



Syllabus

Please print a copy of this syllabus for handy reference.

Whenever there is a question about what assignments are due, please remember this syllabus is considered the ruling document.

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Policies

Students will be held responsible for understanding and adhering to all policies. Policies are subject to change; please read them at the beginning of each class as it may have changed since your last class. Policies may be slightly different depending on the modality in which you attend class. If you have recently changed modalities it is important you read the policies governing your current class modality.

Late Assignments

Late assignments receive a maximum score of 70% if assignments are not handed on the date of completion or with later with a valid excuse. Previous assignments will need to be completed first before starting the following course load. Technological issues are not considered valid grounds for late assignment submission.

Learning Teams

Students are expected to work effectively in diverse groups and groups to achieve tasks. Students must collaborate and function well in team settings as both leaders as well as followers. Respect for human diversity and tolerant behavior towards colleagues, peers, and instructors is expected. If difficulties are experienced working with a team, the team is expected to resolve them within it if possible. However, feel free to contact your instructor for guidance if there are concerns in this area.

It is expected an active participation and contribution to the team assignments by a) providing original work that is accepted and used by the team with proof of originality b) participating in the project from assignment organizing through meaningful final review of the team project for submission, and c) ensuring to your team that your contributions are your original work and properly quoted, cited, and referenced.

Technical Support

Technical Support is available from Mon- Fri from 9am to 6pm. Call 201-761-0144, or email any instructor from your class. Email addresses will be provided in class.

Feedback

At the end of each course that is completed, an evaluation sheet will be provided to a general questionnaire to provide feedback to help and improve future courses.



Vocational Course Objectives of the Internetwork Engineering Program

This program provides comprehensive training, including theoretical concepts and hands-on practice, to provide students with the expertise and skills to work as a Network Administrator/Engineer or Computer/Network Support Specialist. The graduate will have working familiarity with network hardware and software including Microsoft Windows Desktop and Server operating systems, and will be able to design, install, troubleshoot and support Microsoft and Cisco networks and implement Network Security.

The program is designed to prepare students to become CompTIA certified A+, Security+ and Linux+ Technicians, Microsoft Certified Solutions Associate (MCSA) on Windows 7 and Windows 2012 Server, Cisco Certified Entry Network Technician (CCENT), Cisco Certified Network Associates (CCNA), VMware Certified Professional – Data Center Virtualization (VCP-DCV), CompTIA Advanced Security Practitioner (CASP), Certified Information Systems Security Professional (CISSP), Certified Hacking Forensics Investigator (CHFI), and Certified Ethical Hacker (CEH). Students will also learn how to create an effective resume, methods for job search, and how to get ready for a job interview.

Grading Formula

Percentage %	Grade	G.P.A
90+	A	4.0
87-89	A-	3.7
84-86	B+	3.3
80-83	B	3.0
77-79	B-	2.7
74-76	C+	2.3
70-73	C	2.0
65-69	D+	1.5
60-64	D	1.0
<59	F	0.0



Point Values for Course Assignments

Regular Course

Assignments	Percentage
Exams	40%
Project	30%
Homework/Online Assignment	30%
Total	100%

T-Course

Assignments	Percentage
Exam	40%
Homework	60%
Total	100%



Courses

IE100: Introduction to Computers and Internet Fundamentals
IE100T: Certification Test Preparation
IE110: Computer Hardware Installation and Troubleshooting
IE110T: Certification Test Preparation
IE115: Networking Fundamentals
IE115T: Certification Test Preparation
IE121: Supporting Microsoft Windows Desktop Operating System
IE121T: Certification Test Preparation
IE122: Supporting Microsoft Windows Server Operating System
IE122T: Certification Test Preparation
IE140: Planning, Implementing and Administering Microsoft Windows Directory Service
IE140T: Certification Test Preparation
IE160: Planning and Maintaining a Microsoft Windows Network Infrastructure
IE160T: Certification Test Preparation
IE170: Technical Career Preparation Workshop
IE180: Implementing and Managing Security in a Microsoft Windows Network
IE180T: Certification Test Preparation
IE190: Introduction to Cisco Router Configuration
IE190T: Certification Test Preparation
IE195: Advanced Cisco Router Configuration
IE195T: Certification Test Preparation
IE200: Designing, Implementing & Troubleshooting Project
IE220: Installing, Configuring and Administering a VMware Environment
IE 230: Implementing Advanced Network Security
IE 240: Advanced Information Security Practitioner
IE 250: Forensics Investigation
IE 260: Ethical Hacking
UN 100: Linux System Administration I
UN 100T: Certification Test Preparation
UN 110: Linux System Administration II
UN 110T: Certification Test Preparation



Course Title: IE100 - Introduction to Computers and Internet Fundamentals

Prerequisites(s): None

Credits: 3.0

Course Description: Gives students an overview of physical personal computer hardware and peripherals, Printers, Operating systems, Internet technologies, Network Security and Professional Ethics.

Course Objective: This course, together with IE110, prepares students for CompTIA A+ Exams 220-901 and 220-902.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Install, configure, and upgrade Microsoft Operating Systems while using Microsoft Operating Systems backup and recovery options.
- Performing basic wired and wireless networking, with the use of Internet protocols that are performed on a daily basis for everyday computing.
- Understanding and demonstrating functions of Microsoft Operating System fundamentals for successful execution of operations.
- Understand fundamental principles of implementing LANs and internet access, and configuring Internet web browsers
- Demonstrate troubleshooting models and diagnostic of Microsoft Operating Systems

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Hands-on with physical computer parts to analyze what has been learned and apply it to real machines. Class participations is a must to develop knowledge from other students and instructors to help in on the job situations or interviews. Major topics covered in the course are: Windows Vista/7/8/10, OS Troubleshooting, Local Area Networking, Internet, Security and IT Professionalism.

Required Course Materials

- Meyers, M. 2016. CompTIA A+ Certification All-in-One Exam Guide, 9th Edition. McGraw-Hill.
- TestOut. 2012. PC Pro 220-901 and 220-902 LabSim. TestOut Corporation.

Additional Course Material

- Docter, Q., Dulaney, E., Skandier, T. (2009). CompTIA A+ Complete Study Guide: Exams 220-901 (Essentials) and 220-902 (Practical Application). Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 4 – Visible Windows Chapter 5 – Visible Networks	2 hours
	Session 2	Chapter 12 – Implementing Hard Drives Chapter 14 – Installing and Updating Windows	2 hours
Week 2	Session 1	Chapter 15 – Windows Under the Hood Chapter 16 – NTFS, Users, and Groups	2 hours
	Session 2	Chapter 17 – Maintaining and Optimizing Windows Chapter 18 – Working with the Command-Line Interface Mid-Term Test	2 hours



Week 3	Session 1	Chapter 19 – Troubleshooting Windows Chapter 22 – Local Area Networking	2 hours
	Session 2	Chapter 23 – Wireless Networking Chapter 24 – The Internet	2 hours
Week 4	Session 1	Chapter 29 – Securing Computers Chapter 30 – Virtualization	2 hours
	Session 2	Chapter 31 – The Right PC for You Chapter 32 – The Complete PC Tech Final Test Final Project	2 hours



Course Title: IE100T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Install, configure, and upgrade Microsoft Operating Systems while using Microsoft Operating Systems backup and recovery options.
- Performing basic wired and wireless networking, with the use of Internet protocols that are performed on a daily basis for everyday computing.
- Understanding and demonstrating functions of Microsoft Operating System fundamentals for successful execution of operations.
- Understand fundamental principles of implementing LANs and internet access, and configuring Internet web browsers
- Demonstrating system troubleshooting models and diagnostic of Microsoft Operating Systems

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Hands-on with physical computer parts to analyze what has been learned and apply it to real machines. Class participations is a must to develop knowledge from other students and instructors to help in on the job situations or interviews. Major topics covered in the course are: Windows Vista/7/8/10, OS Troubleshooting, Local Area Networking, Internet, Security and IT Professionalism.

