

(C)ITM 301 – IT Infrastructure

COURSE OUTLINE FOR 2026-2027

Semester, Section
Classroom, Class Time

Prerequisite(s): ITM 207 or in the 2 Year Business Technology Management Ontario College Diploma Graduate Program

Faculty/Contract Lecturer Information

- **Faculty/Contract Lecturer Name:**
- **Office Location:**
- **Office Hours:**
- **Phone:** (416) 979 – 5000, ext.
- **Course Website:** my.torontomu.ca (for courses using D2L)
- **Email Address:** youremail@torontomu.ca

Mode of Course Delivery: In-person (Lecture)

Academic Program Advising Contacts

Chair/Director for this Course: Sameh Al Natour

Email Policy

Students are expected to monitor and retrieve messages and information sent through D2L and TMU email on a frequent and consistent basis. In accordance with the Policy on TMU Student E-mail Accounts ([Policy 157](#)), Toronto Metropolitan University (TMU) requires that any electronic communication by students to TMU faculty or staff be sent from their official university email account. Communications sent from other accounts may be disregarded.

Course Description

This course provides an introduction to computer hardware/software and communication networks. It gives the students the knowledge and skills that they need for communicating effectively with professionals whose special focus is on hardware and systems software technology and for designing organizational processes and software solutions that require in-depth understanding of the IT infrastructure capabilities and limitations. It also prepares the students for organizational roles that require interaction with external vendors of IT infrastructure components and solutions.

Course Details

Teaching Methods

If you are registered in an in-person or a virtual classroom, instruction will take place at scheduled hours, following the approach outlined in D2L Brightspace. If you are registered in a Chang School Distance Education course, please follow the schedule, course outline and learning modules as outlined in D2L Brightspace.

Note: All assessments in this course, regardless of its delivery format, will be held in-person on campus. This applies to in-person, virtual, and online courses, including sections/courses delivered through the Chang School.

Course Materials

Textbook and Other Learning Materials:

Lecture:

Title: CompTIA Network + Guide to Networks, 10th Edition

Author(s): Jill West

Publisher: Cengage Learning

Paperback ISBN-13: ISBN: 9798214413778

12-month Cengage eTextbook: 9798214405902

Price: eTextbook: \$77.95; Paperback: \$186.95

Course Learning Outcomes

Students in this course will build on previous knowledge of Business Information Systems. ITM301 concentrates on the components of a secure corporate IT infrastructure. The objectives for this course are:

Learning Outcomes

1. To develop a comprehensive knowledge of the functionality of networking hardware;
2. To acquire the skills to solve business problems that require IT solutions; and
3. To develop the competency to investigate inter-organization and intra-organization communications problems and propose a viable technology solution.

Upon completion of this course, students will be able to:

1. Analyze a business problem and propose an IT enabled solution.
2. Explain the principles underlying layered systems architecture and their application to both computers and networks.

3. Distinguish the core elements of an IT infrastructure solution, such as clients, servers, other network devices, wired and wireless network links, systems software, and specialized security devices.
4. Discuss how IT infrastructure components are organized into infrastructure solutions in different organizational environments.
5. Examine the principles underlying operating systems and virtual networks and propose a network operating system given a business scenario.
6. Use practical examples to demonstrate how protocols are used to enable communication between computing devices connected to each other.
7. Configure an IT infrastructure solution for a small organization, including a network based on standard technology components, servers, security devices, and several different types of computing clients.
8. Apply the core concepts underlying IP networks to solve simple network design problems, including IP subnetting.
9. Illustrate the role of the emergent cloud computing & IoT technologies in business today.
10. Write about the opportunities that virtual computing service provision models, such as Virtual Machines and Virtual Networks, create for organizations.

Academic Integrity

Academic integrity is integral to your learning, the credibility of your degree or certification, and the integrity of the university as a whole. [Senate Policy 60: Academic Integrity](#) defines academic misconduct, provides a non-exhaustive list of examples of behaviours that may be considered as academic misconduct, and explains how academic misconduct concerns are evaluated and decided. The entirety of the policy applies in this course. As well, please note that submitting work created in whole or in part by artificial intelligence tools unless expressly permitted by the faculty/contract lecturer, is considered a violation of Policy 60.

