

# NETWORK ENGINEER PROGRAM + CYBERSECURITY ACCELERATOR



## Weekly Live Coaching

Every block of study comes equipped with dedicated live instruction via weekly study groups. The live instructed study groups provide students with the opportunity to engage with an NGT Academy Technical Instructor or Career Coach in a live online classroom environment every week. During these live study groups students can ask questions to gain clarification on topics, participate in live lab demonstrations, live instructed lessons, certification exam preparation, career success exercises, and general coaching, mentoring, and guidance for program success!

## Tools You'll Use

**Full Stack Network Engineer** - Cisco IOS Command Line, Cisco Packet Tracer, terminal emulators, port scanner, Windows and Mac command line tools, route tracing, looking glass sites, virtualization software, password managers, note takers, text editors, screen cap tools, text comparators, TFTP and FTP server/client and syslog servers.

**Cybersecurity Accelerator** - Command line tools, Wireshark, metasploit, nmap, packet sniffer, VPNs, Firewalls, Password cracking, Wifi Cracking, text editors, spam blockers, CLI, shodan, OpenVAS, CVSS, CVE, Keyloggers, AV Tools, IPSec, Hashing, GHDB, Domain Lookup, Nessus Scanner.

## Career Services

Our mission is to help students achieve career success, so we offer free access to:


**Live Career Coaching:** Your dedicated Career Coaches provide career success workshops, and live coaching office hours every week!

**Employer Network:** Access to the exclusive NGT Academy employer network and new job opportunities posted weekly!

**Asset Reviews:** Each student will be able to submit their LinkedIn profile, resume, and cover letter for review by one of our career success coaches.

**Digital Content Library:** Our digital library includes industry-proven templates for resumes and cover letters, as well as digitized sessions and how-to guides on LinkedIn optimization, writing effective resumes and cover letters, job search strategies, and interview preparation.

**Digital Community:** Our digital community provides a 24/7 platform where students can share information, exchange ideas, and learn from their peers, NGT alumni, and other members of the community, including NGT staff.


**\$97,430**  
**AVERAGE SALARY**  
VIEW SOURCE

**667,600**  
**PROJECTED NEW JOBS**  
**FROM 2020-2030**  
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**CAREER PATHS**

- Network Engineer
- Network Technician
- Network Specialist
- Network Analyst
- Network Support
- Network Administrator
- Systems Administrator
- Computer Network Technician
- Computer Network Administrator
- Network Operations Center Technician
- Network Coordinator
- Computer Support Specialist
- LAN & WAN Specialist
- Wide Area Network Specialist


**FULL STACK NETWORK ENGINEER PROGRAM**
**Full Stack Network Associate**

Plan out your path in Network Engineering, and learn the skills needed to become job-ready! To begin, you will dissect the IT Industry, learn the available career options and build your career plan. You will then be guided through the most important foundational concepts and technical skills necessary to get started with full-stack networking. Get ready to skyrocket through the IT Industry and become a rockstar engineer!


**GETTING STARTED IN YOUR IT CAREER**

You will begin with gaining insights into becoming a Network Engineer and understanding your career path options, and then you will move into understanding the overarching IT architectures that every engineer needs to know!

**IT & NETWORK ESSENTIALS**

You will dive into the most fundamental and foundational technical concepts to understand information technology and networking systems. We will cover networking basics, The OSI Model, Ethernet and VLANs, TCP & UDP, Topologies, cabling systems, network devices, IP addressing, subnetting, and routing and switching!

**IP ADDRESSING & SUBNETTING**

Here we will deconstruct the worlds of IP Addressing and subnetting providing you with the easiest method for subnetting both Class C and Class B default networks. After full understanding IPv4 we will also introduce you to the world of IPv6!

**ETHERNET, LANS, & SWITCHING**

You will learn all about switching and making sure you understand core switching knowledge with Ethernet, Spanning-Tree, VLANs, cabling, and power. In this module you will also learn how to make your own cables for Ethernet!

**IP ROUTING IN LANS & WANS**

In this module we will break down routing in greater detail and begin to understand exactly how routers route. We will cover topics and labs related to static routing, dynamic routing, routing protocols, and core routing concepts.

**FULL STACK NETWORKING CONCEPTS**

Building upon everything learned thus far, now you will dive into network security, wireless networking, voice over IP and virtualization to give a perspective on the knowledge of a Full Stack Network Engineer!

