DOUGLASCOLLEGE

Faculty of Commerce and Business Administration (CBA)

Department of Computing Studies and Information Systems (CSIS)

COURSE INFORMATION AND SCHEDULE

CSIS 2270 – 007/008/009 – VIRTUALIZATION AND COMPUTER NETWORKING

Pre-Requisite(s): Pre-Calculus 11 (C or better) or Foundations of Math 11 (C or better) or MATU 0410 (C or better) or approved substitute OR currently active in:
PDD Emerging Technology
PBD Computer and Information Systems

Semester: WINTER 2021   **Instructor: Simhadri (Rupa) Manabala**

Course Time: Lecture: ALL Sections – Friday 09:30 AM – 11:20 AM   Room: Online

Lab: 007 – Fri 12:30 PM – 02:20 PM – Online

Lab: 008 – Thurs 10:30 AM – 12:20 PM – Online

Lab: 009 – Thurs 12:30 PM – 02:20 PM – Online

Email : manabalas@douglascollege.ca   **Telephone: 604-527-5080**

 Office hours: **Office location: Online**

Tue   12:00 PM – 12:30 PM   Wed 12:00 PM – 12:30 PM
Thurs 10:00 AM – 10:30 AM   Fri   12:00 PM – 12:30 PM

COURSE MATERIALS
Text: Recommended:
- **Beasley, J.S. and Nilkaew, P, Networking Essentials, Fifth ed., Pearson, OR**
- **Guide to Network+ - Cengage Learning**

Hardware and other equipment: Required / Recommended
- Working computer or laptop with Windows 10 Operating System installed
- Working and stable Internet connection
- Cisco Packet Tracer software downloaded and installed (Required)
- Microphone, set of speakers, a web camera, a USB Drives – at least 1 – minimum 8GB
- **Note:** If you are using a MAC device, you are responsible for technical support and resources in order to support smooth operation of the Cisco Packet Tracer Program.
- Virtualization labs need Windows OS Hyper-V feature to be enabled. Your device should be ready to support virtualization.

CALENDAR COURSE DESCRIPTION

This course introduces students to virtualization and networking technologies. Students are required to set up and configure software systems for server and desktop virtualization provisioning. Students will also gain hands-on experience in configuring network devices and using packet capturing tools for network monitoring and program debugging. Other topics include TCP/IP and related protocols, subnet planning, and virtual LANs. This course is suitable for students who would like to gain practical knowledge on system virtualization and enterprise network operation. This course may involve group work.

COURSE CONTENT
- Introduction to virtualization technologies
- Server virtualization and desktop virtualization
- Virtual machines installation and configuration
- Introduction to networking fundamentals and layering structure
- Transmission media and structured cabling
- Ethernet and Wireless LAN
- Networking devices: Switches and Routers
- TCP/IP suite: IP addressing and subnet planning, TCP/UDP and their applications
- Link layer and application layer protocols: ARP, ICMP, DHCP, FTP, etc.
- Basics of routing protocols
- Basic configuration of routers and switches
- Testing and troubleshooting options for networks
- Virtual LANs
- Enterprise network design

COURSE OBJECTIVES

The student will be able to:
- Demonstrate the basics of virtualization and its benefits
- Analyze different virtualization technologies
- Perform server and desktop virtualization configuration and administration
- Discuss current network standards and topologies
- Apply different devices and services to support communications across networks
- Analyze the layering structure of networking protocols
- Apply wired and wireless technologies in local area networks
- Demonstrate the applications of the internet protocol suite and the related protocols
- Perform both physical and logical designs for enterprise networks
- Configure network services on computer systems
- Use programs such as ping and tracert for testing network connectivity
- Configure routers and switches for an enterprise local area network
- Use a packet capturing tool for network analysis and program debugging

TRANSFERABILITY: Please refer to the following links to see as to how this course and its credits transfer within the BC transfer system:

- See BC Transfer Guide at www.bccat.bc.ca for more details.
- http://www.douglascollege.ca/programs-courses/catalogue/courses/CSIS/CSIS2270 - Transferability tab

ONLINE SPECIFIC GUIDELINES

- The minimum requirements to attend Douglas College's online courses are published on the college's website.
- Instructor could use any combination of the college's available services in order to deliver the course. The student is advised to make sure that all the hardware/software that he/she intends to use during the semester are following the college's published minimum requirements.
- In order to maintain overall standards, unless agreed in advance by the instructor, the student may not use non approved hardware/software. Using non approved hardware/software may put the student in a difficult situation to complete the course assessments.
- https://www.douglascollege.ca/student-services/essential-resources/online-learning/Online-Learning-Requirements

METHODS OF INSTRUCTION

Online Lectures, discussions, demonstrations, and hands-on exercises using Packet Tracer application.

