Course Outline

FACULTY:	**Faculty of Science and Technology**
PROGRAM(S):	**Computer Engineering Technology**
DEPARTMENT:	**Computer Engineering Technology**
COURSE TITLE:	**NETWORK FUNDAMENTALS**
COURSE NUMBER:	**247-409-VA**
COURSE SECTION(S):	0001
PONDERATION:	2-3-2 lecture - labwork - homework
NUMBER OF CREDITS:	2.33 credits
PREREQUISITE(S):	none
SEMESTER/YEAR:	Semester 4 Winter 2021 COVID 19
TEACHER (THEORY/LAB):	Andreea Iftimie
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AVAILABILITY:	Office Hours: Mon 10:00 -12:00 by appointment only, Wed 14:00 -17:00 by appointment only Thu 10:00 -12:00

Introduction

In this course, students will learn the basic concepts of networking and various related problems.

They will be introduced to the basic theoretical concepts of OSI Layered Models. Students will be introduced to different topologies and architectures of networks.

They will be introduced on how to test a network, diagnose hardware and software problems using measuring instruments, diagnostic and simulation software. They will learn how to properly record useful network information.

Statement of Competency

037H To diagnose a problem affecting a computerized systems network

1. Become familiar with the specifications.
2. Test the hardware.
3. Check the software.
4. Determine the cause or causes of the problem.
5. Record the information.

Student Personal Resources Required

- SSD hard drive 80$
- Case for hard drive 45$

Bibliography

- *Network+ Guide to Networks. 6th Edition. Tamara Dean.*
- *CompTIA Network+ Deluxe Study Guide. Second Edition. Todd Lammle.*
- *Network fundamentals, CCNA Exploration Companion Guide. Mark A. Dye, Rick McDonald, Antoon W. Rufi.*

Course Content and Tentative Dates (see *Note1)			
Week	**Week of**	**Lab (Mondays)**	**Theory (Friday)**
1	18-Jan-20	Course outline	Introduction to networking
2	25-Jan-20	OSI Model	Networking Standards
3	01-Feb-20	Familiarization with networking lab setup.	OSI Model & Transmission Basics
4	08-Feb-20	Introduction to Packet Tracer	Networking Media
5	15-Feb-20	• Making a cable • Preparation of removable HDD and software installation	Introduction to TCP/IP
6	22-Feb-20	Building a simple P2P network	Internet protocol- classful
7	01-Mar-20	Understanding Network Elements and Addresses	Application Layer Protocols
8	08-Mar-20	Basic Network Debugging	MIDTERM
	15-Mar-20	Spring Break	Spring Break
9	22-Mar-20	Capturing and Understanding Network Traffic	Network Topologies
10	29-Mar-20	Observing TCP and UDP	Easter Friday NO CLASS
11	05-Apr-20	Easter Monday NO CLASS	Internet Protocol - classless
12	12-Apr-20	Internet Protocol	Internet Protocol - classless
13	19-Apr-20	NAT and IP Configurations	RS232
14	26-Apr-20	LAB TEST	RS232
15	03-May-20	RS232 LABS	Review
16	10-May-20	RS232 LABS	FINAL EXAM **

Represents labs at Home

Represents labs at in school

Represents labs at still to be decided

Note1: Dates and content may vary

***** The Final exam May be in the Examination week. This will be something the school will decide.***

Course Structure

THEORY:	2 hours/week:	Lectures and demonstrations, discussions and problem solving with student participation.
LABORATORY:	3 hours/week:	The student will perform typical tasks in programming computerized systems. Detailed report written by the students demonstrating an understanding of the programing done.
HOMEWORK:	2 hours/week:	The student will be expected to devote approximately 2 hour per week to homework and study.

ATTENDANCE

THEORY:	Consistent attendance is strongly recommended. **Students are responsible for obtaining all material covered during any absence.**
LABORATORY:	Failure to complete all lab activities assigned in the designated lab class without just cause may result in a failure of the lab session and any results and/or Lab Report derived from the session. In order to meet and be evaluated on the course competencies lab attendance is required. Note that there is both a separate and an integrated **professionalism** mark associated with the course (see below).
TESTS:	Absence will result in failure of the missed test (mark of 0). Students with a just cause for absence are encouraged to seek alternative arrangements with the instructor – beforehand if possible.

EVALUATION

The final mark will be weighted:	60% theory:	18%	Assignments and Quizzes
		18%	Midterm Test
		19%	Final Test
		5%	Professionalism and English proficiency.
	40% lab work:	25%	Lab Reports & lab results
		10%	Lab Test
		5%	Professionalism and English proficiency.
	Total:	**100%**	

Covid Specific Rules

- **Use of Webcam:** This course requires students to have a working webcam. Classes and assessments may be conducted using MS Teams or Zoom where the teacher can require students to turn on their webcams. Students should contact the course instructor if they require accommodations or have any questions or concerns.

- **Notice of video recording & sharing (Download permissible; re-use prohibited):** This course, including your participation, may be recorded on video and will be available to students in the course for viewing remotely and after each session. The teacher has the exclusive right to record live lectures. Course videos and materials belong to your teacher and the College and are protected by copyright. In this course, you are permitted to download session videos and materials for your own academic use, but you should not copy, share, or use them for any other purpose without the explicit permission of the teacher. Any contravention of these conditions of use may be subject to sanction(s) by the College under the Code of Conduct. For questions about recording and use of videos in which you appear please, contact your teacher.