Required Course Materials

- Meyers, M. 2016. CompTIA A+ Certification All-in-One Exam Guide, 9th Edition. McGraw-Hill.
- TestOut. 2012. PC Pro 220-901 and 220-902 LabSim. TestOut Corporation.

Additional Course Material

- Docter, Q., Dulaney, E., Skandier, T. (2009). CompTIA A+ Complete Study Guide: Exams 220-901 (Essentials) and 220-902 (Practical Application). Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Exams	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut PC Pro – 5.0: Storage TestOut PC Pro – 6.0: Networking	2 hours
Week 2	TestOut PC Pro – 9.0: Windows Management TestOut PC Pro – 10.0: System Implementation	2 hours
Week 3	TestOut PC Pro – 11.0: File Management TestOut PC Pro – 12.0: Security	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE110 -Computer Hardware Installation and Troubleshooting

Prerequisites(s): None

Credits: 3.0

Course Description: Gives student essential operating competencies for an entry-level IT professional or PC service technician on computer hardware and peripherals. It provides more hands-on with personal computer hardware in a detail manner.

Course Objective: This course, together with IE100, prepares students for CompTIA A+ Exams 220-901 and 220-902.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Install, configure, and upgrade computers with hands-on training.
- Install and configure motherboards, processors, memory, hard drives, power supply video cards, printers and laptops
- Troubleshoot system start up, hardware and software errors.
- Configure BIOS and CMOS settings and implementing raid arrays for enhanced security
- Connect to a small wireless network using a single router or access point, while implementing wireless security

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Hands-on with physical computer parts to analyze what has been learned and apply it to real machines. Class participation is a must to develop knowledge from other students and instructors to help in on the job situations or interviews. Major topics covered in the course: Mice, Keyboard, USB/Firewire Devices, Ports, Motherboards, Monitors, Processors, Memory, Hard Drives, CD/DVD-ROM Drives, Modems, Network Cards, Laptops and Printers.

Required Course Materials

- Meyers, M. 2016. CompTIA A+ Certification All-in-One Exam Guide, 9th Edition. McGraw-Hill.
- TestOut. 2012. PC Pro 220-901 and 220-902 LabSim. TestOut Corporation.

Additional Course Material

- Docter, Q., Dulaney, E., Skandier, T. (2009). CompTIA A+ Complete Study Guide: Exams 220-901 (Essentials) and 220-902 (Practical Application). Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 2 – Operational Procedures Chapter 3 – The Visible PC	2 hours
	Session 2	Chapter 6 – Microprocessors Chapter 7 – RAM	2 hours
Week 2	Session 1	Chapter 8 – BIOS Chapter 9 – Motherboards	2 hours
	Session 2	Chapter 10 – Power Supplies Mid-Term Test	2 hours



Week 3	Session 1	Chapter 11 – Hard Drive Technologies Chapter 13 – Removable Media Chapter 20 – Input Devices	2 hours
	Session 2	Chapter 21 – Video Chapter 25 – Multimedia	2 hours
Week 4	Session 1	Chapter 26 – Portable Computing Chapter 27 – Mobile Devices	2 hours
	Session 2	Chapter 28 – Printers Final Test Final Project	2 hours



Course Title: IE110T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Objective: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Install, configure, and upgrade computers with hands-on training.
- Install and configure motherboards, processors, memory, hard drives, power supply video cards, printers and laptops
- Troubleshoot system start up, hardware and software errors.
- Configure BIOS and CMOS settings and implementing raid arrays for enhanced security
- Connect to a small wireless network using a single router or access point, while implementing wireless security

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Hands-on with physical computer parts to analyze what has been learned and apply it to real machines. Class participation is a must to develop knowledge from other students and instructors to help in on the job situations or interviews. Major topics covered in the course: Mice, Keyboard, USB/Firewire Devices, Ports, Motherboards, Monitors, Processors, Memory, Hard Drives, CD/DVD-ROM Drives, Modems, Network Cards, Laptops and Printers.

Required Course Materials

- Meyers, M. 2016. CompTIA A+ Certification All-in-One Exam Guide, 9th Edition. McGraw-Hill.
- TestOut. 2012. PC Pro 220-901 and 220-902 LabSim. TestOut Corporation.

Additional Course Material

- Docter, Q., Dulaney, E., Skandier, T. (2009). CompTIA A+ Complete Study Guide: Exams 220-901 (Essentials) and 220-902 (Practical Application). Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut PC Pro – 1.0: Computing Overview TestOut PC Pro – 2.0: PC Technician	2 hours
Week 2	TestOut PC Pro – 3.0: System Components TestOut PC Pro – 4.0: Peripheral Devices	2 hours
Week 3	TestOut PC Pro – 7.0: Printing TestOut PC Pro – 8.0: Mobile Devices	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE115- Networking Fundamentals (CCENT)

Prerequisites(s): None

Credits: 3.0

Course Description: A typical candidate would have CompTIA's A+ certification or equivalent knowledge and would be able to install, configure and troubleshoot basic networking hardware, protocols and services.

Course Objective: This course prepares students for CompTIA Network Exam N10-006.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Understand Media and Topologies
- Understand Protocols and Standards
- Understand the Terminology of Network Implementation
- Understand Network Support

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics like dividing an IP address across multiple networks, working with network devices, protocols and security. Troubleshooting using different models and approaches.

Required Course Materials

- Meyers, M. (2015). All-in-One Network+ Study Guide, 6th Edition. McGraw-Hill.
- TestOut. (2015). Network PRO. TestOut Corporation.

Additional Course Material

- Lammle, T. (2015). CompTIA Network+ Study Guide: Exam N10-006. 3rd Edition. Sybex.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 2: Network Models Chapter 3: Cabling and Topology Chapter 4: Ethernet Basics	2 hours
	Session 2	Chapter 5 Modern Ethernet Chapter 6: Installing a Physical Network	2 hours
Week 2	Session 1	Chapter 7: TCP/IP Basics Chapter 8: Routing Chapter 9: TCP/IP Applications	2 hours
	Session 2	Chapter 10: Network Naming Chapter 11: Securing TCP/IP Mid-Term	2 hours



Week 3	Session 1	Chapter 12: Advanced Networking Devices Chapter 13: IPv6 Chapter 14: Remote Connectivity	2 hours
	Session 2	Chapter 15: Wireless Networking Chapter 16 Virtualization and Cloud Computing	2 hours
Week 4	Session 1	Chapter 17: Building a Real-World Network Chapter 18: Managing Risk Chapter 19: Protecting Your Network	2 hours
	Session 2	Chapter 20: Network Monitoring Chapter 21: Network Troubleshooting Final Test Final Project	2 hours



Course Title: IE115T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: A typical candidate would have CompTIA's A+ certification or equivalent knowledge and would be able to install, configure and troubleshoot basic networking hardware, protocols and services.

Course Objective: This course prepares students for CompTIA Network Exam N10-006.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Understand Media and Topologies
- Understand Protocols and Standards
- Understand the Terminology of Network Implementation
- Understand Network Support

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics like dividing an IP address across multiple networks, working with network devices, protocols and security. Troubleshooting using different models and approaches.

Required Course Materials

- Meyers, M. (2015). All-in-One Network+ Study Guide, 6th Edition. McGraw-Hill.
- TestOut. (2015). Network PRO. TestOut Corporation.

