Networking Systems Administration Department
Business/Public Service Division
GREENVILLE TECHNICAL COLLEGE

COURSE SYLLABUS

Course Title: Internetworking Concepts
Course Number: IST 201

Lecture hours per week: 3.0   **Lab/Clinic Hours:**   **Semester credit hours:** 3.0

Prerequisite: IST 220

Catalog Course Description: 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 Model, cabling, cabling tools, Cisco routers, router programming, star topology, IP addressing, and network standards.

Purpose of the Course: This course provides the knowledge and concepts required to understand how local and wide area networks communicate and what components are necessary in these environments.

Required text(s) or other materials:

1. Networking Fundamentals: CCNA Exploration Companion Guide, bundled with Network Fundamentals: CCNA Exploration Labs and Study Guide; Cisco Press, 2007; ISBN: 0-131-357700

2. NOTE: <u>Students in traditional classes</u> must access Blackboard for course-related information. <u>Students in hybrid and online classes</u> will access their online content through Blackboard.

COLLEGE-WIDE STUDENT LEARNING OUTCOMES

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1. Communication – Students will demonstrate the ability to use active reading and listening skills and to produce effective written and oral communication for varying audiences.

2. Information Technology and Technological Literacy – Students will demonstrate competency in using computer technology within a field of study.

3. Critical Thinking/Reasoning – Students will demonstrate the ability to apply the scientific method, mathematical processes, and research skills to analyze and solve problems/issues by using reflection and reasoning to justify conclusions.

4. Professional and Personal Responsibility – Students will demonstrate the ability to exhibit conduct, attitudes, and etiquette appropriate to the student's community and chosen career. Students will demonstrate the ability to manage time, to use effective interpersonal skills, and to display responsible behavior.

5. Diversity – Students will demonstrate the ability to recognize diversity and to demonstrate respectful conduct and attitudes toward all. Students will demonstrate the ability to explain how global issues impact life, work, and opportunities.

Approved March 26, 2009

NETWORKING SYSTEMS ADMINISTRATION PROGRAM STUDENT LEARNING OUTCOMES

Upon successful completion of the Network Administration program, the graduate will be able to:

1. Set up, maintain, and troubleshoot computer and network hardware.

2. Install, maintain, and troubleshoot operating system and application software.

3. Construct and configure local area networks according to specification.

4. Administer and troubleshoot network operating systems.

5. Design and develop programming solutions to prescribed problems

Approved August 2009

IST 201 COURSE OUTCOMES

Students who successfully complete this course will have demonstrated a level of correct answers on the course assessment(s) that will be at least 80 percent for 80 percent of the course outcomes

1. The student will be able to explain the functions of each layer of the OSI reference model.

2. The student will be able to construct and test various network cables.

3. The student will be able to explain network addressing utilizing the TCP/IPv4 protocol.

4. The student will be able to explain the Ethernet network architecture and identify technologies used in an Ethernet network.

5. The student will be able to demonstrate the ability to subnet an IPv4 network.

The outcomes of the IST 201 course are intended to meet the Network Systems Administration program outcomes numbered 1, 2, and 3above.

IST 201 – Main Topics

The following is a tentative schedule for the course. The instructor reserves the right to make schedule changes based on the needs of the students in the class.

Introduction to Course (Curriculum Tour)

Module 1 – Living in a Network Centric
> No Module Test

Module 2 – Communicating over the Network
> LANs and WANs
> Protocols, Layered Models
> Network Addressing

Module 3 – Application Layer Functionality and Protocols
> Application Layer Protocols and Services

Module 2 Test

Module 3 Test
Module 4 – OSI Transport Layer
> TCP: Communicating with Reliability
> UDP: Communicating with Low Overhead

Module 4 Test
Module 5 – OSI Network Layer
> IPv4
> Routing: How Packets are Handled
> Routing Processes

Module 5 Test
Module 6 – Addressing the Network: IPv4
> IPv4 Addresses
> Assigning Addresses
> Calculating Addresses

Module 6 Test
Module 7 – OSI Data Link Layer
> Data Link Layer
> MAC Techniques
> MAC Addressing and Framing Data
Module 7 Test
Module 8 – OSI Physical Layer
> Physical Layer: Communication Signals
> Physical Media
> Physical Signaling and Encoding

Module 8 Test

Module 9 – Ethernet
      Communication through the LAN
      Ethernet Frame
      Ethernet MAC
      Hubs and Switches
      ARP

Module 9 Test

Module 10 – Planing and Cabling Networks
      LANS
      Device Interconnections
      Developing an Addressing Scheme
      Calculating Subnets

Module 10 Test

Module 11 – Configuring and Testing Your Network
      Configuring Cisco Devices: IOS Basics
      Applying Basic Configuration using the Cisco IOS
      Verify Connectivity

Module 11 Test

FINAL WRITTEN EXAM – COMPREHENSIVE – COVERS ALL MODULES AND LECTURES
FINAL HANDS-ON SKILLS-BASED EXAM – COVERS ALL HANDS-ON LAB MATERIAL

