هيئة تقويم التعليم والتدريب

T-104
2022

Course Specification

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title:	Life Elementary A2
Course Code:	*Enter Course Code.*
Program:	Level 2- All
Department:	*Enter Department Name .*
College:	Applied College
Institution:	Imam Mohammad Ibn Saud Islamic University
Version:	*Course Specification Version Number*
Last Revision Date:	*Pick Revision Date.*

Table of Contents:

A. General information about the course:

Course Identification					
1. Credit hours:	15 hours				
2. Course type					
a.	University ☐	College ☒	Department☐	Track☐	Others☐
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered: Elementary/ Level 2					
4. Course general Description This course is a required Intensive General English language course that aims to enhance the proficiency and communicative competency of students enrolled in Applied Colleges to obtain the level of A2 in accordance with the CEFR.					
5. Pre-requirements for this course (if any): Having completed English Level 1.					
6. Co- requirements for this course (if any): None					
7. Course Main Objective(s) The course intends to develop students' knowledge and ability of English language in all major skills which include reading, writing, listening, and speaking, as well as in sub-skills including grammar, vocabulary, and pronunciation at level A2.					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	120hrs	80%
2.	E-learning	30hrs	20%
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	120hrs
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)self-learning	30hrs
	Total	150hrs

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	**Vocabulary :** Vocabulary: Exhibit sufficient vocabulary to express him/herself with some circumlocutions on most topics pertinent to his/her everyday life such as family, hobbies and interests, work, travel, and current events.		Vocabulary is learnt through lexical sets, word-building, focus on collocations and through vocabulary in context and glossaries for above level words.	Formative and summative assessment
1.2	**Overall Listening comprehension:** - Understand straightforward factual information about common everyday or job related topics, identifying both general messages and specific details, provided speech is clearly articulated in a generally familiar accent. - Understand the main points of clear standard speech on familiar matters regularly encountered in work, school, leisure etc., including short narratives. - understand the		Listening / role play	Formative and summative assessment

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	information content of the majority of recorded or broadcast audio material on topics of personal interest delivered in clear standard speech.			
1.3	**Grammatical accuracy:** Express with reasonable accuracy in familiar contexts; generally good control though with noticeable mother tongue influence. Errors occur, but it is clear what he/she is trying to express. Uses reasonably accurately a repertoire of frequently used 'routines' and patterns associated with more predictable situations.		Class presentation Of grammar and drilling exercises Pair-work	Formative and summative assessment
1.4	Through learning with Life, students will also have a wider awareness of the world they live in – the people, places and cultures – and the importance of global citizenship.			
2.0	Skills			

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.1	**Overall spoken interaction:** Express in unprepared conversation of familiar topics, personal opinions and exchange information on topics that are familiar, of personal interest or pertinent to everyday life. - Communicate with some confidence on familiar routine and non-routine matters related to his/her interests and professional field. - Make his/her opinions and reactions understood as regards solutions to problems or practical questions of where to go, what to do, how to organize an event. - Take part in routine formal discussion of familiar subjects which is conducted in clearly articulated speech which involves the exchange of factual information, receiving instructions or the discussion of			Formative and summative assessment

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	solutions to practical problems.			
2.2	Overall written production: - Convey information and ideas on abstract as well as concrete topics, check information and ask about or explain problems with reasonable precision. - Write straightforward connected texts on a range of familiar subjects within his/her field of interest, by linking a series of shorter discrete elements into a linear sequence. - Summaries, report and give his/her opinion about accumulated factual information on familiar routine and non-routine matters within his/her field with some confidence. - Write very brief, reports to a standard conventionalized format, which pass on routine factual information and state reasons for actions.		Active learning - Pre-reading/ pre-writing	Formative and summative assessment

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.3	Overall reading comprehension: - Read straightforward factual texts on subjects related to his/her interests and professional field with a satisfactory level of comprehension. - Scan longer texts in order to locate desired information, and gather information from different parts of a text, or from different texts in order to fulfil a specific task. - Find and understand relevant information in everyday material, such as letters, brochures and short official documents.		-Active learning -Intrapersonal learning -interpersonal + collaborative learning +group work	Formative and summative assessment
3.0	Values, autonomy, and responsibility			
3.1	Develop an awareness of the values of global citizenship, being able to see different perspectives, show empathy and understanding. There will also be greater awareness of the issues surrounding sustainability.			