Generative AI Course Policy, Plagiarism Detection, and Virtual Proctoring

Generative AI Course Policy

Use of Generative AI (e.g. ChatGPT, Grammarly, Perplexity, DeepL Translator) to develop or assist with any ideas or material submitted for coursework is expressly prohibited in this course. Use of Generative AI in this manner will be considered a breach of Policy 60.

Turnitin or another originality detection software

Turnitin is a plagiarism prevention and detection service to which TMU subscribes. It is a tool to assist faculty/contract lecturers in determining the similarity between students' work and the work of other students who have submitted papers to the site (at any university), internet sources, and a wide range of books, journals and other publications.

While it does not contain all possible sources, it gives faculty/contract lecturers some assurance that students' work is their own. No decisions are made by the service; it generates an "originality report," which faculty/contract lecturers must evaluate to judge if something is plagiarized.

Students agree by taking this course that their written work will be subject to submission for textual similarity review to Turnitin. Instructors can opt to have student's papers included in the Turnitin database or not. Use of the Turnitin service is subject to the terms-of-use agreement posted on the Turnitin website. Students who do not want their work submitted to this plagiarism detection service must, by the end of the second week of class, consult with their faculty/contract lecturer to make alternate arrangements. Students who choose not to have their papers screened for textual similarity review by turnitin may be required to submit additional work with their research essay. For example:

- an annotated bibliography of each source used in your paper; and/or
- the first few pages of each cited source used in your paper

Even when an faculty/contract lecturer has not indicated that a plagiarism detection service will be used, or when a student has opted out of the plagiarism detection service, if the faculty/contract lecturer has reason to suspect that an individual piece of work has been plagiarized, the faculty/contract lecturer is permitted to submit that work in a non-identifying way to any plagiarism detection service.

Copyright

The course materials provided to you are copyrighted, and may not be shared without my express written permission. Do not share these materials (e.g. course outline, lecture slides, assignment instructions) with others and do not post them on the internet during the course, or at any time after. If you do so, Policy 60 will apply.

Academic Integrity Resources

To learn more about Policy 60 and how to avoid academic misconduct, please review and take advantage of these resources:

- Policy 60: Academic Integrity: www.torontomu.ca/senate/policies/academic-integrity-policy-60/
- Academic Integrity Office website: www.torontomu.ca/academicintegrity
- "Academic Integrity in Space" game: <https://games.de.torontomu.ca/aio/#/>
- "Academic Integrity in Cyberspace!" game: <https://www.torontomu.ca/aic/#/>
- Student Life and Learning Support: www.torontomu.ca/student-life-and-learning/learning-support

If you are a student registered with Academic Accommodation Support (AAS):

Please inform your faculty/contract lecturer if you have test accommodation needs that include the use of assistive technology (including text-to-speech, dictation, or literacy software). Some software may require additional configurations by the faculty/contract lecturer, so it is important you inform them in advance and leverage the sample quiz to ensure the tools are compatible with the Brightspace Quiz in LockDown Browser.

Topics and Course Schedule

Week	Topic	Readings
1	Introduction to IT infrastructure - Describe Networking Hardware - Describe Network Services and Protocols - Distinguish between the client-server and P2P networks - Identify and explain the seven layers of the OSI model	Jill West: Chapter 1 & Lecture notes
2	Infrastructure and Documentation - Identify Components of Structured Cabling - Identify Network path from DEMRAC to Workstation common - Explain Network Diagrams Operating Procedures - Explain essentials of Network Monitoring & Security	Jill West: Chapter 2 & Lecture Notes
3	Networking Addressing - Identify and explain the function of MAC address - Explain IPv4 and IPV6 addressing - Explain the role of ports and sockets in a network - Explain TCP/IP core protocols and services - Explain major network troubleshooting commands - Explain encryption and remote access protocols	Jill West: Chapters 3, 4 & Lecture Notes
4	Transmission Media - Explain analog and digital transmission - Explain types of multiplexing technologies - Describe the physical characteristics of coaxial cable, STP, UTP, and fiber-optic media - Compare the benefits and limitations of different networking media	Jill West: Chapters 5 & Lecture Notes
5	Wireless Networking - Describe WLAN architecture - Describe major characteristics of 802.11 standards - Explain IoT devices & networks - Explain Wi-Fi connectivity devices - Describe Wi-Fi Network Security	Jill West: Chapters 6 & Lecture Notes
6	Network Architecture - Explain design of physical network architecture - Explain Hierarchical Network Design	Jill West: Chapters 7 & Lecture Notes

