Syllabus

COURSE GENERAL INFORMATION

Course Title: Networking Fundamentals
Code: PWNF1010
Contact Hours: 43
Term: July 11, 2022 to July 22, 2022
Teacher: Joel Vargas
Email: jvargas@passwordpr.com

Course Description

Networking Fundamentals course covers basic networking concepts within the context of security on the networks you encounter every day. In this course, students will develop the knowledge associate to computer networking and understand the role networks play in our lives. This course introduces students to networking security careers and prepares them for IT security field.

Objectives

The course introduces students to characteristics of cybercrime, security principles, technologies, and procedures to defend networks. Through interactive, multimedia content, lab activities, and multi-industry case studies, students build technical and professional skills to pursue careers in cybersecurity

- Learn procedures to implement data confidentiality, integrity, availability and security controls on networks, servers and applications.
- Understand security principles and how to develop security policies that comply with cybersecurity laws.
- Apply skills through on-hands practice, using labs and Cisco Packet Tracer activities.

Skills Distribution

- Explain network technologies.
- Explain how devices access local and remote network resources.
- Implement basic network connectivity between devices.
- Design an IP addressing scheme to provide network connectivity for a small to medium-sized business network.
- Describe router hardware.

- Explain how switching operates in a small to medium-sized business network.
- Configure monitoring tools available for small to medium-sized business networks.
- Configure initial settings on a network device
- Configure security settings on a network device
- Learn how to monitor network streams to detect suspicious activity

Days	Modules	Works
Class #1 **Module 1**	**Communication in a connected World:** - What is the Network? - Transmitting data in a network - Local Network	- Pre-Test Comprehension Test - Lab 1- Binary Conversions
Class #2 **Module 1**	- Building Blocks on a network - Getting Online - Cabling and Media	- Quiz 1 - Lab 2- Netwalk Interactive Puzzle
Class #3 **Module 2**	**Internet Access Technology:** - Network Components - Types of Network - The Internet	- Assessment 1: Communication in a connected World
Class #4 **Module 2**	- Converged Networks - Reliable Network - Network Trends	- Mid-Term Exam
Class #5 **Module 3**	**Build a Small Network** - Devices in a Small Network - Applications and Protocols	- Quiz 2
Class #6 **Module 3**	- Scale to large Networks - Security Threat and Vulnerabilities - Network Attacks	- Lab 3- My Local Network

Class #7 Module 4	**Network Protocols and Communication:** - The Rules - Protocols - Standard Organizations - Data Access	- Quiz 3 - Lab 4- Observing DNS Resolution
Class #8 Module 5	**Application Layer:** - Application, Session and Presentation - How Application Protocols Interact with End-User - Web and Emails Protocols. - IP Addressing Service.	- Post-Test Comprehension - Final Exam

Laboratories:

- Lab 1- Binary Conversions
- Lab 2- Netwalk Interactive Puzzle
- Lab 3- My Local Network
- Lab 4- Observing DNS Resolution

Assessments:

- Assessment 1: Communication in a connected World

Lab Policy

1. For the student's and equipment's safety **no eating and/or drinking** is allowed in the classroom or laboratory.
2. Students must always apply preventing ESD (Electrostatic Discharge) procedures before using electronic devices.
3. The use of Smartphone or any other personal device is prohibited during lab sessions unless approved by the professor.

Evaluation Criteria

CRITERIA	Grade total
1 Mid-Term Exam	100
1 Final Exam	100
Total Quizzes	100
Laboratories 1-4 / Assessment 1	100
Assistance	100
Total	500

*Assignments are always due in class on the day designated. You are responsible for any work lost due to technical problems, etc. Late papers will lose a letter grade for each day that they are late. Any exceptions must be properly documented and discussed in advance for an extension to be arranged.

Educational Resources

- Neo LMS (2022). Netwoking Fundamentals. *passwordtech.edu20*.

  https://passwordtech.edu20.org/

- Cisco Network Academy (2022). Networking Fundamentals. *Netacad*.

  https://netacad.com

Notes

• *Reasonable Accommodation***:** Any student who requires a reasonable accommodation should do the request at the beginning of the course or as soon as he / she acquires knowledge of what it requires, through the Professor in charge and this notifying the Academic Director.

• *Honesty, fraud, plagiarism:* The lack of honesty, fraud, plagiarism and / or any other inappropriate behavior in relation to the student's academic performance constitute violations of the Institution's Catalog, its Rules of Conduct and Student Duties. Major infractions, as determined by the Catalog, may result in the suspension of the Institution for a definite time or permanent expulsion as stipulated in the Norms of Conduct and Duties of the Student.