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.2	Develop collaborative and communicative skills, and the values that are needed to work successfully together.			
...				

C. Course Content

No	List of Topics	Contact Hours
1.	**Unit 1** **Sun.** (1a) **Mon.** (1b – 1d) **Tues.** (1c- 1e) **Wed.** (1f- review) **Thur. (self-study learning)**	15hrs
2.	**Unit 2** **Sun.** (2a) **Mon.** (2b – 2d) **Tues.** (2c - 2e) **Wed.** (2f- review) **Thur. (self-study learning)**	15hrs
3.	**Unit 3** **Sun.** (3a) **Mon.** (3b – 3d) **Tues.** (3c- 3e) **Wed.** (3f- review) **Thur. (self-study learning)**	
4.	**Unit 4** **Sun.** (4a) **Mon.** (4b – 4d)	15hrs

	Tues. (4c- 4e) **Wed.** (4f- review) **Thur. (self-study learning)**	
5.	**Unit 5** **Sun.** (5a) **Mon.** (5b – 5d) **Tues.** (5c- 5e) **Wed.** (5f- review) **Thur. (self-study learning)**	15hrs
6.	**Unit 6** **Sun.** (6a) **Mon.** (6b – 6d) **Tues.** (6c - 6e) **Wed.** (6f- review) **Thur. (self-study learning)**	15hrs
7.	**Unit 7** **Sun.** (7a) **Mon.** (7b – 7d) **Tues.** (7c- 7e) **Wed.** (7f- review) **Thur. (self-study learning)**	15hrs
8.	**Unit 8** **Sun.** (8a) **Mon.** (8b – 8d) **Tues.** (8c- 8e) **Wed.** (8f- review) **Thur. (self-study learning)**	15hrs
9.	**Unit 9** **Sun.** (9a) **Mon.** (9b – 9d) **Tues.** (9 c- 9e) **Wed.** (9f- review)	15hrs

	Thur. (self-study learning)	
10	**Unit 10** **Sun.** (10a) **Mon.** (10b – 10d) **Tues.** (10c- 10e) **Wed.** (10f- review) **Thur. (self-study learning)**	
Total		150hrs

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	Week 4	10%
2.	Project	Week 5 or 7	10%
3.	Oral task	Week 9	10%
4.	Participation	All along	10%
5.	Self-learning	Every Thursday	10%
6.	Midterm Examination	Week 6	20%
6.	Final Examination	Week 11	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	Life Elementary Students' Book and Workbook
Supportive References	Life Elementary Teachers' Book and companion website (www.eltngl.com/life2e)
Electronic Materials	Life Elementary Classroom Presentation Tool, Life Online Workbook (accessed through MyELT)
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms, laboratories.
Technology equipment (projector, smart board, software)	
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students, classroom observation, external reviewers' visit from the Accreditation Agency	Students survey Formal classroom observation
Effectiveness of students assessment	Quality and Development Unit, Curriculum Committee, Assessment Committee	Item analysis data, teachers' feedback, students' feedback, course reports.
Quality of learning resources	Quality and Development Unit	Annual quality improvement program review
The extent to which CLOs have been achieved	Quality and Development Unit	Course report, data analysis of achievement test
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title:	**Programming Fundamentals**
Course Code:	**CS118**
Program:	**Computer Science (Cybersecurity- Programming- Networks)**
Department:	**Applied Sciences**
College:	**Applied College**
Institution:	**Imam Muhammad Bin Saud Islamic University**
Version:	*Course Specification Version Number*
Last Revision Date:	*Pick Revision Date.*

Table of Contents:

A. General information about the course:

Course Identification					
1. Credit hours:	3 (3 theory)				
2. Course type					
a.	University ☐	College ☐	Department☐	Track☐	Others☒
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered:	Level 2				
4. Course general Description: This course includes a set of topics that represent an introduction to the study of programming science, including talking about the nature of programming of all kinds and its role in the field of informatics and methods of thinking in solving problems by studying algorithms and the basics of sequential programming that constitute the core of the component units of any program. Throughout the semester, the course includes an integrated case study in which all previous tools are used to build an integrated project.					
5. Pre-requirements for this course (if any): None					
6. Co- requirements for this course (if any): None					
7. Course Main Objective(s): The course aims to give the student the basics of programming science to be able to propose solutions to problems so that they are valid for formulation in the form of a computer program and the ability to write programs in the Java language to solve problems and solve some simple problems.					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	36	100 %
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	36
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	36