	• Explain virtualization and its architecture. • Describe cloud architecture and its deployment models • Explain software defined networking (SDN) • Explain Network Availability	
7	Midterm Examination	
8	Network Segmentation • Describe the role of network segmentation in an Enterprise • Explain storage area network (SAN) • Explain how network subnets work • Explain the role of subnet masks in an enterprise network • Explain IP subnetting & implementation • Describe VLANs and their components.	Jill West: Chapters 8 & Lecture Notes
9	Wide Area Network • Explain major WAN connectivity and services • Explain different WAN topologies • Explain major routing protocols • Compare features of various WAN technologies • Explain wireless WAN • Explain WAN security, VPN, Firewall, and cloud • Describe several WAN transmission and connection	Jill West: Chapters 9 & Lecture Notes
10	Network Risk Management • Describe security risks associated with people, hardware, software, and Internet access • Explain risk management assessment and management • Explain network security policies and device hardening techniques • Explain malware risks • Explain the role of Intrusion Detection and Prevention • Explain the role of Honeypots and Honeynets	Jill West: Chapters 10 & Lecture Notes
11	Security in Network Design • Explain Access Control • Explain security policy • Explain physical detection and prevention methods • Explain Authentication, Authorization & Accounting (AAA) • Compare authentication technologies	Jill West: Chapters 11 & Lecture Notes
12	Network Performance and Recovery • Identify appropriate tools to collect data • Explain network optimization and performance • Identify best practices for incident responses and recovery strategies • Identify network traffic and congestion • Explain QoS (Quality of Service) Assurance	Jill West: Chapters 12 & Lecture Notes

Evaluation

The grade for this course is composed of the mark received for each of the following components:

Evaluation Component	Due Date	Percentage of Final Grade	Anticipated Return Date
Lab Assignments	Weeks 2, 3, 4, 5 & 6	20%	Week 4, 5, 6, 7, 9
Group Project	Week 11	10%	Week 13
Midterm Exam	Week 7	30%	Week 9
Final Exam	TBA	40%	TBD
Final Grade		100%	
Note: Students must achieve a course grade of at least 50% to pass this course. At least 20% of the grade based on individual work will be returned to students prior to the last date to drop a course in good academic standing. For Fall 2026 this must be before Friday, November 20, 2026 and for Winter 2027 before Friday, April 2, 2027.			

University Policies

Students must be reminded that they are required to adhere to all relevant university policies found in their online course shell in D2L and/or on [the Senate website](#).

Important Resources Available at Toronto Metropolitan University

- **Addressing Academic Concerns:** Students are expected to address any questions or concerns through open and timely communication with the course faculty/contract lecturer, as soon as they arise. If a concern cannot be resolved through this initial communication or if additional support is required, students are encouraged to reach out to their program advisor or the chair/director of the teaching department for further guidance. These individuals can help provide clarity, facilitate next steps, and ensure that matters are reviewed in a fair and appropriate manner.
- [The University Libraries](#) provide research [workshops](#) and individual consultation appointments. There is a drop-in Research Help desk on the second floor of the

library, and students can use the [Library's virtual research help service](#) to speak with a librarian, or [book an appointment](#) to meet in person or online.

- [Student Life and Learning Support](#) offers group-based and individual help with writing, math, study skills, and transition support, as well as [resources and checklists to support students as online learners](#).
- You can submit an [Academic Consideration Request](#) when an extenuating circumstance has occurred that has significantly impacted your ability to fulfill an academic requirement. You may always visit the [Senate website](#) and select the blue radio button on the top right hand side entitled: Academic Consideration Request (ACR) to submit this request.

