

I. COURSE DESCRIPTION:

This course continues the preparation for certification in the Cisco Certified Networking Associate (CCNA) program. The student will study Advanced router Configuration and routed/switched network design. A significant part of this and the subsequent course 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. Recognize potential network congestion problems and overcome these problems through network segmentation.

Potential Elements of the Performance:

1. Describe the advantages of LAN segmentation.
2. Describe LAN segmentation using bridges, routers and switches.
3. Name and describe two switching methods.
4. Describe full- and half-duplex Ethernet operation.
5. Describe network congestion problem in Ethernet networks.
6. Describe the features and benefits of Fast Ethernet.
7. Describe the guidelines and distance limitations of Fast Ethernet.
8. Describe the operation of the Spanning Tree Protocol and its benefits.

This learning outcome will constitute approximately 30% of the course.

Reference: Cisco Online Curriculum, Semester 3 Chapter(s) 2

B. Design and implement Virtual Lans

Potential Elements of the Performance:

1. Describe how switches can be used to implement VLANs
2. Describe the benefits of VLANS
3. Implement networks that incorporate virtual LANs.

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

Reference: Cisco Online Curriculum, Semester 3 Chapter(s) 3

C. Implement Access Control Lists (ACLs) in order to control access to network resources.

Potential Elements of the Performance:

1. Describe the purpose of ACLs and how they are implemented in a router.
2. Describe the difference between standard and extended ACLs.
3. Design and implement ACLs in order to satisfy various access control/security requirements.

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

Reference: Cisco Online Curriculum, Semester 3 Chapter(s) 6

D. Implement a network using IPX as the routed protocol

Potential Elements of the Performance:

1. List the required IPX address and encapsulation type.
2. Configure IPX access lists and SAP filters to control basic Novell traffic.
3. Enable the Novell IPX protocol and configure interfaces.
4. Monitor Novell IPX operation on the router.

This learning outcome will constitute approximately 10% of the course.

Reference: Cisco Online Curriculum, Semester 3 Chapter(s) 7

E. Prepare and present the Threaded Case Study.

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

Reference: Cisco Online Curriculum, Semesters 3 all chapters.

III. TOPICS TO BE COVERED:

1. Lan Segmentation
2. VLANs
3. Access Control Lists (ACLs)
4. Novel IPX Routing
5. Threaded Case Study

IV. REQUIRED STUDENT RESOURCES/TEXTS:

NONE.

V. EVALUATION PROCESS/GRADING SYSTEM:

Online Cisco Chapter exams	20%	
Block Tests		20%
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:

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 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.