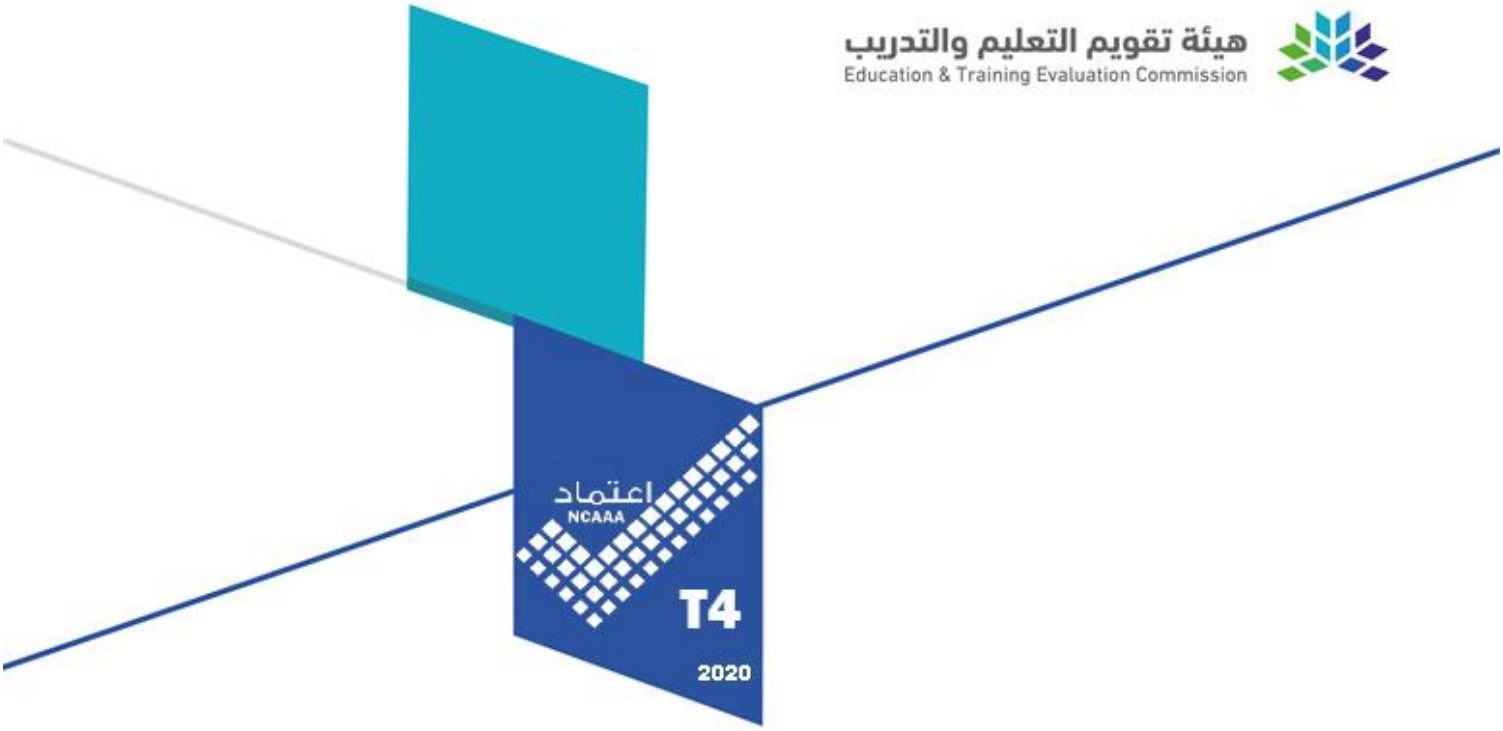
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Advanced Internet Programming
Course Code:	عال 0232
Program:	Programming Technology
Department:	Applied Sciences
College:	Applied College
Institution:	Imam Mohammad Bin Saud Islamic University

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A. Course Identification

1. Credit hours: **4 (3 Theory, 2 lab)**
2. Course type: **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Fifth Level
4. Pre-requisites for this course (if any)**:** 210 عال
5. Co-requisites for this course (if any)**:** N/A

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		
2	**Blended**	55	100%
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	33
2	**Laboratory/Studio**	22
3	**Tutorial**	
4	**Others** (specify)	120
	Total	175

B. Course Objectives and Learning Outcomes

1. Course Description

The course contains several topics that enable the student to create an interactive website with high-level visitors on the Internet. This includes studying the PHP language, which enables the programmer to write applications that are executed on the website server side and generate the required HTML pages online. The course also addresses the topic of using Java beans, which help achieve the principle of data separation and programs (Codes), which achieve a better design cycle for the site.

The course also includes studying how to link the interactive website program to a specific database and how to query data within the database. The course includes a study of how to manage the state of the program when it deals with more than one visitor, using the concept of sessions, which achieves the type of privacy required for each visitor.

Throughout the semester, the course includes an integrated case study in which all the previous tools are used in addition to the experiences gained in the relevant courses to build an integrated interactive website.

This course is one of the courses that qualify for the following certificates:

- Zend PHP Certification.
- Microsoft Certified Solutions Associate (MCSA: Web Applications) Exam 70-480: Programming in HTML5 with JavaScript and CSS3.

2. Course Main Objective

The course aims to enable the student to build an advanced dynamic site on the Internet.

