

Ministry of Education
University of Computer Studies, Yangon
Diploma in Computer Science
Syllabus and Lecture Plan for IT Essentials

Course Description

The IT Essentials course covers the fundamentals of computer and mobile devices hardware and software and advanced concepts such as security, networking, and the responsibilities of an IT professional. It is designed for students who want to pursue careers in IT and students who want to gain practical knowledge of how a computer and mobile devices works.

Students who complete this course will be able to describe the internal components of a computer, assemble a computer system, install an operating system, and troubleshoot using system tools and diagnostic software. Students will also be able to connect to the Internet and share resources in a networked environment. The IT Essentials course also includes data centers, cloud computing and networked host services. Expanded topics include more mobile device hardware configuration and diagnostic, working with mobile operating systems from Android, iOS and Windows Phone and deepening in the level security-related topics.

Course Learning Outcomes

Upon completion of the IT Essentials course, students will be able to perform the following tasks:

- Select the appropriate computer components to build, repair, or upgrade personal computers
- Explain how to correctly use tools and safely work in a lab
- Install components to build, repair, or upgrade personal computers
- Explain how to perform preventive maintenance and troubleshooting on personal computers
- Install Windows operation systems
- Perform management and maintenance of Windows operating systems
- Configure computers to communicate on a network
- Configure devices to connect to the Internet and Cloud services
- Explain how to use, configure, and manage laptops and mobile devices
- Explain how to configure, secure and troubleshoot mobile, OS X, and Linux operating systems
- Install and share a printer to meet requirements
- Implement basic host, data, and network security
- Explain the roles and responsibilities of the IT professional
- Troubleshoot advanced hardware and software problems
- Provide an experience-oriented course that employs industry-relevant instructional approaches to prepare students for entry-level jobs in the industry

Course Outline

1. Introduction to the Personal Computer: Selecting the appropriate computer components to build, repair, or upgrade personal computers.
2. Lab Procedures and Tool Use: The purpose of safe working conditions and safe lab procedures.
3. Computer Assembly: Installation components to build, repair, or upgrade personal computers.
4. Preventive Maintenance and the Troubleshooting Process: Preventive maintenance and troubleshooting on personal computers.
5. Windows Installation: Installation of Microsoft Windows operation systems.
6. Windows Configuration and Management: Configuration, management, maintenance, and troubleshooting of Microsoft Windows operating systems.
7. Network Concepts: The operation of networks.
8. Applied Networking: Configure devices to connect to LANs, the Internet, and Cloud services.
9. Laptops and Mobile Devices: Configure, repair, upgrade, maintain and troubleshoot laptops and mobile devices.
10. Mobile, Linux, and OS X Operating Systems: Configure, secure and troubleshoot mobile, Mac, and Linux operating systems.
11. Printers: Installing a printer to meet requirements.
12. Security: Implementing basic host, data, and network security.
13. The IT Professional: The roles and responsibilities of the IT professional.
14. Advanced Troubleshooting: Troubleshooting advanced hardware and software problems.

Course Resources

1. **Cisco Network Academy IT Essentials Netcad learning management system**
(www.netacad.com)
Students will be provided with individual account access to the Cisco Netcad LMS. The complete curriculum for this course is available online for student use 24x7 through internet access.
2. **Cisco Packet Tracer**
Cisco Packet Tracer, an innovative network simulation and visualization tool, helps students practice networking configuration skills. Cisco Packet Tracer is available as a free download for IT Essentials students.
3. **FTP Server**
Students will have access to class materials from UCSY FTP server.
4. **UCSY Learning Management System**
All lab assignments will be posted on the UCSY Learning Management System site for this course. Students will submit all electronic copies of assignments in this site.

Assessments

Class Participation	10%
Quiz	20%
Assignment	20%
Final Exam	50%

Instructor

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Facallity of Computer Systems and Technologies

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Lecture Plan

Unit	Course Title	Learning Hours	Learning Strategy	Assessment
1	Introduction to the Personal Computer <ul style="list-style-type: none"> • Personal Computer Systems • Computer Components • Configurations for Specialized Computer Systems 	4	Lecture Practical	Test Assignment
2	Lab Procedures and Tool Use <ul style="list-style-type: none"> • Safe Lab procedures • Proper Use of Tools 	3	Lecture Practical	Test Assignment
3	Computer Assembly <ul style="list-style-type: none"> • Assemble the Computer • Boot the Computer • Upgrade and Configure a Computer 	8	Lecture Practical	Test Assignment
4	Overview of Preventive Maintenance and the Troubleshooting Process <ul style="list-style-type: none"> • Preventive Maintenance • Troubleshooting Process 	3	Lecture	Test
5	Windows Installation <ul style="list-style-type: none"> • Modern Operating System • Operating System Installation 	5	Lecture Practical	Test Assignment
6	Windows Configuration & Management <ul style="list-style-type: none"> • The Windows GUI and Control Panel • Client-Side Virtualization • Common Preventive Maintenance Techniques for Operating Systems • Basic Troubleshooting Process for Operating Systems 	7	Lecture Practical	Test Assignment
7	Network Concepts <ul style="list-style-type: none"> • Principles of Networking • Networking Standards • Physical Components of a Network • Basic Networking Concepts and Technologies 	5	Lecture Practical	Test Assignment
8	Applied Networking <ul style="list-style-type: none"> • Computer to Network Connection • ISP Connection Technologies • Internet Technologies • Common Preventive Maintenance Techniques Used for Networks • Basic Troubleshooting Process for Networks 	5	Lecture Practical	Test Assignment
9	Laptops & Mobile Devices	4	Lecture	Test

	<ul style="list-style-type: none"> • Laptop Components • Laptop Configuration • Laptop Hardware and Component Installation and Configuration • Mobile Device Hardware Overview • Common Preventive Maintenance Techniques for Laptops and Mobile Devices • Basic Troubleshooting Process for Laptops and Mobile Devices 		Practical	Assignment
10	<p>Mobile, Linux and OS X Operating Systems</p> <ul style="list-style-type: none"> • Mobile Operating Systems • Methods of Securing Mobile Devices • Network Connectivity and Email • Linux and OS X Operating Systems • Basic Troubleshooting Process for mobile, Linux and OS X Operating Systems 	8	Lecture Practical	Test Assignment
11	<p>Printers</p> <ul style="list-style-type: none"> • Common Printer Features • Installing and Configuring Printers • Sharing Printers • Maintaining and Troubleshooting Printers 	5	Lecture Practical	Test Assignment
12	<p>Security</p> <ul style="list-style-type: none"> • Security Threats • Security Procedures • Common Preventive Maintenance Techniques for Security • Basic Troubleshooting Process for Security 	5	Lecture Practical	Test Assignment
13	<p>The IT Professional</p> <ul style="list-style-type: none"> • Communication Skills and the IT Professional • Ethical and Legal Issues in the IT Industry • Call Center Technicians 	3	Lecture Practical	Test Assignment
14	<p>Advanced Troubleshooting</p> <ul style="list-style-type: none"> • Review Troubleshooting Steps • Troubleshoot computer components and peripherals • Troubleshoot operating systems • Troubleshoot networks • Troubleshoot security 	3	Lecture Practical	Test Assignment
Total		70 Hours		