



MANITOBA INSTITUTE OF TRADES AND TECHNOLOGY

Course Overview

Course Code: NSD-180

Program: Network Security Diploma

Credits: Full Credit

Course Hours: 84 hours

Prerequisite(s): NSD-210, NSD-220

Academic Year: 2022-2023

Class Times & Information

Building: 130 Henlow

Room: Online

Days: Monday - Friday

Times: 9:00 am - 4:00 pm CST

Start Date: July 4, 2022

End Date: July 22, 2022

Note: All dates/times indicated in the course outline is based on Central Standard Time (CST) time zone or Winnipeg local time.

Instructor Overview

Instructor: Rogelio Villaver

Phone: 204-391-4312

Email: rogelio.villaver@mitt.ca

Availability: 9:00 am – 4:00 pm

CompTIA Security+

Course Description

CompTIA Security+ is designed for information technology (IT) professionals who have networking and administrative skills in Windows® - based Transmission Control Protocol/Internet Protocol (TCP/IP) networks; familiarity with other operating systems such as macOS®, Unix®, or Linux®; and who want to further a career in IT by acquiring foundational knowledge of security topics or using CompTIA Security+ as the foundation for advanced security certifications or career roles.

General Learning Outcomes

By the end of this course, you will gain knowledge and skills required to install and configure systems to secure applications, networks, and devices; perform threat analysis and respond with appropriate mitigation techniques; participate in risk mitigation activities; and operate with an awareness of applicable policies, laws, and regulations. This course aligns with the CompTIA Security+ SY0-601 Certification exam.

On course completion, you will be able to:

- Compare security roles and security controls
- Explain threat actors and threat intelligence
- Perform security assessments and identify social engineering attacks and malware types
- Summarize basic cryptographic concepts and implement public key infrastructure
- Implement authentication controls
- Implement identity and account management controls
- Implement secure network designs, network security appliances, and secure network protocols
- Implement host, embedded/Internet of Things, and mobile security solutions
- Implement secure cloud solutions
- Explain data privacy and protection concepts
- Perform incident response and digital forensics
- Summarize risk management concepts and implement cybersecurity resilience
- Explain physical security

Materials

Text: Available at <https://learn.comptia.org>

Lab Manual: Available at <https://learn.comptia.org>

Course Schedule

Please note that instructors reserve the right to adjust the course schedule without prior notice to meet the changing needs of the class as a whole.

| Day /Class | Topic(s) and Activities/Assessment |
|-------------------------------------|--|
| Class 1 Monday, July 04, 2022 | Lectures: <ul style="list-style-type: none">• Lesson 1: Comparing Security Roles and Security Controls• Lesson 2: Explaining Threat Actors and Threat Intelligence Assisted Lab: <ul style="list-style-type: none">• Lab 1: Exploring the Lab Environment |
| Class 2 Tuesday, July 05, 2022 | Lectures: <ul style="list-style-type: none">• Lesson 3: Performing Security Assessments• Lesson 4: Identifying Social Engineering and Malware Assisted Labs: <ul style="list-style-type: none">• Lab 2: Scanning and Identifying Network Nodes• Lab 3: Intercepting and Interpreting Network Traffic with Packet Sniffing Tools• Lab 4: Analyzing the Results of a Credentialed Vulnerability Scan• Lab 5: Installing, Using, and Blocking a Malware-based Backdoor |
| Class 3 Wednesday, July 06, 2022 | Applied Lab: <ul style="list-style-type: none">• Lab 6: Performing Network Reconnaissance and Vulnerability Scanning |
| Class 4 Thursday, July 07, 2022 | Lectures: <ul style="list-style-type: none">• Lesson 5: Summarizing Basic Cryptographic Concepts• Lesson 6: Implementing Public Key Infrastructure Assisted Labs: <ul style="list-style-type: none">• Lab 7: Managing the Life Cycle of a Certificate• Lab 8: Managing Certificates with OpenSSL |
| Class 5 Friday, July 08, 2022 | Lectures: <ul style="list-style-type: none">• Lesson 7: Implementing Authentication Controls• Lesson 8: Implementing Identity and Account Management Controls Assisted Labs: <ul style="list-style-type: none">• Lab 9: Auditing Passwords with a Password Cracking Utility• Lab 10: Managing Centralized Authentication• Lab 11: Managing Access Controls in Windows Server• Lab 12: Configuring a System for Auditing Policies• Lab 13: Managing Access Controls in Linux |
| Class 6 Monday, July 11, 2022 | Applied Labs: <ul style="list-style-type: none">• Lab 14: Configuring Identity and Access Management Controls |
| Class 7 Tuesday, July 12, 2022 | Lectures: <ul style="list-style-type: none">• Lesson 9: Implementing Secure Network Designs• Lesson 10: Implementing Network Security Appliances Assisted Labs: <ul style="list-style-type: none">• Lab 15: Implementing a Secure Network Design• Lab 16: Configuring a Firewall• Lab 17: Configuring an Intrusion Detection System |