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	Knowledge of programming languages concepts.	ع١، ع٢، ع٥	- 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	Classification of programming languages according to their uses and levels.	ع١، ع٢، ع٥		
1.3	Comparison between types of programming languages.	ع١، ع٢، ع٥		
1.4	Demonstrate the software development life cycle.	ع١ ، ع٥		
1.5	Familiarity with the concept of algorithm, its types, methods of representation, and the types of problems that are solved by it.	ع١ ، ع٥		
1.6	Knowledge of the Java development environment.	ع١ ، ع٥		
1.7	Knowledge of the components of Java language and the rules for writing them.	ع١، ع٢، ع٥		

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.0	Skills			
2.1	Tracking the stages of the software development life cycle for its production.	م١،م٢،م٣،م٤،م٥،م٧	- 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
2.2	Solving problems using algorithms.	م١،م٢،م٦،م٧		
2.3	Mastering the basic components and stages of programming.	م١،م٢،م٤،م٥،م٧		
2.4	Converting sequential algorithms into a Java program.	م١،م٢،م٣،م٤،م٥،م٦،م٧		
2.5	Write a simple sequential program in Java.	م١،م٢،م٣،م٤،م٥،م٧		
2.6	Using information and communication technology in communication, exchange of ideas, scientific research, and performance of tasks.	م١،م٢،م٧		
2.7	Practicing critical thinking and solving problems facing the learner in the course in creative ways.	م١،م٢،م٧		
2.8	Develop and implement scripts and programs using compound conditions and loops in order to automate the tasks of a software system to solve given problems.			
2.9	Develop and implement secure and reliable programs taking into account the characteristics of operating systems and environments.			

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.0	Values, autonomy, and responsibility			
3.1	Collaboration, teamwork, and professional ethics.	ق١	- 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
3.2	Take responsibility for continuous learning and continuing personal development.	ق٢		
3.3	Effective and efficient time management when applying the acquired knowledge and skills.	ق٣		

C. Course Content

No	List of Topics	Contact Hours
1	• **Programming Concepts:** ○ Programming Terms ○ Programming Languages ○ Levels Of Programming Languages ▪ Low Level ▪ High Level ○ Fundamentals of Software Development ○ Software Design Principles and Practices	10
2	• **Basic Data Structures and Algorithms** ○ Definition of Algorithms • Example Of Algorithms ○ Representing Algorithms • Pseudo-code • Flow chart ○ Basic Logical Operations ○ Statements and Expressions ○ Precedence of Operators ○ Sequential and Parallel Execution (Control structure) • Sequential Logic Structure • Selection/ Decision Logic structure • Repetition/Loop Logic structure (Simple Loop, Multiple/Nested Loop) ○ Counter ○ Grosses ○ Automatic Counter Loop	12
3	• **Introduction To Java Language** ○ Objective Of Developing Java ○ Java Language Editions ○ Java Language Features ○ Java Programming Tools	10

	○ What We Need To Start With Java? ○ Scripting on Windows and Linux ○ Compilers. ○ Debugging Techniques ○ Bugs/ Errors ○ The basic structure of Java code. ○ Components of the Java language: ▪ Language Rules. ▪ Reserved words. ▪ Methods and Classes ▪ Data Types ○ Primitive ○ Non-Primitive ▪ Variables and constants. ▪ Statements ○ Declaration Statements ○ Comment Statements ○ Output Statements ▪ Escape Characters	
4	• **From Algorithms To Java Program Code** ▪ Examples	4
Total		36

