



Course Specifications

Course Title:	Routing and Switching1
Course Code:	CS 0105
Program:	Networks
Department:	Applied Sciences
College:	Applied College
Institution:	Imam Muhammad Bin Saud Islamic University

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A. Course Identification

1. Credit hours: 3(2 theory , 2 lab)			
2. Course type			
a.	University <input type="checkbox"/>	College <input type="checkbox"/>	Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>	
3. Level/year at which this course is offered: Third Semester			
4. Pre-requisites for this course (if any): None			
5. Co-requisites for this course (if any): None			

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3hours\week	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	22
2	Laboratory/Studio	22
3	Tutorial	
4	Others (specify)	
	Total	44

B. Course Objectives and Learning Outcomes

1. Course Description

This course is the second in a series of courses on computer networking. It assumes familiarity with the basics of network architecture including the physical layer, the link layer, the network layer, and the transport layer.

This course describes the architecture, components, and operations of routers and switches in a small network.

2. Course Main Objective

By the end of this course, you will be able to configure and troubleshoot routers and switches and resolve common issues with different routing protocols.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Identify the components of computer networks, including: routers and switches, and clarify their basic functions.	2ع, 1ع
1.2	Explain the main aspects of Ethernet, VLAN and TCP/IP.	5ع
1.3	Expressing common network management systems, their components, activities and services	4ع
2	Skills :	
2.1	Examine different computer network setups and improve the skill of dealing with computer network components, including routers and switches.	2م, 1م
2.2	Discuss networking services and protocols.	3م
3	Values:	
3.1	Work effectively in a team to accomplish a specific goal regarding computer network services.	7م, 2ق, 1ق

C. Course Content

No	List of Topics	Contact Hours
1	Networking <ul style="list-style-type: none"> • Introduction to networking • Internetworking devices • Overview of the OSI reference model 	4
2	Ethernet <ul style="list-style-type: none"> • Ethernet overview • Ethernet addressing • Ethernet cables • Data encapsulation and the Cisco three-layer model 	4
3	Introduction to TCP/IP <ul style="list-style-type: none"> • Overview of TCP/IP model • Application/process layer • Transport/host-to-host layer • Internet layer • IP addressing • IPv4 address • Classes of IP addresses • Public and private addresses 	4
4	IP Routing <ul style="list-style-type: none"> • Overview of IP routing 	8

	<ul style="list-style-type: none"> • The IP routing process • Configure IP routing • Static routing • Default routing • Administrative distances and routing protocols <div> Class & Lab Activities <ul style="list-style-type: none"> • Basic Routing Concepts and Configuration <ul style="list-style-type: none"> ○ Built a network with router ○ Set up the router configurations: <ul style="list-style-type: none"> - Mode types: <ul style="list-style-type: none"> • password, identification, and banner • initial command • login to the router device by <ul style="list-style-type: none"> • user mode. • privileged mode. • configuration mode. • Reset password • command history and the editing feature <ul style="list-style-type: none"> ○ Activate IP ○ Find bugs in Routers and fix them using Pin command </div>	
5	<div> Routing Protocols <ul style="list-style-type: none"> • Overview of Routing Protocols • RIP. • IGRP. • OSPF. • BGP </div>	8
6	<div> Switching <ul style="list-style-type: none"> • LAN Design • The Switched Environment <ul style="list-style-type: none"> • Frame Forwarding • Switching Domains <div> Class & Lab Activities <ul style="list-style-type: none"> • Create networks and sending messages <ul style="list-style-type: none"> • Built a network of 2 devices • Built a network with hub • Built a network with switch • Packet Tracer Activities • Basic Switching Concepts and Configuration </div> </div>	8

7	VLANs <ul style="list-style-type: none"> VLANs and Port Modes Flow control specifications and main methods. Inter VLAN Routing Types of VLANs VLANs in a Multiswitched Environment IP Addressing Issues with VLAN <ul style="list-style-type: none"> Class & Lab Activities <ul style="list-style-type: none"> Troubleshoot VLANs and Trunks 	8
Total		44

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Identify the components of computer networks, including: routers and switches, and clarify their basic functions.	Class lectures Class Discussion Questions/Answers sessions in class Homework assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports.
1.2	Explain the main aspects of Ethernet, VLAN and TCP/IP.	Class lectures Class Discussion Questions/Answers sessions in class Homework assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports. Study cases.
1.3	Expressing common network management systems, their components, activities and services.	Class lectures Class Discussion Questions/Answers sessions in class Homework assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports. Study cases.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	Skills		
2.1	Examine different computer network setups and improve the skill of dealing with computer network components, including routers and switches.	Class lectures Class Discussion Questions/Answers sessions in class Home work assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports. Study cases.
2.2	Discuss networking services and protocols	Class lectures Class Discussion Questions/Answers sessions in class Homework assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports. Study cases.
3.0	Values		
3.1	Work effectively in a team to accomplish a specific goal regarding computer network services.	Class lectures Class Discussion Questions/Answers sessions in class Homework assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports. Study cases.

