



# Syllabus

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**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.**

Published Volume 6, July 22, 2015

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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) and VMware Certified Professional – Data Center Virtualization (VCP-DCV). 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**

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Regular Course

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

T-Course

Assignments	Percentage
Exam	40%
Homework	60%
<b>Total</b>	<b>100%</b>



## Courses

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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  
IE123: Troubleshooting Microsoft Windows Desktop Operating System  
IE123T: Certification Test Preparation  
IE140: Planning, Implementing and Administering Microsoft Windows Directory Service  
IE140T: Certification Test Preparation  
IE150: Designing a Microsoft Windows Directory Services Infrastructure  
IE150T: 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  
IE200: Designing, Implementing & Troubleshooting Project  
IE220: Installing, Configuring and Administering a VMware Environment  
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 220-801 and 220-802.

**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 lectures 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 XP, Windows Vista, Windows 7, OS Troubleshooting, Local Area Networking, Internet, Security and IT Professionalism.

**Course Materials**

- Meyers, M. 2012. CompTIA A+ Certification All-in-One Exam Guide, 8th Edition. McGraw-Hill.
- TestOut. 2012. PC Pro 220-801 and 220-802 LabSim. TestOut Corporation.

**Additional Course Material**

- Docter, Q., Dulaney, E., Skandier, T. (2009). CompTIA A+ Complete Study Guide: Exams 220-801 (Essentials) and 220-802 (Practical Application). Sybex



**Approximate amount of time**

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

**Sessions**

<b>Week</b>	<b>Session</b>	<b>Homework Reading Assignment</b>	<b>Amount of homework time (Hours)</b>
Week 1	Session 1	Chapter 4 – Visible Windows Chapter 5 – Visible Networks Chapter 12 – Implementing Hard Drives	2 hours
	Session 2	Chapter 14 – Installing and Updating Windows Chapter 15 – Windows Under the Hood* Chapter 16 – NTFS, Users, and Groups	2 hours
Week 2	Session 1	Chapter 17 – Maintaining and Optimizing Windows Chapter 18 – Working with the Command-Line Interface <b>Mid-Term Test</b>	2 hours
	Session 2	Chapter 19 – Troubleshooting Windows Chapter 22 – Local Area Networking Chapter 23 – Wireless Networking	2 hours



Week 3	Session 1	Chapter 24 – The Internet Chapter 29 – Securing Computers Chapter 30 – Virtualization	2 hours
	Session 2	Chapter 31 – The Right PC for You Chapter 32 – The Complete PC Tech* <b>Final Test</b> <b>Final Project</b>	2 hours





**Course Title: IE100T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 3.0**

**Course 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 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 lectures 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 XP, Windows Vista, Windows 7, OS Troubleshooting, Local Area Networking, Internet, Security and IT Professionalism.

**Course Materials**

- Meyers, M. 2012. CompTIA A+ Certification All-in-One Exam Guide, 8th Edition. McGraw-Hill.
- TestOut. 2012. PC Pro 220-801 and 220-802 LabSim. TestOut Corporation.

**Additional Course Material**

- Docter, Q., Dulaney, E., Skandier, T. (2009). CompTIA A+ Complete Study Guide: Exams 220-801 (Essentials) and 220-802 (Practical Application). Sybex



**Approximate amount of time**

Task Requirement	Amount of time (Hours)
Test	2
Distance Learning	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	3 hours
Week 2	TestOut PC Pro – 9.0: Windows Management TestOut PC Pro – 10.0: System Implementation	3 hours
Week 3	TestOut PC Pro – 11.0: File Management TestOut PC Pro – 12.0: Security LabSim Simulation Test	4 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 220-801 and 220-802.

**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 lectures 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.

**Course Materials**

- Meyers, M. 2012. CompTIA A+ Certification All-in-One Exam Guide, 8th Edition. McGraw-Hill.
- TestOut. 2012. PC Pro 220-801 and 220-802 LabSim. TestOut Corporation.

