

Cisco Discovery 3: Introducing Routing and Switching in the Enterprise (ITCC 1312)



Credit: 3 semester credit hours (2 hours lecture, 4 hours lab)

Prerequisite/Co-requisite: ITCC 1311

Course Description

This course familiarizes students with the equipment applications and protocols installed in enterprise networks, with a focus on switched networks, IP Telephony requirements, and security. It also introduces advanced routing protocols such as Enhanced Interior Gateway Routing Protocol (EIGRP) and Open Shortest Path First (OSPF) Protocol. Hands-on exercises include configuration, installation, and troubleshooting.

Required Textbook and Materials

1. *Scaling Networks*, by Cisco Networking Academy, Cisco Press, 2014.
 - a. ISBN number for print book is 978-1-58713-328-2

Course Objectives

Upon completion of this course, the student will be able to:

1. Design and implement a LAN while configuring a switch for VLANs and inter-switch communication.
2. Implement access lists to permit or deny specified traffic.
3. Configure routing and routed protocols on Cisco devices.
4. Perform LAN, WAN, and VLAN troubleshooting using a structured methodology and the OSI model.

Course Outline

1. Introduction to Scaling Networks
 - a. Implementing a Network Design
 - b. Selecting Network Devices
2. LAN Redundancy
 - a. Spanning Tree Concepts
 - b. Varieties of Spanning Tree Protocols
 - c. First Hop Redundancy Protocols
3. Link Aggregation
 - a. Link Aggregation Concepts
 - b. Link Aggregation Configuration
4. Wireless LANs
 - a. Wireless Concepts
 - b. Wireless LAN Operations
 - c. Wireless LAN Security

ITCC 1312
Course Syllabus

- d. Wireless LAN Configuration
- 5. Adjust and Troubleshoot Single-Area OSPF
 - a. Advanced Single-Area OSPF Configurations
 - b. Troubleshooting Single-Area OSPF Implementations
- 6. Multiarea OSPF
 - a. Multiarea OSPF Operation
 - b. Configuring Multiarea OSPF
- 7. EIGRP
 - a. Characteristics of EIGRP
 - b. Configuring EIGRP for IPv4
 - c. Operation of EIGRP
 - d. Configuring EIGRP for IPv6
- 8. EIGRP Advanced Configurations and Troubleshooting
 - a. Advanced EIGRP Configurations
 - b. Troubleshoot EIGRP
- 9. IOS Images and Licensing
 - a. Managing IOS System Files
 - b. IOS Licensing

Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

Labs	30%
Study Guides	10%
Module Tests	30%
Final Exam	30%

Course Requirements

- 1. Demonstrate proficiency through hands-on labs as assigned.
- 2. Build and troubleshoot virtual labs in Packet Tracer as assigned.
- 3. Complete Module Study Guides.

Course Policies

- 1. No food, drinks, or use of tobacco products in class.

ITCC 1312
Course Syllabus

2. Electronic devices not being used for the class, such as phones and headphones, must be turned off while in class.
3. Do not bring children to class.
4. Certification: If a student passes the certification test that is associated with this class you will receive an “A” on the final exam and credit for 25% of your labs. If you have missed a previous test you must still take the final exam to substitute for that grade.
5. Attendance Policy: Three absences are allowed. If a student is tardy to class or departs early three (3) times, it will be equal to one (1) absence. Each absence beyond three absences will result in a 2 point deduction from your final grade.
6. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an ‘F’ in the course.
7. Tools: Return all tools and/or software to their designated place.
8. A grade of ‘C’ or better must be earned in this course for credit toward degree requirement.
9. Additional course policies, as defined by the individual course instructor, will be outlined in the course addendum and provided by the instructor.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Technical Requirements (for courses using Blackboard)

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy

A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the LIT Catalog and Student Handbook. The LIT Catalog and Student Handbook may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office. Please note that the

online version of the LIT Catalog and Student Handbook supersedes all other versions of the same document.

Certification Requirement

CNTT majors are required to earn certification in one of the following areas prior to graduation.

- A+ Certification
- Cisco Certified Entry Network Technician (CCENT)
- Cisco Certified Network Associate (CCNA)
- Microsoft Certified Solutions Associate (MCSA)

This course covers part of the material to prepare for the Cisco Certified Network Associate (CCNA) Routing and Switching certification. All four Cisco courses must be completed to cover the material for the CCNA exam. The CCNA credential can be earned by taking two tests, Interconnecting Cisco Networking Devices Part 1 (ICND1) and Interconnecting Cisco Networking Devices Part 2 (ICND2), or by taking one test, Interconnecting Cisco Networking Devices: Accelerated (CCNAX). ICND1 is test number 100-101, ICND2 is test number 200-101, and the CCNAX test number is 200-120. Students are responsible for scheduling and paying for the certification through the LIT Testing Center. More information about the certification can be found online at <http://www.cisco.com/c/en/us/training-events/training-certifications/certifications.html>.

Course Schedule

Week of	Topic	Reference
Week 1	Syllabus and policies Navigating Cisco Website Course Introduction	https://cisco.netacad.net
Week 2	Chapter 1: Introduction to Scaling Networks	Cisco Online
Week 3	Chapter 1: Introduction to Scaling Networks Chapter 2: LAN Redundancy	Labs Cisco Online
Week 4	Chapter 2: LAN Redundancy	Labs
Week 5	Chapter 3: Link Aggregation	Cisco Online
Week 6	Chapter 3: Link Aggregation Chapter 4: Wireless LANs	Labs

ITCC 1312
Course Syllabus

Week of	Topic	Reference
Week 7	Chapter 4: Wireless LANs	Labs
Week 8	Chapter 5: Adjust and Troubleshoot Single-Area OSPF	Cisco Online
Week 9	Chapter 5: Adjust and Troubleshoot Single-Area OSPF	Labs
Week 10	Chapter 6: Multiarea OSPF	Cisco Online
Week 11	Chapter 6: Multiarea OSPF Chapter 7: EIGRP	Labs Cisco Online
Week 12	Chapter 7: EIGRP	Labs
Week 13	Chapter 8: EIGRP Advanced Configurations and Troubleshooting	Cisco Online
Week 14	Chapter 8: EIGRP Advanced Configurations and Troubleshooting Chapter 9: IOS Images and Licensing	Labs Cisco Online
Week 15	Chapter 9: IOS Images and Licensing	Labs
Week 16	Final Exam	https://cisco.netacad.net

Contact Information:

Program Director: Lauri Arnold-Calder
Program Director
Computer Networking and Troubleshooting Technology

Office: Office 103C, TA-4

Telephone: (409) 839-2050

E-mail: lauri.arnold@lit.edu