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

COURSE SYLLABUS

Course Number: IST 220

Course Title: Data Communications

Lecture hours per week: 3.0 **Semester credit hours:** 3.0

Prerequisites: Placement into MAT 101 or successful completion of MAT 032

Catalog Course Description: This course is a study of the fundamentals of data communications. Basic signaling, networking and various transmission media are covered

Purpose of the Course: This course is a study of the fundamentals of a wide variety of topics, standards, and technologies relating to the data communications field. This course uses a SOHO network to introduce some basic networking concepts such as cabling, addressing, wireless, and security, and teaches students how to plan, deploy, and troubleshoot a small network.

Required text(s) and other materials: Required text(s) or other materials:

1. Networking for Home and Small Businesses: CCNA Discovery Learning Guide; Allan Reid and Jim Lorenz; Cisco Press; ISBN-10: 1-58713-209-5; ISBN-13: 978-1-58713-209-4
   The book is used for both online and traditional courses.

2. USB Flash drive.

3. NOTE: Students in traditional classes must access Blackboard for course-related information. Students in hybrid and online classes will access their online content through Blackboard.

COLLEGE-WIDE STUDENT LEARNING OUTCOMES

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

NETWORK SYSTEMS ADMINISTRATION PROGRAM LEVEL STUDENT LEARNING OUTCOMES

Upon successful completion of the Network Systems Administration program, the student 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.
4. Administer and troubleshoot network operating systems.
5. Analyze and implement security measures for information technology.

IST 220 COURSE OUTCOMES

Upon completion of the course, the student will be able to successfully complete 70% of the following tasks:

1. Explain the functions of each layer of the OSI reference model.
2. Explain the basic components and concepts of networking.
3. Explain the IPv4 addressing scheme.
4. Explain how communication occurs across an Ethernet network.
5. Identify and explain common network problems.

The outcomes of the IST 220 course are intended to meet the Network Systems Administration program level student learning outcomes numbered 1 and 3.

IST 220 – Main Topics

Chapter 1. Personal Computer Hardware

Describe the Use of Computers, Components, Peripherals, and Network and Local Applications

1.0 Chapter Introduction
1.1 Personal Computers and Applications
1.2 Types of Computers
1.3 Binary Representation of Data
1.4 Computer Components and Peripherals
1.5 Computer System Components
1.6 Chapter Summary

Chapter 2. Operating Systems

Describe the Purpose, Use and Maintenance of Operating Systems

2.0 Chapter Introduction
2.1 Choosing the Operating System
2.2 Installing the Operating System

2.3 Maintaining the Operating System

2.4 Chapter Summary

Chapter 3. Connecting to the Network

Describe Network Operations and Implement a Local Area Network

3.0 Chapter Introduction

3.1 Introduction to Networking

3.2 Principals of Communication

3.3 Communicating on a Local Wired Network

3.4 Building the Access Layer of an Ethernet Network

3.5 Building the Distribution Layer of a Network

3.6 Plan and Connect a Local Network

3.7 Chapter Summary

Chapter 4. Connecting to the Internet Through an ISP

Describe the Purpose and Function of an Internet Service Provider

4.0 Chapter Introduction

4.1 The Internet and How We Connect to It

4.2 Sending Information Across the Internet

4.3 Networking Devices in a NOC

4.4 Cables and Connectors

4.5 Working with Twisted-Pair Cabling

4.6 Chapter Summary

Chapter 5. Network Addressing

Describe IP Addressing and IP Address Management

5.0 Chapter Introduction

5.1 IP Addresses and Subnet Masks

5.2 Types of IP Addresses

5.3 How IP Addresses are Obtained

5.4 Address Management

5.5 Chapter Summary

Chapter 6. Network Services

Describe the Client/Server Relationship, Associated Applications and Protocols, and Explain the OSI Model

6.0 Chapter Introduction

6.1 Client/Servers and Their Interaction

6.2 Application Protocols and Services

6.3 Layered Model and Protocols

6.4 Chapter Summary

Chapter 7. Wireless Technologies

Describe and Implement a Wireless Network

7.0 Chapter Introduction

7.1 Wireless Technology

7.2 Wireless LANs

7.3 Security Considerations on a Wireless LAN

7.4 Configuring an Integrated AP and Wireless Client

7.5 Chapter Summary

Chapter 8. Basic Security

Describe Migration Techniques for Security Risks

8.0 Chapter Introduction

8.1 Networking Threats

8.2 Methods of Attack

8.3 Security Policy

8.4 Using Firewalls

8.5 Chapter Summary

Chapter 9. Troubleshooting Your Network

Describe the Troubleshooting Process and Troubleshoot Common Network Issues

9.0 Chapter Introduction

9.1 Troubleshooting Process

9.2 Troubleshooting Issues

9.3 Common Issues

9.4 Troubleshooting and the Help Desk

9.5 Chapter Summary

Chapter 10. Course Summary

IST 220 – COURSE SPECIFIC INFORMATION

You will need a USB Flash drive for this course.

IST 220 – EVALUATION AND GRADING INFORMATION

Grades will be calculated as follows:

Assignments	20 percent
Tests	60 percent
Final Exam	20 percent

Final letter grades will be issued as follows:

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

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*:

Attachment I:

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.

Attachment 2:

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."

Attachment 3:

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."

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27 June 11
Date

This syllabus will remain in effect until revised or reviewed no later than August 2012.