Date	Day	Class	Schedule	Tests
08/16/10	Mon	1	IST201 Orientation/Login to Site Module 1: Living in A Network Centric World	No Test Module 1
08/18/10	Wed	2	Module 2: Communicating Over the Network Lab 2-1, Lab 2-2	
08/23/10	Mon	3	Module 3: Application Layer Functionality and Protocols Lab 3-1	Test Mod 2 Journal Entry 2 Due

08/25/10	Wed	4	Module 4: OSI Transport Layer Lab 4-1,4-2,4-3	
08/30/10	Mon	5	Module 5: OSI Network Layer Lab 5-1, 5-2	Test Mod 3 Journal Entry 3 Due
09/01/10	Wed	6	Module 6: Addressing the Network Labs 6-1, 6-2	Test Mod 4 Journal Entry 4 Due
09/06/10	Mon		NO CLASS - Labor Day	
09/08/10	Wed	7	Labs Module 6	Test Mod 5 Journal Entry 5 Due
09/13/10	Mon	8	Module 7: OSI Data Link Layer	Test Mod 6 Journal Entry 6 Due
09/15/10	Wed	9	Module 8: OSI Physical Layer Labs: Make cables	
09/20/10	Mon	10	Module 9: Ethernet Labs: 9-1	Test Mod 7 Journal Entry 7 Due
09/22/10	Wed	11	Module 10: Planning and Cabling Networks Labs: 10-1, 10-2	Test Mod 8 Journal Entry 8 Due
09/27/10	Mon	12	Module 11: Configuring and Testing your Network	Test Mod 9 Journal Entry 9 Due
09/28/10	Wed	13	Module 11 Labs Labs: 11-2, 11-3	Test Mod 10 Journal Entry 10 Due
10/04/10	Mon	14	Review for Final Exam	Test Mod 11 Journal Entry 11 Due
10/06/10	Wed	15	**Final Exam Hands-on and Written**	

Tutoring is now available in the Business Division Student Lab located on the Barton Campus in the Engineering Building (#103), Room 115. The hours for tutoring are posted in the lab (ET 115); no appointment is necessary. There are no fees required for this service.

IST 201 – Course Specific Requirements

The Cisco curriculum is available at the web site **cisco.netacad.net.** The text is used as an enhancement to the online curriculum. 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 links recommended and review audio portions.

SPECIAL NOTE TO ONLINE STUDENTS: Online students will be REQUIRED to come to the Barton Campus to complete hands-on labs. The number of required on-campus meetings will vary from class to class. Students should plan on at least 2 to 3 meetings. Online students will be required to complete the labs to satisfactorily complete the course. Also, the final examination for online students will be administered on the Barton Campus. The final examination will be scheduled at a time determined by the administration.

The final exam will consist of an online assessment and a skill-based assessment.

IST 201 – EVALUATION AND GRADING INFORMATION

Grading Policy

A numeric grade will be given for each of the following items:

Unit Tests (Cisco Online)	50 percent
Class Assignments	10 percent
Final Examination (Cisco Online)	20 percent
Skills-based Assessment	20 percent

- All assignments (i.e., labs, projects, research papers, etc.) for this course must be completed and submitted to the instructor by the due date established in order to receive full credit for the assignment.
- Assignments not submitted by the due date can receive up to a maximum of 80 percent credit if it is submitted within one week of the due date.
- Assignments submitted after one week of the due date will have a zero (0) grade recorded for the assignment.
- In the event that an assignment is made less than one week prior to the end of the course, the assignment must be submitted by the last day of class prior to the beginning of the final exam period and will not be accepted late.

NOTE: ALL GRADED TESTS AND EXAMS ARE RETAINED BY THE INSTRUCTOR.

Final letter grades will be issued as follows:

A	=	90 - 100	points
B	=	80 - 89	points
C	=	70 - 79	points
D	=	60 - 69	points
F	=	0 - 59	points

READ THIS SYLLABUS CAREFULLY

You should read this syllabus carefully and ask your instructor about *any* aspects that you do not understand. The syllabus is an agreement between you and your instructor concerning course objectives, course content, grading, and other policies and procedures particular to this course. The above information is specific to the course. Three additional documents are provided as attachments and *are considered a part of this syllabus*:

<u>Attachment I:</u>

Each instructor will provide a supplement to this syllabus. The supplement will include: a week-by-week plan of instruction based on the section in which you are enrolled; your instructor's name, office hours and/or office location; and your instructor's contact information and recommended best methods to contact your instructor.

<u>Attachment 2:</u>

The Department responsible for developing and teaching has policies and procedures in place to assure quality instruction for all students. These are attached as "Departmental Policies and Procedures."

<u>Attachment 3:</u>

Please note that it is your responsibility to read the current Student Handbook included in Greenville Technical College's Catalog. (See website.) The Student Handbook addresses specific academic and student conduct policies and procedures. Excerpts from the Student Handbook representing the policies and procedures most often referred to in working with students are provided for your convenience as "Attachment 3."
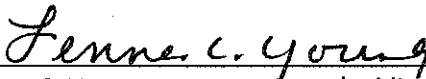
Approved by: _____

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Lenna C. Young, Dean, Business/Public Service

13 Aug 10
Date

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This syllabus will remain in effect until revised or reviewed no later than <u>August 2011.</u>