**Additional Course Material**

- Docter, Q., Dulaney, E., Skandier, T. (2009). CompTIA A+ Complete Study Guide: Exams 220-801 (Essentials). and 220-802 (Practical Application). Sybex



**Approximate in-class amount of time in-class**

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

**Sessions**

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 2 – Operational Procedures Chapter 3 – The Visible PC Chapter 6 – Microprocessors	2 hours
	Session 2	Chapter 7 – RAM Chapter 8 – BIOS Chapter 9 – Motherboards	2 hours
Week 2	Session 1	Chapter 10 – Power Supplies Chapter 11 – Hard Drive Technologies <b>Mid-Term Test</b>	2 hours
	Session 2	Chapter 13 – Removable Media Chapter 20 – Input Devices Chapter 21 –Video	2 hours



Week 3	Session 1	Chapter 25 – Multimedia Chapter 26 – Portable Computing	2 hours
	Session 2	Chapter 27 – Mobile Devices Chapter 28 – Printers <b>Final Test</b> <b>Final Project</b>	2 hours



**Course Title: IE110T – Certification Test Preparation**

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**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 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 lectures 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.

**Course Materials**

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- Meyers, M. 2012. CompTIA A+ Certification All-in-One Exam Guide, 8th Edition. McGraw-Hill.
- TestOut. 2012. PC Pro 220-801 and 220-802 LabSim. TestOut Corporation.

**Additional Course Material**

- Docter, Q., Dulaney, E., Skandier, T. (2009). CompTIA A+ Complete Study Guide: Exams 220-801 (Essentials). and 220-802 (Practical Application). Sybex



**Approximate amount of time**

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Task Requirement	Amount of time (Hours)
Test	2
Distance Learning	20
Total	22

**Homework**

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



**Course Title: IE115- Networking Fundamentals (CCENT)**

**Prerequisites(s): None**

**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.

**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

*Sessions*

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1: Internetworking Chapter 2: Review of Ethernet Chapter 3: Introduction to TCP/IP	2 hours
	Session 2	Chapter 4: Easy Subnetting Chapter 5: VLSMs, Summarization, and Troubleshooting TCP/IP	2 hours
Week 2	Session 1	Chapter 6 – Cisco’s Internetworking Operating System (IOS) <b>Review/Midterm</b>	2 hours
	Session 2	Chapter 7: Managing a Cisco Internetwork Chapter 8: IP Routing	2 hours



Week 3	Session 1	Chapter 9: OSPF	2 hours
	Session 2	Chapter 10: Layer 2 Switching and STP Chapter 11: VLANs <b>Review/Final Test</b> <b>Final Project</b>	2 hours



**Course Title: IE115T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 3.0**

**Course Objectives:** 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.

**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 lectures include a breakdown of each chapter in the following session that is being attended. Lectures 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.

**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
Distance Learning	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 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 install, and configure Windows 7, including ensuring hardware and software compatibility. Share and secure folders, files, and printers in a Windows environment. Configure Internet Explorer security settings.

**Course Objective:** This course prepares students for Microsoft 70-680 Exam.

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

- Install, upgrade, and migrate to Windows 7, and creating a virtual hard disk for Windows deployment
- Configure hardware, applications, and access to resources.
- Configure mobile computing. Using Remote desktop and Managing VPN connections
- Monitor and maintain system that run Windows 7, and Manage quotas.
- Protect the system and data using backups and System restore.

**Instructional Methods:** Class lectures include a breakdown of each chapter in the following session that is being attended. In depth lectures on Installation, configuration and troubleshooting Windows 7, Driver Signing, Policies, WDS/WSIM Automated Installation, Direct Access VPN and Branch Cache. Backups and System Restore. Using Remote Desktop. Configure IPv4 and IPv6 settings.