**REAL WORLD NETWORK ENGINEERING**

Expand your knowledge into the real-world architectures as presented by Cisco Systems. In this module you will also expand into thinking like an engineer and get a very thorough overview of many different software tools used by real-world engineers!

**FULL STACK NETWORK ASSOCIATE**

Build labs and practice your configuration skills with Full Stack Networking. Build out common networking designs and deploy fundamental topologies using Cisco IOS. Gain all the practice on real-world skills that you need before performing your Skills Qualification Check and obtaining your Full Stack Network Associate-Basic Certification!

**FSNA CERTIFICATION: LEVEL UP!**

To obtain your Full Stack Network Associate (FSNA) certification you will complete your final lab build-out including routing, switching, voice over IP, wireless network access, and network security. Your knowledge and skills will both be assessed to prove your abilities and obtain your FSNA certification!


**FSNA Advanced Skills Training**
**FSNA ADVANCED SKILLS**

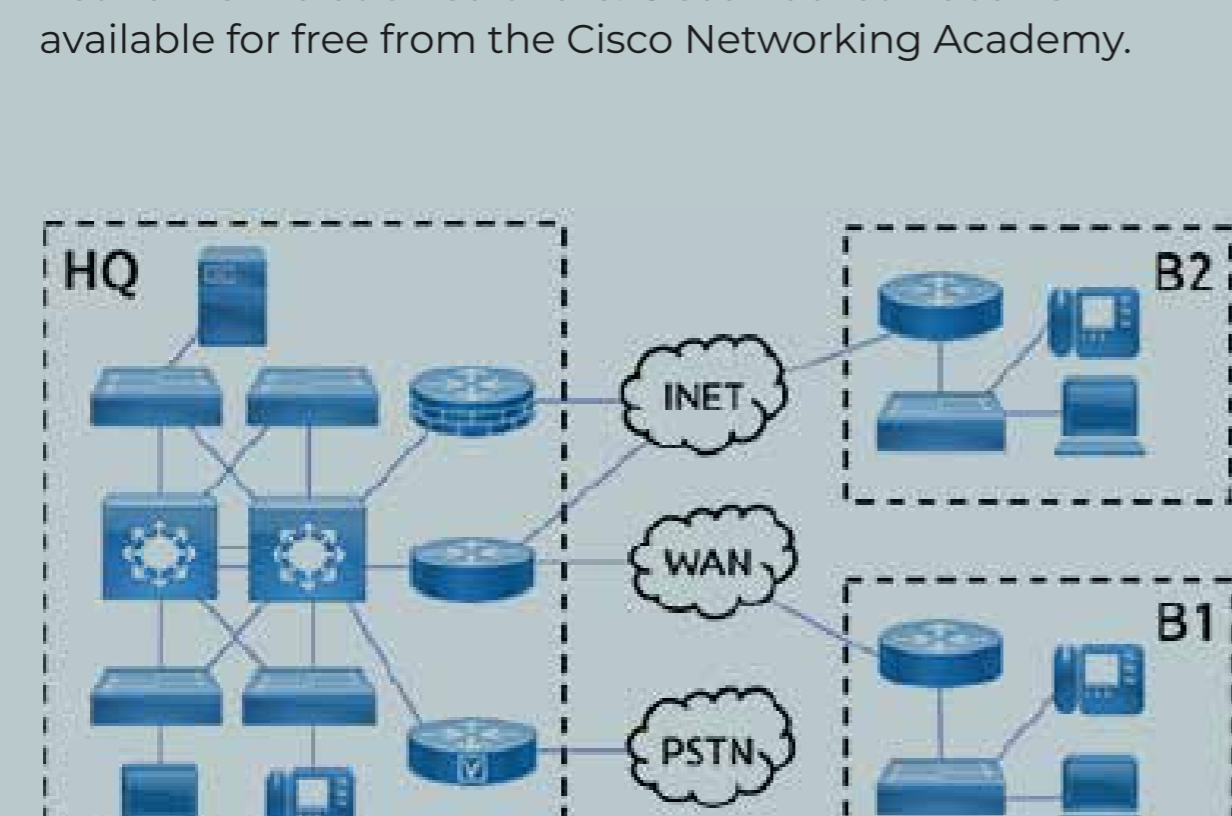
A 100% skills-based block of study which prepares students for their upcoming projects and Full Stack Network Professional certification. In this training block, students will work to upgrade their existing FSNA network which they have already built to achieve FSNA certification. The new technologies being implemented are a router upgrade, NAT/PAT, IOS Firewall, and ACLs configuration, core switch upgrade, new VLANs, adding port-aggregation between switches, adding fiber optics for WAN connectivity, dual-router remote server network with EIGRP and HSRP, and lastly add another remote site with BGP connectivity across the private WAN. By the end of the FSNA Advanced Skills block student will be ready and eager to tackle the projects and all technical implementations that will be performed in FSNE Advanced Training!