Keeping our campuses healthy

This Winter semester, Douglas will welcome a small number of faculty and students on our campuses for in-person instruction. Other students may also attend campus to seek advice or assistance from a number of our service areas. To help ensure the safety of our campus community, please adhere to the following guidelines.

If you come to campus: ·
- Complete a daily self-assessment before coming to campus**: https://bc.thrive.health/**
- Follow all posted signage.
- Maintain physical distance of 2m (6 feet) from others. Do not congregate in groups.
- Wear a non-medical face mask in public areas or areas where physical distancing is not possible.

DO NOT come to campus if:
- You are sick.
- You have been in contact with someone with a confirmed case of COVID-19 within the last 14 days.
- You have travelled or been in contact with someone who has travelled outside of Canada in the past 14 days.

If you are unable to attend a class due to illness, contact your instructor immediately.

Illness on campus

If you become ill while on campus, contact Campus Security immediately for first aid and to report your symptoms. If you are concerned that you may have COVID-19, use the BC government COVID-19 self-assessment tool to help guide you on what to do. The province of BC has also set up a dedicated COVID-19 hotline at:

1-888-COVID19 or text 604-630-0300. The service is available daily from 7:30 a.m. to 8 p.m. with information available in over 110 languages.

EVALUATION

A final course grade will be determined based on the following instruments and their corresponding weighted percentages:

Assignments / Labs – 10*	20%
Quizzes – 3*	20%
Mid-Term Exam – 1*	30%
Final Exam – 1*	30%
TOTAL	**100%**

NOTE:
- ******In order to pass the course, students must, **in addition to receiving an overall course grade of 50%, also achieve a grade of at least 50% on the combined weighted examination components (including quizzes, tests, exams).**
- ******Missed Labs will not be made-up!
- A student **MUST** complete **at least 70%** of all the evaluations for this course in order to obtain credits; otherwise, he/she will be assigned an **UN** as the final grade.
- **ATTENDANCE IS REQUIRED FOR THIS COURSE** If you **miss more than 30% of** the class, **you will receive UN** for your course grade.
- FINAL EXAM IS MANDATORY. If you do not attempt final exam, you will receive UN as your final grade.

Douglas College Grading System

Grade	Numerical Value	Achievement Level	Description
A+	4.33	95% and above	
A	4.00	90% to 94%	Outstanding Achievement
A-	3.67	85% to 89%	
B+	3.33	80% to 84%	
B	3.00	75% to 79%	Good Achievement
B-	2.67	70% to 74%	
C+	2.33	65% to 69%	
C	2.00	60% to 64%	Satisfactory Achievement
C-	1.67	55% to 59%	
P	1.00	50% to 54%	Marginal Achievement
F	0.00	49% and below	Unsatisfactory Achievement
FD	0.00		Failure due to academic dishonesty. This notation will remain on the student's transcript for two years following the student's graduation or last semester attended, at which time the student will become eligible to have the grade converted to an "F" (Fail)
UN	0.00		Student completed less than 70% of the total evaluation of the course, or missed more than 30% of the class where the instructor's Course Outline specifies that attendance is a course requirement.
W	N/A		Does not include in GPA calculation.

REGULATIONS FOR STUDENTS
Classroom Civility and Shared Responsibility

Generally, class time will include interactive lectures, class-participative case analysis and the occasional computer simulation or project workshop. So, class time is valuable to us all. Students are expected to attend, complete all assignments and tests and take part in problem-solving **(cases, discussions…as fits the class).** Students who miss a class are responsible for material covered in the missed class. Office hours are intended to assist students who have attended class and who wish additional help, not for the transmission of missed class content.

Empirical studies show that students and instructors both object equally to students who speak noisily during a lecture, who arrive late or leave early in an unruly way, or who interrupt the lecture with cell phone calls or comments unrelated to the immediate work at hand. Cell phones are not allowed to be used during the class session. Laptops and tablets must be used with the sole purpose of taking notes and attending the lecture.