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| Class 8 Wednesday, July 13, 2022 | Lectures: <ul style="list-style-type: none"> • Lesson 11: Implementing Secure Network Protocols • Lesson 12: Implementing Host Security Solutions Assisted Labs: <ul style="list-style-type: none"> • Lab 18: Implementing Secure Network Addressing Services • Lab 19: Implementing a Virtual Private Network • Lab 20: Implementing a Secure SSH Server • Lab 21: Implementing Endpoint Protection Applied Labs: <ul style="list-style-type: none"> • Lab 22: Securing the Network Infrastructure |
| Class 9 Thursday, July 14, 2022 | |
| Class 10 Friday, July 15, 2022 | Lectures: <ul style="list-style-type: none"> • Lesson 13: Implementing Secure Mobile Solutions • Lesson 14: Summarizing Secure Application Concepts Assisted Labs: <ul style="list-style-type: none"> • Lab 23: Identifying Application Attack Indicators • Lab 24: Identifying a Browser Attack • Lab 25: Implementing PowerShell Security |
| Class 11 Monday, July 18, 2022 | Lectures: <ul style="list-style-type: none"> • Lesson 15: Implementing Secure Cloud Solutions • Lesson 16: Explaining Data Privacy and Protection Concepts Assisted Labs: <ul style="list-style-type: none"> • Lab 26: Identifying Malicious Code Applied Labs: <ul style="list-style-type: none"> • Lab 27: Identifying Application Attacks |
| Class 12 Tuesday, July 19, 2022 | Lectures: <ul style="list-style-type: none"> • Lesson 17: Performing Incident Response • Lesson 18: Explaining Digital Forensics Assisted Labs: <ul style="list-style-type: none"> • Lab 28: Managing Data Sources for Incident Response • Lab 29: Configuring Mitigation Controls |
| Class 13 Wednesday, July 20, 2022 | Lectures: <ul style="list-style-type: none"> • Lesson 19: Summarizing Risk Management Concepts • Lesson 20: Implementing Cybersecurity Resilience Assisted Labs: <ul style="list-style-type: none"> • Lab 30: Acquiring Digital Forensics Evidence • Lab 31: Backing Up and Restoring Data in Windows and Linux |
| Class 14 Thursday, July 21, 2022 | Lectures: <ul style="list-style-type: none"> • Lesson 21: Explaining Physical Security Applied Labs: <ul style="list-style-type: none"> • Lab 32: Managing Incident Response, Mitigation and Recovery |
| Class 15 Friday, July 22, 2022 | Practice Assessment - CompTIA Security+ Assessment Final Theory Exam - MyLearning |

A student needs 50% to pass the course.

Note: Instructors reserve the right to adjust the course schedule without prior notification to meet the changing needs of the class as a whole. It is the responsibility of the student to follow up in cases of missed classes.