**Full Stack Network Professional**

To earn the Full Stack Network Professional (FSNP) certification, students must first learn how to plan, design, implement and close out IT projects. Students will dive into real-world skills training and project-based learning with over 100+ hours of project build-out time. After building out these real-world projects students will also learn how to troubleshoot networks with common troubleshooting scenarios that are found in the field. To finally garner the FSNP certification students must pass their Skills Qualification Check (SQC) proving they have the understanding needed to be an effective network engineer.


**Full Stack Networking Project**

The Full Stack Networking Project is designed to provide an understanding of a complete HQ/Branch network and the project build-out process. Students will learn how to plan, design, and implement their own Full Stack Network with a headquarters location and two branch offices. This project is performed locally on the student's computer and all configurations are completed using the Cisco Packet Tracer network simulation software. Cisco Packet Tracer is available for free from the Cisco Networking Academy.


**PLANNING PHASE**

In the Planning Phase we will perform all the necessary work to plan out our project. We'll start by gathering information and learning the requirements of the project. Then, we will produce a super professional diagram that details our solution. After we have the diagram, we will work on a Bill of Materials and Statement of Work that details the entire project plan. To wrap up the Planning Phase we will present our solution to the customer or business unit and once the project is approved we can get started with the Execution Phase!

**EXECUTION PHASE**

In the Execution Phase we will implement all the equipment and technologies defined in our Statement of Work. We'll start with setting up the Headquarters core network and then add internet, WAN routing, voice, and wireless services. After the Headquarters network build out is complete we'll begin work on Branch 1 and then Branch 2. By the end of this phase you will have deployed an entire 3 facility Full Stack Network!

**CONTROLLING PHASE**

In the Controlling Phase we will perform all of our final testing and make sure all deliverables in the Statement of Work have been met. We'll also tackle some support requests and make sure the customer is well taken care of before we move on to closing out the project.

**CLOSING PHASE**

You have arrived at the Closing Phase - It's been quite a journey! In the Closing Phase we get to have the pleasure of delivering the fully implemented Full Stack Network to the customer! To close things out gracefully we will wrap up the project with a formal close-out process and make sure we obtain feedback on the project delivery. This phase wraps up the entire project and at this point you have completed the great feat of deploying a complete HQ/branch network environment with routing, switching, voice over IP, wireless networking, and network security! Having completed this robust project you now have an understanding of what it takes to roll out an IT project from start to finish and deploy the full stack of network services! After deploying this real-world project you are ready to start preparing for your next two project deployments and your Skills Qualification Check to become certified as a Full Stack Network Professional!

**Cisco ASA SSL VPN Project**

This project is based on a very common deployment: installation of a new dedicated firewall in the network. In this case, we need a more advanced internet edge device to provide better site to site VPN capabilities and also telecommuter support with Remote Access VPN.


**Colo Data Center Project**

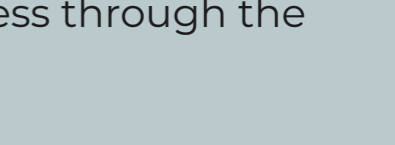
Another common extension of the network is to add a hot-site for disaster recovery and redundant network services. A Co-located Data Center will provide us redundancy in our infrastructure as well as our storage and server environments in the case of a disaster.


**FSNP SQC Preparation Labs**

Before performing the live Skills Qualification Check (SQC) to become certified as a Full Stack Network Professional, candidates will be assisted with preparation labs and lab guides that will assist with reinforcement of all the concepts and skills that are checked during the live SQC.

**FSNP Skills Qualification Check**

During the final week students are scheduled to perform their live SQC to verify skills. The time allotted for the SQC itself is 4 hours. Students must perform their SQC in the NGT Academy online labs platform, achieve an 80% or better in lab completion, and solve troubleshooting tickets to complete the skills check as this part of the training is skills-based only. Upon successful completion the candidate will be awarded the Full Stack Network Professional (FSNP) certification.