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week3,5	10%
2	Midterm	Week 7	20%
3	Lab Assignments group or individual /Class Assignments group or individual	Week4,7,9	15%
4	Lab Evaluations	All Semester	25%
5	Final	Week13	30%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

6 office hours per week.

3 hours of weekly meetings

Contact through the LMS

Communication/interact via e-mails with students

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ol style="list-style-type: none"> 1. Routing and switching essentials. Indianapolis, IN: Cisco Press, by Boger, P. 2. Routing and Switching Essentials Lab Manual (Lab Companion), Cisco Systems, Inc. Published by: Cisco Press, 800 East 96th Street Indianapolis, IN 46240 USA.
Essential References Materials	<ol style="list-style-type: none"> 1. Computer networking. Boston: Pearson, by Kurose, J. & Ross, K. 2. CCNA Routing and Switching 200-125 Official Cert Guide Library. By Wendell Odom Published by Cisco Press. 3. CCNA Routing and Switching Complete Study Guide: Exam 100-105, Exam 200-105, Exam 200-125, by Todd Lammle. Sybex Publishing.
Electronic Materials	Online resources will be provided during class lectures.
Other Learning Materials	N/A

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture room with Smart board Lab with 25 Pcs
Technology Resources (AV, data show, Smart Board, software, etc.)	PC and WiFi Internet access within the class room
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	N/A

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Student	Indirect using course evaluation survey
Quality of learning resources	Student and Faculty	Indirect using course evaluation and faculty survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	



T-104
2022

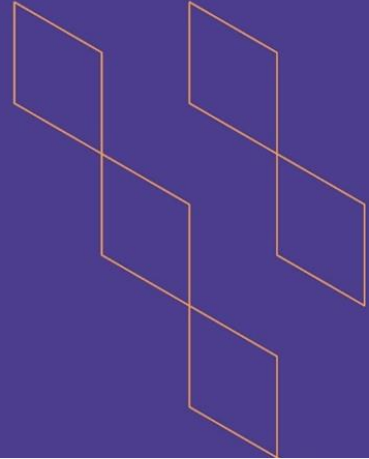
Course Specification





T-104
2022

Course Specification



Course Title: Programming 1
Course Code: CS0122
Program: Computer Science (Cybersecurity- Programming- Networks)
Department: Applied Sciences
College: Applied College
Institution: Imam Muhammad Bin Saud Islamic University
Version:
Last Revision Date: October 8, 2024



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A. General information about the course:

Course Identification	
1. Credit hours:	3 (2 theory , 2 lab)
2. Course type	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Track <input type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered:	Level 3
4. Course general Description: Through this course, the student is introduced to a set of basic skills in object-oriented programming (OOP). This course includes identifying the environment that is used for editing the program (Editing), translating it into machine language, executing it, recognizing and correcting errors, as well as representing data and operations of all kinds, in addition to using sentences, commands, and structural control tools. Throughout the semester, the course includes an integrated case study in which all previous concepts are employed to build an integrated project.	
5. Pre-requirements for this course (if any): CS0118	
6. Co- requirements for this course (if any): N/A	
7. Course Main Objective(s): The course aims to lay the foundation for the basic skills in object-oriented programming for the student to be able to propose solutions to problems so that they are valid for formulation in the form of a computer program.	

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	4 Hours/Week	100%
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	22
2.	Laboratory/Studio	22
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	44