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes (2 Quizzes)	All Semester	10%
2.	Midterm	Week 7	20%
3.	Participation	All Semester	10%
4	Assignments and project	All Semester	30%
5	Final	Week 12-13	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	Java™ Programming: From Problem Analysis to Program Design (Introduction to Programming) by D. S. Malik, 5th Edition.
Supportive References	- Deitel P.J., Deitel H.M. - Java. How to Program, 10th Edition - Problem Solving and Programming Concepts by Maureen Sprankle and Jim Hubbard, 9th Edition.
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, Edraw Max 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	Indirect using course evaluation survey
Effectiveness of students assessment		
Quality of learning resources	Student and Faculty	Indirect using course evaluation and faculty survey
The extent to which CLOs have been achieved		
Other		

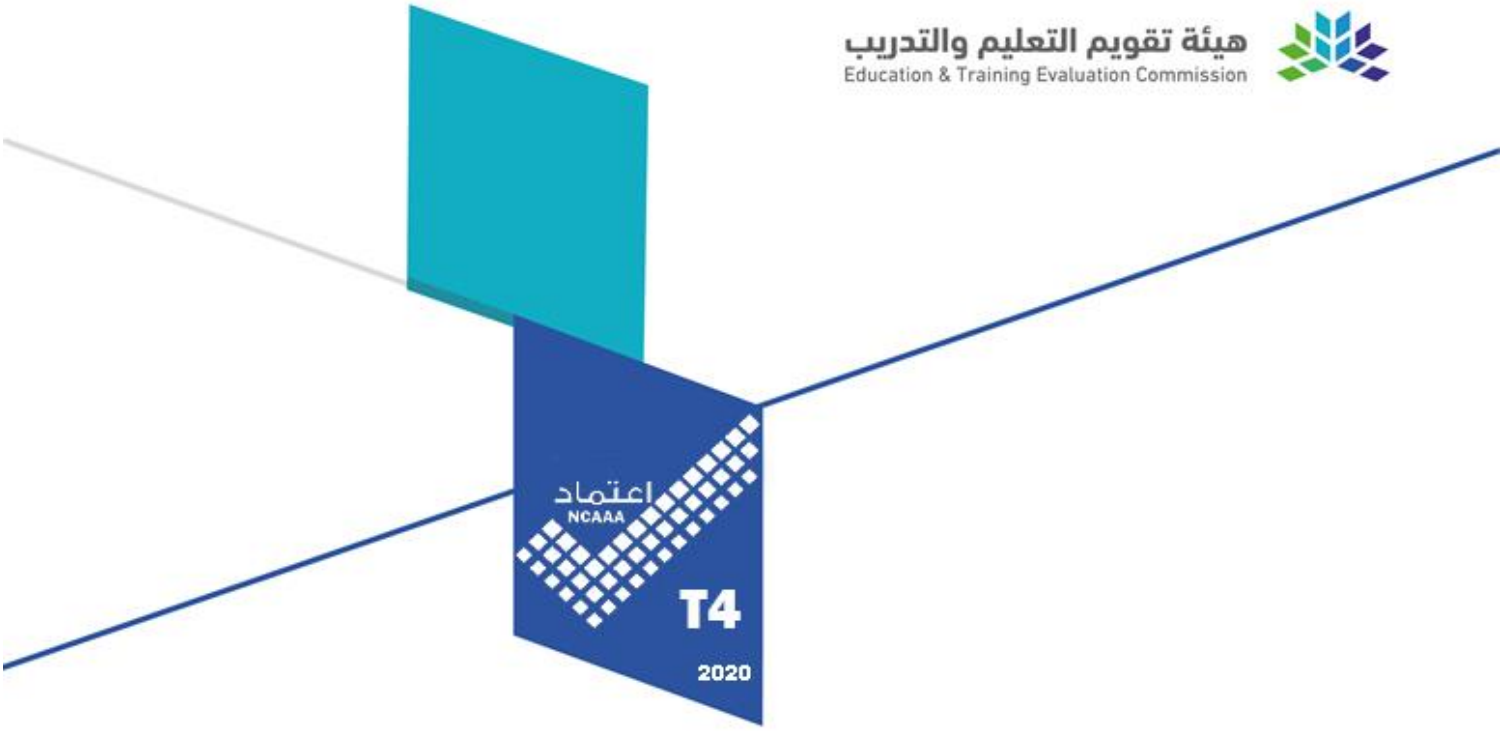
Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Information Security Foundations
Course Code:	CYB 0101
Program:	Computer Science (Cybersecurity)
Department:	Applied Sciences
College:	Applied College
Institution:	Imam Muhammad Bin Saud Islamic University

