

JOLIET JUNIOR COLLEGE
DEPARTMENT OF COMPUTER INFORMATION
AND OFFICE SYSTEMS

COURSE SYLLABUS

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|---------------------------------|---------------------------------|
| Course Prefix and Number | CNT 205 |
| Course Title | Building Scalable Internetworks |
| Curriculum | Computer Information Systems |
| Semester Hours | 4 |
| Lecture | 4 |
| Lab | 0 |
| Prerequisites | CNT 104 or CCNA Certification |

Catalog Description

In this course, students will learn how to create an efficient and expandable enterprise network. Students will also learn how to install, configure, monitor, and troubleshoot network infrastructure equipment. Topics include configuration of EIGRP, OSPF, IS-IS, and BGP routing protocols, and how to manipulate and optimize routing updates between these protocols. Other topics include multicast routing, IPv6, and DHCP configuration. The class is designed to prepare students to pursue the Cisco CCNP examination.

Course Objectives: See attached

Prepared by:

Reviewed by:

Mike Fagan
Dept. of CIOS
4/03

Revised 12/08
Revised 8/05

Ram Raghuraman
Department Chairperson

Date

STUDENT MATERIALS

A. Textbook:

NONE

B. Other Required Materials

Student Evaluation (Type of Grading)

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FORM C, Part II: TOPICAL OUTLINE

Course Prefix and Number: CNT 205 Title: Building Scalable Internetworks

| Week | Unit, Topic, Class Activity (Indicate approximate time allotment for each topic/unit) | Comments |
|-------|---|----------|
| 1 | Scalable Network Design IIN, SONA, and the ECNM, Scalable Networks, Converged Networks, ITA Topology | |
| 2-3 | EIGRP EIGRP Fundamentals and Features, EIGRP Components and Operation, Implementing and Verifying EIGRP, Implementing Advanced EIGRP Features, Configuring EIGRP Authentication, Using EIGRP in the Enterprise | |
| 4-5 | OSPF Review of OSPF Fundamentals and Features, Review of OSPF Operation, Implementing and Verifying OSPF, OSPF Network Types, Implementing OSPF in an NBMA Network, Multiarea OSPF Operation, Stub, Totally Stubby, and Not-So-Stubby Areas, Virtual Links, Route Summarization, OSPF Authentication | |
| 6-7 | Integrated IS-IS IS-IS Fundamentals, ISO Addressing, IS-IS Operation, Configuring Basic Integrated IS-IS, Optimizing IS-IS, Verifying and Troubleshooting IS-IS | |
| 8-9 | Route Optimization Operating a Network Using Multiple Routing Protocols, Configuring and Verifying Router Redistribution, Controlling Routing Update Traffic, Policy-based Routing, DHCP | |
| 10-11 | BGP BGP Concepts and Terminology, EBGp and IBGP, Configuring BGP, Advanced BGP Configuration and Verification, Selecting a BGP Path, Manipulating BGP Path Selection with Route Maps | |
| 12-13 | IP Multicasting Explaining Multicast, IGMP and Layer 2 Issues, Multicast Routing Protocols, Multicast Configuration and Verification | |
| 14-15 | IPv6 Explaining IPv6, IPv6 Addressing, Dynamic IPv6 Addresses, IPv6 Routing, Implementing and Verifying OSPFv3, Using IPv6 and IPv4 | |

OBJECTIVES

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

- Explain routing in the enterprise network
- Implement and verify multicast forwarding using PIM
- Implement IPv6 in an enterprise network
- Implement and verify EIGRP operations
- Build a scalable multi-area network with OSPF
- Certification Exam: BSCI v3.0, Routing Protocols at Campus Edge, and 642-901