In-Class / Online and College Policies
Students are responsible for being familiar with the information contained in the Douglas College Calendar and policies and procedures relating to appeals, petitions and formal complaints, sexual and personal harassment, standards of conduct, respectful workplace, violence, and academic honesty.

College policies are available at http://www.douglascollege.ca/about-douglas/governance/policies

ACADEMIC INTEGRITY:

REFERENCE: Douglas College Educational Policy Academic Integrity

Plagiarism and Cheating:
The College values academic integrity**. Plagiarism** is presenting or submitting as one's own work, research, words, ideas, artistic imagery, arguments, calculations, illustrations or diagrams of another person or persons without explicit or accurate citation or credit; this includes submission of purchased material as well as material in which the student has permitted someone else (a fellow student, tutor, mentor or teaching assistant, friend, etc.) to contribute unacknowledged.

Self-plagiarism is submitting one's own work for credit in more than one course without the permission of the instructors, or re-submitting work, in whole or in part, for which credit has already been granted.

Cheating is the possession or provision of unauthorized aids, assistance or materials in the preparation of assignments, during examinations or in the completion of practical work (in clinical, practicum or lab settings). See the Academic Integrity policy for other definitions of academic dishonesty. Academic dishonesty will be treated as a serious offence. Discipline can range from a zero grade on the exam or assignment in which the offence occurred to suspension or expulsion from the College.
Douglas College in common with other educational institutions, condemns cheating or attempted cheating within its community. Reprimands and appeals will be exercised according to official college policy. Regarding the details of the policy on Academic Dishonesty, please visit
See:
https://www.douglascollege.ca/sites/default/files/docs//Academic%20Integrity%20%28Violation%20of%29%20Standard%20Operating%20Procedure%20%28SOP%29.pdf

Assignment Submission:
Labs are your course assignments for this course. Each week you will be working on one lab exercise and will submit your work by the specified deadline on the lab document. **Labs may be completed outside the scheduled lab times to support the learning experience for and related pedagogical reasons**. Missed labs will result in a score of ZERO for the same.

Missed tests or final examination: Tests and final examination will be offered only during the scheduled date and time of sitting. Exceptions may be considered in cases of extraordinary circumstances. **It is the responsibility of the student to inform the College and the instructor at the earliest reasonable opportunity**. **Notification of a possibility of missing the test or exam must be done prior to the test or exam date/time and must be supported by a letter from a licensed BC medical practitioner.** Otherwise, the student will receive a **ZERO** mark for any missed test(s). **Final Exam is mandatory**. Students will receive a **UN** as the final course grade for missing the final examination.

Student Conduct:

In an Online learning environment, students are required to turn their video at times, especially during a quiz, an exam or a lab session. Students are expected to present themselves ready to be able to participate in the lecture or the test or the lab session. Also, any student who displays disruptive or dangerous or indecent behavior will be asked to leave the lecture/lab session by the instructor. Such behavior will be classified as misconduct. Reprimands and appeals will be exercised according to official college policy. To obtain a copy of the policy on Standards of Conduct, contact the Registrar's Office.

Timeliness:

*S*tudents are expected to be in class via Blackboard Collaborate Ultra at the start of class. If a student must be late, contact the instructor with an explanation prior to the late class. Any late student should enter the session and must try not interrupt the flow of class activity. Arriving on time is a matter of respect for the instructor and fellow students. After due warning, students who are repeatedly late for class can be prohibited from entering the classroom/lecture session until there is a natural break in that day's class. For labs, timeliness is very important.

Penalty for coming late to the lab sessions: It is important for students to come to the lab sessions on time. **Students who are late to the labs without an instructor approved reason more than once will have 50% of the lab marks deducted**

Class Cancellation:

In the event that a class is cancelled due to unforeseen circumstances, a notification will be made through BLACKBOARD to every student enrolled in the course. It is the responsibility of students to be proactive and to check their announcements and/or e-mail before waiting to join the class session. Every effort will be made to ensure that the notification is made as soon as possible.