Table of Contents

A. Course Identification

1. Credit hours: **3(2 theory , 2 lab)**
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: First 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**	20
2	**Laboratory/Studio**	20
3	**Tutorial**	
4	**Others** (specify)	
	Total	40

B. Course Objectives and Learning Outcomes

1. Course Description

This course covers the basics of information security, where the student will learn information security models, including achieving physical security of information, security of procedures and operations, control of access to information and methods of defense against various risks, including piracy and unauthorized access to electronic systems and others. This course also covers tools for protecting the confidentiality of information such as encryption, securing networks and the Internet, reducing the risks of virus attacks, and firewalls to reduce attacks. It also covers methods of protection to ensure the availability and integrity of information. Also this course will mention the risk management and the legal and ethical issues.

2. Course Main Objective

The course aims to train the student on the basics of information security and how to identify risks and methods of defense against these risks. This course aims to enhance the skill of information protection at its various levels and mechanisms of application.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	To understand different types of attacks and threatened systems, the access control, accuracy, and intrusiveness.	ع1,ع2
1.2	Demonstrate information security and its needs, and to understand information security implementations.	ع2
2	**Skills :**	
2.1	To examine cryptographic system, and to deal with Information Security Management.	م1,م2
2.2	To be able to analyze Legal, ethical, and professional to defend against vulnerabilities.	م7
2.3	To examine how key security technology deal with systems.	م1
3	**Values:**	
3.1	To implement information security system.	ق1,ق2,ق3,م7

C. Course Content

No	List of Topics	Contact Hours
1	Module1:Introduction to information Security	4
2	Module2:The need for information security	3
3	Module3:Information Security Management	4
4	Module5:Planning for Security	3
5	Module6:Legal, ethical, and professional issues in information security	4
6	Module8:Security technology; Access control, firewall, and VPNs	7
7	Module9:Security technology; Intrusion detection and prevention systems and other security tools	5
8	Module10:Cryprography	4
9	Module11:Implemeting Information Security	3
10	Module12:Information Security Maintenance	3
Total		40

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	To understand different types of attacks and threatened systems, the access control, accuracy, and intrusiveness.	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.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	Demonstrate information security and its needs, and to understand information security implementations.	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.
2.0	**Skills**		
2.1	To examine cryptographic system, and to deal with Information Security Management.	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	To be able to analyze Legal, ethical, and professional to defend against vulnerabilities.	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.
2.3	To examine how key security technology deal with systems.	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.
3.0	**Values**		
3.1	To implement information security system.	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. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	Week3,5	10%
2	Midterm1	Week 6	15%
3	Midterm2	Week9	15%
4	Pass CISCO Networking Academy course	Week10	10%
5	Lab Evaluations	All Semester	20%
6	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	Principles of Information Security, Michael E. Whitman, Herbert J. Mattord · 2021
Essential References Materials	Information Security principles and practice, marks stamp, 2d Edition, 2011. Information Security and IT Risk Management , Manish Agrawal, Wiley. CompTIA Security+ All-in-One Exam Guide, Authors: WM. Arthur Conklin, Gregory White, Chuck Cothren, Roger L.Davis, Dwayne Williams. 6th Edition.
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