3. Course Learning Outcomes

	CLOs	Aligned-PLOs
1	**Knowledge and Understanding**	
1.1	Identify the concept of the Internet and other concepts associated with it and distinguish between them.	ع1، ع2، ع4، ع5
1.2	Learn about HTML and its basic components.	ع1، ع2، ع4، ع5
1.3	Familiarity with the basic and general concepts of the language (PHP) for Internet programming.	ع1، ع2، ع4، ع5
2	**Skills:**	
2.1	Ability to use basic commands and instructions in the language (PHP) and validate the entered data	م1، م2، م3، م4، م5، م7
2.2	Ability to use of structural control sentences with their various tools	م1، م2، م3 م4، م5، م7
2.3	Proficiency in dealing with functions, models and matrices in the language (PHP).	م1، م2، م3، م4، م5، م7
2.4	Ability to connect to databases and query data in them	م1، م2، م4، م5، م7
2.5	Proficiency in working with files in PHP language.	م1، م2، م4، م5، م7
2.6	Using information and communication technology in communication, exchange of ideas, scientific research, and performance of tasks and costs.	م1، م2، م7
2.7	Practice critical thinking and solve problems facing the learner in the course in creative ways.	م1، م2، م7
3	**Values:**	
3.1	Collaboration, teamwork, and professional ethics.	ق1
3.2	Take the responsibility for continuous learning, and self-development.	ق2
3.3	Effective and efficient time management when applying acquired knowledge and skills.	ق3

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction to Internet Programming:** • The concept of the Internet. • The difference between client and server. • Internet browser. • The concept of protocol. • Internet services. • TCP/IP protocol. • How to build HTML web pages. • HTML file components. • How to write an HTML program. • Types of web pages.	5

2	**Introduction to PHP:**
	• The concept of PHP.
	• Components of the PHP language:
	  ○ Comments.
	  ○ Variables and constants.
	  ○ Operations:
	  ✓ Attributive operations.
	  ✓ Calculations operations
	  ✓ Relational operations.
	  ✓ Boolean operations.
	  ○ Print codes (echo-print-printf-sprintf).
	  ○ Structural control tools:
	  ✓ Condition tools (if-if else-elseif-switch).
	  ✓ Overlapping, rotation tools (for-while-do while).
	  ✓ Turning tools (break-continue).
		10

3	**Functions:**
	• The concept of functions.
	• Types of functions:
	  ○ Ready-made functions:
	  ✓ isset.
	  ✓ defined.
	  ✓ require.
	  ✓ include.
	  ✓ Strlen.
	  ✓ strtolower.
	  ✓ strtoupper.
	  ✓ str_replace.
	  ✓ htmlentities.
	  ✓ date.
	  ○ Programmer-defined functions:
	  ✓ How to create.
	  ✓ Characteristics.
	  ✓ The method of recall the function.
		10

4	**Forms:**
	• The concept of forms.
	• Types of data transmission:
	  ○ Send values between pages.
	  ○ Transmission via links.
	  ○ Post via forms (get-post).
	• Types of forms input.
		10

5	**Databases:** • Review of the databases. • How to access the databases. • How to connect the database. • How to query the database through created site.	5

6	**Arrays:**
	• The concept of arrays.
	• Types of arrays:
	  ○ Digital arrays.
	  ○ Arrays with two-dimensional.
	  ○ Arrays literal.
		5

7	**Sessions and cookies:** • Moving between web pages. • The difference between sessions and cookies in terms of concept and programming.	5
8	**Files:** • The concept of files. • The file paths. • How to check for the existence of a file. • The file sizes. • The method of modification date on the file. • How to copy or move a file. • How to open the file for reading and writing. • How to search and read in the file. • How to close the file. • How to delete a file.	5
Total		55

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 concept of the Internet and other concepts associated with it and distinguish between them.	Class lectures. Class discussion. Questions/Answers session in class. Home work. Learning by discovery. Self-education. Brainstorming. Online search. KWL learning table. Mind maps. Concept maps.	Quizzes. Homework and Assignments. Written and online exams. Writing reports. Presentations. Discussion and debate. Achievement file. Performance tests.
1.2	Learn about HTML and its basic components.		
1.3	Familiarity with the basic and general concepts of the language (PHP) for Internet programming.		
2.0	**Skills**		
2.1	Ability to use basic commands and instructions in the language (PHP) and validate the entered data	Class lectures. Class discussion. Questions/Answers session in class. Home work. Learning by discovery. Self-education. Brainstorming. Online search. Mind maps. Concept maps.	Quizzes. Homework and Assignments. Written and online exams. Writing reports. Presentations. Discussion and debate. Achievement file. Performance tests.
2.2	Ability to use of structural control sentences with their various tools		
2.3	Proficiency in dealing with functions, models and matrices in the language (PHP).		
2.4	Ability to connect to databases and query data in them		
2.5	Proficiency in working with files in PHP language.		
2.6	Using information and communication technology in communication, exchange of ideas, scientific research, and performance of tasks and costs.		
2.7	Practice critical thinking and solve problems facing the learner in the course in creative ways.		
3.0	**Values**		
3.1	Collaboration, teamwork, and professional ethics.	Class lectures. Class discussion. Questions/Answers session in class. Home work. Learning by discovery. Self-education. Brainstorming. Online search. Mind maps. Concept maps.	Quizzes. Homework and Assignments. Written and online exams. Writing reports. Presentations. Discussion and debate. Achievement file. Performance
3.2	Take the responsibility for continuous learning, and self-development.		
3.3	Effective and efficient time management when applying acquired knowledge and skills.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid-Term	Week 7	15%
2	Quizzes (2 Quizzes)	Week 5, 10	10%
3	Practical Evaluation	Week 2-11	20%
4	Programming Project	Week 11	20%
5	Participation	All Semester	5%
6	Final	Week12	30%
7	Total Marks		100%

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

E. Student Academic Counseling and Support

- Publishing the guidelines prepared by the Deanship of Admission and Registration Affairs.
- Allocating office hours for faculty members to follow up on students' academic inquiries, respond to e-mail, communicate through electronic systems, and provide feedback.
- Seeking to solve the academic problems for students and all related to the causes of dismissal, academic stumbling, delay and low average.