Illness and other unavoidable circumstances:

Should you miss an assignment deadline, a quiz, or an examination due to unavoidable circumstances or personal difficulties, please email me at **manabalas@douglascollege.ca** at your earliest opportunity. On the email include

- Course and section number (e.g. CSIS 2270-007)
- Your name and student number (e.g. Student Number 212121212)
- Late assignment or missed quiz (e.g. Missed Quiz #1)
- have doctor's letter or not (e.g. Have Doctor's letter) - Preferred
- Brief comment.

      Even without documentation such as a doctor's letter, we can discuss the most appropriate course of action that will lead to fair evaluation of your overall learning in the course. **Students MUST use their Douglas College issued email address for communication with the instructor. Emails originated from a different email address will NOT be attended to and will be disregarded.** Communications must be made in English language only.

Preparation, Attendance and Participation

Attendance will be taken on a regular basis. The method of delivery includes classroom discussion via Blackboard Collaborate Ultra and lab exercises; and students need to be present both in order to participate and to learn. Your final mark depends in part on your record of attendance as it is directly related to your reasonable preparedness to contribute to the discussion and reflection on the earning of the course content. In the curriculum outline on the next page, reading assignments are included for each day's class: It is your responsibility to have completed the reading and to have absorbed the material sufficiently well for spontaneous discussion. Students are expected to behave appropriately while attending Douglas College. While the class is in session, please turn off (or leave on vibration/silent mode) your cell phone(s). Cell phones going off in the middle of class are disruptive and exhibit a lack or consideration for your fellow-students.

Student Effort

 In addition to the regularly scheduled times for classes, students are expected to spend at least 6 hours a week on this course. If you find yourself regularly spending time significantly in excess of this, come and discuss this with me as soon as possible.

IMPORTANT NOTE:

Students are responsible for all the announcements made during the lecture sessions concerning course information and schedule changes **WHETHER OR NOT** they are in attendance.

This following schedule is tentative and subject to change for the benefit of the student's learning experience (consistent with the college policy and with due notice to the students).

COURSE SCHEDULE: Tentative and subject to change as seemed necessary

WEEK #	DATES	TOPICS AND ACTIVITIES	Readings and Items Due
Week 01	Jan 07-08	Introduction to Virtualization and Computer Networking. Introduction to hardware	Course Outline Overview Network 1. Intro to HW **No labs this week**
Week 02	Jan 14-15	Introduction to networking fundamentals and Layering structure. Understanding Local Area Networking	Network 1 and 2. Lab 1
Week 03	Jan 21-22	**Quiz #1 – Intro to HW, Network 1** Understanding Local Area Networking	Network 2 and Lab 2
Week 04	Jan 28-29	Understanding Wired and Wireless Networks	Network 3 and Lab 3
Week 05	Feb 04-05	**Quiz #2 – Network 2 and 3** Internet Protocol Addressing and Subnetting	Network 4 and Lab 4
Week 06	Feb 11-12	Internet Protocol Addressing and Subnetting	Network 4 and Lab 5
Week 07	**Feb 18-19**	**Winter Study Break – No Classes in session**	No classes or labs
Week 08	**Feb 25-26**	**MIDTERM EXAMINATION** **Covers** Network 1 – 4, labs 1 -5.	No labs this week
Week 09	Mar 04-05	TCP/IP and Packet Delivery Processes	Network 5 and Lab 6
Week 10	Mar 11-12	Understanding Wide Area Networks	Network 6 and Lab 7
Week 11	Mar 18-19	**Quiz #3 – Network 5 and 6** Understanding Virtualization - 1	VM1 and Lab 8
Week 12	Mar 25-26	Understanding Hypervisors. Introduction to Network Security	VM 2 and Lab 9
Week 13	Apr 01-02	April 02nd – Good Friday – No class	No class or labs
Week 14	Apr 08-09	Introduction to Network Security – Overview	Chapter 12. and Lab 10
Week 15	Apr 14 - 22	**FINAL EXAMINATION PERIOD**	Network 4, 5, and 6, VM 1 and VM 2, Chapters 12-overview, labs 6-10
		**The Final Examination period is April 14th – 22nd, 2021. Please check the examination schedule as soon as it becomes available for potential scheduling conflicts. Do NOT make any travel arrangements during this examination period. Final Exam is mandatory.**	

!!!*** WISH YOU ALL THE VERY BEST FOR THIS COURSE ***!!!