Additional Course Material

- Lammle, T. (2015). CompTIA Network+ Study Guide: Exam N10-006. 3rd Edition. Sybex.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	Network PRO: 1.0 – Networking Basics Network PRO: 2.0 – Cables and Connectors	2 hours
Week 2	Network PRO: 3.0 – Networking Devices Network PRO: 4.0 – Ethernet	2 hours
Week 3	Network PRO: 9.0 – Network Customization Network PRO: 10.0 – Wireless Networking	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE121- Supporting Microsoft Windows Desktop Operating System

Prerequisites(s): None

Credits: 3.0

Course Description: This course will enable the student to deploy Windows 7 on the enterprise, including hardware and software compatibility. It measures your ability to deploy and troubleshoot information systems that incorporate Microsoft Windows 7.

Course Objective: The IE 121 course prepares students for Microsoft 70-685 Exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Deploy and migrate to Windows 7
- Troubleshoot hardware, applications, and access to resources
- Troubleshoot mobile computing
- Troubleshoot network systems that run Windows 7
- Perform advanced recovery

Instructional Methods: Major topics covered in the course are Windows 7 Professional and Enterprise, Troubleshooting Hardware Devices and Drivers, System Performance and Reliability, Driver Signing, Policies, Automated Installation, and Troubleshooting Security.

Required Course Materials

- Gibson, D. (2010). Windows 7 Desktop Support and Administration: Real World Skills for MCITP Certification and Beyond (Exams 70-685 and 70-686). Sybex
- Gibson, D. (2010). Windows 7 Desktop Support and Administration: Real World Skills for MCITP Certification and Beyond (Exams 70-685 and 70-686). uCertify

Additional Course Material

- Microsoft Official Academic Course (2008). Exam 70-685: Windows 7 Enterprise Desktop Support Technician (Microsoft Official Academic Course Series). Wiley.
- Mackin, JC. MCITP Self-Paced Training Kit (Exam 70-685): Windows 7, Enterprise Desktop Support Technician. Microsoft Press.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1 – Planning the Installation of Windows Chapter 2 – Automating the Deployment of Windows 7	2 hours
	Session 2	Chapter 3 – Using the Command Prompt and PowerShell	2 hours
Week 2	Session 1	Lesson 4 – Managing the Life Cycle: Keeping Windows 7 Up to Date Lesson 5 – Maintaining and Troubleshooting Windows	2 hours
	Session 2	Lesson 6 –Configuring and Troubleshooting Application Issues Mid-Term	2 hours



Week 3	Session 1	Lesson 7 – Networking with Windows 7 Lesson 8 – Accessing Resources on a Network	2 hours
	Session 2	Lesson 9 – Managing Windows 7 in a Domain	2 hours
Week 4	Session 1	Lesson 10 – Managing Windows 7 with Group Policy Lesson 11 – Managing Security in Windows 7	2 hours
	Session 2	Lesson 12 – Supporting Mobile Windows 7 Users Lesson 13 – Administering Internet Explorer Final Test Final Project	2 hours



Course Title: IE121T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Deploy and migrate to Windows 7
- Troubleshoot hardware, applications, and access to resources
- Troubleshoot mobile computing
- Troubleshoot network systems that run Windows 7
- Perform advanced recovery

Instructional Methods: Major topics covered in the course are Windows 7 Professional and Enterprise, Troubleshooting Hardware Devices and Drivers, System Performance and Reliability, Driver Signing, Policies, Automated Installation, and Troubleshooting Security.

Required Course Materials

- Gibson, D. (2010). Windows 7 Desktop Support and Administration: Real World Skills for MCITP Certification and Beyond (Exams 70-685 and 70-686). Sybex
- Gibson, D. (2010). Windows 7 Desktop Support and Administration: Real World Skills for MCITP Certification and Beyond (Exams 70-685 and 70-686). uCertify

Additional Course Material

- Microsoft Official Academic Course (2008). Exam 70-685: Windows 7 Enterprise Desktop Support Technician (Microsoft Official Academic Course Series). Wiley.
- Mackin, JC. MCITP Self-Paced Training Kit (Exam 70-685): Windows 7, Enterprise Desktop Support Technician. Microsoft Press.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	Lesson 1 – Planning the Installation of Windows Lesson 2 – Automating the Deployment of Windows 7 Lesson 3 – Using the Command Prompt and PowerShell	2 hours
Week 2	Lesson 4 – Managing the Life Cycle – Keeping Windows 7 Up to Date Lesson 5 – Maintaining and Troubleshooting Windows Lesson 6 – Configuring and Troubleshooting Application Issues	2 hours
Week 3	Lesson 7 – Networking with Windows 7 Lesson 8 – Accessing Resources on a Network Lesson 9 – Managing Windows 7 in a Domain	2 hours
Week 4	Lesson 10 – Managing Windows 7 with Group Policy Lesson 11 – Managing Security in Windows 7 Lesson 12 – Supporting Mobile Windows 7 Users Lesson 13 – Administering Internet Explorer LabSim Simulation Test	2 hours



Course Title: IE122 - Planning, Implementing and Administering Microsoft Windows Directory Services

Prerequisites(s): IE121

Credits: 3.0

Course Description: Students will learn to operate in medium to very large computing environments that use the Windows Server 2012 operating system. It will help implement an AD DS in distributed environments that can include complex network services and multiple locations and domain controllers.

Course Objective: This course prepares students for Microsoft 70-410 Exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Install and configure Windows Server 2012
- Configure server roles and features
- Deploy and configure network core services
- Install and administer Active Director
- Create and manage Group Policy

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Installation, Groups & User management, Organizational units, Domain Controller, Permission, and Backups. Changing domain and forest functional levels. Creation of GPOs and configure GPO settings. Implementation of DNS structure including root hints or a root zone, zone delegation, and forwarding.

Required Course Materials

- Zacker, C. (2014). Exam Ref 70-410 Installing and Configuring Windows Server 2012 R2 (MCSA): Exam 70-410. Microsoft Press
- TestOut. (2014). TestOut Windows Server Pro: Install and Configure LabSim. TestOut Corporation

Additional Course Material

- Panek, W. (2014). MCSA Windows Server 2012 R2 Complete Study Guide: Exams 70-410, 70-411, 70-412. Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Lesson 1 – Installing and Configuring Servers	2 hours
	Session 2	Lesson 2 – Configuring Server Roles and Feature	2 hours
Week 2	Session 1	Lesson 4 – Deploying and Configuring Core Network Services	2 hours
	Session 2	Lesson 4 – Deploying and Configuring Core Network Services Mid-Term	2 hours



Week 3	Session 1	Lesson 5 – Installing and Administering Active Directory	2 hours
	Session 2	Lesson 6 – Creating and Managing Group Policy	2 hours
Week 4	Session 1	Lesson 6 – Creating and Managing Group Policy	2 hours
	Session 2	Lesson 3 – Configuring Hyper-V Final Test Final Project	2 hours



Course Title: IE122T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Install and configure Windows Server 2012
- Configure server roles and features
- Deploy and configure network core services
- Install and administer Active Director
- Create and manage Group Policy

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Installation, Groups & User management, Organizational units, Domain Controller, Permission, and Backups. Changing domain and forest functional levels. Creation of GPOs and configure GPO settings. Implementation of DNS structure including root hints or a root zone, zone delegation, and forwarding.