F. Learning Resources and Facilities

1.Learning Resources

Course reference	1. Programming PHP: Creating dynamic web pages. O'Reilly Media; 2020 Mar 12 by Tatroe, Kevin, and Peter MacIntyre. 2. The Complete Reference (Complete Reference) - by Phil Hanna; Paperback 2.
Essential References Materials	N/A
Electronic Materials	Online resources will be provided during class lectures on LMS.
Other Learning Materials	N/A

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom – A computer lab equipped and connected to a shared printer and the internet.
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart board, data projector, Internet browser and Xampp AppServ Software.
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.	Peer references – students.	1. Questionnaires and referendums approved by the department. 2. Peer evaluation of faculty members. 3. Review the results of the students' evaluation.
Effectiveness of student assessment methods.	Peer references - program leaders - faculty members – students.	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 scrutiny among fellow faculty members. 4. Review samples of students' work.
Learning Resources.	Program leaders - faculty members - students	1. Questionnaires and referendums approved by the department. 2. Write-offs and monitoring.
Achieved learning outcomes of the course.	Program leaders - faculty members.	1. Review the course report. 2. Analysis of exams forms, grades, students' work and records of achievement.

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	Department of Applied Sciences – Applied College
Reference No.	
Date	

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Database Programming
Course Code:	CS 231
Program:	Computer Science (Programming)
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 ☐ College ☐ Department ☒ Others ☐ **b.** Required ☒ Elective ☐
3. Level/year at which this course is offered: Level 5
4. Pre-requisites for this course (if any)**:** CS 230
5. Co-requisites for this course (if any)**:** N/A

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** (assignments, self-study, projects, research, tests, and teamwork)	110
	Total	154

B. Course Objectives and Learning Outcomes

1. Course Description

This course deepens the student's understanding of how to build database programs and use code to apply advanced ideas in models such as the concept of protection. In addition to advanced concepts in forms such as making lists and making reports. The course includes throughout the semester an integrated case study in which all the previous tools are employed in addition to the experience gained in the relevant courses to build Integrated project. This course is one of the courses eligible for the following certificates:

- Oracle PL/SQL Developer Certified Associate (JP) Certification Overview.
- Oracle Database SQL Certified Associate Certification Overview.

2. Course Main Objective

This course aims to enhance the student's understanding of forms, reports and how to write and use code to program various (Events) in addition to some new ideas such as the concept of protection and how to apply it at the database level using the (SQL) language and how to deal with it through forms as well as creating an integrated application that contains all the tools studied by the student.

3. Course Learning Outcomes

	CLOs	Aligned-PLOs
1	**Knowledge and Understanding**	
1.1	Familiarity with advanced database concepts	ع1، ع2، ع3، ع5
1.2	Knowledge of the theoretical foundations of database programming in SQL	ع1، ع2، ع3، ع5
2	**Skills :**	
2.1	Grant and manage user permissions for databases.	م1، م2، م5، م7
2.2	Write the appropriate code in SQL to follow and apply protection to databases.	م1، م2، م4، م5، م7
2.3	Proficiency in dealing with Oracle databases using PL/SQL language	م1، م2، م4، م7
2.4	Use Oracle database tools efficiently and effectively.	م1، م2، م4، م7
2.5	Use of information and communication technology in communication, exchange of ideas, scientific research, performance of tasks and costs.	م1، م2، م7
2.6	Practice critical thinking and solve problems facing the learner in the course in creative ways.	م1، م2، م7
3	**Values:**	
3.1	Cooperation, teamwork, and professional ethics.	ق1
3.2	Take responsibility for continuous learning and continue personal development.	ق2
3.3	Manage time efficiently and effectively when applying the acquired knowledge and skills.	ق3

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction to Oracle:** • The concept of oracle and its history. • **Oracle Database Tools:** ○ SQL language. ○ PL/SQL language ○ SQL Plus Editor ○ Oracle Developer Application ○ Prototype building program. ○ Report building software. ○ Graphics building software.	4
2	**User management and protection concept:** • **User management in databases:** ○ Roles in database (Sysadmin). ○ Protect database with password (Password) ○ Definition of the different privileges that can be granted to users (System privileges) ○ Definition of the different privileges that can be granted - to a specific user on a specific object (Object privileges) ○ How to apply protection at different levels of the database, especially at the level of structural query language and forms, and what is the difference between them. ○ How to write the appropriate code in the form to deal with the different privileges granted to the user. • **The concept of database protection using the (Deny) command to work on:** ○ Data Integrity (Data Safety) ○ Data Encryption ○ Delete Statement	4
3	**Introduction to PL/SQL for Oracle database building:** • Features of PL/SQL. • The general form of the module. • Types of modules. • Writing programs in PL/SQL. • Variables in PL/SQL. • **PL/SQL components:** ○ **Data types** ▪ (Type%) feature ▪ (RowType%) feature ○ Print statement ○ **Operations used in PL/SQL language:** ▪ Mathematical operations ▪ Logical operations ▪ Comparison operations ▪ Comments ○ **Using Functions:**	8

