

# SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



## COURSE OUTLINE

**COURSE TITLE:** Wireless Networks

**CODE NO. :** CSN311 **SEMESTER:** 5

**PROGRAM:** Computer Network Technology

**AUTHOR:** Tycho Black / Bazlur Rasheed

**DATE:** June 2007 **PREVIOUS OUTLINE DATED:** June 2006

**APPROVED:**

	_____	_____
	<b>DEAN</b>	<b>DATE</b>
<b>TOTAL CREDITS:</b>	5	

**PREREQUISITE(S):** CSN120 (CSN209 also strongly recommended as a co-requisite if not previously taken)

**HOURS/WEEK:** 4

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**I. COURSE DESCRIPTION:**

This course develops skills in designing, planning and implementing wireless networks. The primary focus is IEEE 802.11 wireless standards, antennas and security. The operation and troubleshooting of Cisco wireless network equipment is also an important part of the course.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

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

**1. Implement and configure wireless equipment in a LAN.**

**Potential Elements of the Performance:**

1. Understand the fundamentals of wireless LAN (WLAN) media, technologies, components, challenges and issues.
2. Describe the 802.11 standards.
3. Understand, configure and test wireless NICs and associated WLAN devices.
4. Understand the radio technology, modulation and transmission techniques used in WLANs.
5. Describe wireless topologies.
6. Configure and install Cisco Aironet wireless adapters, access points and associated client software.
7. Understand and configure wireless bridges.
8. Identify the types of antennas, describe their operation and installation.

*This learning outcome will constitute approximately 60 % of the course.*

Reference: Modules 1 to 7

**2. Discuss and configure wireless LAN security.**

**Potential Elements of the Performance:**

1. Discuss WLAN security fundamentals.
2. Understand basic WLAN security technologies.
3. Configure basic WLAN security.
4. Configure enterprise WLAN security and encryption.

*This learning outcome will constitute approximately 20% of the course.*

Reference: Module 8

**3. Troubleshoot, manage and monitor wireless LANs.**

**Potential Elements of the Performance:**

1. Design a WLAN utilizing appropriate design principles.
2. Prepare for and perform a site survey.
3. Troubleshoot, monitor and manage WLANs.
4. Describe and compare various emerging wireless technologies.

*This learning outcome will constitute approximately 20 % of the course.*  
Reference: Modules 9, 10, 11 and 12

**III. TOPICS:**

1. Wireless fundamentals.
2. Wireless equipment: client adapters, Access Points, Bridges
3. Antennas
4. Wireless LAN security issues, standards and best practices.
5. Design, management and troubleshooting of WLANs.
6. Emerging Technologies

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

TEXT BOOK: (Optional but recommended)

- “Fundamentals of Wireless LANs Companion Guide”, Cisco Press, 2004  
ISBN 1-58713-119-6
- Curriculum available online.

**V. EVALUATION PROCESS/GRADING SYSTEM:**

Module Tests	25%
Final Exam	25%
Written mid-term test	20%
Skills-based Assessment	15%
Lab assignments	15%

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

- Online Cisco exams must be written in class during class time. It is unacceptable to print or otherwise copy any of the online Cisco exams.

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

**UPGRADING OF INCOMPLETES**

When a student's course work is incomplete or final grade is below 50%, there is the possibility of upgrading to a pass when a student meets all of the following criteria:

1. The student's attendance has been good.
2. The student's accumulated grade in the course to date is not less than 45%.
3. The student has not had a failing grade in all of the tests taken to date.
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.

### **LAB ASSIGNMENTS**

Required lab report requirements will be detailed before labs are assigned. Late penalties will be applied to assignments not handed in by the due date.

### **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. **In cases of repeated absence from class, a penalty of up to 10% of the final grade may be assessed.**

## **VI. SPECIAL NOTES:**

### Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

### 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 postsecondary institutions.

### Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

The professor reserves the right to use other tools and/or techniques that may be more applicable. These other tools and/or techniques for effective communication will be discussed, identified and presented throughout the delivery of the course content.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course outline amendments:

The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

**VII. PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

**VIII. DIRECT CREDIT TRANSFERS:**

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.