

DEPARTMENT OF SCIENCE

COURSE OUTLINE – Fall 2026

CT1030 (A2): Networking Principles – 3 (6-0-4)

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR:	Matthew Martin	PHONE:	(780) 539-2952
OFFICE:	E401	E-MAIL:	mamartin@nwpolytech.ca
OFFICE HOURS:	Tuesday, 12:00 PM – 2:00 PM		

CALENDAR DESCRIPTION:

This course introduces computer communications and computer networks. Topics will include communication hardware and software, protocols, local area and wide area networks, and network management.

PREREQUISITE:

None.

RESOURCE MATERIALS:

Jill West. *CompTIA Network+ Guide to Networks*. 10th ed. Cengage Learning, 2025. ISBN: 9798214012780.

DELIVERY MODE(S):

- | | | | | |
|-------------|----|-----------|--------------------|------|
| • Lectures: | A2 | Tuesday | 2:30 PM – 5:20 PM | B201 |
| | | Wednesday | 2:30 PM – 5:20 PM | B201 |
| • Labs: | L1 | Monday | 12:00 PM – 1:50 PM | G111 |

By the end of this course, students will be able to:

1. Explain fundamental computer networking concepts and communication models, including common network types, topologies, the OSI and TCP/IP models, and the roles of common networking protocols and services.
2. Identify and describe the functions of common networking hardware, media, and infrastructure, including network interface cards, switches, routers, wireless access points, copper and fibre cabling, and associated connectors and standards.
3. Configure and verify basic TCP/IP network settings, including IPv4 and IPv6 addressing, subnet masks, default gateways, DNS, DHCP, and other essential host network parameters.
4. Design, configure, and test basic local area networks, including wired and wireless connectivity, switched networks, VLANs, and appropriate network segmentation.
5. Apply IPv4 subnetting principles to develop addressing plans, determine network and host ranges, and allocate addresses appropriately across multiple network segments.
6. Explain and configure fundamental routing and wide area networking concepts, including router interfaces, routing between IP networks, default routes, WAN connectivity, and basic remote-access technologies.
7. Apply network management, security, monitoring, and systematic troubleshooting practices to identify, diagnose, resolve, and document common physical, addressing, switching, wireless, routing, and connectivity problems.

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check the transferability of this course at the Alberta Transfer Guide main page <http://www.transferalberta.alberta.ca>.

**** For courses with alpha (letter) grading, a grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.**

EVALUATIONS:

Lab Assignments	35 %
Quizzes	20 %
Midterm Exam	20 %
Final Exam	25 %
Total	100 %

GRADING CRITERIA:

Please note that most institutions will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	95-100		C+	2.3	67-69
A	4.0	85-94		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

COURSE SCHEDULE / TENTATIVE TIMELINE:

Last updated Sept 1st, 2026.

Lecture / Lab	Week	Topic / Assignment
Lecture 1	Sept 2 nd – Sept 4 th	Course Introduction; Networking Fundamentals, Models, and Infrastructure
Lab 1		Hardware, Topologies, and Basic Tools
Lecture 2	Sept 7 th – Sept 11 th	Addressing and TCP/IP
Lab 2		IP Configuration and Network Diagnostics
Lecture 3	Sept 14 th – Sept 18 th	Ethernet, Cabling, and Local Area Networks (LANs)
Lab 3		Cabling and Switched LAN Configurations
Lecture 4	Sept 21 st – Sept 25 th	Wireless Networks and Network Segmentation
		Midterm Exam

Lab 4		Wireless Configuration and Segmentation
Lecture 5	Sept 28 th – Oct 2 nd	Subnetting, VLANs, and Network Architecture
Lab 5		Subnetting and VLAN Configuration
Lecture 6	Oct 5 th – Oct 9 th	Routing and Wide Area Networks (WANs)
Lab 6		Routing and Internetwork Configuration
Lecture 7	Oct 12 th – Oct 16 th	Network Management, Security, Performance and Troubleshooting
	Oct 19 th – Oct 23 rd	Final Exam

STUDENT RESPONSIBILITIES:

1. Students are expected to attend scheduled classes regularly and to arrive prepared to participate in scheduled course activities.
2. Students are responsible for keeping up with course materials, announcements, assigned readings, deadlines, and any work missed due to absence.
3. Coursework and assessments must be completed and submitted by the stated deadline. **Incomplete or late assignments will not normally be accepted.** Extenuating circumstances must be discussed with the instructor as soon as reasonably possible.
4. If a student is unable to attend a scheduled quiz, lab, examination, or other graded activity, they are expected to contact the instructor in advance whenever possible. Missed assessments or activities may be rescheduled at the instructor's discretion depending on the circumstances.
5. Students are expected to complete their work honestly and in accordance with Northwestern Polytechnic's policies regarding academic integrity and academic misconduct.
6. Students are expected to conduct themselves respectfully and professionally when interacting with classmates, instructors, and other members of the Polytechnic.
7. Students are responsible for seeking clarification or assistance when course requirements, concepts, assignments, or expectations are unclear.

STATEMENT ON ACADEMIC MISCONDUCT:

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and

Responsibilities policy available <https://www.nwpolytech.ca/about/polytechnic-leadership/policies-directory>.

**Note: all Academic and Administrative policies are available on the same page.