



INTERNETWORKING CONCEPTS

Date 8/2/2010

C - L - CR
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COURSE NUMBER: IST 201

PREREQUISITE(S): IST 220 or equivalent

CO-REQUISITE(S): None

COURSE DESCRIPTIONS

This course is a study of current and emerging computer networking technology. Topics covered include safety networking, network terminology and protocols, network standards, LANs, WANs, OSI models, cabling, cabling tools, Cisco routers, router programming, star topology, IP addressing, and network standards.

TEXTBOOK(S): Network Fundamentals CCNA Exploration Companion Guide, Cisco Press, ISBN-10: 1-58713-208-7, ISBN-13: 978-1-58713-208-7; IST 201 Lab Manual available in SCC Book Inn.

REFERENCE(S): Online curriculum, <http://cisco.netacad.net>

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT: Notebook for labs and notes

METHOD OF INSTRUCTION: Lecture/lab projects

GRADING SYSTEM:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
Below	-	60	=	F

The standard mathematical procedure of rounding will be applied to arrive at a whole number percentage in final grade calculation.

**GRADE
CALCULATION
METHOD:**

Online tests	=	30%
Labs and assignments	=	20%
Homework	=	20%
Skills Final Exam	=	10%
Written Final Exam	=	<u>20%</u>
		100%

**ATTENDANCE
POLICY:**

The student is responsible for punctual and regular attendance in all classes, laboratories, clinical, practica, internships, field trips, and other required class activities. The College does not grant excused absences; therefore, students are urged to reserve their absences for emergencies. When illness or other emergencies occur, the student is responsible for notifying instructors and completing missed work if approved for late submission by instructors.

The student is tardy if not in class at the time the class is scheduled to begin and is admitted to class at the discretion of the instructor.

Instructors maintain attendance records. However, it is the student's responsibility to withdraw from a course. A student enrolling in and attending at least one course session remains enrolled until the student initiates a withdrawal.

Withdrawal Policy: During the first 75% of the course, a student may initiate withdrawal and receive a grade of W. A student cannot initiate a withdrawal during the last 25% of the course. Extenuating circumstances require documentation and approval by the appropriate department head and academic dean.

Absences for Religious Holidays: Students who are absent from class in order to observe religious holidays are responsible for the content of any activities missed and for the completion of assignments occurring during the period of absence. Students who anticipate their observance of religious holidays will cause them to be absent from class and do not wish such absences to penalize their status in class should adhere to the following guidelines:

1. Observance of religious holidays resulting in three or fewer consecutive absences: Discuss the situation with the instructor and provide written notice at least one week prior to the absence(s). Develop (in writing) an instructor-approved plan, which outlines the make

up of activities and assignments.

2. Observances of religious holidays resulting in four or more consecutive absences: Discuss the situation with the instructor and provide the instructor with written notice within the first 10 days of the academic term. Develop an instructor-approved plan, which outlines the make up of activities and assignments.

**CLASSROOM
CONDUCT:**

ACADEMIC DISHONESTY: Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

CELLULAR PHONES AND PAGERS/BEEPERS: Cellular phones, pagers and beepers are not permitted to be turned on or used within the classroom. Use of these devices during classroom time will be considered a violation of the student code as it relates to “disruptive behavior.”

**CLASS/LAB
PROCEDURES:**

The Cisco curriculum is available at the web site <http://cisco.netacad.net> . The online curriculum and review quizzes can be accessed with your user name and password. To receive full benefit from the online curriculum, be sure to visit recommended links, review audio portions and complete e-labs and e-activities.

Notebooks should be maintained containing labs from the Cisco curriculum. Notebooks will be collected and graded at the midterm and at end of the term.

Lectures/labs will start at the beginning of class. The lecture/lab will be over the topics designated on the daily assignment table. A portion of this class is to be completed on line. Be sure to check your Blackboard account each day for updates on assignments and announcements.

Online module tests will be completed outside of class. You may complete them at home or somewhere else on campus.

Once you begin a test, you have only 1 hour to complete it. So – be sure to have completed your studying and have your notes organized before beginning the test. Tests for each module will be activated on the same days each week determined by the class.

ACCOMMODATIONS: Students who need special accommodations in this class because of a documented disability should notify Student Disability Services. You may contact Student Disability Services by calling, (864) 592-4811, toll-free 1-800-922-3679; via email through the Spartanburg Community College web site at www.sccsc.edu/SDS/; or by visiting the office located in the Dan Lee Terhune Student Services Building, room 112 of the Spartanburg Community College campus. By contacting Student Disability Services early in the semester, students with disabilities give the College an opportunity to provide necessary support services and appropriate accommodations.

Inclement Weather Schedule:

- Check STC Web Site: www.sccsc.edu
- Tune to **Channel-7** Local T.V. Station (CBS)
- Tune to an FM/AM Local radio station

Program Department Chair

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COURSE OUTCOMES & OBJECTIVES: Upon satisfactory completion of this course, the student will be able to:

- I. Convert numbers between different numbering systems as applies to networking technology
 1. Convert binary numbers to decimal numbers and vice versa
 2. Convert hexadecimal numbers to decimal numbers and vice versa
 3. Convert binary numbers to hexadecimal numbers and vice versa

- II. Identify and describe the functions of each of the seven layers of the OSI reference model
 - 1. Name network devices associated with the bottom 3 layers of the OSI model
 - 2. Compare the OSI model to the TCP/IP model
- III. Describe data link and network addresses and identify key differences between them
 - 1. Define bus, star, extended-star, hierarchy and mesh topologies
 - 2. Differentiate between a MAC and an IP address
- IV. Identify different types of networking media that are used at the physical layer
 - 1. Describe twisted-pair, coaxial, fiber-optic and wireless media
 - 2. Be familiar with standards for wired and wireless networking
- V. Create and test a patch cable
 - 1. Use patch cables to properly cable a LAN consisting of a PC, switch and a router
- VI. Define and describe the function of a MAC address
 - 1. Identify the components of a MAC address
 - 2. Determine the MAC address of a NIC, router port and/or switch port
- VII. Describe the operation of Ethernet, including framing, error handling and collision detection
 - 1. Describe CSMA/CD
 - 2. Identify different types of collisions
 - 3. Explain collision and broadcast domains
 - 4. Identify specific media and encoding used in each Ethernet. Technology
- VIII. Describe the two parts of network addressing, and then identify the parts in specific protocol address examples
 - 1. Identify the network and host portion of an IP address
- IX. Define and explain the five conversion steps of data encapsulation
 - 1. Name the encapsulation used in each layer of the OSI model
 - 2. Explain why encapsulation is necessary

- X. Define and describe differences between types of routing protocols
 - 1. Explain how routing protocols are used between routers
 - 2. Describe the differences between distance-vector and link-state routing protocols, including convergence
 - 3. Differentiate between interior and exterior routing protocols and cite examples of each

- XI. Describe the different classes of IP addresses (and subnetting)
 - 1. Name the common classes of IP addresses
 - 2. Understand the purpose and benefits of subnetting
 - 3. Create subnets using the subnet mask based on requirements

- XII. Identify the functions of the TCP/IP network-layer protocols
 - 1. Describe how routed protocols define the format and use of the fields in a packet
 - 2. Understand the function of IP as a connectionless versus connection-oriented networking service

- XIII. The ability to work with individuals possessing different opinions and abilities to accomplish a task within an assigned time limit
 - 1. Work with team members to set up a working network consisting of PCs, hubs, switches, and routers
 - 2. Troubleshoot problems in a network with team members