# SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

## SAULT STE. MARIE, ONTARIO

Sault College

# COURSE OUTLINE

**COURSE TITLE:**     Cisco CCNA Certification IV

**CODE NO. :**     CSN3100     **SEMESTER:**   6

**PROGRAM:**     Computer Network Technology

**AUTHOR:**     Mark Allemang/ Tycho Black

**DATE:**     Jan. 2003     **PREVIOUS OUTLINE DATED:**   Jan. 2002

**APPROVED:**

_____   _____
                                    **DEAN**                              **DATE**

**TOTAL CREDITS:**     4

**PREREQUISITE(S):**   CSN3090
**HOURS/WEEK:**     4

Cisco CCNA Certification IV                                                                    CSN3100
*COURSE NAME*                                                                                  *CODE NO.*

## I.      COURSE DESCRIPTION:

This course completes the preparation for certification in the Cisco Certified Networking

Associate (CCNA) program.  The student will study Cisco CCNA Semester 4 "WAN Theory

and Design."   A significant part of semesters 3 and 4 is the Threaded Case Study (TCS) in

which the student designs a large network from the basic LAN cabling up to selection of the

WAN services.

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

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

**A. Design  Wide Area Network solutions to satisfy a particular requirement.**

        *Potential Elements of the Performance:*

1.   Describe and utilize the hierarchical network design model
2.   Analyze traffic types and requirements to be considered during WAN design.
3.   Select from available WAN services including ISDN, Frame Relay

        *This learning outcome will constitute approximately 20% of the course.*
        Reference:  Semester 4 Chapter(s) 2,3

**B. Implement a WAN utilizing Frame Relay.**

        *Potential Elements of the Performance:*

1.   Describe key Frame Relay terms and features.
2.   List commands to configure Frame Relay LMIs, maps, and subinterfaces.
3.   List commands to monitor Frame Relay operation in the router.
        *This learning outcome will constitute approximately 20% of the course.*
        Reference:  Semester 4 Chapter(s) 6

**C. Describe the implementation of a WAN utilizing ISDN**

        *Potential Elements of the Performance:*

1.   State a relevant use and context for ISDN networking.
2.   Identify ISDN protocols, function groups, reference points, and channels.
3.   Describe Cisco's implementation of ISDN BRI.

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*This learning outcome will constitute approximately 15% of the course.*
Reference:  Semester 4 Chapter(s) 5

**D. Implement a serial link using PPP as the encapsulation protocol:**

*Potential Elements of the Performance:*

1.   Identify PPP operations to encapsulate WAN data on Cisco routers.
2.   Configure a WAN router to use PPP, and implement CHAP authentication.

*This learning outcome will constitute approximately 15% of the course.*
Reference:  Semester 4 Chapter(s) 4

**E. Implement a network monitoring system utilizing the SNMP protocol.**

*Potential Elements of the Performance:*

1. Describe the SNMP protocol including the MIB and  OID.
2. Utilize a MIB Browser or other network monitoring tools to gather and analyze information
about a network.

*This learning outcome will constitute approximately 15% of the course.*
Reference:  Semester 4 Chapter(s) 7

**F. Prepare and present the Threaded Case Study.**

*This learning outcome will constitute approximately 15% of the course.*
Reference:  Semester 4 all chapters.

**III.     TOPICS TO BE COVERED:**

1.      WAN Design
2.      Frame Relay
3.      ISDN
4.      PPP
5.      Network Management
6.      Threaded Case Study

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

None.

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## V.     EVALUATION PROCESS/GRADING SYSTEM:

Online Cisco Chapter exams and block tests:                    40%
Final Cisco Exam                                               20%
Practical Tests                                                20%
Lab Activities                                                 20%
(The percentages shown above may vary slightly if circumstances warrant.)

**NOTE:** It is necessary 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 written tests but is passing the lab portion,  (or vice
versa).

### GRADING SYSTEM

A+                        90      -       100%
A                         80      -       89%
B                         70      -       79%
C                         60      -       69%
R                         Repeat          Less than 60%
X                         Incomplete

### UPGRADING OF INCOMPLETES

When a student's course work is incomplete or final grade is below 60%, 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 50% 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:

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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.*

**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 eligible for challenge or credit transfer if CCNA accreditation has been achieved or Cisco Network Academy Semester 4 credit can be proven. A grade of 70% plus a hands-on practical test will be required.