**Course Materials**

- Panek, W. (2010). MCTS Windows 7 Configuration Study Guide: Exam 70-680. Sybex
- TestOut. (2012). Configuring Windows 7 LabSim. TestOut Corporation

**Additional Course Material**

- Microsoft Official Academic Course. Exam 70-680: Windows 7 Configuration with Lab Manual Set (Microsoft Official Academic Course Series). Microsoft
- McLean I., Thomas, O. MCTS Self-Paced Training Kit (Exam 70-680): Configuring Windows® 7



*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

*Sessions*

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Lesson 1 – Installing Windows 7 Lesson 2 – Automating the Windows 7 Installation	2 hours
	Session 2	Lesson 3 – Managing Disks	2 hours
Week 2	Session 1	Lesson 4 – Managing the Windows 7 Environment Lesson 5 – Configuring Hardware and Applications <b>Mid-Term</b>	2 hours
	Session 2	Lesson 6 – Managing Users, Groups, and Security	2 hours



Week 3	Session 1	Lesson 7 – Configuring Network Connectivity Lesson 8 – Monitoring and Maintaining Windows 7	2 hours
	Session 2	Lesson 9 – Configuring Backups and Recovery <b>Final Test</b> <b>Final Project</b>	2 hours



**Course Title: IE121T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 3.0**

**Course 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 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, upgrade, and migrate to Windows 7, and creating a virtual hard disk for Windows deployment
- Configure hardware, applications, and access to resources.
- Configure mobile computing. Using Remote desktop and Managing VPN connections
- Monitor and maintain system that run Windows 7, and Manage quotas.
- Protect the system and data using backups and System restore.

**Instructional Methods:** Class lectures include a breakdown of each chapter in the following session that is being attended. In depth lectures on Installation, configuration and troubleshooting Windows 7, Driver Signing, Policies, WDS/WSIM Automated Installation, Direct Access VPN and Branch Cache. Backups and System Restore. Using Remote Desktop. Configure IPv4 and IPv6 settings.

**Course Materials**

- Panek, W. (2010). MCTS Windows 7 Configuration Study Guide: Exam 70-680. Sybex
- TestOut. (2012). Configuring Windows 7 LabSim. TestOut Corporation

**Additional Course Material**

- Microsoft Official Academic Course. Exam 70-680: Windows 7 Configuration with Lab Manual Set (Microsoft Official Academic Course Series). Microsoft
- McLean I., Thomas, O. MCTS Self-Paced Training Kit (Exam 70-680): Configuring Windows® 7





**Approximate amount of time**

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Task Requirement	Amount of time (Hours)
Test	2
Distance Learning	20
Total	22

**Homework**

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Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut Configuring Windows 7 – 3.0: Hardware and Applications TestOut Configuring Windows 7 – 4.0: Networking	3 hours
Week 2	TestOut Configuring Windows 7 – 5.0: Resource Access TestOut Configuring Windows 7 – 6.0: Mobile Computing	3 hours
Week 3	TestOut Configuring Windows 7 – 7.0: Monitoring and Maintenance TestOut Configuring Windows 7 – 8.0: Backup and Recovery LabSim Simulation Test	4 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.

**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

Sessions

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 Features	2 hours
Week 2	Session 1	Lesson 4 – Deploying and Configuring Core Network Services <b>Mid-Term</b>	2 hours
	Session 2	Lesson 5 – Installing and Administering Active Directory	2 hours



Week 3	Session 1	Lesson 6 – Creating and Managing Group Policy	2 hours
	Session 2	Lesson 3 – Configuring Hyper-V <b>Final Test</b> <b>Final Project</b>	2 hours



**Course Title: IE122T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 3.0**

**Course 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 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

**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
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**Approximate amount of time**

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Task Requirement	Amount of time (Hours)
Test	2
Distance Learning	20
Total	22

**Homework**

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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	3 hours
Week 2	TestOut Windows Server Pro: Install and Configure – 10.0: DHCP TestOut Windows Server Pro: Install and Configure – 5.0: DNS	3 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 LabSim Simulation Test	4 hours



**Course Title: IE123- Troubleshooting Microsoft Windows Desktop Operating System**

**Prerequisites(s): IE121**

**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 123 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.

**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

Sessions

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	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 Lesson 7 – Networking with Windows 7	2 hours
Week 2	Session 1	Lesson 8 – Accessing Resources on a Network <b>Mid-Term</b>	2 hours
	Session 2	Lesson 9 – Managing Windows 7 in a Domain Lesson 10 – Managing Windows 7 with Group Policy	2 hours





Week 3	Session 1	Lesson 11 – Managing Security in Windows 7 Lesson 12 – Supporting Mobile Windows 7 Users	2 hours
	Session 2	Lesson 13 – Administering Internet Explorer <b>Final Test</b> <b>Final Project</b>	2 hours



**Course Title: IE123T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 1.0**

**Course 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:

- 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.