	▪ Single-row functions in (SQL) ▪ Number Functions ▪ Character Functions ▪ Date Functions ▪ Conversion functions between different data types. ▪ (TO_CHAR) ▪ (TO_NUMBER) ▪ (TO_DATE) ○ Nested Blocks ○ The use of Data Manipulation Language (DML) within the programming modules. ○ **PL/SQL Statements:** ▪ Create Statement ▪ Insert Statement ▪ Select Statement ▪ Update Statement	
4	**Stored procedures and Functions:** • **Stored procedures:** ○ What is stored procedure? ○ Procedures processes: ▪ Create Stored procedures. ▪ Create a stored procedure containing transactions. ▪ Edit stored procedure. ▪ Review Stored procedures definition. ▪ Rename Stored procedures. ▪ Delete Stored procedures. • **Functions:** ○ What are functions? ○ Dealing with functions: ▪ Create a function in (PL/SQL). ▪ Function Call. • The difference between procedures and functions.	8
5	**Transactions:** • Using Transactions • Designing Transactions • Transactions state • **Transactions boundaries:** ○ Local Transactions ○ Distributed Transactions	4
6	**Building models:** • How to build an integrated database application by linking different forms to the main form that represents the main system screen (Multi-Form Application). • **Types of models:** ○ Bound models, and Unbound models ○ Build models to pass data to tables. ○ Build models to display data from tables.	8

	• Using basic elements (Objects) in designing and programming forms (command button, text fields, drop-down lists). • How to build lists within forms. • Format forms.	
7	**Building Reports:** • Building reports from a single table. • Building reports with mixed data (from more than one table). • How to make a form to call a specific report and send a set of values as input to that report. • How to program the print interface in reports such as a printer, file or screen.	4
8	**Database Triggers:** • What is Trigger. • How to create Trigger. • Trigger types in terms of implementation. • Why using Trigger. • Using conditional words (NEW, OLD). • Examples of Trigger uses.	4
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	Familiarity with advanced concepts of databases.	• Classroom Lecture • Dialogue and discussion • Survey • Discovery Learning • Self-learning • Developed lecture • Brainstorming • Web Survey • KWL Learning Schedule • Mind maps • Concept Maps	• Traditional and electronic achievement tests • Classroom questions • Assignments and periodic assessments • Presentations • Discussion and debate • Cognitive performance tests • Achievement file
1.2	Knowledge of the theoretical foundations of database programming in SQL		
2.0	**Skills**		
2.1	Grant and manage user permissions for databases.	• Practical presentation • Developed lecture • Discovery learning • Peer learning • Self-learning	• Presentations • Grading scales • Performance tests • Production metrics • Observation • Software projects
2.2	Write the appropriate code in SQL to follow and apply protection to databases		
2.3	Proficiency in dealing with Oracle databases using PL/SQL		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.4	Use Oracle database tools efficiently and effectively.	• Dialogue and discussion • Web polling • Brainstorming • Cooperative learning • Problem solving • Project-based learning • E-discussion forums	• Achievement File • Peer Evaluation • Self-Evaluation
2.5	Using information and communication technology in communication, exchange of ideas, scientific research, and performing tasks and assignments.		
2.6	Practice critical thinking and solve problems facing the learner in the course in creative ways.		
3.0	**Values**		
3.1	Cooperation, teamwork and professional ethics	• Project-Based Learning • Collaborative Learning • Dialogue and discussion • Practical lecture • Modeling and role models • Web polling	○ Note cards ○ Discussion and dialogue ○ Classroom Questions ○ Grading metrics ○ Measures of values ○ Self-evaluation ○ Peer Evaluation • Achievement File
3.2	Take responsibility for continuous learning, and continue personal development.		
3.3	Manage time efficiently and effectively when applying the acquired knowledge and skills.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm	Week 6	15 %
2	Quizzes (3-4 quizzes)	All Semester	10 %
3	Lab Evaluations	All Semester	20 %
4	Project	Week 10	20 %
5	Participation	All Semester	5 %
6	Final	Week 13	30 %
	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 :

- Distributing guidelines prepared by the Deanship of Admission and Registration Affairs.
- Allocate office hours for faculty members to follow up on students' academic inquiries, communicate via e-mail and the course page on the Blackboard system, activate discussions, support, and provide feedback.
- Studying the academic problems of college students and everything related to the reasons for dismissal, academic stumbling, delay, and low average.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	1. Oracle Developer: Build Forms II – Volume 1, ORACLE Corporation, 2111. 2. Oracle Reports: Build Reports Volume 2. ORACLE Corporation, 2111. 3. Enhanced Guide to Oracle 4i, J. Morrison, M. Morrison. Course Technology 2112.
Essential References Materials	-
Electronic Materials	The course website on the Internet through the Blackboard platform, through which assignments are submitted electronically, discussion questions are asked, and the course content is uploaded so that the student can return to lectures in full, publish electronic quizzes, and educational videos related to the course, and advertisements for the course are displayed and direct feedback is provided according to what the course professor sees.
Other Learning Materials	-

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms, Computer laboratories
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show, Smart Board, and the following software: • virtual box • Win xp • Oracle db 11g • Oracle developer 10g
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	-