**Cisco Certified Network Associate**

The Cisco Certified Network Associate (CCNA) certification is one of the strongest associate level IT certifications in the world and proves your ability to install, configure, operate and troubleshoot enterprise networks and Cisco IOS. CCNA certified professionals understand the most core and fundamental technologies related to network engineering, and are versed in the configuration and installation of Cisco routers and switches in a broad range of IT environments. In this course students are presented with a series of premium instructional videos and hands-on labs that teach all the knowledge and skills needed to pass the 200-301 CCNA exam, obtain your CCNA certification, and get on your path to becoming a rockstar engineer!


**NETWORK FUNDAMENTALS RELATED TO CISCO NETWORKING**

You will learn all of the foundational network concepts found on the CCNA exam. In this section we will review network components such as routers, switches, firewalls, access-points, endpoints, servers and controllers. We will also cover topologies here as well as physical cabling and important protocols such as TCP and UDP. To wrap up and complete the network fundamentals module we will discuss operating systems and also the fundamentals of virtualization!

**NETWORK ADDRESSING & MODELS**

In this section we will thoroughly break down layer 2 and layer 3 addressing with MAC, IPv4 (addressing & subnetting), and IPv6. We will also look at addressing from the aspect of the Transport layer, how all of this network communication fits into a standardized reference model and where we get these terms called layers.

**NETWORK ACCESS**

In this section we begin our dive into Cisco IOS configurations with LAN technologies such as VLANs, Trunking, layer 2 discovery protocols, port aggregation with EtherChannel/LACP, and Spanning-Tree Protocol. We will also look at Cisco Wireless Architectures, WLAN infrastructure, Wireless LAN Controllers, and WLAN setup and configuration to wrap up the LAN technologies that provide our clients with access to the network!

**IP CONNECTIVITY**

In this module we will move into configuring our routers and learn all about the core routing related concepts such as routing tables, static routing and routing protocols. We will configure routers to route dynamically within the autonomous system with Open Shortest Path First version 2 (OSPFv2) and learn how we can create routing redundancy in the LAN with first hop redundancy.

**IP SERVICES**

Here we will break down network services such as Network Time Protocol (NTP), Dynamic Host Configuration Protocol (DHCP) and Quality of Service. We will break down and understand the Domain Name System (DNS), and learn how to manage our networks with SNMP and Syslog. We will also break down remote network access protocols such as Telnet and SSH, and understand how we can control and standardize network access for specific applications and protocols with Quality of Service (QoS).

**SECURITY FUNDAMENTALS**

With the exponential growth of networked devices and internet connectivity, security has become an essential part of all IT infrastructures as all modern computer systems are networked and connected. Any connected system can be hacked, so all network engineers must understand all security concepts and industry standard security implementations. In this module you will learn all about these topics and also how to create secure networked connectivity with site to site VPNs and enhance security on the LAN with technologies such as DHCP snooping, ARP inspection, and port security.

**AUTOMATION AND PROGRAMMABILITY**

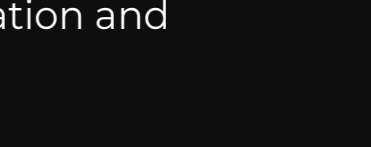
In this module you will learn about automated networking and device management using controller-based systems such as Cisco DNA center. In addition, we will dive into the internal network device architectures that can be controlled with controller-based and software-defined networking. We will also discuss REST-based API (CRUD, HTTP verbs, and data encoding) as it pertains to network automation and programmability as well as configuration management mechanisms such as Puppet, Chef, and Ansible.

**EXAM PREPARATION**

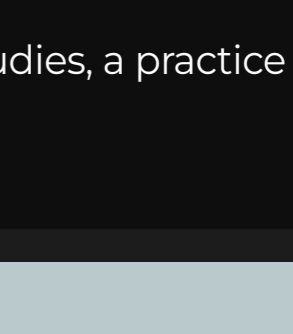
You will learn how to prepare for the CCNA certification exam. We will supply testing information to help you focus on your studies, a practice exam, and information on how to get your exam scheduled. It's time to knock out that exam and become CCNA certified.