**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
Distance Learning	20
Total	22

**Homework**

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	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 2	Lesson 7 – Networking with Windows 7 Lesson 8 – Accessing Resources on a Network Lesson 9 – Managing Windows 7 in a Domain	2 hours
Week 3	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: 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***

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

***Sessions***

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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 <b>Mid-Term</b>	2 hours
	Session 2	Lesson 4 – Configure a Network Policy Server Infrastructure	2 hours



Week 3	Session 1	Lesson 5 – Configure and Manage Active Directory	2 hours
	Session 2	Lesson 6 – Configure and Manage Group Policy <b>Final Test</b> <b>Final Project</b>	2 hours



**Course Title: IE140T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 3.0**

**Course 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 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**

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Task Requirement	Amount of time (Hours)
Test	2
Distance Learning	20
Total	22

**Homework**

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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	3 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	3 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 LabSim Simulation Test	4 hours





**Course Title: IE160- Supporting Microsoft Windows Network Infrastructure**

**Prerequisites(s): IE140**

**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***

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

***Sessions***

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



Week 3	Session 1	Lesson 3 – Implement Business Continuity and Disaster Recovery	2 hours
	Session 2	Lesson 4 – Configuring Network Services <b>Final Test</b> <b>Final Project</b>	2 hours



***Course Title: IE160T – Certification Test Preparation***

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**Prerequisites(s): None**

**Credits: 3.0**

**Course 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 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***

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- 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***

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- 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
Distance Learning	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	3 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	3 hours
Week 3	TestOut Windows Server Pro: Advanced Services– 4.0: Advanced DHCP TestOut Windows Server Pro: Advanced Services– 5.0: Advanced DNS LabSim Simulation Test	4 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**

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	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)
	<b>Total</b>	<b>24.0 hours</b>



**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

Sessions

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 Chapter 4: Access Control, Authentication, and Authorization	2 hours
Week 2	Session 1	Chapter 5: Protecting Wireless Networks Chapter 6: Securing the Cloud <b>Mid-Term</b>	2 hours
	Session 2	Chapter 7: Host, Data, and Application Security Chapter 8: Cryptography	2 hours



Week 3	Session 1	Chapter 9: Malware, Vulnerabilities, and Threats Chapter 10: Social Engineering and Other Foes	2 hours
	Session 2	Chapter 11: Security Administration Chapter 12: Disaster Recovery and Incident Response <b>Final Test</b> <b>Final Project</b>	2 hours



**Course Title: IE180T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 3.0**

**Course 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 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 lectures include a breakdown of each chapter in the following session that is being attended. Lectures on specific topics on Authentication, Encryption, Security Protocols, Network Security Devices, Access Permissions. Secure remote access connections. Configure the Windows Firewall. Secure folder and file access using DACLs.

**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**

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Task Requirement	Amount of time (Hours)
Test	2
Distance Learning	20
Total	22

**Homework**

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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	3 hours
Week 2	TestOut Security Pro – 9.0: Application Defenses TestOut Security Pro – 3.0: Cryptography	3 hours
Week 3	TestOut Security Pro – 7.0: Network Defenses TestOut Security Pro – 11.0: Assessments and Audits LabSim Simulation Test	4 hours



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

**Prerequisites(s): IE115**

**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 lectures include a breakdown of each chapter in the following session that is being attended. Lectures 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.

**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

Sessions

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 Chapter 15: Enhanced Switched Technologies	2 hours
Week 2	Session 1	Chapter 16: Managing Cisco Devices <b>Mid-Term</b>	2 hours
	Session 2	Chapter 17: IP Services Chapter 18: Troubleshooting IP, IPv6, and VLANs	2 hours



Week 3	Session 1	Chapter 19: Enhanced IGRP Chapter 20: Multi-Area OSPF	2 hours
	Session 2	Chapter 21: Wide Area Networks <b>Final Test</b> <b>Final Project</b>	2 hours



**Course Title: IE190T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 3.0**

**Course Objectives:** 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 lectures include a breakdown of each chapter in the following session that is being attended. Lectures 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.