G. Course Quality Evaluation

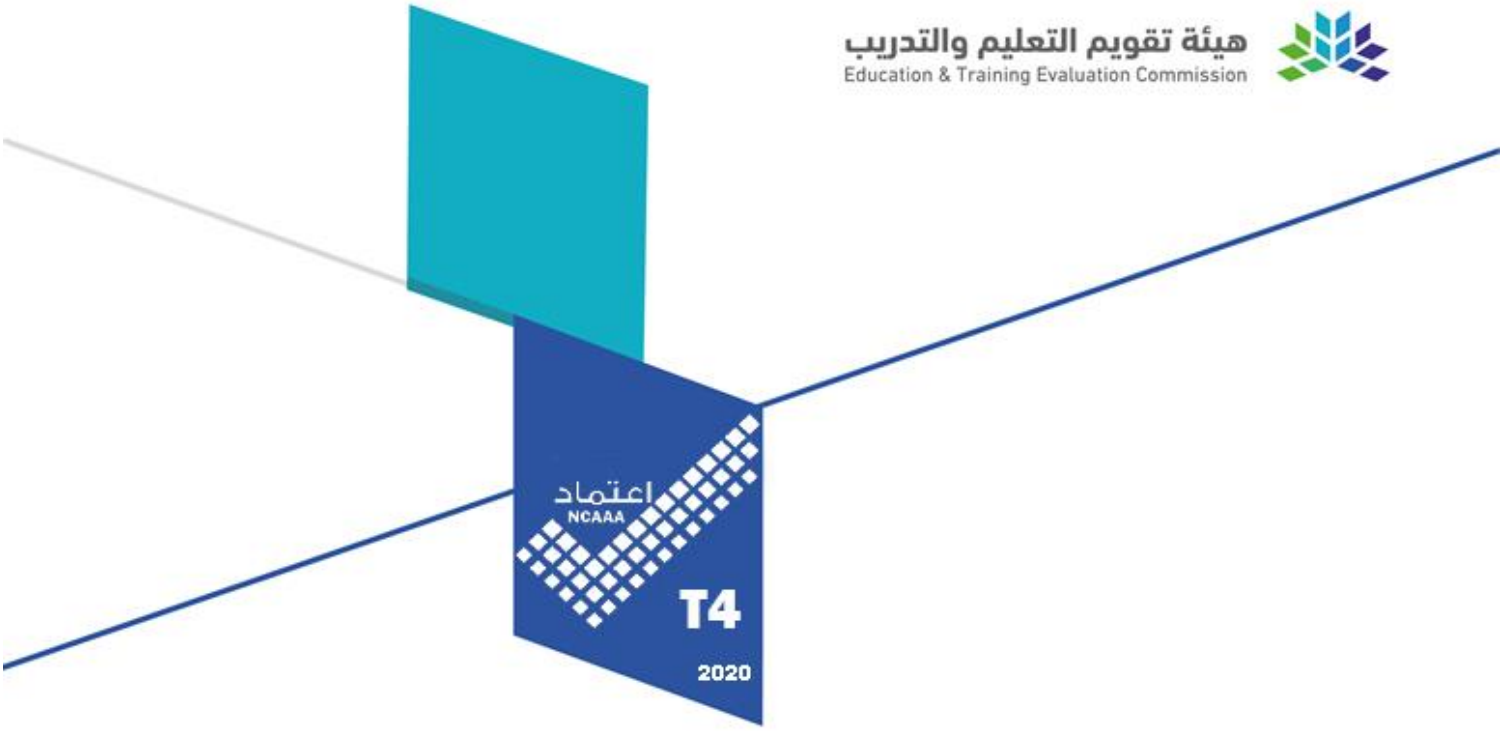
Evaluation Areas/Issues	Evaluators	Evaluation Methods
The effectiveness of teaching methods.	Peer References – Students	1. Questionnaires and referendums approved by the department. 2. Peer evaluation of faculty members. 3. Review the results of students' evaluation.
The effectiveness of student assessment methods.	Peer references – program leaders – faculty members – students	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 scrutiny between faculty colleagues. 4. Review samples of students' work.
Learning Resources.	Program Leaders – Faculty Members – Students	1. Questionnaires and referendums approved by the department. 2. Write-off and monitoring lists.
The extent to which the learning outcomes of the course have been achieved.	Program Leaders – Faculty Members	1. Review the course report. 2. Analyze test forms, grades, student work and achievement 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	
Reference No.	
Date	

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Programming 3
Course Code:	عال 221
Program:	Programming Technology
Department:	Applied Sciences
College:	Applied College
Institution:	Imam Mohammad Bin Saud Islamic University

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1.Learning Resources 7

2. Facilities Required 7

G. Course Quality Evaluation 8

H. Specification Approval Data 8

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: Fifth Level
4. Pre-requisites for this course (if any)**:** 220 عال
5. Co-requisites for this course (if any)**:** N/A

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**		
2	**Blended**	48	100%
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	24
2	**Laboratory/Studio**	24
3	**Tutorial**	
4	**Others** (specify)	120
	Total	168

B. Course Objectives and Learning Outcomes

1. Course Description

This course covers advanced topics in the field of object programming, including the concept of polymorphism and discusses linking the programming with database connectivity, which enables the programmer to write factions with greater capabilities. Therefore, the course covers the topic of handling exceptions that occur during program execution, which ensures that the computer does not crash due to the program and the course also deals with methods of dealing with graphical interfaces.

Throughout the semester, the course includes an integrated case study in which all previous tools are used, in addition to the experiences gained in the relevant course is to build an integrated project.

2. Course Main Objective

The course aims to give the student higher skills in programming science to be able to propose solutions to problems in new ways and formulate them in the form of a computer program, and the ability to write advanced software using advanced object programming OOP.

