



WACO, TEXAS

**CISCO DISCOVERY 3:
INTRODUCING ROUTING AND SWITCHING IN THE ENTERPRISE
ITCC 1312
COURSE SYLLABUS**

REVISED: 09-10

CISCO DISCOVERY 3:
INTRODUCING ROUTING AND SWITCHING IN THE ENTERPRISE
ITCC 1312

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. This is the third course in the four course series preparing students for the CISCO Certified Network Administrator certification. Semester Hours 3 (2 lec/3 lab)

Prerequisites and/or Corequisites:

Prerequisite: ITCC 1311

Required Text & Material:

- A. Introducing Routing and Switching in the Enterprise: CCNA Discovery Learning Guide with CDROM by Allen Reid and published by CISCO Press. ISBN 97781587132117
- B. CCNA Portable Command Guide 2nd Edition by Scott Empson and published by CISCO Press. ISBN10 1-58720-193-3 /ISBN13 978-1-58720-193-6
- C. 1 – 1 GB USB Flash Drive.

Course Objectives and/or Competencies:

- A. Course Objectives: Design and implement a LAN while configuring a switch for VLANs and inter-switch communication; implement access lists to permit or deny specified traffic; configure routing and routed protocols on Cisco devices; and perform LAN, WAN, and VLAN troubleshooting using a structured methodology and the OSI model.
- B. Course Competencies: Upon completion of ITCC 1312, students will be able to:
 - 1. Describe the Enterprise Network
 - 2. Capture and Analyze Network Traffic

3. Explore the Enterprise Network Infrastructure
4. Configure Basic Routing and Switching
5. Describe Switching in an Enterprise Network
6. Apply Basic Switch Security
7. Build a Switched Network with Redundant Links
8. Verify STP with show Commands
9. Configure, Verify, and Troubleshoot VLANs
10. Create VLANs and Assign Ports
11. Configure a Trunk Port to Connect Switches
12. Configure Inter-VLAN Routing
13. Describe Addressing in an Enterprise Network
14. Design and Apply an IP Addressing Scheme
15. Calculate a Network IP Addressing Scheme
16. Calculate a VLSM Addressing Scheme
17. Calculate VLSM Network IP Addressing Schemes
18. Calculate Summarized Routes
19. Configure a LAN with Discontiguous Subnets
20. Configure and Verify Static and Dynamic NAT
21. Configure and Verify PAT
22. Implement Routing with a Distance Vector Protocol
23. Design and Create a Redundant Network
24. Configure RIPv2 with VLSM and Default Route Propagation
25. Implement EIGRP
26. Using EIGRP, Configure Automatic and Manual Route Summarization and Discontiguous Subnets
27. Implement Routing with a Link-State Protocol
28. Configure and Verify Single-Area OSPF
29. Configure OSPF Authentication
30. Control a DR/BDR Election
31. Configure OSPF Parameters
32. Configure and Verify Point-to-Point OSPF
33. Configure and Verify Multiaccess OSPF
34. Configure and Propagate an OSPF Default Route
35. Configure OSPF Summarization
36. Implement Enterprise WAN Links
37. Configure and Verify a PPP Link
38. Configure and Verify PAP and CHAP
39. Filter Traffic Using Access Control Lists
40. Plan, Configure, and Verify Extended ACLs
41. Configure and Verify Extended Named ACLs
42. Configure and Verify VTY Restrictions

43. Configure an ACL with NAT
44. Configure and Verify ACLs to Filter Inter-VLAN Traffic
45. Configure ACLs and Verify with Console Logging
46. Configure ACLs and Record Activity to a Syslog Server
47. Troubleshoot an Enterprise Network
48. Troubleshoot RIPv2 Routing Issues
49. Troubleshoot OSPF Routing Issues
50. Troubleshoot Default Route Redistribution with EIGRP
51. Troubleshoot OSPF Default Route Redistribution
52. Troubleshoot WAN and PPP Connectivity
53. Troubleshoot ACL Configuration and Placement

D. Evaluation:

1. Written objective and/or subjective exams
2. Practical laboratory exams
3. Class discussion and participation
4. Homework and class assignments
5. Attitude and work habits

MCC Attendance Policy:

Regular and punctual attendance is expected of all students, and each instructor will maintain a complete record of attendance for the entire length of each course, including online and hybrid courses. Students will be counted absent from class meetings missed, beginning with the first official day of classes. Students, whether present or absent, are responsible for all material presented or assigned for a course and will be held accountable for such materials in the determination of course grades. In the case of online and hybrid courses, attendance will be determined in terms of participation, as described in the course syllabus.

Absence from 25 percent of scheduled lecture and/or laboratory meetings will be taken as evidence that a student does not intend to complete the course, and the student will be withdrawn from the course with a grade of W. The instructor may reinstate the student if satisfied that the student will resume regular attendance and will complete the course. If the student's 25 percent absences are reached after the official drop date, the instructor may assign a W, if the student is passing and requests to be withdrawn. However, if a student who is not passing reaches the 25 percent point after the official drop date, the student will receive an F. In extenuating circumstances, the instructor may assign a W to a student who is not passing.

Each absence will count toward attendance requirements in each course.

Students will be permitted to make up class work and assignments missed due to absences caused by (1) authorized participation in official College functions, (2) personal illness, (3) an

illness or a death in the immediate family, or (4) the observance of a religious holy day. Also, the instructor has the prerogative of determining whether a student may make up work missed due to absences for other reasons. It is the student's responsibility to inform the instructor of the reason for an absence and to do so in a timely fashion.

Student Absences on Religious Holy Days

McLennan Community College shall excuse a student from attending classes or other required activities including examinations for the observance of a religious holy day, including travel for that purpose. Students are required to file a written request with each instructor for an excused absence. A student whose absence is excused for this observance may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence. Religious holy day means a holy day observed by a religion whose places of worship are exempt from property taxation under the Texas Tax Code. McLennan Community College may not excuse absences for religious holy days which may interfere with patient care.

Note: Students interested in seeing the class attendance policy in its entirety should check the Highlander Guide or the MCC policy manual.

ADA Statement:

In accordance with the requirements of the Americans with Disabilities Act (ADA), and the regulations published by the United States Department of Justice 28 C.F.R. 35.107(a), MCC's designated ADA co-coordinators, Mr. Gene Gooch - Vice President, Finance and Administration and Dr. Santos Martinez – Vice President, Student Services shall be responsible for coordinating the College's efforts to comply with and carry out its responsibilities under ADA. Students with disabilities requiring physical, classroom, or testing accommodations should contact Mr. Marcus Sweatt, Disabilities Specialist, at 299-8122 or msweatt@mclennan.edu.