**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**

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Task Requirement	Amount of time (Hours)
Test	2
Distance Learning	20
Total	22

**Homework**

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Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut CCNA – 7.0: Advanced Switching TestOut CCNA – 8.0: Access Lists	3 hours
Week 2	Routing and Switching PRO: 9.0 – Troubleshooting Routing and Switching PRO: 11.0 – Router Configuration Management	3 hours
Week 3	Routing and Switching PRO: 12.0 – Spanning Tree Protocol Routing and Switching PRO: 14.0 – Wide Area Networks LabSim Simulation Test	4 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. 2<sup>nd</sup> Edition.
- Fergusson, B. (2014). VCP5-DCV Official Certification Guide (Covering the VCP550 Exam): VMware Certified Professional 5 - Data Center Virtualization. VMware Press. 2<sup>nd</sup> 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
<b>Total</b>	<b>45</b>

***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 <b>Mid-Term</b>	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 <b>Final Test</b> <b>Final Project</b>	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
<b>Total</b>	<b>50</b>

*Sessions*

Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 1: Introduction to Linux Chapter 5: Installing Linux	2 hours
	Session 2	Chapter 2: Working with the Linux Shell Chapter 3: Using the vi Text Editor	2 hours
Week 2	Session 1	Chapter 4: Managing Linux Files and Directories <b>Mid-Term Exam</b>	2 hours
	Session 2	Chapter 6: Managing the Linux Boot Process	2 hours



Week 3	Session 1	Chapter 7: Managing the Graphical User Environment Chapter 9: Managing Linux Users and Groups	2 hours
	Session 2	Chapter 8: Managing Linux Software <b>Final Test</b> <b>Final Project</b>	2 hours





**Course Title: UN100T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 3.0**

**Course 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 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***

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Task Requirement	Amount of time (Hours)
Test	2
Distance Learning	20
Total	22

***Homework***

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Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut Linux+ Powered by LPI (2010). – 1.0: Using Linux TestOut Linux+ Powered by LPI (2010). – 2.0: Installing and Localization	3 hours
Week 2	TestOut Linux+ Powered by LPI (2010). – 3.0: Boot and Shutdown TestOut Linux+ Powered by LPI (2010). – 4.0: User Interface and Desktop	3 hours
Week 3	TestOut Linux+ Powered by LPI (2010). – 5.0: Software Installation TestOut Linux+ Powered by LPI (2010). – 6.0: Users and Groups LabSim Simulation Test	4 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**

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- 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***

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

***Sessions***

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Week	Session	Homework Reading Assignment	Amount of homework time (Hours)
Week 1	Session 1	Chapter 10: Managing the Linux File System Chapter 11: Managing Ownership, Permissions, and Quotas	2 hours
	Session 2	Chapter 12: Managing Hardware under Linux	2 hours
Week 2	Session 1	Chapter 13: Managing Linux Processes Chapter 14: Writing Shell Scripts	2 hours
	Session 2	Chapter 15: Managing Linux Network Settings Chapter 16: Managing Network Services in Linux	2 hours



Week 3	Session 1	Chapter 17: Securing Linux	2 hours
	Session 2	Chapter 18: Using Encryption <b>Final Test</b> <b>Final Project</b>	2 hours



**Course Title: UN110T – Certification Test Preparation**

**Prerequisites(s): None**

**Credits: 1.0**

**Course 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:

- 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)
Test	2
Distance Learning	20
Total	22

**Homework**

Week	Homework Assignment	Amount of homework time (Hours)
Week 1	TestOut Linux+ Powered by LPI (2010). – 7.0: Using Disk and File System TestOut Linux+ Powered by LPI (2010). – 8.0: Hardware Installation	2 hours
Week 2	TestOut Linux+ Powered by LPI (2010). – 10.0: System Monitoring TestOut Linux+ Powered by LPI (2010). – 11.0: Networking	2 hours
Week 3	TestOut Linux+ Powered by LPI (2010). – 9.0: Processes and System Services TestOut Linux+ Powered by LPI (2010). – 12.0: Security LabSim Simulation Test	2 hours