3. Course Learning Outcomes

CLOs		Aligned-PLOs
1	**Knowledge and Understanding**	
1.1	Familiarity with the detailed concepts of Advanced Object-Oriented Programming (OOP Advanced).	ع1، ع2، ع5
2	**Skills:**	
2.1	Ability to deal with the basic principles of object-oriented programming.	م1، م2، م7
2.2	Proficiency in linking databases properly with programs written in Java.	م1، م2، م3، م4، م5، م7
2.3	Distinguishing exceptions, their causes and ways to use them.	م1، م2، م3، م4، م7
2.4	Convert source files into programs with interactive graphical interfaces with the user.	م1، م2، م3، م4، م7
2.5	Using information and communication technology to exchange the ideas, scientific research, and the performance of tasks and costs.	م1، م2، م7
2.6	Practice critical thinking and solve problems facing the learner throughout the course in creative ways.	م1، م2، م7
3	**Values:**	
3.1	Collaboration, teamwork, and professional ethics.	ق1
3.2	Take the responsibility for continuous learning, and self-development.	ق2
3.3	Effective and efficient time management when applying acquired knowledge and skills.	ق3

C. Course Content

No	List of Topics	Contact Hours

1	**Basic principles of object-oriented programming (OOP):**
	• Inheritance:
	  ○ The concept of inheritance.
	  ○ Addressing inherited methods.
	  ○ Replacement (overriding) inherited methods.
	• Polymorphism:
	  ○ Types.
	  ○ The basics of polymorphism.
	• Encapsulation.
	• Abstraction.
		12

2	**Database connectivity:** • Connection tools • Programming linking Tools • Executing querying	12
3	**Exception Handling**: • Exception method. • Catching the causes of the exception.	8
4	**Dealing with graphical interfaces:** • Interfaces. • Processing of interface objects. • Swing components. • Working with text fields & buttons. • Working with checkbox & radio Buttons. • Working with combo boxes. • Using JOptionPane & List. • Event handling. • Mouse event handling. • Keyboard handling.	16
Total		48

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	Familiarity with the detailed concepts of Advanced Object-Oriented Programming (OOP Advanced).	Class lectures. Class discussion. Questions/Answers session in class. Home work. Learning by discovery. Self-education. Brainstorming. Online search. KWL learning table. Mind maps. Concept maps.	Quizzes. Homework and Assignments. Written and online exams. Writing reports. Presentations. Discussion and debate. Achievement file. Performance tests.
2.0	**Skills**		
2.1	Ability to deal with the basic principles of object-oriented programming.	Class lectures. Class discussion. Questions/Answers session in class. Home work. Learning by discovery. Self-education. Brainstorming. Online search. Mind maps. Concept maps.	Quizzes. Homework and Assignments. Written and online exams. Writing reports. Presentations. Discussion and debate. Achievement file. Performance tests.
2.2	Proficiency in linking databases properly with programs written in Java.		
2.3	Distinguishing exceptions, their causes and ways to use them.		
2.4	Convert source files into programs with interactive graphical interfaces with the user.		
2.5	Using information and communication technology to exchange the ideas, scientific research, and the performance of tasks and costs.		
2.6	Practice critical thinking and solve problems facing the learner throughout the course in creative ways.		
3.0	**Values**		
3.1	Collaboration, teamwork, and professional ethics.	Class lectures. Class discussion. Questions/Answers session in class. Home work. Learning by discovery. Self-education. Brainstorming. Online search. Mind maps. Concept maps.	Quizzes. Homework and Assignments. Written and online exams. Writing reports. Presentations. Discussion and debate. Achievement file. Performance
3.2	Take the responsibility for continuous learning, and self-development.		
3.3	Effective and efficient time management when applying acquired knowledge and skills.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid-Term	Week 7	15%
2	Quizzes (2 Quizzes)	Week 5, 10	10%
3	Practical Evaluation	Week 2-11	20%
4	Programming Project	Week 11	20%
5	Participation	All Semester	5%
6	Final	Week12	30%
7	Total Marks		100%

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

E. Student Academic Counseling and Support

- Publishing the guidelines prepared by the Deanship of Admission and Registration Affairs.
- Allocating office hours for faculty members to follow up on students' academic inquiries, respond to e-mail, communicate through electronic systems, and provide feedback.
- Seeking to solve the academic problems for students and all related to the causes of dismissal, academic stumbling, delay and low average.

F. Learning Resources and Facilities

1.Learning Resources

Course reference	1. Java: how to program, by P.J. Deitel and H.M. Deitel
Essential References Materials	2. Head First Java, by Kathy Sierra and Bert Bates. 3. Java: A Beginner's Guide, by Herbert Schildt. 4. Effective Java: Programming Language Guide (Java Series), by Joshua Bloch. 5. Simple Program Design, by Lesley Robertson
Electronic Materials	Online resources will be provided during class lectures on LMS.
Other Learning Materials	N/A

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom – A computer lab equipped and connected to a shared printer and the internet.
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart board, data projector, Internet browser and NetBeans Software.
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.	Peer references – students.	1. Questionnaires and referendums approved by the department. 2. Peer evaluation of faculty members. 3. Review the results of the students' evaluation.
Effectiveness of student assessment methods.	Peer references - program leaders - faculty members – students.	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 scrutiny among fellow faculty members. 4. Review samples of students' work.
Learning Resources.	Program leaders - faculty members - students	1. Questionnaires and referendums approved by the department. 2. Write-offs and monitoring.
Achieved learning outcomes of the course.	Program leaders - faculty members.	1. Review the course report. 2. Analysis of exams forms, grades, students' work and records of achievement.