Item	Resources
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	N\A

G. Course Quality Evaluation

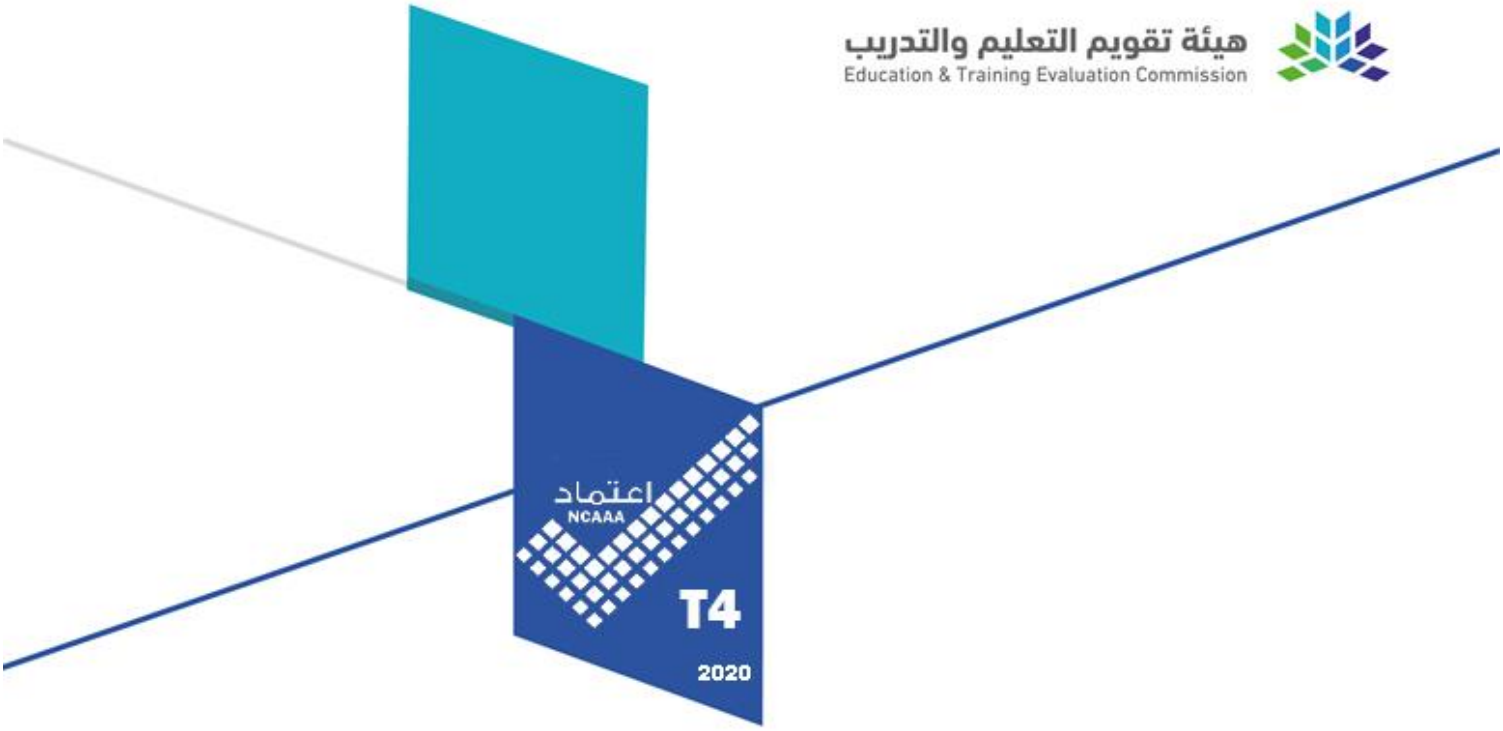
Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Student	Indirect using course evaluation survey
Quality of learning resources	Student and Faculty	Indirect using course evaluation and faculty survey

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	

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Network Fundamentals
Course Code:	Net 103
Program:	Computer Science (Networking)
Department:	Applied Sciences
College:	Applied College
Institution:	Al Imam Muhammad bin Saud Islamic University

Table of Contents

A. Course Identification

1. Credit hours: 3 (2 hours Lecture, 2 hours Lab)
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: First year/ Second 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**		
2	**Blended**	44	100%
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 introduces the basic concepts of computer networks, protocols, topologies, hardware and their main components to make students equipped with the theoretical basis and practical experiences necessary to design, implement, manage, and upgrade networks. This course will prepare students for the following certificates:

- CompTIA Network +.
- CompTIA A+.

2. Course Main Objective

This course aims to provide students with the necessary knowledge and skills related to the computer networks and the techniques used into it.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understanding the concept of computer networks, their classifications, layers, and its software and hardware components.	ع1، ع5
1.2	Analysis of fundamentals and components of network security.	ع1، ع5
1.3	Knowledge of network addressing and segmentation techniques.	ع1، ع5
1.4	Knowledge of other networking techniques.	ع1، ع5
2	**Skills :**	
2.1	Determining the methods of installing and operating computer network devices.	م1، م2، م7
2.2	Technical skills in managing, establishing, operating, maintaining, and solving network infrastructure problems.	م1، م2، م7
2.3	The use of information and communication technology in communication, exchanging ideas, scientific research, and tasks accomplishments.	م1، م2، م7
2.4	Practicing critical thinking and solving problems that the learner faces in the course in creative ways.	م1، م2، م7
3	**Values:**	
3.1	Cooperation, teamwork, and professional ethics.	ق 1
3.2	Take responsibility for continuous learning and continuing personal development.	ق 2
3.3	Efficient and effective time management when applying acquired knowledge and skills.	ق 3

