Passaic County Community College
Academic Year: 2023-2024
Standard Syllabus

Department Chair: Merille Siegel
Program Coordinator: Adeleye Bamkole

Course Code: CIS 180 **Course Title:** Networking Essentials

Department: CIS/Engineering **Semesters Offered:** Fall, Spring

Course Description:
This course provides students with the background necessary in order to master vendor-independent networking concepts. It introduces the conceptual building blocks that form modern-day networks, such as protocols, topologies, hardware, and network operating systems. It also provides a foundation in current networking technologies for local area networks (LANs), wide area networks (WANs), wireless transmission, and security. Successful completion of this course prepares students to take the CompTIA (Computing Technology Industry Association's) Network+ certification exam and Microsoft Technology Associate (MTA) exam.

Prerequisites: *CIS 107 or CIS 101 or CIS 160*

Credits: 3 **Lecture Hours:** 3 **Lab/Studio Hours:** 0 **Clinical/Fieldwork Hours:** 0

Required Textbook/Materials:
Network+ Guide to Networks by Jill West, Tamara Dean, Jean Andrews

Reference: Hands – on NETWORKING ESSENTIALS with projects, By Michael J. Palmer, Course Technology

Advanced Networking Concepts Michael J. Palmer and Robert Sinclair, Course Technology

Additional Time and Supplemental Requirements:
Based on a 15 week semester, students are expected to complete approximately 6 hours per week of assigned work outside of class.

Hardware: Intel based system, Routers, Access Point, and Wireless NIC, Cabling.

Software: Microsoft Windows Server OS, Windows OS Professional, MAC OS, Red Hat Linux or any latest version of OS,

Antivirus software etc.

Course Learning Outcomes:
Upon successful completion of this course, students will

- Distinguish between client/server and peer-to-peer networks.
- Identify the components of a LAN and determine the type of network design most appropriate for a given site
- Identify the different media used in network communications, distinguish between them, and determine how to use them to connect servers, workstations and devices in a network
- Differentiate between the different networking standards, protocols, access methods, and determine which would be most appropriate for a given LAN
- Identify the primary functions of network operating systems and distinguish between a centralized computing environment and a client/server environment
- Distinguish between LANs and WANs, identify the components used to expand a LAN into a WAN
- Develop a plan for implementing a LAN that incorporates the concepts and components presented.
- Explain the function of each layer of OSI Model
- Bullet course learning outcomes
- Also identify which, if any, core competencies (General Education)

General Education Outcomes: This is not a general education course.

Grading Standards:
Evaluation Method:

Students will be graded on the basis of testing and an evaluation of projects assigned by the instructor. The grade will be determined by the following: 40% written tests, 30% Lab Projects / Assignments, 20% Final Exam and 10% attendance. Assignments are mandatory for successful completion of this course.

Course Content:

(Schedule and suggested topics, readings, and assignments subject to change based on instructor and instructional resource)

TOPICS	CHAPTERS
Introduction to Networking	1
How Networks Are Used	
The Seven-Layer OSI Model	
How Computers Find Each Other on Networks	2
Overview of Addressing on Networks	
How Host Name and Domain Names Work	
How IP Addresses Are Formatted and Assigned	

Fundamentals of Network Management	
Unified Communications Technologies	
Network Segmentation and Virtualization	10
Segmentation and Subnetting	
Virtual Network Components	
Wide Area Networks	11
WAN Essentials	
T-Carriers	
Industrial and Enterprise Networking	12
Industrial Networks	
Change Management	

Test 3 Ch. (8, 9, 10, 11 and 12)

Review and Final Exam (Comprehensive all chapters)

College Policies:

For Information regarding:

- PCCC's Academic Integrity Code
- Student Conduct Code
- Student Grade Appeal Process

Please refer to the PCCC Student Handbook and PCCC Catalog

Panther Alert:

The College will announce delayed openings, closings, and other emergency situations through the Panther Alert System. Students are encouraged to sign up for Panther Alert Notifications by logging into their student accounts through the PCCC website at www.pccc.edu and following Panther Alert System instructions.

Notification for Students with Learnings Disabilities:

If you have a disability, and believe you need accommodations in this class, please contact the Office of Accessibility Services at 973-684-6395, or email ods@pccc.edu. You should do so as soon as possible at the start of each semester. If you require testing accommodations, you must remind me (the instructor) one week in advance of each test.