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	Department of Applied Sciences – Applied College
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 Code:	*CS 0299*
Program:	*Programming*
Department:	***Applied Sciences***
College:	*Applied College*
Institution:	***Imam Mohammad Bin Saud Islamic University***
Version:	***1st version***
Last Revision Date:	**2023/11/26**

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A. General information about the course:

Course Identification					
1. Credit hours:	2 (1 Theory, 2 lab)				
2. Course type:					
a.	University ☐	College ☐	Department☒	Track☐	Others☐
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered: 3rd Level					

4. Course general Description:

The Graduation Project in Programming is a capstone course designed to provide students with an opportunity to apply the knowledge and skills acquired throughout their programming diploma program. Students will work on a substantial project or research topic related to programming, demonstrating their ability to analyze, design, implement, and evaluate solutions to real-world programming challenges.

This course conducted under the general guidance of an approved faculty member. The course will allow the student to develop various skills, within a context that students will find relevant and engaging. Towards the end of the semester, the students should submit a project report and give a formal presentation.

5. Pre-requirements for this course (if any): N/A

6. Co- requirements for this course (if any): N/A

7. Course Main Objective(s):

The main objective of this course is to provide students with an opportunity to apply the knowledge and skills acquired throughout their programming diploma program.
By the end of the course, students will be able to:

1. Formulate a comprehensive project proposal that addresses a significant programming issue or research question.
2. Apply relevant programming concepts, principles, and techniques to analyze, design, and develop a solution or research methodology.
3. Conduct in-depth research and critically analyze existing literature and practices related to the chosen project topic.
4. Implement and test the proposed solution or research methodology, considering programming best practices and ethical considerations.
5. Evaluate the effectiveness and impact of the project, considering relevant metrics and criteria.
6. Communicate project findings effectively through written reports and oral presentations.
7. Apply project management fundamentals
8. Demonstrate professionalism, teamwork, and time management skills throughout the project duration. *(become familiar with teamwork :team size of 3 to 5 students)*

1. Teaching mode (mark all that apply)

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

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	12
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	12
5.	Others (specify) Seminars: The course emphasises group work, guided by weekly face to face (or online) meetings with the advisor (group project supervisor)	12
	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	Identify a programming problem	ع1، ع2، ع5	Lectures, Class Discussions	Tutorials
1.2	Demonstrate in-depth knowledge and understanding of programming concepts, principles, and technologies.	ع1، ع2، ع5		
1.3	Familiarity with international and national regulations and systems related to programming .	ع1، ع2، ع4		
1.4	Develop robust project management techniques	ع1، ع2، ع5		
2.0	Skills			
2.1	Apply critical thinking and problem-solving skills to	م1، م2، م3	Seminars	Tutorials

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	identify and address programming challenges.		Class Discussions	
2.2	Conduct independent research and analysis to propose innovative solutions in programming.	م1، م2، م3، م4، م7		
2.3	Provide a link to the practical experiences of industry professionals, showcasing the relevance of computer security in real-world scenarios.	م1، م2، م4، م6، م7		
2.4	Deliver plans clearly and concisely orally, visually and in a written form	م1، م2، م6، م7		
3.0	Values, autonomy, and responsibility			
3.1	Collaboration, teamwork, and professional ethics.	ق1	Class Discussions, Class Activity	Group Project Report
3.2	Take the responsibility for continuous learning, and self-development.	ق2		
3.3	Effective and efficient time management when applying acquired knowledge and skills.	ق3		

C. Course Content

No	List of Topics	Contact Hours
1.	• **Project Proposal Development:** • Identifying a programming problem or research question with a clear problem statement, objectives, and methodology. • Conducting a literature review and gap analysis • Conducting a feasibility study and assessing the resources required.	8
2.	• **Project Planning and Management:**	6

	• Project planning, including defining project milestones, tasks, and deliverables. • Risk assessment and mitigation strategies. • Project scheduling and time management.	
3	• **Project Implementation and Testing** • Designing and developing the proposed solution or research methodology. • Implementing programming controls and measures. • Conducting testing, data collection, and analysis. • Iterative development and refinement. • Addressing security, privacy, and quality assurance considerations.	6
4	• **Project Documentation and Reporting:** • Writing technical reports and documentation following industry standards. • Creating project artifacts, such as design documents, user manuals, and system documentation. • Presenting project findings and results effectively	6
5	• **Project Evaluation and Documentation:** • Evaluating the effectiveness and impact of the project. • Assessing project outcomes against predefined metrics and criteria. • Documenting project findings, including lessons learned and recommendations. • Writing a comprehensive project report.	6
6	• **Project Presentation:** • Preparing and delivering a professional oral presentation. • Demonstrating effective communication skills. • Responding to questions and feedback.	4
Total		36

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	**Quizzes and Assignments**	2,5,7	30%
2.	**Project**	Week 5, 10	40%
3.	**Final Exam (Viva-voce)**	12	30%
7	**Total Marks**		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	N/A
Supportive References	N/A
Electronic Materials	Online resources will be provided during class lectures on LMS.
Other Learning Materials	N/A

2. Required Facilities and equipment

Items	Resources
Facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	classrooms
Technology equipment (projector, smart board, software)	Data show, internet, PC
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	Peer references – students.	1.Questionnaires and referendums approved by the department. 2.Peer evaluation of faculty members. 3.Review the results of the students' evaluation.
Effectiveness of students assessment	Peer references - program leaders - faculty members – students.	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 scrutiny among fellow faculty members.