**CompTIA Network+ OPTIONAL**

The Network+ certification course is designed to help students prepare for and obtain the CompTIA Network+ certification. This is a comprehensive certification course that covers the five domains of study as presented in the Network+ exam: Networking Concepts, Infrastructure, Network Operations, Network Security, and Network Troubleshooting and Tools. Students are presented with a series of lessons, labs, quizzes and practice tests that provide a complete learning experience and help the student prepare for the Network+ certification exam.


**NGT Live! BONUS**

Experience NGT LIVE! Dive into your first live IT conference with this premium experience. NGT Live was a live two-day virtual conference & career forum that brought together the IT community to share ideas and solutions to leveling up IT skills. The goal is to host an ecosystem-wide conference that was best in class, providing a platform where current and future industry leaders could network, educate, and learn from one another. And, to ensure we added the best possible value, we hosted a conference-wide career fair connecting hundreds of students with employers and jobs!


**Server Virtualization & VMWare Course BONUS**

This course is designed to help you understand how virtualization works at the fundamental level and how organizations of different sizes can take advantage of the capability. After covering the concepts and design, we focus on how you could build a VMware lab and access VMware products. Being able to play with the software and deploy it to learn the capabilities is essential. The deployment module walks you step by step through the process of deploy VMware ESXi and managing the virtual environment with VMware vSphere.



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### CAREER PATHS

- Network Security Analyst
- Computer Network Defense Analyst
- Computer Network Defense Security Engineer
- Penetration Tester
- Computer Network Defense Specialist
- Network Security Administrator
- Network Security Engineer
- Cybersecurity Specialist
- IT Security Specialist
- Cybersecurity Technician
- Cyber Operations Technician
- Intelligence Operations Specialist
- Security Analyst
- Cyber Forensic Specialist
- Cyber Security Engineer
- Security Operations Center Engineer
- Cyber Incident Handler
- IT Auditor
- Cyber Security Analyst
- Threat Security Analyst
- Cyber Security Risk Assessor
- Information Security Manager

## CYBER SECURITY ACCELERATOR

### GETTING STARTED AND PREPARING FOR SUCCESS

You will begin with gaining insights into becoming a Cyber Security Professional, understanding your career path options, and getting started with the program!

### CORE NETWORKING CONCEPTS

In the Core Networking Concepts module we cover frames, MAC addresses and broadcast domains. Then we will move into IPv4/IPv6, ARP, routing and wireless LANs.

### SYSTEMS AND SECURITY

The Systems and Security module covers virtualization, cloud technologies and operating systems. Several networking security concepts will be introduced including Access Control Lists, WLAN security, firewalls, IDS/IPS, VPNs, network attacks and hardening techniques.

### FROM NETWORKING TO CYBER SECURITY

Now that you have a strong base of understanding in the world of computer networking we can move into the realm of cyber security. Everything that you learned in the Intro to Networking for Cyber Security course will be called upon and stand as your foundation as your transition your learning into Cyber Security!

## NexGenT Cyber Security Associate

This online training program provides students with a foundational understanding of the most important topics and concepts, as well as introductory labs, projects, and a cyber range. After completing the Cyber Security course students will use our courses and materials to obtain their NexGenT Cyber certification. During training students will complete over 25 virtualized labs that teach you in demand real world skills that prepare you for the job. Students are also exposed to a cumulative final project that tests them on all the applied learnings they have been taught during the course. After completing the project students then perform a virtual skills qualification check to obtain their cyber certification from NexGenT. During training students also work with our Career Services team for professional career coaching, technical and behavioral practice interviews and professional career maps and guidance check-ins. At the end of this module students will be tested on theory and upon completion receive their NCSA certificate.



### Labs

25 virtualized labs to help you gain real world skills: Scanning Networks, Social Engineering, Certificate Management, Encryption, Wireshark, Hacking Wireless Networks, Vulnerability Scanning, Network Vulnerabilities, Protocols & Services, Keyloggers, Sniffers, System Hacking, Password Cracking Tools, Evading IDS Firewalls & Honey pots, PKI Concepts.

### IDENTIFY & ANALYZE THREATS

To begin, you will be introduced to a high level overview of the cybersecurity ecosystem. You will understand the threat actors and the different types of attacks you see in this domain. We will also take a look into the various toolkits and how they fit into common cyber security frameworks.

### CRYPTOGRAPHY

This module will cover the fundamentals of cryptography along with practical use cases in today's world. It is an important aspect of security and forms the basis to many protocols that keep us safe. This module will help you understand what happens behind the scenes with these algorithms and how they are useful.

