Toronto Metropolitan University

The Chang School of Continuing Education

TED ROGERS SCHOOL Information Technology Management

(C)ITM 301 – IT Infrastructure

COURSE OUTLINE FOR 2025-2026

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

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, 9th Edition
Author(s): Jill West
Publisher: Cengage Learning
Paperback ISBN-13: 9780357508138
12-month Cengage eText: 9780357709580
Price: eText: $77.95; Paperback: $200.95

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 (if used in this course)

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

Topics and Course Schedule

Week	Topic	Readings
1	**Introduction to IT infrastructure** • Describe how computers work • Identify types of applications and protocols used on a network • Distinguish between the client-server and P2P networks	Jill West: Chapter 1 & Lecture notes
2	**Networking Essentials** • Identify and explain the functions of the core TCP/IP protocols • Explain the purposes and properties of routing and describe common IPv4 and IPv6 routing protocols • Explain major Routing protocols	Jill West: Chapter 2 & Lecture Notes
3	**Network Addressing** • Describe IT infrastructure, and the stages and drivers of IT infrastructure evolution • Describe the components of IT infrastructure • Explain the challenges of managing IT infrastructure and management solutions • Describe the current trends in computer hardware and software platforms	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 security	Jill West: Chapters 6 & Lecture Notes
6	**Network Architecture** • Explain design of physical network architecture • Explain virtualization and its architecture. • Describe Cloud deployment model • Explain software defined networking (SDN) • Explain storage area network (SAN) • Explain Network Availability	Jill West: Chapters 7 & Lecture Notes
7	**Midterm Examination**	

8	**Network Segmentation** • Describe methods of network design unique to TCP/IP networks • Explain how subnet marks work • Explain IP subnetting & implementation • Describe VLANs and their components.	Jill West: Chapters 8 & Lecture Notes
9	**Wide Area Network** • Explain different WAN topologies • Explain routing protocols • Compare features of various WAN technologies • Explain wireless WAN • Describe several WAN transmission and connection methods, including PSTN, ISDN, T-carriers, DSL, broadband cable, ATM, SONET, MPLS and Satellite	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	Jill West: Chapters 10 & Lecture Notes
11	**Security in Network Design** • Explain Access Control List • Explain the roles of proxy servers, firewalls and IDS • 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	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 2025, this is Friday November 14, 2025. For Winter 2026, this is Friday March 27, 2026.

University Policies

You are reminded that you are required to adhere to all relevant university policies found in their online course shell in D2L and/or on the Senate website. Please refer to the Course Outline Appendix for more detail.

Important Resources Available at Toronto Metropolitan University

- 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.
- If taking a remote course, familiarize yourself with the tools you will need to use for remote learning. The Remote Learning Guide for students includes guides to completing quizzes or exams in D2L Brightspace, with or without Respondus LockDown Browser and Monitor, using D2L Brightspace, joining online meetings or lectures, and collaborating with the Google Suite.
- FAQs Academic Considerations and Appeals
- Information on Copyright for Faculty and students.
- Information on Academic Integrity for Faculty and 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 disability services office. AAS works directly with incoming and returning students looking for help with their academic accommodations. AAS works with any student who requires academic accommodation regardless of program or course load.

- Learn more about Academic Accommodation Support.
- Learn how to register with AAS.
- Learn about Policy 159: Academic Accommodation of Students with Disabilities

Academic Accommodations (for students with disabilities) and Academic Consideration (for students faced with extenuating circumstances that can include short-term health issues) are governed by two different university policies. Learn more about Academic Accommodations versus Academic Consideration and how to access each.

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)
- Keep.meSAFE: 24/7 access to confidential support through counsellors via My SSP 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.