For Extenuating Circumstances, [Policy 167: Academic Consideration](#) allows for a once per semester ACR request without supporting documentation if the absence is less than 3 days in duration and is not for a final exam/final assessment. Absences more than 3 days in duration and those that involve a final exam/final assessment, always require documentation. Students must notify their faculty/contract lecturer once a request for academic consideration is submitted. See Senate [Policy 167: Academic Consideration](#).

Longer absences are not addressed through Policy 167 and should be discussed with your Chair/Director/Program to be advised on next steps.

- [FAQs Academic Considerations and Appeals](#)
- Information on Copyright:
 - [Copyright FAQs for Faculty/Contract Lecturers](#)
 - [Copyright FAQs for Students](#)
- Information on Academic Integrity:
 - [Academic Integrity for Faculty/Contract Lecturers](#)
 - [Academic Integrity for Students](#)

Accessibility

- At Toronto Metropolitan University, we are committed to ensuring that all courses are accessible to everyone and to removing barriers that may prevent some individuals from enrolling in courses.
- All technologies and tools used in this course are accessible.

- Students who discover an accessibility barrier with any of the course materials or technologies should contact their faculty/contract lecturer.
- As outlined in [Policy 159: Academic Accommodation of Students with Disabilities](#), students are required to proactively consult with AAS, the faculty/contract lecturer, Department or Faculty, as soon as feasible, including prior to enrolling in a course or program, on any concerns they may have about their ability to meet the essential academic requirements of a course/program.

Academic Accommodation Support

[Academic Accommodation Support](#) (AAS) is the university's accessibility services office, supporting students with disabilities. AAS works with students, faculty, and staff to create inclusive learning environments, reduce barriers, and promote accessibility across the university.

If you have (or suspect you may have) a disability, AAS can provide consultation, guide you through registration, develop accommodation plans where appropriate, and connect you with supports and services. For information about eligibility, documentation requirements, registration, deadlines, and available services, visit [AAS](#).

Academic Accommodations (for students with disabilities) and Academic Consideration (for short-term extenuating circumstances) are governed by **different university policies**. [Learn more about each process](#) and how to access support. Students registered with AAS may request academic consideration (related or unrelated to their disability) if they experience extenuating circumstances that impact their ability to meet their shorter term academic obligations. This includes short term physical or mental health issues that are sudden/acute (e.g, the flu), unexpected illness or injury, hospitalization or treatment, and significant aggravation of a pre-existing condition. Please see [Policy 167: Academic Consideration](#) for more information and details.

Please note that there is no accommodation for missing/rescheduling or reweighting of tests - this is considered an alternate arrangement. Any student who misses a test/exam will be directed to submit an ACR to explore if possible alternate arrangements under [Policy 167: Academic Consideration](#) can apply.

Wellbeing Support

At Toronto Metropolitan University, we recognize that things can come up throughout the term that may interfere with a student's ability to succeed in their coursework. These circumstances are outside of one's control and can have a serious impact on physical and mental well-being. Seeking help can be a challenge, especially in those times of crisis.

If you are experiencing a mental health crisis, please call 911 and go to the nearest hospital emergency room. You can also access these outside resources at anytime:

- **Distress Line:** 24/7 line for if you are in crisis, feeling suicidal or in need of emotional support (phone: 416–408–4357)
- **[Good2Talk](#):** 24/7-hour line for postsecondary students (phone: 1-866-925-5454)
- **[GuardMe Student Support Program \(GMSSP\)](#):** 24/7 access to confidential support through counsellors via the [Student Support app](#) or 1-844-451-9700

If non-crisis support is needed, you can access these campus resources:

- **[Centre for Student Development and Counselling](#):** 416-979-5195 or email csdc@torontomu.ca
- **[Consent Comes First – Office of Sexual Violence Support and Education](#):** 416-919-5000 ext 3596 or email osvse@torontomu.ca
- **[Medical Centre](#):** call (416) 979-5070 to book an appointment

We encourage all Toronto Metropolitan University community members to access available resources to ensure support is reachable. You can find more resources available through the [Toronto Metropolitan University's Wellbeing Central](#) website.