SYLLABUS

DATE OF LAST REVIEW:  02/2013

CIP CODE:  11.0901

SEMESTER:  Departmental Syllabus

COURSE TITLE:  Introduction to Internetworking and Routers

COURSE NUMBER:  CIST-0158

CREDIT HOURS:  4

INSTRUCTOR:  Departmental Syllabus

OFFICE LOCATION:  Departmental Syllabus

OFFICE HOURS:  Departmental Syllabus

TELEPHONE:  913-334-1100

PREREQUISITE (S):  CIST-0117 (Local Area Networking)

REQUIRED TEXT AND MATERIALS:
Please see bookstore for current textbook and other related material.
This course is supplemented with required on-line material at http://cisco.netacad.net

COURSE DESCRIPTION:
This course examines how routers relay data on Local Area Networks. It covers installation, configuration, and trouble-shooting of routers. The students will learn how to configure IP on different platforms and use simple networking tools for analysis. Students will have hands-on experience with a variety of network layouts in a lab environment equipped with multiple operating systems (Windows XP), Windows 2000, Cisco IOS and others). This class uses the Cisco Academy Material, CCNA semester 2.

METHOD OF INSTRUCTION:
A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs. Substantial class time is devoted to interactive computing and networking problem solving.

COURSE OUTLINE:
I. Introduction to Networking
   The Networking Model
   Network Evolutions
   Network Types and Devices
     LANS and WANS
   Network Design Goals
   Layered Models
     Data Encapsulation
     Application and Upper layers
     Physical and data link layers
     Ethernet
     Token Ring
     FDDI
     WAN
   Network layer and Path Determination
     Routed versus Routing
     Static versus Dynamic Routes
   Routing Protocols
     Basic Routing Processes
   Basic Router Operations
     Router Start-up
   Configuration Sources
   User Interfaces
   Passwords
     User versus EXEC configuration modes
   Context Sensitive help
   Examining Router Status
   Configuring a Router
     Load Sources
     Fundamental Configuration Tasks
     Interface Configuration Tasks
   Verifying and Saving Configuration Files
   Discovering and Assessing Other Routers
     Cisco CDP
     Examining CDP Status
II. Networking Protocol Suites
   TCP/IP Overview
   IP Addressing
     Subnetting
     Subnet Planning
   Configuration Commands
   IP Routing Configuration
     Configuration of Static Routes and Dynamic Routing
     RIP versus IGRP and EIGRP
     Testing of Routing Configuration
     Configuring Novell IPX Routing
EXPECTED LEARNER OUTCOMES:

ASSESSMENT OF LEARNER OUTCOMES:
Assessment methods may include, but are not limited to, the following: Homework, Assignments, Quizzes, Class Participation, Chapter Tests, and Final Exam. The grading scale and the process for calculating the course grades are to be determined by the individual instructors. This information will be included in each instructor’s syllabus.

COURSE COMPETENCIES:
1. Upon completion of the course students will describe in detail the OSI layers.
2. Upon completion of the course students will differentiate between various LAN technologies, especially the varieties of Ethernet.
3. Upon completion of the course students will work through a class B IP address planning example, on their own, without notes or a calculator.
4. Upon completion of the course students will give a simple description of a router (including its role as a WAN device) and a simple explanation of the process of routing.
5. Upon completion of the course students will build the semester 2 topology given routers, switches, cables, hubs, and transceivers.
6. Upon completion of the course students will log into the router, enter and explain 6 different router modes, use editing features and context-sensitive help, individually.
7. Upon completion of the course students will use the router show commands, router testing commands, and router debug commands when prompted for specific information.
8. Upon completion of the course students, individually but using the Engineering Journal, perform lab 4.5.1.
9. Upon completion of the course students will flowchart the router boot sequence.
10. Upon completion of the course students will configure a router using the setup command and dialog.
11. Upon completion of the course students will flowchart the process for altering and saving the router configuration file.
12. Upon completion of the course students will perform a CLI configuration of a router (including interfaces and routing protocols).
13. Upon completion of the course students will perform the password recovery procedure from memory.
14. Upon completion of the course students will flowchart the ways a router can obtain an IOS image.
15. Upon completion of the course students will use the configuration register calculator.
16. Upon completion of the course students will use the IOS commands relevant to loading and monitoring IOS images.
17. Upon completion of the course students will flowchart the complete CLI configuration of a router, including specific IOS commands.
18. Upon completion of the course students individually with an IP-labeled topology, perform a complete CLI configuration of a router.
19. Upon completion of the course students will create a variety of diagrams to explain TCP in detail.
20. Upon completion of the course students will do a complete Class B IP address Planning problem.
21. Upon completion of the course students will understand the IOS commands and will demonstrate those commands on a router.
22. Upon completion of the course students will pass a vocabulary and concept quiz.
23. Upon completion of the course students will configure and verify static and default routes on a router.
24. Upon completion of the course students will configure and verify the dynamic routing protocols RIP and IGRP on a router.
25. Upon completion of the course students, working in teams, build and troubleshoot the complete 5-router topology.
26. Upon completion of the course students will become proficient and efficient in building and troubleshooting the complete 5-router topology.
27. Upon completion of the class the student will demonstrate an ability to meet I.T. deadlines.
28. Upon completion of the course students will to describe how ACLs Work.
29. Upon completion of the course students will compare MAC addresses, IP addresses, and port numbers.

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SPECIAL NOTES:
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed
to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination to be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact Valerie Webb, in Rm. 3354 or call at: 288-7670 V/TDD.