- **On campus Activities:** Because our department is a hands on Technical program we need to come back to the school to perform laboratories. Ideally every week! Because of the covid 19 pandemic, we have restricted the presence on campus to 8 distinct Laboratories. If the situation improves, we will consider adding more laboratories in the college.

The following general rules apply:

- minimum mark of 60% is required to pass the course **AND** at least 50% in the Theory portion **AND** at least 50% in the Lab portion. If the mark is less than 50% for either the Theory o**r** Lab portion, the total mark will not exceed 55%.
- At least one week's notice will be given for test dates or changes in test dates.
- Tests questions will not be re-graded after 24 hours of returning and any altered material will not be re--graded
- Quizzes may be given without prior notice – there are no make-ups for quizzes.
- Students are expected to attend all their schedule classes.
- Absence from any lab class where specific skills are being assessed will result in a failure of that skill.
- **Students are expected to conduct themselves in a professional manner at all times.** This includes but is not limited to:
  - Arriving to class (theory and laboratory) on time and prepared to do the required work;
  - Conducting themselves in an appropriate manner at all times (including being respectful to the teacher, classmates, and any guests);
  - Using professional language (no cursing and/or swearing and using appropriate vocabulary);
  - Arriving to class/lab with all necessary supplies (SDD drive, logbook, notebook, textbook, manual, paper, writing implements, calculator, etc.);
  - Turning off all personal communication/music/video electronics (removing headphones, earphones, ear buds etc.); and
  - Having all assigned work completed.
- Remember that developing professional behaviours and habits now is an important aspect of preparation for entering a professional work environment in the future.
- Students are expected to take their own notes during classes.
- Calculators with memory for equations (for example graphing calculators) will not be allowed when writing tests.
- Reports must be typed and computer generated according to the guidelines provided by the teacher.
- When requested, Lab preparations and Lab Results/logbooks are to be handed in during the lab session. Late Lab Preparations/Lab Results may not be accepted, and a zero mark will be recorded.
- Reports are due one weeks after they are assigned unless the instructor provides a specific due date.
- **ALL** assigned work (assignment, lab report etc) must be submitted **ON TIME**. **NO LATE SUBMISSION WILL BE ACCEPTED**, and a zero mark will be recorded, unless a valid reasons was communicated to the instructor at least 2 days prior to the deadline.
- In-class assignments will only be accepted in the class in which they are assigned.
- Students who are consistently late for class (lab and/or theory) may be refused entry.
- **For Religious Holy Days,** students who wish to observe religious holy days during regularly scheduled class time must submit to my attention a completed Religious Holy Days Absence Form http://www.vaniercollege.qc.ca/registrars/request-forms/religious-holy-days within the first week of classes specifying particular date(s), time(s) and name(s) of the religious holy day(s) on which they will be absent.

- All grades are reported on a numeric scale from 0% to 100%. The following categories briefly describe the relative value of these grades.

Range	mean	Description
90 – 100	**95**	Excellent, mastery of the objectives
80 – 89	**85**	Very Good mastery of the objectives
65 – 79	**72**	Good, mastery of objectives
60 – 64	**62**	Fair mastery of objectives
0 – 59	n/a	Poor mastery of objectives

Academic and other Resources

If at any point in the semester, you are concerned about the course or you realise that you are having academic difficulties; your first resource should be to talk to me, your teacher. Academic difficulties include problems with the understanding of the theory, to the development of the practical skills required by the course. The earlier you look for help, the greater your chances of succeeding in the course. If I don't feel I can provide you with the help you need then I may recommend one of the College resources below.

For other problems or difficulties, you may encounter while at Vanier there are a number of Services available to help you within the college. They are there for you to use. These include:

Student Services (C203): Some areas where they provide services and/or information are:

Services for students with disabilities	Counselling (personal and other problems)
Student Advocate	Financial Aid (including aid and scholarships)
Health Services (Nurse on staff)	Student Employment
Academic and Behaviour Policies	Lockers
Housing	Volunteering

Student Services is a great resource for questions about college life and any problems you encounter while at Vanier. If they do not have the answer, they can direct you to the right place to find it.

Tutoring and Academic Success Center - TASC (F-300): Student-orientated centre dedicated to promoting and aiding students' development and success in academics and in society.

Admissions and placement tests	S.T.A.R. Program
English Exit Exam	English conversation and pronunciation clubs
English Peer Tutoring	Scholarship information
Vanier Native Program	Diversity support

TASC is the main college resource for students with learning difficulties and for students with weak English language skills.

Science, Technology, Engineering and Mathematics - STEM (D-301): This Centre aims to promote student success in mathematics and science. The large interactive study space includes a hackerspace for hands-on applied projects such as robotics, and a study hub for collaborative group work. Teacher help, computers, and a large collection of math and science textbooks are equally available. We offer a number of activities, services and resources including:

Free drop-in peer tutoring	Drop-in help from teachers
Free private tutoring	Teacher-led review sessions
Computer access	Laptop borrowing

Mediation and Grades Review

There are two committees available to the student for resolution of academic complaints.

1. The *Grades Review Committee* to review complaints concerning the grading of students' work.
2. The *Faculty Mediation Committee* to review academic complaints other than those dealing with student grades – see *Student Academic Complaints* below.

General College Academic Policies

It is the student's responsibility to be familiar with and adhere to all Vanier College Policies. A summary of the course-level policies that apply in this and all other Vanier courses can be found under "Course-Level Policies" in **Important Vanier Links** on **Omnivox**, or by following this link: http://www.vaniercollege.qc.ca/psi/course-level-policies/. Complete policies can be found on the Vanier College website, under Policies.