SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: **INTRODUCTION TO COMPUTER NETWORKS**

Code No: **CSN201** ***Semester:*** **4**

Program: **COMPUTER ENGINEERING TECHNICIAN**
COMPUTER PROGRAMMER
COMPUTER SYSTEM SUPPORT TECHNICIAN

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Date: **January , 1998** ***Previous Outline Dated:*** **Dec. 1996**

Approved: _____ 97-01-05
Dean **Date**

Total Credits: **4**

Prerequisites: **CSN200**

Length of Course: **4 Hours/Week** **Total Credit Hours:** **60**

I. COURSE DESCRIPTION:

Students will develop knowledge of local and wide area networks, related standards, current implementations and future trends. In addition to Local Area Network Operating Systems such as Netware and Windows NT Server, TCP/IP-based WANs such as the Internet are studied along with their interconnectivity issues. Developing practical skills in LAN administration is an important objective of this course.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

A. Learning outcomes:

1. Compare various local area network types, media, hardware components and associated standards and applications, to enable appropriate selection from among alternative technologies.

2. Compare various metropolitan and wide area networks, associated standards and services, to enable appropriate selection from among available alternatives.

3. Perform local area network administration tasks in support of users and applications on a network.

4. Compare internetworking techniques and devices used in enterprise or backbone networks so that effective selection and upgrade planning may occur.

5. Manage networks with proper consideration for security, backup, documentation, performance, and troubleshooting.

B. Learning Outcomes and Elements of the Performance:

Upon successful completion of this course the student will demonstrate the ability to:

1. ***Compare various local area network types, media, hardware components and associated standards and applications, to enable appropriate selection from among alternative technologies.***

Elements of the Performance:

- Compare common LAN topologies.
- Specify LAN components required for different types of LANs.
- Compare Ethernet (IEEE 802.3), Token Ring (IEEE 802.5) and other LAN implementations to enable appropriate selection.
- Improve the performance of a LAN.
- Compare Network layer protocols and routing methods.

This learning outcome will constitute approximately 20% of the course.
Reference: Chap. 7,8 (F & D)

2. **Compare various metropolitan and wide area networks, associated standards and services, to enable appropriate selection from among available alternatives.**

Elements of the Performance:

- Compare WAN and MAN telecommunications services: Dialed circuit services, Dedicated Circuit services, Switched Circuit services, and Packet Switched Networks.
- Select and improve MAN/WAN services for utilization within an organization.

This learning outcome will constitute approximately 15% of the course.
Reference: Chap 9 (F & D)

3. **Perform local area network administration tasks in support of users and applications on a network.**

Elements of the Performance:

- Perform day-to-day network administrator tasks.
- Manage users and resources on a Novell Netware-based LAN.
- Perform a basic Netware server installation.
- Manage users and resources on a Windows NT Server-based LAN.
- Perform a basic Windows NT server installation.
- Utilize the Internet to support network management tasks.

This learning outcome will constitute approximately 40% of the course.
References: Chap. 13,14 and additional Lecture notes.

4. Compare internetworking techniques and devices used in enterprise or backbone networks so that effective selection and upgrade planning may occur.

Elements of the Performance:

- Identify and specify internetworking devices used in backbone or enterprise networks including hubs, bridges, switches, routers, and gateways.
- Compare alternatives for high-speed interconnection and upgrade options in backbone networks.

This learning outcome will constitute approximately 15% of the course.
Reference: Chap 10 (F & D)

5. Manage networks with proper consideration for security, backup, documentation, performance, and troubleshooting.

Elements of the Performance:

- Evaluate risks to network security and implement controls.
- Prevent disruption to networks by knowing the requirements and tools used for backup, documentation, performance analysis and troubleshooting.

This learning outcome will constitute approximately 10% of the course.
References: Chap. 13 (F & D)

III. TOPICS TO BE COVERED:

1. Introduction to Local Area Network topologies, types and protocols. (Ch. 7,8)
2. Wide Area Network telecommunications services. (Ch. 9)
3. Backbone Networks. (Ch. 10)
4. Network Security. (Ch. 13)
5. Novell Netware Network architecture and management introduction. (Ch. 12, 14)
6. Windows NT Server Network architecture and management overview.

IV. REQUIRED STUDENT RESOURCES/TEXTS:

TEXT BOOK:

"Business Data Communications and Networking" (5th Edition)
by Jerry Fitzgerald and Alan Dennis (John Wiley and Sons, 1996)

V. EVALUATION PROCESS/GRADING SYSTEM:

3 WRITTEN TESTS	60%
LAB PROJECTS/QUIZZES	20%
LAB ATTENDANCE	20%

(The percentages shown above may vary slightly if circumstances warrant.)

NOTE: *It is required to pass both the theory and the lab part of this course. For example, it is not possible to pass the course if a student has a failing average in the three written tests but is passing the lab portion, (or vice versa).*

GRADING SYSTEM

A+	90	-	100%
A	80	-	89%
B	70	-	79%

C		55 - 69%
R	Repeat	Less than 55%
X	Incomplete	

UPGRADING OF INCOMPLETES

When a student's course work is incomplete or final grade is below 55%, there is the possibility of upgrading to a pass when a student meets all of the following criteria:

1. The students attendance has been satisfactory.
2. An overall average of at least 45% has been achieved.
3. The student has not had a failing grade in all of the theory tests taken.
4. The student has made reasonable efforts to participate in class and complete assignments.

The nature of the upgrading requirements will be determined by the instructor and may involve one or more of the following: completion of existing labs and assignments, completion of additional assignments, re-testing on individual parts of the course or a comprehensive test on the entire course.

LABS:

Lab activities represent a very important component of this course. Because of this, attendance is mandatory and the satisfactory completion of all lab activities is required. *It is the student's responsibility to discuss absences from regularly scheduled labs with the instructor so that alternate arrangements (where possible) can be made to complete the lab requirements. Lab attendance will be noted and used to establish 20% of the final mark.*

LAB REPORTS

Required lab report requirements will be detailed before labs are assigned.

ATTENDANCE:

Absenteeism will affect a student's ability to succeed in this course. Absences due to medical or other unavoidable circumstances should be discussed with the instructor.

VI. SPECIAL NOTES:

- **Special Needs**
  Students with special needs (e.g. physical limitations, visual or hearing impairments, or learning disabilities) are encouraged to discuss any required accommodations confidentially with the instructor and/or contact the Special Needs Office so that support services can be arranged.

- **Retention of Course Outlines**
  It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.

- **Course Modifications**
  Your instructor reserves the right to make reasonable modifications to the course as deemed necessary to meet the needs of students or take advantage of new or different learning opportunities.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced standing in the course should consult the instructor. This course is not eligible for challenge at the present time.