Required Course Materials

- Zacker, C. (2014). Exam Ref 70-410 Installing and Configuring Windows Server 2012 R2 (MCSA): Exam 70-410. Microsoft Press
- TestOut. (2014). TestOut Windows Server Pro: Install and Configure LabSim. TestOut Corporation

Additional Course Material

- Panek, W. (2014). MCSA Windows Server 2012 R2 Complete Study Guide: Exams 70-410, 70-411, 70-412. Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut Windows Server Pro: Install and Configure – 2.0: Installation and Configuration TestOut Windows Server Pro: Install and Configure – 6.0: File and Share Access	2 hours
Week 2	TestOut Windows Server Pro: Install and Configure – 10.0: DHCP TestOut Windows Server Pro: Install and Configure – 5.0: DNS	2 hours
Week 3	TestOut Windows Server Pro: Install and Configure – 4.0: Active Directory TestOut Windows Server Pro: Install and Configure – 8.0: Group Policies	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE140- Supporting Microsoft Windows Server Operating System

Prerequisites(s): IE122

Credits: 3.0

Course Description: Students will learn how to install, manage, monitor, configure, and troubleshoot DNS, DHCP, Remote Access, Network Access, and IP Routing in a Windows Server 2012 network infrastructure. Configure LAN routing, Configure DFS, Manage network printing, and Configure IPv4 and IPv6 connection settings.

Course Objective: This course prepares students for Microsoft 70-411 Exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Deploy, manage and maintain servers
- Configure File and Print Services
- Configure a Network Policy Server (NPS) infrastructure
- Configure and manage Active Directory
- Configure and manage Group Policy

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. In depth Lecture, Lab and In-Class Discussions on DNS, DHCP, RRAS, and NAP. Testing configuration machines on configuring LAN routing, secure files and folders using NTFS permissions and EFS. Configure a DHCP relay agent, and create DNS zones and records and Manage DNS zone transfers.

Required Course Materials

- Russel, C. (2014). Exam Ref 70-411 Administering Windows Server 2012 R2 (MCSA). Microsoft Press
- TestOut. (2012). TestOut Windows Server Pro: Manage and Administer LabSim. TestOut Corporation

Additional Course Material

- Panek, W. (2014). MCSA Windows Server 2012 R2 Complete Study Guide: Exams 70-410, 70-411, 70-412. Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Lesson 1 – Deploy, Manage and Maintain Servers	2 hours
	Session 2	Lesson 2 – Configure File and Print Services	2 hours
Week 2	Session 1	Lesson 3 – Configure Network Services and Access	2 hours
	Session 2	Lesson 3 – Configure Network Services and Access Mid-Term	2 hours



Week 3	Session 1	Lesson 4 – Configure a Network Policy Server Infrastructure	2 hours
	Session 2	Lesson 5 – Configure and Manage Active Directory	2 hours
Week 4	Session 1	Lesson 6 – Configure and Manage Group Policy	2 hours
	Session 2	Lesson 6 – Configure and Manage Group Policy Final Test Final Project	2 hours



Course Title: IE140T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Deploy, manage and maintain servers
- Configure File and Print Services
- Configure a Network Policy Server (NPS) infrastructure
- Configure and manage Active Directory
- Configure and manage Group Policy

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. In depth Lecture, Lab and In-Class Discussions on DNS, DHCP, RRAS, and NAP. Testing configuration machines on configuring LAN routing, secure files and folders using NTFS permissions and EFS. Configure a DHCP relay agent, and create DNS zones and records and Manage DNS zone transfers.

Required Course Materials

- Russel, C. (2014). Exam Ref 70-411 Administering Windows Server 2012 R2 (MCSA). Microsoft Press
- TestOut. (2012). TestOut Windows Server Pro: Manage and Administer LabSim. TestOut Corporation

Additional Course Material

- Panek, W. (2014). MCSA Windows Server 2012 R2 Complete Study Guide: Exams 70-410, 70-411, 70-412. Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut Windows Server Pro: Manage and Administer– 3.0: File Services TestOut Windows Server Pro: Manage and Administer– 4.0: Configure File and Print Services	2 hours
Week 2	TestOut Windows Server Pro: Manage and Administer– 5.0: Remote Access Management TestOut Windows Server Pro: Manage and Administer– 6.0: Server Management	2 hours
Week 3	TestOut Windows Server Pro: Manage and Administer– 1.0: Active Directory TestOut Windows Server Pro: Manage and Administer– 2.0: Group Policy	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE160-Planning and Maintaining a Microsoft Windows Network Infrastructure

Prerequisites(s): IE122

Credits: 3.0

Course Description: The student will learn to analyze the business requirements for a network infrastructure, design and implement a network infrastructure that meets business requirements using Windows Server 2012.

Course Objective: This course prepares students for Microsoft 70-412 Exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Configure and manage high availability
- Implement business continuity and disaster recovery
- Configure Network Services
- Configure the Active Directory infrastructure
- Configure Identity and Access solutions

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Clustering, Access Solutions, Business Continuity and Data Recovery.

Required Course Materials

- Mackin, J. (2014). Exam Ref 70-412 Configuring Advanced Windows Server 2012 R2 Services. Microsoft Press
- TestOut. (2014). TestOut Windows Server Pro: Advanced Services LabSim. TestOut Corporation

Additional Course Material

- Panek, W. (2014). MCSA Windows Server 2012 R2 Complete Study Guide: Exams 70-410, 70-411, 70-412. Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34 – 38
Homework/Online Assignment	8 - 12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Lesson 5: Configuring the Active Directory Infrastructure	2 hours
	Session 2	Lesson 6: Configuring Access and Information Protection Solutions	2 hours
Week 2	Session 1	Lesson 6: Configuring Access and Information Protection Solutions	2 hours
	Session 2	Lesson 1: Configure and Manage High Availability	2 hours



Week 3	Session 1	Lesson 2: Configuring Advanced File Services	2 hours
	Session 2	Lesson 3: Implementing Business Continuity and Disaster Recovery	2 hours
Week 4	Session 1	Lesson 4: Configuring Network Services	2 hours
	Session 2	Lesson 4: Configuring Network Services Final Test Final Project	2 hours



Course Title: IE160T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Configure and manage high availability
- Implement business continuity and disaster recovery
- Configure Network Services
- Configure the Active Directory infrastructure
- Configure Identity and Access solutions

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Clustering, Access Solutions, Business Continuity and Data Recovery.

Required Course Materials

- Mackin, J. (2014). Exam Ref 70-412 Configuring Advanced Windows Server 2012 R2 Services. Microsoft Press
- TestOut. (2014). TestOut Windows Server Pro: Advanced Services LabSim. TestOut Corporation

Additional Course Material

- Panek, W. (2014). MCSA Windows Server 2012 R2 Complete Study Guide: Exams 70-410, 70-411, 70-412. Sybex



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut Windows Server Pro: Advanced Services– 1.0 Active Directory Infrastructure TestOut Windows Server Pro: Advanced Services– 8.0 Active Directory Certificate Services	2 hours
Week 2	TestOut Windows Server Pro: Advanced Services– 7.0 High Availability TestOut Windows Server Pro: Advanced Services– 2.0 File and Storage Solutions	2 hours
Week 3	TestOut Windows Server Pro: Advanced Services– 4.0: Advanced DHCP TestOut Windows Server Pro: Advanced Services– 5.0: Advanced DNS	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE170- Technical Career Preparation Workshop

Pre-Requisites: IE122

Credits: 2.0

Course Description: To enable students to obtain a job using effective resume, good interviewing skills and effective job search methods.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Create an effective resume.
- Learn effective methods for job searching.
- Learn how to get ready for a personal and technical interview.
- Technical interview preparation.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Resume preparation, interviewing skills and preparation, cover letter preparation, job hunting strategies, following-upon an interview.

Required Course Materials

- Getting a Good Job in Less Time (PC AGE)

Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Distance Learning	26
Lecture, Lab and In-Class Discussion	4
Total Hours	30

Grading

Students have to:

- Attend the Lecture, Lab and In-Class Discussion on Resume Writing and Interview Preparation
- Students have to complete all the required online modules by the end of the course.



- Grading based as an average of the scores obtained in all completed modules. If a student has a failing grade for Distance Learning because of not being able to complete all the required modules by the end of the course, he/she will be given an extra week and awarded a grade of 70 when all the hours are completed, otherwise he/she will keep the same grade.

