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Week 1 - Network Concepts & Protocols

In this course, you will learn how the most important protocols on the Internet, like IP, TCP, and HTTP work together to deliver a web page from a server on the Internet to your desktop's web browser. First, you will explore using the OSI model to organize protocols to better understand how they interact. Next, you will learn the secrets of the IP address. Finally, you will discover the most important rules to help you understand whether two devices can communicate. By the end of this course, you will be able to quickly examine network configuration on your workstation and clearly understand the different components.

Week 2 - Network Security Basics

You will get a very basic introduction to IT attacks as well as how to detect and prevent them. First, we will describe basic security concepts, explaining threats, vulnerabilities, and exploits. Next, we will compare common attacks and then discuss some mitigation techniques. Then we will discuss the security implications of remote access into corporate networks and wrap up the course by discussing the physical security needs of an organization. When you're finished with this course, you'll have the knowledge and skills of network monitoring and documentation to understand how enterprise IT maintains IT infrastructure for optimum performance.

Week 3 -

Assignment 1 will be shared via Slack.

Week 4 - Python 3 Fundamentals

In this course, you'll learn the fundamentals of Python while building practical Python programs. First, you'll explore data types, conditionals, and loops. Next, you'll discover Python libraries, functions, and classes. Finally, you'll learn how to manipulate files and do web requests. When you're finished with this course, you'll have the skills and knowledge of Python needed to create complex Python applications to solve a variety of problems.

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Week 5 - Python Functions & Libraries

In this course, you'll learn the core set of libraries and functions that will allow you to automate and customize tools to meet the need of your business. First, you'll explore third-party packages developed to solve specific needs important to the information security industry. Next, you'll discover functions provided by those libraries that allow you to speed up the development process and turn around tools to serve the need of your business to better secure your infrastructure. When you're finished with this course, you'll have the skills and knowledge needed to extend your Python coding skills into the information security space.

Week 6 - Cryptography: The Big Picture

You'll learn how cryptography fits into an overall security strategy for any business or government entity. First, you'll dive into learning about the history of cryptography. Next, you'll explore all the different types of cryptographic algorithms. Finally, you'll discover how to start using cryptography to protect your information - today. By the end of this course, you'll know how encryption plays a vital role in the security strategy of any business.

Week 7 - Practical Encryption and Cryptography Using Python

You will learn the practical aspect of cryptography using the amazing programming language Python, and you will gain the confidence to master the skill of crypto by using real-life examples. First, you will learn about hashing algorithms. Next, you will discover Symmetric Encryption using Python. Finally, you will explore the multiple angles of Asymmetric Encryption using public and private keys. When you're finished with this course, you will have the necessary skills and knowledge about cryptography to use in your career.

Week 8 - Log file analysis with Python

You'll learn how to automate the analysis of log files using Python. First, you'll explore how to parse log files. Next, you'll discover log data analysis. Finally, you'll learn how to integrate with other solutions to submit enriched data. When you're finished with this course, you'll have the skills and knowledge of Log file analysis needed to automate log analysis.

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Week 9 -Network Activity and Packet Analysis with Python

You'll learn about several concepts that enable a network security engineer/consultant to design and deploy solutions that aid in their day-to-day activities and help expand on their potential abilities. First, you'll learn how Scapy's packet engine is designed and implemented to perform actions on individual packets. Next, you'll learn how to use Scapy to sniff network traffic, monitor for brute force attacks and perform port scanning and traceroute functions. Finally, you'll learn how to perform connection hijacking and perform traffic replay. When you're finished with this course, you'll have the skills and knowledge required to utilize Python and Scapy for some of the most common network security tasks that can then be used to extend your security toolkit.

Week 10 - Malware Detection and Analysis with Python

You'll learn to automate malware triage, detection, and analysis. First, you'll explore some of the core packages such as yara-python that facilitate triage and classification. Next, you'll discover how to interact with 3rd-party services to establish the file disposition/reputation. Finally, you'll learn how to extract artifacts and indicators from files to enable more in- depth analysis. When you're finished with this course, you'll have the skills and knowledge of python scripting and automation needed to uplift malware detection and analysis workflows and capabilities.

Week 11 -

Assignment 2 will be shared via Slack.

Week 12 - Security Principles for CC℠

You'll learn essential security concepts. First, you'll explore Information assurance and governance. Next, you'll discover Risk Management. When you're finished with this course, you'll have the skills and knowledge of Information protection and assurance.

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Week 13 -Business Continuity (BC), Disaster Recovery (DR) & Incident Response Concepts for CC℠

You'll learn to prepare for and mitigate incidents that could affect business operations. First, you'll explore incident response. Next, you'll discover business continuity. Finally, you'll learn how to recover from a disaster.

Week 14 - Access Controls Concepts for CC®

You'll learn to appreciate the importance of access controls in relation to protecting the assets and data of the organization. First, you'll explore access control concepts and terminology. Next, you'll discover physical access controls. Finally, you'll learn how information systems are secured using logical access controls.

Week 15 -Network Security for CC℠

You'll learn about securing computer networks. First, you'll explore network concepts, protocols, and terminology. Next, you'll discover Network threats and attacks. Finally, you'll learn how tools are used to secure the network.

Week 16 - Security operations for CC℠

In this course, Security Operations for CC℠, you'll learn to protect the information assets of the organization through good security practices. First, you'll explore data protection and cryptography. Next, you'll discover Security principles and administration. Finally, you'll learn the value of security awareness training and monitoring.

Week 17 -

Assignment 3 will be shared via Slack.

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Week 18 - Cloud Fundamentals and Cloud Computing Essentials

Delve into the fundamentals of cloud computing, covering essential concepts, "as a service" models (PaaS, IaaS, FaaS, SaaS), server and "serverless" architectures, and various cloud job opportunities. The course emphasizes a beginner-friendly approach, requiring no prior prerequisites and encouraging a passion for cloud exploration. Practical labs and additional resources are provided to help students apply their knowledge and gain confidence in navigating cloud platforms.

Week 19 - Cloud Fundamentals and Core Services

Focus on essential cloud concepts and core services applicable to various cloud providers in today's digital landscape. The course covers fundamental cloud concepts, including cloud computing benefits, global infrastructure organization, cloud economics, and provider-specific tools and services. Additionally, it delves into understanding core services, including compute, networking, storage, databases, app integration, and management and governance, providing students with a solid foundation for navigating cloud environments, whether for certification preparation or broader cloud service comprehension.

Week 20 - Security and Architecture in the Cloud

This courses focuses on fundamental cloud security and architectural principles applicable to various cloud platforms, offering valuable insights for AWS or similar cloud services. The curriculum covers core concepts like the Well-Architected Framework, shared responsibility models, and acceptable use policies, establishing a strong foundation for secure and scalable cloud solutions. Students will learn about security and user management on the cloud, key architectural concepts such as fault tolerance, high availability, and disaster recovery, and gain insights into building scalable and secure applications. Whether preparing for a certification exam or looking to implement cloud applications, this course provides essential knowledge and skills for success in the cloud.

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