Student Evaluation

| Type of Evaluation | Percentage of Grade | Week/ Date |
|---|---------------------|-------------------------------------|
| Average Overall Progress | 20% | Ongoing Refer to Course schedule |
| Average Assisted/ Applied Labs Note: Reference to overall progress | 15% | Ongoing Refer to Course schedule |
| Average Performance-Based Questions Note: Reference to overall progress | 15% | Ongoing Refer to Course schedule |
| Average Practice Questions Note: Reference to overall progress | 15% | Ongoing Refer to Course schedule |
| Average Assessment | 15% | Ongoing Refer to Course schedule |
| Final Theory Exam | 20% | Friday, July 22, 2022 |

Evaluation Details

There will be lesson labs, practice tests, PBQs, and assessment in this course and are to be completed individually without the help of another person otherwise specified. The instructions and marking criteria for each activity will be posted in MyLearning.

The final exam will take place on the last day of the course. The exam will be around 2 hours long and will may consist of a combination of multiple choice, short answer, and performance based questions.

Grading

| Letter Grade | Grade Point Value | Accumulated Evaluation Percentage |
|--------------|-------------------|-----------------------------------|
| A+ | 4.5 | 90 – 100% |
| A | 4.0 | 80 – 89% |
| B+ | 3.5 | 75 – 79% |
| B | 3.0 | 70 – 74% |
| C+ | 2.5 | 65 – 69% |
| C | 2.0 | 60 – 64% |

| | | |
|----------|-----|----------|
| D | 1.0 | 50 – 59% |
| F | 0.0 | 0 – 49% |

Program Specific Policies

Please review the provided **NSD Program Policies**. Students are required to adhere to all program specific and general policies in order to remain in the course and successfully complete the program.

Students are not permitted to create or distribute video, audio or other digital recordings of class lectures or activities without written permission from the instructor or an approved accessibility plan.

Missed Assessments

Students are required to submit all items of work (including assignments, projects, etc.); to write tests and examinations; and to complete practical assessments on the date assigned by the instructor. Any assessment item, not completed on or by the deadline, will receive a mark of zero (0).

Instructors may, at their discretion, make academic accommodations in the event of a legitimate absence due to extenuating circumstance. Students who require assignment extensions, exam rescheduling, or other types of academic accommodation, in such circumstances, should provide a formal request to the instructor with reasonable advance notice when possible.

Students may be required to present appropriate documentation (see the [Documentation Requirements](#) policy for details) when requesting any form of academic accommodation. All requests will be considered on a case-by-case basis and accommodation is not guaranteed.

MITT Academic Policy and Regulation

Students are responsible for reviewing and observing all MITT Student Policies while engaged in any form of academic activity with the Institute and should refer to the MITT website for all policy information.

Key policies to refer to in relation to this course include:

- [Student Discipline](#)
- [Student Behaviour](#)
- [Student and MITT Expectations](#)
- [Attendance Policy](#)
- [Documentation Requirements](#)
- [Dress Code Policy](#)
- [Academic Integrity Policy](#)
- [Student and Academic Policies – other policies](#)

Academic Integrity

As per the MITT [Academic Integrity Policy](#), academic dishonesty in any form is unacceptable. This policy applies to all courses at MITT and defines all activities and behaviours that might constitute grounds for an academic violation.

MITT expects all students to attend an academic orientation session within their program and to adhere to the principles of academic integrity.

Students found to be in violation of the [Academic Integrity Policy](#) will be subject to disciplinary action as defined by the [MITT Student Discipline Policy](#). Refer to both of these policies for further details.

Retention of Course Outline

Students are advised to retain course outlines for future use in support of applications for employment or transfer of credits.

Information contained in this course outline is correct at the time of publication. Content of programs and courses can be revised on an ongoing basis to ensure relevance to educational objectives and employment market needs. MITT reserves the right to add, alter, or delete programs, options, practicum, courses, timetables, or campus locations subject to program renewal, sufficient enrolment and course availability. In the event of extraordinary circumstances beyond MITT's control, the content and/or evaluation in this course outline is subject to change.