### NETWORK SECURITY

Network security is the basis of cyber security operations. In this module we will look at the common security implementations in place and what the common weaknesses are. We will learn about low hanging fruit which are typically overlooked and provide a great way to raise threat awareness.

### SECURE PROTOCOLS

This module is meant to help understand basic protocols and the best practices needed to create a security focused organization. The best offense is a defense and we will learn about the different tactics needed to raise the bar.

### SYMPTOMS OF COMPROMISE

By recognizing the symptoms of an attack, analysts can help stop them much sooner. Here we will cover what to expect in different scenarios so that you can diagnose the problem in an efficient manner. This analysis is key to understanding what went wrong and how to prevent it from happening again in the future.

### TOOLS

Cyber toolkits! A successful analyst has a wide arsenal of tools and knows how to effectively use them. In this module we will teach you which tools are available and how to apply them for all the various security solutions and strategies.

### TESTING INFRASTRUCTURE

In this module we will take a look at all the practical applications of attacking your own infrastructure to help defend it. We will teach you how to identify your organizations own weaknesses such that you can help mitigate weaknesses and help define what changes need to be made.

### INCIDENT RESPONSE

Incident response is a crucial approach on what to do in the event of a security breach. An organization needs the security team to have a playbook ready in times of crisis and how to react to certain events. We will take a look at planning on what is needed to be done.

### NCSA CERTIFICATION: LEVEL UP!

To obtain your NexGenT Cyber Security Associate (NCSA) certification you will complete your final presentation and knowledge-based assessment to prove your knowledge and presentation skills and obtain your NCSA certification!



## CompTIA Security+

CompTIA Security+ is the first security certification IT professionals should earn. It establishes the core knowledge required of any cybersecurity role and provides a springboard to intermediate-level cybersecurity jobs. Successful candidates will have the following skills. Get hands-on training\* in defensive and offensive cybersecurity, networking, systems, web technologies, and databases, and benefit from our CompTIA Partnership. Through immersive classes and a dynamic curriculum, you'll develop the fundamental skills to graduate from the program ready to use your knowledge in the workforce.



### INTRODUCTION

In this module we will break down the CompTIA Security+ certification and ensure students understand how the exam objectives are laid out. We'll also look at an overview of this course and what you can expect from each module. It's time to begin your journey to become Security+ certified!

### THREATS, ATTACKS & VULNERABILITIES

In this module we will dive right into security concepts and get started with learning about the most common types of network attacks. We will also explore the different types of systems and how they can be vulnerable to various types of cyber attacks. We will wrap up the module with an overview of performing penetration testing and security assessments.

### ARCHITECTURE & DESIGN

Here we will expand upon general security related concepts and dive into different architectures such as cloud technologies, secure applications, physical security, cryptography, and embedded systems to understand their design and systems security implications.

### IMPLEMENTATION

In this module we will learn how to implement security solutions across multiple different systems including application security, network design, wireless security, mobile security, cloud security, IAM, PKI, and Authentication and Authorization

### OPERATIONS & INCIDENT RESPONSE

In this module we will expand into security tools, and how to properly investigate and respond to security related network and systems events. We will wrap up this module learning about endpoint security and also digital forensics!

### EXAM PREPARATION

This module is all about preparing for the Security+ certification exam. Here, you'll find practice exams and information to help you focus on your study and preparations. Good luck on your exam - knock it out of the park!

## EC-COUNCIL ESSENTIAL SERIES

### Network Defense Essentials

Network Defense Essentials is a first-of-its-kind MOOC certification that provides foundational knowledge and skills in network security with add-on labs for hands-on experience. The course includes 12 modules and add-on optional upgrades to lab ranges covering fundamental network security concepts, including IoT, cryptography, and PKI.



### Ethical Hacking Essentials

Ethical Hacking Essentials is a first-of-its-kind MOOC certification that provides foundational knowledge and skills in ethical hacking with add-on labs for hands-on experience. The course contains 12 modules and add-on labs covering fundamental ethical hacking concepts, including emerging technologies like IoT and OT, cloud computing, etc.



### Digital Forensics Essentials

Digital Forensics Essentials is a first-of-its-kind MOOC certification that offers foundational knowledge and skills on digital forensics with add-on labs for hands-on experience. Twelve modules cover the fundamental concepts of digital forensics, such as dark web forensics, investigating web application attacks, and more.



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