C. Course Content

No	List of Topics	Contact Hours

1	**Networking Basics:**
	• Defining a network.
	• Benefits of a network.
	• What is the internet?
	• Internet services.
	• History of computer networking and the internet.
	• Network components:
	  ○ Hardware
	  ▪ Computers.
	  ▪ Connectivity devices:
	  • Firewall.
	  • Hub.
	  • Switch.
	  • Repeater.
	  • Bridge.
	  • Router.
	  • Gateway.
	  • Modems.
	  • Wireless Access Point.
	  ▪ Network Interface Cards (NIC).
		8 Hours

	▪ Cables: • Twisted -Pair cabling. • Coaxial cables. • Fiber-Optic cables. o Software ▪ Network OS • Protocols o Internet Protocol. o Transmission Control Protocol. o User Datagram Protocol. o File Transfer Protocol. o Simple Mail Transfer Protocol. o Hypertext Transfer Protocol. o Hypertext Transfer Protocol Secure. o Post Office Protocol V 3/ Internet Access Protocol V4. o Secure Shell. o Telnet. o Internet Control Message Protocol. o Dynamic Host Configuration Protocol.	
2	**Network Classification:** • Types of network topologies: o Bus topology. ▪ Definition. ▪ Advantages and disadvantages. o Ring topology. ▪ Definition. ▪ Advantages and disadvantages. o Star topology. ▪ Definition. ▪ Advantages and disadvantages. o Mesh topology. ▪ Definition. ▪ Advantages and disadvantages. • Types of network architectures: o Client/Server model. o Peer-to-Peer Model. • Types of networks based on the communication media: o Wired. o Wireless. • Types of networks based on the geographical areas: o LAN. o WAN. o MAN. o CAN. o PAN. o SAN.	4 Hours
3	**Networking Models:** • What is the OSI networking model? • Following a packet through the layers. • The OSI Seven - Model Layers:	8 Hours

	○ The Physical Layer. ○ The Data Link Layer. ○ The Network Layer. ○ The Transport Layer. ○ The Session Layer. ○ The Presentation Layer. ○ The application Layer. • The TCP/IP Model: ○ The Application Layer. ○ The Transport Layer. ○ The Internet Layer. ○ The Network Interface Layer. • Comparing the OSI model to the four-layer TCP/IP Model.	
4	**Network Addressing, Routing, and Switching:** • The Internet Protocol (IP) address: ○ IPv4 address. ○ Classifying IP addresses: ▪ Class A addresses. ▪ Class B addresses. ▪ Class C addresses. ○ IPv4 Public and Private Networks. ○ IPv4 addresses types: ▪ Unicast Address. ▪ Broadcast Address. ▪ Multicast. • Subnetting Networking: ○ Subnets. ○ Purpose of Subnetting. ○ Subnet Masks. • IPv6 Address: ○ Understanding of IPv6 address. ○ IPv6 addresses types: ▪ Unicast IPv6 addresses. ▪ Global Unicast addresses. ▪ Link-Local addresses. ▪ Site-Local addresses. ▪ Multicast addresses. ▪ Anycast addresses. • Assigning IP Addresses: ○ Static addressing. ○ Dynamic addressing. • Media Access Control (MAC) address. • Domain Name Service (DNS).	8 Hours
5	**Data Link Layer and Network Traffic:** • Network access methods definition. • Purpose of network access methods. • What is carrier sensing? • What is a collision detection? • Types of network access methods: ○ CSMA/CD.	4 Hours

