

ST. LAWRENCE COLLEGE

COURSE OUTLINE

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|--|---|
| Course Title: Cisco Academy Semester 2 (3.1) | |
| Course Code: Comp 12 | Version Number: (Three) 3 |
| Standard Course Hours: 75 | Prerequisites/corequisites: Comp11vs / Comp11bridge |
| General Education course? No | Date approved for Gen. Ed.: N/A |
| Eligible for PLAR challenge? Yes | PLAR contact: Kingston - (613) 544-5400, ext. 1237 Cornwall - (613) 933-6080, ext. 1237 Brockville - (613) 345-0660, ext. 1237 |
| Professor/instructor: Wayne Barrer | |
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| Web page: www.slctech.org/~barrer | |

Authorization

| Approving Authorities: | Approval Date: |
|---|----------------|
| | |
| | |
| <i>This is an important document and should be saved for future reference. It may be needed for certification, credit transfer, and employment.</i> | |

Vision and Mission

At St. Lawrence College we inspire
A passion for lifelong learning
by
Creating a learning-centred environment
that excites us all and celebrates quality and excellence
and by
Increasing our activities
to secure the future in each community we serve.

Document No.: F13 Issue/Revision No.: 2 Date: July 11, 2001

Cisco Academy Semester 2

COURSE DESCRIPTION

This is the second of four semester courses designed to provide students with classroom and laboratory experience in current and emerging networking technology that will empower them to enter employment or further education and training in the computer-networking field. Topics include initial router configuration, Cisco IOS Software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Students will develop skills on how to configure a router, manage Cisco IOS Software, configure routing protocol on routers, and set the access lists to control the access to routers.

RELATIONSHIP TO THE PROGRAM

This is a core course of the Technician/Technology programs.

COURSE LEARNING OUTCOMES

On completion of this course the students will be able to demonstrate an understanding of:

1. Identify the key characteristics of common wide area networking (WAN) configurations and technologies, and differentiate between these and common LAN technologies.
2. Describe the role of a router in a WAN.
3. Describe the purpose and fundamental operation of the router operating system (IOS)
4. Establish communication between a terminal device and the router IOS, and use IOS for system analysis, configuration and repair
5. Identify the major internal and external components of a router, and describe the associated functionality
6. Properly connect router Fast Ethernet, Serial WAN, and console ports
7. Perform, save and test an initial configuration on a router
8. Configure additional administrative functionality on a router
9. Use embedded data link layer functionality to perform network neighbor discovery and analysis from the router console
10. Use embedded layer 3 through layer 7 protocols to establish, test, suspend or disconnect connectivity to remote devices from the router console
11. Identify the stages of the router boot-up sequence, and show how the configuration register and boot system commands modify that sequence
12. Manage system image and device configuration files
13. Describe the operation of the Internet Control Message Protocol (ICMP) and identify the reasons, types and format of associated error and control messages

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14. Identify, configure and verify the use of static and default routes
15. Evaluate the characteristics of routing protocols
16. Identify, analyze and show how to rectify inherent problems associated with distance vector routing protocols
17. Configure, verify, analyze and troubleshoot simple distance vector routing protocols
18. Use commands incorporated within IOS to analyze and rectify network problems
19. Describe the operation of the major transport layer protocols and the interaction and carriage of application layer data
20. Identify the application of packet control using various access control lists
21. Analyze; configure; implement; verify and rectify access control lists within a router configuration

PREREQUISITES/COREQUISITES

COMP 11 v3.1 or COMP1 bridge

GRADING POLICY

All educational offerings at St. Lawrence College conform to academic policy. Copies of this policy are available in the student guide, from all administrative offices and in campus libraries. The student's on-going progress will be evaluated based on performance on assignments and tests; see appendices.

TEXT

Required: Cisco Networking Academy Program: Engineering Journal and Workbook (ISDN #1-58713-112-9) – Cisco Press. This text will be used for CCNA semester #1 & #2.

Optional: Cisco Networking Academy Program: CCNA 1 and 2 Companion Guide -Third Edition (ISBN # 1-58713-150-1) – Cisco Press.

CISCO CCNA Network Simulator (covers CCNA semesters 2, 3 & 4). ISBN# 1-58720-131-3.