Course Outline

	Topics	Time
1	Getting the Interview	3.0 hour(s)
2	Preparing Yourself	3.0 hour(s)
3	Making an Entrance	3.0 hour(s)
4	Listening and Answering	3.0 hour(s)
5	Taking the Reins	3.0 hour(s)
6	Asking Questions	3.0 hour(s)
7	Opening Interviews	2.0 hour(s)
8	Tough Interviews	3.0 hour(s)
9	Following Through	2.0 hour(s)
	Total	24.0 hours



Course Title: IE180- Implementing and Managing Security in a Microsoft Windows Network

Prerequisites(s): IE110/IE100

Credits: 3.0

Objective: Give students the knowledge and skills to design, implement, administer, and troubleshoot network security with such encryption like SSL, Kerberos, EFS and Bitlocker.

Course Objective: This course prepares students for CompTIA Security+ SY0-401 Exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Understand the concepts of authentication, encryption, access control and logging.
- Configure SSL connections and Configure Kerberos settings
- Plan, implement and test an enterprise security strategy
- Identify penetration testing such as White, Black, and Grey box testing.
- Identify and implement appropriate disaster recovery procedures

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Authentication, Encryption, Security Protocols, Network Security Devices, and Access Permissions. Secure remote access connections. Configure the Windows Firewall. Secure folder and file access using DACLs.

Required Course Materials

- Dulaney, E. (2014). CompTIA Security+ Study Guide: Exam SY0-401. Sybex
- TestOut. (2014). TestOut Security Pro (SY0-401/SSCP) LabSim. TestOut Corporation

Additional Course Material

- Conklin, W., White, G., Williams, D, Davis, R., Cothren, C. (2011). CompTIA Security + All-in-One Exam Guide (Exam SY0-401), 4th Edition. McGraw-Hill



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1: Measuring and Weighing Risk Chapter 2: Monitoring and Diagnosing Networks	2 hours
	Session 2	Chapter 3: Understanding Devices and Infrastructure	2 hours
Week 2	Session 1	Chapter 4: Access Control, Authentication, and Authorization Chapter 5: Protecting Wireless Networks	2 hours
	Session 2	Chapter 6: Securing the Cloud Mid-Term	2 hours



Week 3	Session 1	Chapter 7: Host, Data, and Application Security Chapter 8: Cryptography	2 hours
	Session 2	Chapter 9: Malware, Vulnerabilities, and Threats	2 hours
Week 4	Session 1	Chapter 10: Social Engineering and Other Foes Chapter 11: Security Administration	2 hours
	Session 2	Chapter 12: Disaster Recovery and Incident Response Final Test Final Project	2 hours



Course Title: IE180T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Understand the concepts of authentication, encryption, access control and logging.
- Configure SSL connections and Configure Kerberos settings
- Plan, implement and test an enterprise security strategy
- Identify penetration testing such as White, Black, and Grey box testing.
- Identify and implement appropriate disaster recovery procedures

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Authentication, Encryption, Security Protocols, Network Security Devices, and Access Permissions. Secure remote access connections. Configure the Windows Firewall. Secure folder and file access using DACLs.

Required Course Materials

- Dulaney, E. (2014). CompTIA Security+ Study Guide: Exam SY0-401. Sybex
- TestOut. (2014). TestOut Security Pro (SY0-401/SSCP) LabSim. TestOut Corporation

Additional Course Material

- Conklin, W., White, G., Williams, D, Davis, R., Cothren, C. (2011). CompTIA Security + All-in-One Exam Guide (Exam SY0-401), 4th Edition. McGraw-Hill



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut Security Pro – 4.0: Policies, Procedures and Awareness TestOut Security Pro – 6.0: Perimeter Defenses	2 hours
Week 2	TestOut Security Pro – 9.0: Application Defenses TestOut Security Pro – 3.0: Cryptography	2 hours
Week 3	TestOut Security Pro – 7.0: Network Defenses TestOut Security Pro – 11.0: Assessments and Audits	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE190- Introduction to Cisco Router Configuration (CCENT)

Prerequisites(s): IE115

Credits: 3.0

Course Description: The course teaches the networking concepts and basic command required to configure Cisco routers and switches for small sized networks. You will gain skills in managing Cisco devices with multiple subnets.

Course Objective: This course prepares students for Cisco CCENT Exam 100-101.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- IP Addressing, subnetting, CIDR and VLSM
- Backup, restore, upgrade Cisco IOS software image.
- Configure and troubleshoot static routes.
- Control router password, identification and messages and list and solve problems that each routing type encounters

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics like dividing an IP address across multiple networks, configuring and enabling router interfaces, working with the Spanning Tree Protocol, and beginner routers, switches, VTP, and STP.

Required Course Materials

- Lammle, T. (2013). CCNA Routing and Switching Study Guide, 1st Edition Sybex
- TestOut. (2014). Routing and Switching Pro (200-120). TestOut Corporation.

Additional Course Material

- Odom, W. (2013). Cisco CCENT/CCNA ICND1 100-101. Cisco Press



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1: Internetworking Chapter 2: Review of Ethernet Networking and Data Encapsulation Chapter 3: Introduction to TCP/IP	2 hours
	Session 2	Chapter 4: Easy Subnetting Chapter 5: VLSMs, Summarization, and Troubleshooting TCP/IP Chapter 6: Cisco IOS	2 hours
Week 2	Session 1	Chapter 6 – Cisco’s Internetworking Operating System (IOS)	2 hours
	Session 2	Chapter 7: Managing a Cisco Internetwork Mid-Term	2 hours



Week 3	Session 1	Chapter 8: IP Routing	2 hours
	Session 2	Chapter 9: OSPF	2 hours
Week 4	Session 1	Chapter 10: Layer 2 Switching and STP	2 hours
	Session 2	Chapter 11: VLANs Final Test Final Project	2 hours



Course Title: IE190T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- IP Addressing, subnetting, CIDR and VLSM
- Backup, restore, upgrade Cisco IOS software image.
- Configure and troubleshoot static routes.
- Control router password, identification and messages and list and solve problems that each routing type encounters

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics like dividing an IP address across multiple networks, configuring and enabling router interfaces, working with the Spanning Tree Protocol, and beginner routers, switches, VTP, and STP.

Required Course Materials

- Lammle, T. (2013). CCNA Routing and Switching Study Guide, 1st Edition Sybex
- TestOut. (2014). Routing and Switching Pro (200-120). TestOut Corporation.

Additional Course Material

- Odom, W. (2013). Cisco CCENT/CCNA ICND1 100-101. Cisco Press



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	Routing and Switching PRO: 2.0 – Networking Concepts Routing and Switching PRO: 5.0 – IPv4 Addressing	2 hours
Week 2	Routing and Switching PRO: 3.0 – Cisco Device Basics Routing and Switching PRO: 6.0 – IP Routing Technologies	2 hours
Week 3	Routing and Switching PRO: 4.0 – LAN Switching Routing and Switching PRO: 13.0 –Advanced IPv4 Routing	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE195- Advanced Cisco Router Configuration (CCNA)

Prerequisites(s): IE190

Credits: 3.0

Course Description: The course teaches the concepts and command required to configure, secure, manage and troubleshoot Cisco routers for small and medium sized networks. You will gain skills in managing Cisco devices on a private network, with multiple subnets, connected to the Internet.

Course Objective: This course prepares students for Cisco CCNA Exam 200-101.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Configure and troubleshoot routing protocols (RIP, OSPF, EIGRP)
- Configure, monitor and troubleshoot routing protocols.
- Install, configure and operate routed LAN and WAN while Improve network reliability and quality of service.
- Control and filter shared Internet access using NAT and ACLs.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics such as enabling and disabling switch ports, routing protocol troubleshooting, routing tables, access control lists, VLAN Trunking Protocol (VTP), Frame Relay, and PPP.