Assessment Areas/Issues	Assessor	Assessment Methods
		4.Review samples of students' work.
Quality of learning resources	Program leaders - faculty members - students	1.Questionnaires and referendums approved by the department. 2.Write-offs and monitoring.
The extent to which CLOs have been achieved	Program leaders - faculty members.	1.Review the course report. .
Other		

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

G. Specification Approval Data

COUNCIL /COMMITTEE	Department of Applied Sciences – Applied College
REFERENCE NO.	
DATE	

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-240
2023

Course Specification

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-240
2023

Course Specification

Course Title:	Programming in Python
Course Code:	CS 0133
Program:	
Department:	Applied Sciences
College:	Applied College
Institution:	Imam Mohammad Ibn Saud Islamic University
Version:	2023
Last Revision Date:	August 1st, 2023

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G. Specification Approval Data	8

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:	
The Python programming course offers a comprehensive introduction to the Python programming language, catering to both beginners and those with prior programming experience. Throughout the course, participants delve into Python's syntax, data structures, and key concepts, enabling them to develop a strong grasp of the language.Students gain practical experience in implementing Python solutions for diverse scenarios, including data manipulation and analysis	
5. Pre-requirements for this course (if any):	
6. Co- requirements for this course (if any): None	
7. Course Main Objective(s):	
The main objectives of a Python programming course typically include: **1. Providing a comprehensive understanding of the Python programming language, including its syntax, data structures, and core concepts.** **2. Equipping students with proficiency in object-oriented programming and best practices for writing efficient and maintainable code in Python.** **3. Familiarizing students with popular Python libraries and frameworks for tasks such as data analysis, web development, and automation.** **4. Cultivating the ability to solve real-world problems using Python, and encouraging creativity and critical thinking in designing and implementing Python solutions.** ○	

1. Teaching mode (mark all that apply)

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

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	18
2.	Laboratory/Studio	18
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	Understand the fundamentals of Python programming language, including data types, variables, control structures, and functions.	ع1، ع5	- Lecture. - Discussion. - Survey. - Discovery learning. - Self-education. - Developed lecture. - Brainstorming. - Web survey. - KWL chart. - Mind maps. - Concept maps.	- Traditional and online achievement tests. - Questions. - Assignments and assessments. - Presentations. - Discussion and debates. - Cognitive performance tests. - Achievement file.
1.2	Apply object-oriented programming concepts in Python, including classes, objects, inheritance, and polymorphism	ع1، ع5		
1.3	Utilize Python libraries and modules for data manipulation, analysis, and visualization.	ع1، ع5		
2.0	Skills			
2.1	Implement error handling and exceptions in Python to write robust and reliable code.	م1، م2، م7	- Demonstration. - Developed lecture. - Discovery learning. - Peer learning. - Self-education. - Discussion. - Web survey. - Brainstorming. - Co-learning. - Problem Solving. - Project. - Online discussion.	- Presentations. - Rating ladders. - Performance tests. - Production metrics. - Observation. - Projects. - Achievement file. - Peer assessment. - Self-calendar.
2.2	Develop and deploy Python applications for various real-world scenarios.	م1، م2، م7		
2.3	Demonstrate proficiency in using Python for tasks such as web scraping, automation, and working with APIs	م1، م2، م7		
2.4	Collaborate and work effectively in a team using Python for cooperative programming and project development.	م1، م2، م7		
3.0	Values, autonomy, and responsibility			
3.1	Cooperation, teamwork, and professional ethics.	ق1	- Demonstration. - Developed lecture. - Discovery learning. - Peer learning. - Self-education.	- Presentations. - Rating ladders. - Performance tests. - Production metrics.
3.2	Take responsibility for continuous learning and	ق٢		

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	continuing personal development.		- Discussion. - Web survey. - Brainstorming. - Co-learning. - Problem Solving. - Project. - Online discussion.	- Observation. - Projects. - Achievement file. - Peer assessment. - Self-calendar.
3.3	Efficient and effective time management when applying acquired knowledge and skills.	ق٣		

C. Course Content

No	List of Topics	Contact Hours
1.	• Module 1 - Introduction to Python and computer programming	4
2.	• Module 2 - Data types, variables, basic input-output operations, basic operators	6
3.	• Module 3 - Boolean values, conditional execution, loops, lists and list processing, logical and bitwise operations	8
4.	• Module 4 - Functions, tuples, dictionaries, and data processing	6
5.	• Module 5 - Modules, Packages and PIP	6
6.	• Module 6 - Strings, String and List Methods, Exceptions	6
7.	• Module 7 - Object-Oriented Programming	6
Total		36

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (In week no)	Percentage of Total Assessment Score
1.	Quizzes	Continuous	15%
2.	Homework	Continuous	5%
3.	Midterm Exam	Week7	20%
4.	Practical Assessment and project	Continuous	30%
5.	Final Exam	Week12	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	PCAP - Programming Essentials in Python by Cisco Networking Academy. http://www.netacad.com
Supportive References	1- "Python Crash Course" by Eric Matthes 2- "Automate the Boring Stuff with Python" by Al Sweigart 3- Official Python Documentation and Tutorial 4- Online resources such as Python.org, RealPython, and Stack Overflow
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. A projector connected to a PC, preferably with Internet access. 2. A vertical sliding board. 3. An equipped computer lab with at least 25 seats.
Technology equipment (Projector, smart board, software, etc.)	Computing resources (Projector, data show, Smart Board, software: Win Dos- Win Server- Linux - Ubuntu, 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.

Assessment Areas/Issues	Assessor	Assessment Methods
		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	