B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Familiarity with the basic concepts of object-oriented programming.	K1, K2, K5	<ul style="list-style-type: none"> Classroom Lecture Dialogue and discussion Survey Learning by discovery Self-learning Developed lecture Brainstorming Web polling KWL Learning Schedule Mind Maps Concept Maps 	<ul style="list-style-type: none"> Traditional and electronic achievement tests Classroom Questions Assignments and periodic evaluations Presentations Discussion and debate Cognitive Performance Tests Achievement File
2.0	Skills			
2.1	Write advanced programs in Java using the basic components of the language.	S1, S2, S3, S4, S7	<ul style="list-style-type: none"> Practical presentation Developed Lecture Discovery learning Peer Learning Self-learning Dialogue and discussion Web polling Brainstorming Collaborative Learning Problem solving Project-Based Learning Online discussion forums 	<ul style="list-style-type: none"> Presentations Grading scales Performance tests Production Metrics Observation Software Projects Achievement File Peer Evaluation Self-evaluation
2.2	Build a complex data architecture using one and two-dimensional arrays.	S1, S2, S4, S7		
2.3	Use all kinds of operations when writing a program in Java.	S1, S2, S3, S4, S7		
2.4	Use structural control string tools when writing a program in Java.	S1, S2, S3, S4, S7		
2.5	Adjust the mechanism for tracking the progress of the program's implementation.	S1, S2, S7		
2.6	The use of information and communication technology in communication, exchange of ideas, scientific research, and	S1, S2, S7		



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	performance of tasks and costs.			
2.7	Practice critical thinking and problem solving facing the learner in the course in creative ways.	S1, S2, S7		
3.0	Values, autonomy, and responsibility			
3.1	Cooperation, teamwork, and imitation of professional ethics.	V1	<ul style="list-style-type: none"> Project-Based Learning Collaborative Learning 	<ul style="list-style-type: none"> Note cards Discussion and dialogue
3.2	Take responsibility for continuous learning and continued personal development.	V2	<ul style="list-style-type: none"> Dialogue and discussion Practical lecture 	<ul style="list-style-type: none"> Classroom Questions Grading metrics Measures of values
3.3	Manage time efficiently and effectively when applying acquired knowledge and skills.	V3	<ul style="list-style-type: none"> Modeling and role models Web polling 	<ul style="list-style-type: none"> Self-evaluation Peer Evaluation Achievement File

C. Course Content

No	List of Topics	Contact Hours
1.	Chapter 1: Introduction to Java <ul style="list-style-type: none"> Review concepts in programming. Compilers. Bugs. The basic structure of Java code. Components of the Java language: <ul style="list-style-type: none"> Language Rules. Reserved words. Escape Characters Variables and constants. Statements <ul style="list-style-type: none"> Declaration Statements Comments Statements Input/Output Statements <ul style="list-style-type: none"> Standard Input/Output Statements GUI Input/Output Statements Control statements Operators 	8
2.	Chapter 2: Operations in Java <ul style="list-style-type: none"> Operations <ul style="list-style-type: none"> Assignment Operations Arithmetic Operations 	12





	<ul style="list-style-type: none"> o Logical Operations o Relational Operations o Textual Operations o Casting Operations • Expressions • Order of precedence 	
3.	Chapter 3: Control Structure - Conditional Statements <ul style="list-style-type: none"> • simple if • if else • nested if else • ?: procedure • nested conditional • switch 	12
4.	Chapter 4: Control Structure – Looping and Jumping Statements <ul style="list-style-type: none"> • Looping Statements Tools: <ul style="list-style-type: none"> o for o while o do while o nested loop • Jumping Statements Tools: <ul style="list-style-type: none"> o break o continue o return 	12
Total		44

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm	Week 7	15%
2.	Quizzes	All Semester	10%
3.	Lab Evaluations	All Semester	30%
4.	Group Project	Week 9	20%
5.	Participation	All Semester	5%
6.	Final Lab Exam	Week 10	20%
	Total		100%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Deitel P.J., Deitel H.M. - Java. How to Program, 10th Edition
Supportive References	1- Head First Java, by Kathy Sierra and Bert Bates. 2- Java: A Beginner's Guide, by Herbert Schildt. 3- Effective Java: Programming Language Guide (Java Series), by Joshua Bloch.



	4- Simple Program Design, by Lesley Robertson.
Electronic Materials	Online resources will be provided during class lectures.
Other Learning Materials	N/A

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom, Computer lab
Technology equipment (projector, smart board, software)	Data Show, Smart Board, NetBeans software
Other equipment (depending on the nature of the specialty)	-

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student , Peer Reviewer	<ol style="list-style-type: none"> 1. Questionnaires and referendums approved by the department. 2. Peer evaluation of faculty members. 3. Review the results of student evaluation.
Effectiveness of students assessment	Students, Faculty, Program Leaders, Peer Reviewer	<ol style="list-style-type: none"> 1. Questionnaires and referendums approved by the department. 2. Review course descriptions and course reports periodically. 3. Peer evaluation and periodic exchange of correction and auditing between faculty colleagues. 4. Review samples of students' work.
Quality of learning resources	Student, Faculty, Program Leaders	<ol style="list-style-type: none"> 1. Questionnaires and referendums approved by the department. 2. Deletion and monitoring lists.
The extent to which CLOs have been achieved	Faculty, Program Leaders	<ol style="list-style-type: none"> 1. Review the course report. 2. Analyze test forms, grades and student work and records of their achievements.
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)