Required Course Materials

- Lammle, T. (2013). CCNA Routing and Switching Study Guide, 1st Edition Sybex
- TestOut. (2014). Routing and Switching Pro (200-120). TestOut Corporation.

Additional Course Material

- Odom, W. (2013). Cisco CCNA Routing and Switching ICND2 200-101



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 12: Security Chapter 13: Network Address Translation (NAT)	2 hours
	Session 2	Chapter 14: IPv6	2 hours
Week 2	Session 1	Chapter 15: Enhanced Switched Technologies	2 hours
	Session 2	Chapter 16: Managing Cisco Devices Mid-Term	2 hours



Week 3	Session 1	Chapter 17: IP Services	2 hours
	Session 2	Chapter 18: Troubleshooting IP, IPv6, and VLANs	2 hours
Week 4	Session 1	Chapter 19: Enhanced IGRP Chapter 20: Multi-Area OSPF	2 hours
	Session 2	Chapter 21: Wide Area Networks Final Test Final Project	2 hours



Course Title: IE195T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: The course teaches the concepts and command required to configure, secure, manage and troubleshoot Cisco routers for small and medium sized networks. You will gain skills in managing Cisco devices on a private network, with multiple subnets, connected to the Internet.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Configure and troubleshoot routing protocols (RIP, OSPF, EIGRP)
- Configure, monitor and troubleshoot routing protocols.
- Install, configure and operate routed LAN and WAN while Improve network reliability and quality of service.
- Control and filter shared Internet access using NAT and ACLs.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics such as enabling and disabling switch ports, routing protocol troubleshooting, routing tables, access control lists, VLAN Trunking Protocol (VTP), Frame Relay, and PPP.

Required Course Materials

- Lammle, T. (2013). CCNA Routing and Switching Study Guide, 1st Edition Sybex
- TestOut. (2014). Routing and Switching Pro (200-120). TestOut Corporation.

Additional Course Material

- Odom, W. (2013). Cisco CCNA Routing and Switching ICND2 200-101



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	Routing and Switching PRO: 7.0 – IP Services Routing and Switching PRO: 8.0 – IPv6 Addressing	2 hours
Week 2	Routing and Switching PRO: 9.0 – Troubleshooting Routing and Switching PRO: 11.0 – Router Configuration Management	2 hours
Week 3	Routing and Switching PRO: 12.0 – Spanning Tree Protocol Routing and Switching PRO: 14.0 – Wide Area Networks	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE200 – Designing, Implementing and Troubleshooting Windows and Cisco Networks

Pre-Requisites: IE170

Credits: 1.0

Course Description: The course will enable a student to design, implement and troubleshoot local and wide area networks.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Design and implement a TCP/IP network for a medium sized company.
- Install and configure all the components of network including application servers.
- Implement firewall and publish websites.
- Install and configure Cisco routers for public network access.
- Implement Remote Access to access company network through internet.
- Upgrade networks from old version of Microsoft to new versions.
- Configure Internet Access and filtering.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on TCP/IP, LAN, WAN, Routing, Firewall, Proxy, VPN, Domain Controller, DNS, DHCP, Maintaining an Upgrade Infrastructure.

Approximate Amount of Time

Task Requirement	Amount of time (Hours)
In Class Project	21
Total Hours	21

Grading

Students will earn credit for the course after successful completion of the project.



Course Title: IE 220 – Installing, Configuring and Administering a VMware Environment

Pre-Requisites: IE 122

Credits: 3.0

Course Description: Provides students with skills on installing, configuring and administering a VMware vSphere environment. This course prepares students for VMware exam VCP-550: VMware Certified Professional – Data Center Virtualization.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Create and manage Virtual Machines and Appliances
- Perform migrations (P2V, V2V, and V2P)
- Manage resources with Resource Pools
- Configure Roles, Privileges and Permissions
- Monitor performance using advanced tools and commands

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics Introduction to vSphere, Software Defined Data Center, Virtual Machine Creation, vCenter Server, Configuring and Managing Virtual Networks, Configuring and Managing Virtual Storage, Access and Authentication Controls, Resource Management and Monitoring, High Availability and Fault Tolerance, Scalability, Patch Management and vSphere Component Management.

Required Course Materials

- VMware Academy vSphere 5.5: Data Center Virtualization Foundations: Student (Exam VCA-DCV). Gilmore.
- VMware Academy vSphere 5.5: Install, Configure and Manage: Student (Exam VCP-DCV). Gilmore.

Additional Course Material

- Atkinson, B. (2014). VCP5-DCV VMware Certified Professional-Data Center Virtualization on vSphere 5.5 Study Guide: VCP-550. Sybex. 2nd Edition.
- Fergusson, B. (2014). VCP5-DCV Official Certification Guide (Covering the VCP550 Exam): VMware Certified Professional 5 - Data Center Virtualization. VMware Press. 2nd Edition.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion and In-Class Discussion	12
Homework/Online Assignment	23
Labs and Project	12
Total	45

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Lesson 1 – Course Introduction Lesson 2 – Software-Defined Data Center	2 hours
	Session 2	Lesson 3 – Creating Virtual Machines Lesson 4 – VMware vCenter Server\	2 hours
Week 2	Session 1	Lesson 5 – Configuring and Managing Virtual Networks Lesson 6 – Configuring and Managing Virtual Storage	2 hours
	Session 2	Lesson 7 – Virtual Machine Management Mid-Term	2 hours



Week 3	Session 1	Lesson 8 – Access and Authentication Controls Lesson 9 – Resource Management and Monitoring	2 hours
	Session 2	Lesson 10 – High Availability and Fault Tolerance Lesson 11 – Host Scalability	2 hours
Week 4	Session 1	Lesson 12 – Patch Management	2 hours
	Session 2	Lesson 13 – Installing VMware vSphere Components Final Test Final Project	2 hours



Course Title: UN 100 – UNIX System Administration

Pre-Requisites: IE115

Credits: 3.0

Course Description: The course will introduce the students to Linux operating system. Installing, maintaining and troubleshooting packages, patches, users, groups, file system and permission.

Course Objective: This course prepares students for CompTIA LX0-101 Exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Install the Linux Environment on a Standalone System.
- Install, remove and check status or information about packages and patches.
- Create, Delete, and modify users and groups properties. Work with files and directory structure.
- Configure Linux for Network use.
- Use Terminal Commands and Use commands to manipulate device aliases.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on View command help, Manage files and directories. Create hard and symbolic links, Configure the boot file, Manage system and service run, levels, Stop, restart, and manage services. Shut down the system, Manage users and groups. Manage passwords, Format a hard disk, mount a volume, Manage quotas, and Manage file and directory permissions. Manage printing, and Manage network interfaces

Required Course Materials

- Tracy, R. (2015). CompTIA Linux+ Certification All-in-One Exam Guide (Exams LX0-101 and LX0-102). McGraw-Hill.
- TestOut. (2015). TestOut Linux PRO. TestOut Corporation.

