# IT Security and Cloud Professional Engineer

## Program Objective/Description:

As a IT Security and Cloud Professional, you are able to validate your ability to handle day-to-day management of the server operating system, file structure, and directory services. You will also learn to handle software distribution and updates; monitor servers; provide troubleshooting support; build and configure servers; implement auditing policy; perform scheduled vulnerability-assessment scans; and monitor logs for firewalls and intrusion-detection systems. At the completion of this program you are qualified to manage, support, and troubleshoot information systems in a wide range of computing environments with Microsoft Windows Server 2012 and Linux. Additionally, the course will provide the concepts, commands, and practice required to configure Cisco switches and routers in multi-protocol Internet works. Finally, students also get an introduction to the 21st century could-based systems administration on Azure and AWS. This course is based on lectures, discussions, demonstrations, exercises, and laboratory projects. Students perform all basic configuration procedures to build LAN and WAN interfaces for the most commonly used routing and routed protocols.

**Certification Preparation**: Students will be equipped to sit for the following certification exams: Network+, Security+ and Window Server Administration Fundamentals (MTA-365). In addition, the curriculum will also cover a portion of Cisco CCNA and CompTia Cloud+.

**Program Length:** 36 weeks (9 months)

**Delivery:** Online/Hybrid or Residential- English

**Class Schedule**: Monday thru Thursday (20 contact hours per week)

Morning: 8:30am – 1:30pm

**Credential:** Diploma

**Credit Hours:** 24 Semester Credit Hours

**Total Contact Hours: Out of Class/Prep Hours:**

Theory Hours 180 180 Hours

Lab Hours 540

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## Program Breakdown by Course

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Course Code** | **COURSE TITLE** | **Semester Credit Hours** | **Theory**  **Hours** | **Lab Hours** | **Total**  **Hours** |
| CDA0100 | A+ | 2.0 | 15 | 45 | 60 |
| CDA1000 | Introduction to Networking | 2.0 | 15 | 45 | 60 |
| CDA1010 | Network + | 2.0 | 15 | 45 | 60 |
| CDA1100 | Security+ | 2.0 | 15 | 45 | 60 |
| CDA2000 | Cisco Routing and Switching I | 2.0 | 15 | 45 | 60 |
| CEN1000 | Introduction to Window Server (70-4011) | 2.0 | 15 | 45 | 60 |
| CEN1200 | Linux I | 2.0 | 15 | 45 | 60 |
| CEN1210 | Linux II | 2.0 | 15 | 45 | 60 |
| CEN1010 | Administering Windows Servers | 2.0 | 15 | 45 | 60 |
| CEN1000 | Cloud Technology | 2.0 | 15 | 45 | 60 |
| CEN2100 | Project Management Essentials | 2.0 | 15 | 45 | 60 |
| CDA2100 | Cisco Routing and Switching II | 2.0 | 15 | 45 | 60 |
|  | **Total** | **24.0** | **180** | **540** | **720** |

**IT SECURITY AND CLOUD PROFESSIONAL ENGINEER**

**COURSE DESCRIPTIONS**

**CDA1000 Introduction to Networking 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

Students will learn to identify the basic components of network theory, major network communications methods, and network data delivery methods. They will be able to list and describe all network media and hardware components, including becoming knowledgeable on the specific differences between TCP/IP, LAN, and WAN network implementations.

**Pre-requisite(s):** None

**CDA1010 Network+ 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

Students will learn to identify the basic components of network theory, major network communications methods, and network data delivery methods. They will be able to list and describe all network media and hardware components, including becoming knowledgeable on the specific differences between TCP/IP, LAN, and WAN network implementations. Students will learn the services deployed on each major type of network implementation as well as identify the primary network operating systems. Students will study important network protocols, technologies in network security, and data storage technologies. They will also gain the skills to identify major issues, models, tools, and techniques in network troubleshooting and disaster recovery.

**Pre-requisite(s):** None

**CDA1100 Security+ 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

Upon successful completion of this course, students will be able to identify fundamental concepts of computer security, major security threats and vulnerabilities, and network security. Students will gain the skills to manage application, data, and host security by accessing control, proper authentication, and thorough account management. They will also learn to manage certificates. In addition, topics such as compliance & operational security, risk management, and disaster recovery planning will also be covered in this course.