G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	





T-104
2022

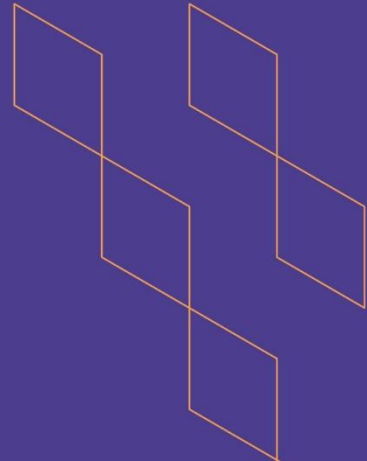
Course Specification





T-104
2022

Course Specification



Course Title:	Computer Maintenance
Course Code:	NET104
Program:	Network Technology
Department:	Applied Sciences
College:	Applied College
Institution:	Imam Mohammad Ibn Saud Islamic University
Version:	2023
Last Revision Date:	1 st March 12, 2023



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A. General information about the course:

Course Identification

1. Credit hours: 3 (2 theory, 2 lab)

2. Course type

a. University ☐ College ☒ Department ☐ Track ☐ Others ☐

b. Required ☒ Elective ☐

3. Level/year at which this course is offered: Third

4. Course general Description: This course deals with the physical parts of a computer. It refers to the computer system, especially those that form part of the central processing unit. Trainees should know the basic components of computer hardware and how to work with each part, including the motherboard, power supply, keyboard, mouse and monitor. In this course, we learn what computer hardware is and the basic components of it along with how trainees can safely assemble and troubleshoot key parts of a computer.

This course should also be covering the following professional certification:

- CompTIA A+ Core 1 220-1101 Certification
- CompTIA A+ Core 2 220-1102 Certification

5. Pre-requirements for this course (if any): None

6. Co- requirements for this course (if any): None

7. Course Main Objective(s): This course is designed to develop & enhance the knowledge and skills of trainees in computer maintenance field. The course deals with the basic concepts of dealing with the physical components of a computer and how to assemble them to form a computer, with training on how to diagnose and repair faults.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom		
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 	4hours\week	100%
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	18
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (Specify)	
	Total	48

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Determine the importance of computers, their types, benefits and planning.	5ع ،4ع ،1ع	<ul style="list-style-type: none">- Lecture.- Discussion.- Survey.- Discovery learning.- Self-education.- Developed lecture.- Brainstorming.- Web survey.- KWL chart.- Mind maps.- Concept maps.	<ul style="list-style-type: none">- Traditional and online achievement tests.- Questions.- Assignments and assessments.- Presentations.- Discussion and debates.- Cognitive performance tests.- Achievement file.
1.2	Discussing the importance of security and protection as well as identifying the threats and risks that a computer may be exposed to.	5ع ،4ع ،1ع		
2.0	Skills			
2.1	Assembling and installing hardware components to configure and operate a computer	8م ،2م ،1م	<ul style="list-style-type: none">- Demonstration.- Developed lecture.- Discovery learning.- Peer learning.- Self-education.- Discussion.- Web survey.- Brainstorming.- Co-learning.- Problem Solving.- Project.- Online discussion.	<ul style="list-style-type: none">- Presentations.- Rating ladders.- Performance tests.- Production metrics.- Observation.- Projects.- Achievement file.- Peer assessment.- Self-calendar.
2.2	Troubleshooting, computer fault diagnosis and maintenance.	8م ،6م ،2م ،1م		
2.3	Dealing with the integrated and non-integrated maintenance tools in operating systems.	8م ،2م ،1م		
2.4	Installing antivirus software and be able to deal with them efficiently.	8م ،7م ،6م ،2م ،1م		
2.5	Communicating and exchange of ideas about the course. And the use of information and communication technology in scientific research.	8م ،2م ،1م		
2.6	Practicing critical thinking and creatively solving problems that learners may face in the course.	8م ،2م ،1م		
3.0	Values, autonomy, and responsibility			
3.1	Work effectively on team to accomplish a specific goal regarding the course.	1ق	<ul style="list-style-type: none">- Demonstration.- Developed lecture.- Discovery learning.	<ul style="list-style-type: none">- Presentations.- Rating ladders.- Performance tests.