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APPENDICES

EVALUATION/EARNING CREDIT

The relative weighting of course components in calculating the final grade is shown below:

| | Weighting |
|----------------|-----------|
| Practical: | |
| Labs | 13% |
| Journal | 5% |
| Case Study | 10% |
| Practical Exam | 20% |
| Theory: | |
| Chapter Exams | 22% |
| Exam (Final) | 30% |
| Total | 100% |

NOTE: All Tests have equal weight; All Labs/Assignments have equal weight. A 60% average must be obtained in both Practical assignments/Labs and the Theory Tests in order to obtain a final passing grade.

Labs must have a cover page; 10% penalty will apply if missing. Cover page to be standard cover page (see handout). Assignments will be submitted as detailed in handout.

Late assignments will be graded 10% off if late with an additional 10% off for each week late thereafter. If student assignments are returned before a late assignment is submitted 40% will be automatically deducted from the late assignment.

The college has adopted a standard letter system that is used for the conversion of numeric evaluation figures into a letter grade.

GRADE DESCRIPTION:

| Grade Description | Letter | Percent |
|---------------------------|--------|-------------------------|
| Outstanding performance | A | $\geq 85\%$ |
| Above average performance | B | $<85\%$ and $\geq 75\%$ |
| Satisfactory | C | $<75\%$ and $\geq 65\%$ |
| Minimum performance | D | $<65\%$ and $\geq 60\%$ |
| Failed to meet standards | F | $<60\%$ |
| Incomplete work | I | |
| Credit granted (PLA) | G | |

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TEXT AND OTHER LEARNING RESOURCES

1. Textbook/Notes: A textbook is required see page 3.
2. Web pages: www.slctech.org/~barrer
3. Internet: There are in depth materials on the internet. Students are encouraged to follow the links shown in the on line curriculum. Or do a web search.
4. Your Teacher: Do not hesitate to contact your teacher for help or any clarifications you may require. Your teacher is available if you require any assistance or need additional information.
5. Course Objectives: This document is a guide to the successful completion of this course. It tells you the content of the course, what resources you require, what you are required to and in for evaluation and when to do your tests.

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DELIVERY SCHEDULE:

| Week | | Tests | Labs | Description |
|------|--------------|--|---|---|
| 1 | Chapter #1 | | 1.2.5, 1.2.6, 1.2.7 | WANs and Routers |
| 2 | Chapter #2 | Chapter 1 on line | 2.2.1, 2.2.4, 2.2.9 | Introduction to Routers |
| 3 | Chapter #3 | Chapter 2 on line | 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7 | Configuring a Router |
| 4 | | | 3.2.3, 3.2.5, 3.2.7, 3.2.9 | |
| 5 | Chapter #4 | Chapter 3 on line | 4.1.4, 4.1.6, 4.2.2, 4.2.3 | Learning about Other Devices |
| 6 | | | 4.2.4, 4.2.5a, 4.2.5b, 4.2.6 | |
| 7 | Chapter #11 | Chapter 4 on line | 11.2.1a, 11.2.1b, 11.2.2a, 11.2.2b, | Access Control Lists (ACLs) |
| | Winter Break | | | |
| 8 | | | 11.2.3a, 11.2.3b, 11.2.3c, 11.2.6 | |
| 9 | Chapter #5 | Chapter 11 on line | 5.1.3, 5.1.5, 5.2.3,5.2.5 | Managing Cisco IOS Software |
| 10 | Chapter #6 | Chapter 5 on line | 5.2.6a, 5.2.6b 6.1.6 | Routing and Routing Protocols |
| 11 | Chapter #7 | Chapter 6 on line | 7.2.2, 7.2.6, 7.2.7, 7.2.9, | Distance Vector Routing Protocols |
| 12 | Chapter #8 | Chapter 7 on line | 7.3.5, 7.3.6, 7.3.8 | TCP/IP Suite Error and Control Messages |
| 13 | Chapter #9 | Chapter 8 on line Skills Test | 9.1.1, 9.1.2, 9.1.8, 9.2.6, 9.3.4 | Basic Router Troubleshooting |
| 14 | Chapter #10 | Chapter 9 on line Skills Test | 9.3.5, 9.3.7, 10.1.6 10.2.5 | Intermediate TCP/IP |
| 15 | | Chapter 10 on line Final on Line & Skills Test | | |