**Pre-requisite(s):** None

**CDA2000 Cisco Routing and Switching I 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

Upon successful completion of this course, you will be able to meet the following objectives: plan routing services to meet requirements; implement an EIGRP-based solution; implement a scalable multiarea Network OSPF-based solution; implement an IPv4-based redistribution solution; implement Path Control; and implement and verify a Layer 3 solution using BGP to connect an enterprise network to an internet service provider. After completing this course, the student should be able to: analyze campus network designs; implement VLANs; spanning tree and inter-VLAN routing in a network campus; implement high-availability technologies and techniques using multilayer switches in a campus environment; implement security features in a switched network; and integrate WLANs into a campus network and accommodate voice and video in campus networks.

**Pre-requisite(s):** None

**CDA2100 Cisco Routing and Switching II 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

Upon successful completion of this course, you will be able to meet the following objectives: plan routing services to meet requirements; implement an EIGRP-based solution; implement a scalable multiarea Network OSPF-based solution; implement an IPv4-based redistribution solution; implement Path Control; and implement and verify a Layer 3 solution using BGP to connect an enterprise network to an internet service provider. After completing this course, the student should be able to: analyze campus network designs; implement VLANs; spanning tree and inter-VLAN routing in a network campus; implement high-availability technologies and techniques using multilayer switches in a campus environment; implement security features in a switched network; and integrate WLANs into a campus network and accommodate voice and video in campus networks.

**Pre-requisite(s):** CDA0100, CDA1000, CDA1010, CDA1100

**CEN1000 Introduction to Windows Servers 2 Credit Hours**

(**15 Theory/Clock Hours/45 Lab Hours)**

This course introduces you to a number of tools and technologies available to help you plan your migration to Windows Server® 2012. By gaining the skills to identify the various migration tools available, planning for individual installations on servers, and configuring and activating the servers after installation, you will learn how to establish a basic Windows Server® 2012 environment.

**Pre-requisite(s):** CDA0100, CDA1000, CDA1010, CDA1100

**CEN1010 Administering Windows Servers 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

This course provides the skills and knowledge necessary to implement a core Windows Server 2012 infrastructure in an existing enterprise environment.

It collectively covers implementing, managing, maintaining and provisioning services and infrastructure in a Windows Server 2012 environment. This course focuses on the administration tasks necessary to maintain a Windows Server 2012 infrastructure such as configuring and troubleshooting name resolution, user and group management with Active Directory Domain Services (AD DS) and Group Policy, implementing Remote Access solutions such as DirectAccess, VPNs and Web Application Proxy, implementing Network Policies and Network Access Protection, Data Security, deployment and maintenance of server images, as well as update management and monitoring of Windows Server 2012 environments.

**Pre-requisite(s):** CDA0100, CDA1000, CDA1010, CDA1100

**CEN1200 Linux I 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

This course introduces the basics of the Linux command-line interface (CLI) and some of the built-in CLI commands. Students will understand what a shell is, how to navigate the file structure of a Linux Operating System, piping commands, creating shell scripts, using regular expressions, and using vi. Students will also learn how to manage the file system, administer user and group permissions, configure hardware, and configure networking interfaces.

**Pre-requisite(s):** CDA0100, CDA1000, CDA1010, CDA1100

**CEN1210 Linux II 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

In this course, students will learn advanced linux topics such as installing bootloaders, configuring X Windows, writing shell scripts, configuring CRON processes, installing print servers and services, and Linux security administration.

**Pre-requisite(s):** CDA0100, CDA1000, CDA1010, CDA1100

**CEN2100 Project Management Essentials 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

Upon successful completion of this course, students will be able to identify the key processes and requirements of project management including initiating a project, planning time and cost, managing a project, and proper execution. Students will also become knowledgeable about planning for project risks, productive communication, and change control.

**Pre-requisite(s):** CDA0100, CDA1000, CDA1010, CDA1100

**CLO1000 Cloud Technology 2 Credit Hours**

(**15 Theory Hours/45 Lab Hours)**

This course reviews and analyzes the features of Office 365 and identifies recent improvements to the service. Students will be able to identify the challenges in deploying Office 365 as well as the benefits of the FastTrack approach compared to the traditional plan/prepare/migrate deployment process. They will also examine how to plan the pilot, provision tenant accounts and finally, verify that clients can connect to the Office 365 service.  Students will also learn about the Microsoft Azure platform and gain a basic understanding of the services offered. This course offers students the opportunity to take an existing ASP.NET MVC application and expand its functionality as part of moving it to Azure.  This course focuses on the considerations necessary when building a highly available solution in the cloud.

**Pre-requisite(s):** CDA0100, CDA1000, CDA1010, CDA1100