Additional Course Material

- Smith, R. (2010). CompTIA Linux+ Complete Study Guide: Exams LX0-101 and LX0-102. Sybex.
- Tracy, R. (2013). Linux Essentials Certification. McGraw-Hill.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1: An Introduction to Linux Chapter 5: Installing Linux	2 hours
	Session 2	Chapter 2: Working with the Linux Shell	2 hours
Week 2	Session 1	Chapter 3: Using the vi Text Editor	2 hours
	Session 2	Chapter 4: Managing Linux Files and Directories Mid-Term Exam	2 hours



Week 3	Session 1	Chapter 6: Managing the Linux Boot Process	2 hours
	Session 2	Chapter 7: Managing the Graphical Environment	2 hours
Week 4	Session 1	Chapter 9: Managing Linux Users and Groups	2 hours
	Session 2	Chapter 8: Managing Linux Software Final Test Final Project	2 hours



Course Title: UN100T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Install the Linux Environment on a Standalone System.
- Install, remove and check status or information about packages and patches.
- Create, Delete, and modify users and groups properties. Work with files and directory structure.
- Configure Linux for Network use.
- Use Terminal Commands and Use commands to manipulate device aliases.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on View command help, Manage files and directories. Create hard and symbolic links, Configure the boot file, Manage system and service run, levels, Stop, restart, and manage services. Shut down the system, Manage users and groups. Manage passwords, Format a hard disk, mount a volume, Manage quotas, and Manage file and directory permissions. Manage printing, and Manage network interfaces

Course Materials

- Tracy, R. (2015). CompTIA Linux+ Certification All-in-One Exam Guide (Exams LX0-101 and LX0-102). McGraw-Hill.
- TestOut. (2015). TestOut Linux PRO. TestOut Corporation.

Additional Course Material

- Smith, R. (2010). CompTIA Linux+ Complete Study Guide: Exams LX0-101 and LX0-102. Sybex.
- Tracy, R. (2013). Linux Essentials Certification. McGraw-Hill.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut Linux PRO – 1.0: Using Linux TestOut Linux PRO – 2.0: Installing and Localization	2 hours
Week 2	TestOut Linux PRO – 3.0: Boot and Shutdown TestOut Linux PRO – 4.0: User Interface and Desktop	2 hours
Week 3	TestOut Linux PRO – 5.0: Software Installation TestOut Linux PRO – 6.0: Users and Groups	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: UN 110 - UNIX System Administration

Pre-Requisites: UN100

Credits: 3.0

Course Description: The course will introduce the students to Linux operating system. Installing, maintaining and troubleshooting packages, patches, users, groups, file system and permission.

Course Objective: This course prepares students for CompTIA LX0-102 Exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Create, Delete, and modify users and groups properties.
- Work with files and directory structure.
- Configure Linux for Network use.
- Install, remove and troubleshoot the user interface.
- Perform administrative tasks and customize the shell environment.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on View command help, Manage files and directories. Create hard and symbolic links, Configure the boot file, Manage system and service run, levels, Stop, restart, and manage services. Shut down the system, Manage users and groups. Manage passwords, Format a hard disk, mount a volume, Manage quotas, and Manage file and directory permissions. Manage printing, and Manage network interfaces

Required Course Materials

- Tracy, R. (2015). CompTIA Linux+ Certification All-in-One Exam Guide (Exams LX0-101 and LX0-102). McGraw-Hill.
- TestOut. (2015). TestOut Linux PRO. TestOut Corporation.

Additional Course Material

- Smith, R. (2010). CompTIA Linux+ Complete Study Guide: Exams LX0-101 and LX0-102. Sybex.
- Tracy, R. (2013). Linux Essentials Certification. McGraw-Hill.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	34
Homework/Online Assignment	12
Project	4
Total	50

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 10: Managing the Linux File System	2 hours
	Session 2	Chapter 11: Managing Ownership, Permissions, and Quotas	2 hours
Week 2	Session 1	Chapter 12: Managing Hardware under Linux	2 hours
	Session 2	Chapter 13: Managing Linux Processes Chapter 14: Writing Shell Scripts Mid-Term Test	2 hours



Week 3	Session 1	Chapter 15: Managing Linux Network Settings	2 hours
	Session 2	Chapter 16: Managing Network Services in Linux	2 hours
Week 4	Session 1	Chapter 17: Securing Linux	2 hours
	Session 2	Chapter 18: Using Encryption Final Test Final Project	2 hours



Course Title: UN110T – Certification Test Preparation

Prerequisites(s): None

Credits: 1.0

Course Description: This course reinforces the student learning process by reviewing learned topics with the aid of online simulation tools and computer-based training. It provides additional simulated hands-on experience as the student prepares for the related certification and technical job interview.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Create, Delete, and modify users and groups properties.
- Work with files and directory structure.
- Configure Linux for Network use.
- Install, remove and troubleshoot the user interface.
- Perform administrative tasks and customize the shell environment.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on View command help, Manage files and directories. Create hard and symbolic links, Configure the boot file, Manage system and service run, levels, Stop, restart, and manage services. Shut down the system, Manage users and groups. Manage passwords, Format a hard disk, mount a volume, Manage quotas, and Manage file and directory permissions. Manage printing, and Manage network interfaces

Course Materials

- Tracy, R. (2015). CompTIA Linux+ Certification All-in-One Exam Guide (Exams LX0-101 and LX0-102). McGraw-Hill.
- TestOut. (2015). TestOut Linux PRO. TestOut Corporation.

Additional Course Material

- Smith, R. (2010). CompTIA Linux+ Complete Study Guide: Exams LX0-101 and LX0-102. Sybex.
- Tracy, R. (2013). Linux Essentials Certification. McGraw-Hill.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Test	2
Homework/Online Assignment	20
Total	22

Homework

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut Linux PRO – 7.0: Using Disk and File System TestOut Linux PRO – 8.0: Hardware Installation	2 hours
Week 2	TestOut Linux PRO – 10.0: System Monitoring TestOut Linux PRO – 11.0: Networking	2 hours
Week 3	TestOut Linux PRO – 9.0: Processes and System Services TestOut Linux PRO – 12.0: Security	2 hours
Week 4	LabSim Simulation Test	2 hours



Course Title: IE 230 - Implementing Advanced Network Security

Pre-Requisites: IE180

Credits: 2.0

Course Description: Provides students with skills on risk management, research and identification of threats and applicable countermeasures and learn how to collaborate securely.

Course Objective: This course prepares students for the CompTIA Advanced Security Practitioner (CASP) exam CAS-002.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Analyze network security concepts, components, and architectures, and implement controls
- Use research and analysis to secure the enterprise
- Implement security controls
- Conduct vulnerability assessments
- Conduct incident and emergency responses.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Host, network, application, and storage integration, Enterprise-level infrastructure security, Secure cloud computing, Enterprise security research and analysis, Advanced authentication tools and techniques, Security policies and procedures, and Best security practices for changing business models.

Required Course Materials

- Abernathy, R., McMillan, T. (2015). CompTIA Advanced Security Practitioner (CASP) CAS-002 Cert Guide. 1st Edition. Pearson IT Certification.
- Abernathy, R., McMillan, T. (2015). CompTIA Advanced Security Practitioner (CASP) CAS-002 Cert Guide. 1st Edition. UCertify.

Additional Course Material

- Gregg, M. (2010). CASP CompTIA Advanced Security Practitioner Study Guide: Exam CAS-002. 2nd Edition. Sybex.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	40
Homework/Online Assignment	15
Project	5
Total	60

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1: Cryptographic Concepts and Techniques Chapter 2: Enterprise Storage	2 hours
	Session 2	Chapter 3: Network and Security Components, Concepts and Architectures Chapter 4: Security Controls for Hosts	2 hours
Week 2	Session 1	Chapter 5: Application Vulnerabilities and Security Controls Chapter 6: Business Influences and Associated Security Risks	2 hours
	Session 2	Chapter 7: Risk Mitigation Planning, Strategies and Controls Chapter 8: Security, Privacy Policies, and Procedures Chapter 9: Incident Response and Recovery Procedures Mid-Term Test	2 hours



Week 3	Session 1	Chapter 10: Industry Trends Chapter 11: Securing the Enterprise	2 hours
	Session 2	Chapter 12: Assessment Tools and Methods Chapter 13: Business Unit Collaboration	2 hours
Week 4	Session 1	Chapter 14: Secure Communication and Collaboration Chapter 15: Security Across the Technology Life Cycle	2 hours
	Session 2	Chapter 16: Host, Storage, Network, and Application Integration into a Secure Chapter 17: Enterprise Architecture Chapter 18: Authentication and Authorization Technologies Final Test Final Project	2 hours



Course Title: IE 240 - Advanced Information Security Practitioner

Pre-Requisites: IE180

Credits: 2.0

Course Description: Provides students with skills to design, engineer, implement, and manage an information security program. Students will be exposed to subject matters covered in a standardized information security topics that align with the (ISC)² Common Body of Knowledge (CBK).