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.2	Managing time efficiently when applying acquired knowledge and skills.	ق ٢	- Peer learning. - Self-education. - Discussion. - Web survey.	- Production metrics. - Observation. - Projects.
3.3	Take responsibility for continuous learning and continuing personal development.	ق ٣	- Brainstorming. - Co-learning. - Problem Solving. - Project. - Online discussion.	- Achievement file. - Peer assessment. - Self-calendar.

C. Course Content

No	List of Topics	Contact Hours
1.	Planning and implementing computer maintenance: <ul style="list-style-type: none"> Why Computer Maintenance Is Important. The benefits of regular computer maintenance. Occupational safety requirements in the work environment. Types of computer maintenance. Factors that may affect maintenance planning. How to plan for a computer maintenance. Computer maintenance reports. Maintenance contracts. 	8
2.	Computer assembly: <ul style="list-style-type: none"> Motherboard installation. CPU & Memories installation. Expansion Cards installation HDD/SSD installation. Connecting the DC power supply. Connecting a monitor, keyboard and mouse. 	8
3.	Running and testing the computer: <ul style="list-style-type: none"> Running and testing the computer. Connecting the devices to the main power source. Verifying that the devices is working properly. Accessing the BIOS Setup. Identifying the stages that the device goes through from startup until loading the OS. Install and configure PC system unit components and peripheral devices. Install, configure, and troubleshoot display, multimedia devices, storage devices, and internal system components. 	4
4.	Fault diagnosis: <ul style="list-style-type: none"> Computer malfunctions. 	12





	<ul style="list-style-type: none"> • Troubleshooting stages. • Diagnosing Hardware failures and how to solve them. • Computer hardware problems. • Reasons of computers failure. • Factors of computers failure. • Suitable environment for the computer • Diagnosing computer failures at startup and how to solve them. • Dealing with error messages. • Diagnosing computer devices and peripheral failures and how to solve them. • Diagnosing software failures and how to solve them. • Computer software problems (in Windows OS) • Finding software crashes. • Malfunction diagnosis programs and their types. • Initial steps to deal with faults and how to diagnose them. • Common Hardware problems and quick fixes. • Common Software problems and quick fixes. • Configure and troubleshoot network connections. • Support and troubleshoot laptops, mobile devices and print devices. 	
5.	Maintenance Tools: <ul style="list-style-type: none"> • Tools concept. • The appropriate equipment and tools for computer maintenance. • Hardware computer maintenance tools. • Software computer maintenance tools. 	8
6.	Computer security and protection: <ul style="list-style-type: none"> • Why security and protection are important. • Threats and risks. • Installing antivirus software. • How antivirus software works. • How to avoid computer viruses. 	8
Total		48

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (In week no)	Percentage of Total Assessment Score
1.	Midterm Exam	Week7	20%
2.	Quizzes	Continuous	10%





No	Assessment Activities *	Assessment timing (In week no)	Percentage of Total Assessment Score
3.	Project	Continuous	20%
4.	Participation, Attendance	Continuous	10%
5.	Practical Assessment	Continuous	10%
6.	Final Exam	Week13	30%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	<p>Upgrading and Repairing PCs: <u>Mueller, Scott</u>.</p> <p>The Complete PC Upgrade & Maintenance Guide, by <u>Mark Minasi</u>.</p> <p>CompTIA A+ Core 1 220-1101 Certification Study Guide</p> <p>CompTIA A+ Core 2 220-1102 Certification Study Guide</p>
Supportive References	Supportive resources will be provided during class lectures.
Electronic Materials	Online resources will be provided during class lectures.
Other Learning Materials	N/A

2. Required Facilities and equipment

Items	Resources
Facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom included: 1. Appropriate equipment and tools for computer maintenance. 2. A projector connected to a PC, preferably with Internet access. 3. A vertical sliding board. 4. An equipped computer lab with at least 25 seats.
Technology equipment (Projector, smart board, software, etc.)	Computing resources (Projector, data show, Smart Board, software, etc.)
Other equipment (Depending on the nature of the specialty)	N/A



F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student	1. Students feedback (collected through surveys) as per university policy/procedure. 2. Teacher's Course report.
Effectiveness of student's assessment	Faculty	1. Review of Course Reports. 2. Review of Student feedback.
Quality of learning resources	Student and Faculty	Indirect using course evaluation and faculty survey.
The extent to which CLOs have been achieved	Program Leaders	Continuous review of the course contents, teaching strategies and utilizing the best practices.
Other	N/A	N/A

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

