

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**COURSE OUTLINE**

<b>COURSE TITLE:</b>	Wireless Networks		
<b>CODE NO. :</b>	CSN311	<b>SEMESTER:</b>	11F
<b>PROGRAM:</b>	Computer Network Technology		
<b>AUTHOR:</b>	Bazlur Rasheed		
<b>DATE:</b>	Aug 2011	<b>PREVIOUS OUTLINE DATED:</b>	Jan 2011
<b>APPROVED:</b>	"Brian Punch"		Aug/11
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		<b>CHAIR</b>	<b>DATE</b>
<b>TOTAL CREDITS:</b>	5		
<b>PREREQUISITE(S):</b>	CSN120 (CSN209 also strongly recommended as a co-requisite if not previously taken)		
<b>HOURS/WEEK:</b>	3		

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*For additional information, please contact Brian Punch, Chair*  
*School of Business*  
*(705) 759-2554, Ext. 2681*

## 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:**

Curriculum available online.

**TEXT BOOK:**

“Fundamentals of Wireless LANs Companion Guide”, Cisco Press, 2004 ISBN: 1-58713-119-6

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

Module Tests	33%
Attendance	7%
Final Exam	25%
Skills-based Assessment	10%
Lab assignments	25%

(The percentages shown above may have to be adjusted to accurately evaluate student skills. Students will be notified of any changes made.)

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 professor reserves the right to adjust the mark up or down based on attendance, participation, leadership, creativity and whether there is an improving trend.

- Students must complete and pass both the test and lab portion of the course in order to pass the entire course.
- All Assignments must be completed satisfactorily to complete the course.
- Makeup Tests are at the discretion of the instructor and will be assigned a maximum grade of 50%.
- The professor reserves the right to adjust the number of tests, practical tests and quizzes based on unforeseen circumstances. The students will be given sufficient notice to any changes and the reasons thereof.
- A student who is absent for 3 or more times without any valid reason or effort to resolve the problem will result in action taken.

NOTE: If action is to be taken, it will range from marks being deducted to a maximum of removal from the course.

#### **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 professor. Students are required to be in class on time and attendance will be taken within the first five minutes of class. A missed class will result in a penalty in your marks unless you have discussed your absence with the professor as described above. The penalty depends on course hours and will be applied as follows:

<b>Course Hours</b>	<b>Deduction</b>
5 hrs/week (75 hrs)	1% per hour
4 hrs/week (60 hrs)	1.5% per hour
3 hrs/week (45 hrs)	2% per hour
2 hrs/week (30 hrs)	3% per hour

Absentee reports will be discussed with each student during regular meetings with Faculty Mentors. Final penalties will be reviewed by the professor and will be at the discretion of the professor.

The following semester grades will be assigned to students:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
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.	

**VI. SPECIAL NOTES:**

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.

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.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

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

This course is eligible for challenge or credit transfer if CCNA accreditation has been achieved or a Cisco Network Academy CCNA1 credit can be proven with a grade of 60% or better on the final exam and 60% achieved in the course itself. Since the last curriculum was at version 4.0, the Computer Studies department reserves the right to require that CCNA courses proposed for credit transfer be reasonably current (version 3.0 or better) before credit transfers will be granted unless a “bridge” upgrading course is passed.

Disability Services:

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

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*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade “C”, (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. 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.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session. *It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers will not be granted admission to the room.*

Tuition Default:

Students who have defaulted on the payment of tuition (tuition has not been paid in full, payments were not deferred or payment plan not honoured) as of the first week of *November* will be removed from placement and clinical activities. This may result in loss of mandatory hours or incomplete course work. Sault College will not be responsible for incomplete hours or outcomes that are not achieved or any other academic requirement not met as of the result of tuition default. Students are encouraged to communicate with Financial Services with regard to the status of their tuition prior to this deadline to ensure that their financial status does not interfere with academic progress.

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. An overall average of at least 45% has been achieved by semester's end.
3. The student has made reasonable efforts to participate in class and maintain the recommended schedule for assigned activities.

The nature of the upgrading requirements will be determined by the instructor and may involve re-testing and/or additional lab assignments

**VII. COURSE OUTLINE ADDENDUM:**

The provisions contained in the addendum located on the portal form part of this course outline.