Course Objective: This course prepares students for the Certified Information Systems Security Professional (CISSP) exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Apply security governance principles
- Classify information and supporting assets
- Implement and manage engineering processes using secure design principles
- Control physical and logical access
- Design and validate security assessments and test strategies.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Confidentiality, integrity, and availability, Security governance principles, Compliance, Secure network components, Secure communication channels, Network attacks, Identity and Access Management, Access control attacks, Security Assessment and Testing, and Security architectures vulnerabilities.

Required Course Materials

- Stewart, J. (2015). CISSP (ISC)² Certified Information Systems Security Professional Official Study Guide. 7th Edition. Sybex.

Additional Course Material

- Conrad, E. (2015). CISSP Study Guide. 3rd Edition. Syngress.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	40
Homework/Online Assignment	15
Project	5
Total	60

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1: Security Governance Through Principles and Policies Chapter 2: Personnel Security and Risk Management Concepts Chapter 3: Business Continuity Planning	2 hours
	Session 2	Chapter 4: Laws, Regulations, and Compliance Chapter 5: Protecting Security of Assets	2 hours
Week 2	Session 1	Chapter 6: Cryptography and Symmetric Key Algorithms Chapter 7: PKI and Cryptographic Applications Chapter 8: Principles of Security Models, Design, and Capabilities	2 hours
	Session 2	Chapter 9: Security Vulnerabilities, Threats, and Countermeasures Chapter 10: Physical Security Requirements Mid-Term Test	2 hours



Week 3	Session 1	Chapter 11: Secure Network Architecture and Securing Network Components Chapter 12: Secure Communications and Network Attacks Chapter 13: Managing Identity and Authentication	2 hours
	Session 2	Chapter 14: Controlling and Monitoring Access Chapter 15: Security Assessment and Testing	2 hours
Week 4	Session 1	Chapter 16: Managing Security Operations Chapter 17: Preventing and Responding to Incidents Chapter 18: Disaster Recovery Planning	2 hours
	Session 2	Chapter 19: Incidents and Ethics Chapter 20: Software Development Security Chapter 21: Malicious Code and Application Attacks Final Test Final Project	2 hours



Course Title: IE 250 – Forensics Investigation

Pre-Requisites: IE180

Credits: 2.0

Course Description: Provides students with the specific security skills to implement computer forensics and investigate cybercrimes.

Course Objective: This course prepares students for the Computer Hacking Forensics Investigator 312-49 exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- The process of investigating a cyber-crime
- Different types of digital evidence
- The processes involved in forensic investigation
- Password Cracking Concepts, tools, and password attacks
- How to investigate emails, logs, network traffic, and other attacks.

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Evidence searching, seizing and acquisition methodologies, Types of digital evidence, rules of evidence, digital evidence examination process, and electronic crime, Data acquisition and duplication rules, validation methods and tools required, Steganography, Steganalysis and image file forensics, Investigating logs, network traffic, wireless attacks, and web attacks.

Required Course Materials

- CHFIv9 Official Guide. (2016). EC-Council Press.

Additional Course Material

- Computer Forensics: Investigating Network Intrusions and Cyber Crime. (2016). EC-Council Press.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	40
Homework/Online Assignment	15
Project	5
Total	60

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1: Computer Forensics in Today's World Chapter 2: Computer Forensics Investigation Process Chapter 3: Searching and Seizing Computers	2 hours
	Session 2	Chapter 4: Digital Evidence Chapter 5: First Responder Procedures Chapter 6: Computer Forensics Lab	2 hours
Week 2	Session 1	Chapter 7: Understanding Hard Disks and File Systems Chapter 8: Windows Forensics Chapter 9: Data Acquisition and Duplication	2 hours
	Session 2	Chapter 10: Recovering Deleted Files and Deleted Partitions Chapter 11: Forensics Investigation Using AccessData FTK Chapter 12: Forensics Investigation Using EnCase Mid-Term Test	2 hours



Week 3	Session 1	Chapter 13: Steganography and Image File Forensics Chapter 14: Application Password Crackers Chapter 15: Log Capturing and Event Correlation	2 hours
	Session 2	Chapter 16: Network Forensics, Investigating Logs and Investigating Network Traffic Chapter 17: Investigating Wireless Attacks	2 hours
Week 4	Session 1	Chapter 18: Investigating Web Attacks Chapter 19: Tracking Emails and Investigating Email Crimes Chapter 20: Mobile Forensics	2 hours
	Session 2	Chapter 21: Investigative Reports Chapter 22: Becoming an Expert Witness Final Test Final Project	2 hours



Course Title: IE 260 – Ethical Hacking

Pre-Requisites: IE180

Credits: 2.0

Course Description: Provides students with advanced hacking tools and techniques used by hackers and information security professionals to break into an organization.

Course Objective: This course prepares students for the Certified Ethical Hacker 312-50 exam.

Learning outcomes: Upon successful completion of this course, the student will be able to:

- Understand the basic elements of information security
- List the 5 stages of ethical hacking
- Understand the different type of hacker attacks
- Understand vulnerability research and list the various vulnerability research tools
- Describe the ways to conduct ethical hacking

Instructional Methods: Class Lecture, Lab and In-Class Discussions include a breakdown of each chapter in the following session that is being attended. Lecture, Lab and In-Class Discussions on specific topics on Issues plaguing the information security world, Incident management process, Footprinting, tools and countermeasures, Network scanning and countermeasures, Enumeration and countermeasures, System hacking methodologies and covering tracks, Trojan, analysis and countermeasures, Working of viruses, worms, malware analysis and countermeasures, DoS/DDoS attack techniques, botnets, and countermeasures.

Required Course Materials

- CEHv9 Official Guide. (2016). EC-Council Press.

Additional Course Material

- CEH: Official Certified Ethical Hacker Review Guide. (2016). EC-Council Press.



Approximate Amount of Time

Task Requirement	Amount of time (Hours)
Lecture, Lab and In-Class Discussion	40
Homework/Online Assignment	15
Project	5
Total	60

Course Outline

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1: Introduction to Ethical Hacking Chapter 2: Footprinting and Reconnaissance Chapter 3: Scanning Networks	2 hours
	Session 2	Chapter 4: Enumeration Chapter 5: System Hacking	2 hours
Week 2	Session 1	Chapter 6: Malware Threats Chapter 7: Evading IDS, Firewalls and Honeypots	2 hours
	Session 2	Chapter 8: Sniffing Chapter 9: Social Engineering Mid-Term Test	2 hours



Week 3	Session 1	Chapter 10: Denial of Service Chapter 11: Session Hijacking Chapter 12: Hacking Web Servers	2 hours
	Session 2	Chapter 14: SQL Injection Chapter 13: Hacking Web Applications	2 hours
Week 4	Session 1	Chapter 15: Hacking Wireless Networks Chapter 16: Hacking Mobile Platforms	2 hours
	Session 2	Chapter 17: Cloud Computing Chapter 18: Cryptography Final Test Final Project	2 hours