	○ CSMA/AD. ○ Token passing.	
6	**Cloud Computing:** • What is cloud computing? • Types of cloud services: ○ SaaS ○ PaaS ○ IaaS • Cloud delivery models: ○ Private ○ Public ○ Hybrid	4 Hours
7	**Network Security and Network Troubleshooting:** • What is network security? • Network security model. • How to secure your network? ○ Physical security and device hardening. ▪ Lock and Key. ▪ Swipe card and pin access. ▪ Biometrics. ○ Two factor and multifactor authentication. ○ Secure versus unsecured protocols. ○ Additional device hardening. ○ Access control. ○ Securing wireless networks. • Malicious software. • Common network attacks. • Vulnerability prevention. • Troubleshooting steps and procedures.	8 Hours
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	Understanding the concept of computer networks, their classifications, layers, and its software and hardware components.	- Lectures. - Discussions. - Surveys. - Experimental learning. - Self- Learning. - Development lectures. - Brainstorming. - Web Survey. - KWL - Learning Schedule.	- Traditional and online achievement tests. - Questions. - Assignments. - Participations. - Presentations. - Discussions - Debates. - Cognitive Tests.
1.2	Analysis of fundamentals and components of network security.		
1.3	Knowledge of network addressing and segmentation techniques.		
1.4	Knowledge of other networking techniques.		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		- Mind maps. - Concept maps.	- Student Activity File.
2.0	**Skills**		
2.1	Determining the methods of installing and operating computer network devices.	- Demonstrations. - Development Lectures. - Experimental learning. - Peers Learning. - Self- Learning. - Discussions. - Web Survey. - Brainstorming. - Teamwork. - Problem Solving. - Projects. - Online Discussions.	- Presentations. - Rubrics. - Auditions. - Production metrics. - Observations. - Labs. - Student Activity File. - Peer Assessments. - Self-Assessment.
2.2	Technical skills in managing, establishing, operating, maintaining, and solving network infrastructure problems.		
2.3	The use of information and communication technology in communication, exchange of ideas, scientific research, and performance tasks and costs.		
2.4	Practicing critical thinking and solving problems that the learner faces in the course in creative ways.		
3.0	**Values**		
3.1	Cooperation, teamwork, and professional ethics.	- Demonstrations. - Development Lectures. - Experimental learning. - Peers Learning. - Self- Learning. - Discussions. - Web Survey. - Brainstorming. - Teamwork. - Problem Solving. - Projects. - Online Discussions.	- Presentations. - Rubrics. - Auditions. - Production metrics. - Observations. - Labs. - Student Activity File. - Peer Assessments. - Self-Assessment.
3.2	Take responsibility for continuous learning and continuing personal development.		
3.3	Efficient and effective time management when applying acquired knowledge and skills.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	One Midterm Exam	Week 6	20
2	Quizzes	The whole semester	10
3	Passing CISCO Networking Academy Course	The whole semester	10
4	Labs	The whole semester	15
5	Group Project	Week 10	10
5	Participation	The whole semester	5
6	Final Exam	Week 12	30
7	Total		100

***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: 4 office hours per week. 4 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	CompTIA Network+ Certification All-in-One Exam Guide, by Scott Jernigan, 6th Edition.
Essential References Materials	Computer Networking: A Top-Down Approach, by James F. Kurose, 6th Edition. Networking All-in-One For Dummies, by Doug Lowe, 8th Edition. Networking Fundamentals by Crystal Panek.
Electronic Materials	Course Lectures on the blackboard.
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 Pc
Technology Resources (AV, data show, Smart Board, software, etc.)	PC and WIFI Internet access within the classroom .Projector, and Smart Board
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 assessments.	Students – Peers Review	1. Questionnaires and surveys approved by the department. 2. Faculty peer evaluations. 3. Reviewing the results of the students' evaluation.
Effectiveness of student assessment methods.	Peers Reviews, Program Leaders, Faculty, Students.	1. Questionnaires and surveys approved by the department.

Evaluation Areas/Issues	Evaluators	Evaluation Methods
		2. Review course specifications and course reports periodically. 3. Peer evaluation. 4. Review samples of student work.
Learning resources	Program Leaders, Faculty, Students.	1. Approved questionnaires and surveys from the department. 2. Students grade records.
Quality of learning resources	Program Leaders, Faculty.	1. Review course report. 2. Analyze exam models and student grade records.

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	Computer Programs Development Committee
Reference No.	The Third Semester of the year 1445
Date	08 / 03 / 2024 G, 27/ 08 /1445 H