 hours