Program Specification

(Bachelor)

Program:	**Programming and Computer Science**
Program Code (as per Saudi university ranking):	**061301**
Qualification Level:	Level 5 Intermediate Diploma
Department:	write here
College:	Applied College
Institution:	Umm Al-Qura University
Program Specification:	New ☐ updated* ☒
Last Review Date:	December 2024

*Attach the previous version of the Program Specification.

Table of Contents

A. Program Identification and General Information

1. Program's Main Location :
Male Section: Al- Aziziah Female Section: Rea Thakhir
2. Branches Offering the Program (if any):
N/A
3. Partnerships with other parties (if any) and the nature of each:
4. Professions/jobs for which students are qualified
Assistant programmer Computer technician (simple maintenance / operations) Website Designer
5. Relevant occupational/ Professional sectors:
Companies that has an IT support departement

6. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
1.		
2.		

7. Exit Points/Awarded Degree (if any):

exit points/awarded degree	Credit hours
1.	

8. Total credit hours: (63)

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

Meeting the needs of the job market by producing competent professionals and technicians qualified in the field of programming and computer science and website and mobile applications following international standards

2. Program Goals:

- Producing an adequate number of skilled computer technicians.
- Enhancing indiviuals' performance, research and innovation skills to enable them to build software solutions.
- keeping the study program updated in line with the fast-changing demands of the job market.
- Promoting personal and social development in a supportive and motivating environment.
- Contributing to the national development plans of Vision 2030 aimed at self-reliance by producing skilled human resources in the field of computer sciences.

3. Program Learning Outcomes*

Knowledge and Understanding	
K1	Identify recent concepts of modern computers and information technology
K2	Recall mathematical methods used in computer-related topics
K3	Recognize the principles of developing software solutions i.e., software, website, mobile application
K4	Recognize computer architecture and hardware components
Skills	
S1	Construct documents, tables, presentations and simple database systems using Microsoft Office
S2	Develop software solutions (e.g., software, website, mobile application) by applying principles of different programming techniques and data structures.
S3	Design software solutions based on a user-centered approach
S4	Build computer networks using suitable hardware and/or software components
S5	Publish a database using DB management system
S6	Deploy database in software solutions
Values, Autonomy, and Responsibility	
V1	Apply standards of integrity and ethical conduct in various academic, professional and research fields related to computer science.
V2	Accept responsibility for keeping his/her knowledge and/or skills up to date by using self-

	learning to promote professional growth and lifelong learning.
V3	Function effectively in teamwork to accomplish a common goal, demonstrating leadership skills and effective cooperation

* Add a table for each track or exit Point (if any)

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required			
	Elective			
College Requirements	Required	5	14	22 %
	Elective			
Program Requirements	Required	13	40	63%
	Elective			
Capstone Course/Project		1	3	5%
Field Training/ Internship		1	6	10%
Residency year				
Others				
Total		20	63	100%

* Add a separate table for each track (if any).

2. Program Courses

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	AP1301	English Language(1)	Required		4	College
	AP1201	Introduction to Artificial Intelligence	Required		2	College
	APCS1201	Computer Skills	Required		3	Program
	APCS1202	Computer Programming (1)	Required		4	Program
	APCS1203	Computer Maintenance Skills	Required		3	Program
	APCS1204	General Mathematics	Required		2	Program
Level 2	AP1302	English Language(2)	Required		4	College
	AP1510	Professional skills	Required		2	College
	APCS2205	Computer Programming(2)	Required	APCS1202	3	Program
	APCS2206	Internet Applications	Required		4	Program
	APCS2207	Database	Required		3	Program

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	APCS2208	Introduction to Cybersecurity	Required		2	Program
Level 3	AP1310	Values and ethics	Required		2	College
	APCS3209	Smart Devices Programming	Required	APCS2205	3	Program
	APCS3210	Data Structures	Required	APCS1202	3	Program
	APCS3211	User Interface Design	Required		3	Program
	APCS3212	Fundamentals of Programming in Artificial Intelligence	Required	APCS2205	4	Program
	APCS3213	Computer Networks	Required		3	Program
Level 4	APCS4901	Cooperative Training	Required		6	College
	APCS4214	Graduation Project	Required	APCS2206 APCS2207 APCS3212	3	Program

* Include additional levels (for three semesters option or if needed).
** Add a table for the courses of each track (if any)

3. Course Specifications:

Insert hyperlink for all course specifications using NCAAA template (T-104)

Courses Specification

4. Program learning Outcomes Mapping Matrix:

Align the program learning outcomes with program courses' according to the following desired performance levels *(I = Introduced & P = Practiced & M = Mastered).*

Course code & No.	Program Learning Outcomes												
	Knowledge and understanding				Skills						Values, Autonomy, and Responsibility		
	K1	K2	K3	K4	S1	S2	S3	S4	S5	S6	V1	V2	V3
APCS1201	I			I	P				I				
APCS1202	I		I			I					I	I	
APCS1203				P				P					I
APCS1204		I				I						I	I

Course code & No.	Program Learning Outcomes												
	Knowledge and understanding				Skills						Values, Autonomy, and Responsibility		
	K1	K2	K3	K4	S1	S2	S3	S4	S5	S6	V1	V2	V3
APCS2205	P		P			P	P				P	P	P
APCS2206	P		P			P			P			P	P
APCS2207	P		P		P				P	P	P		P
APCS2208	I						I	I				P	
APCS3209			P			P	P			P			P
APCS3210			I	I		I	I				P	I	I
APCS3211			P		P		P					P	P
APCS3212		P	P	P		P	P				P	P	
APCS3213	P			P				P			P	P	P
APCS4901	M	M	M	M	M	M	M	M	M	M	M	M	M
APCS4214	M	M	M	M	M	M	M	M	M	M	M	M	M

* Add a separate table for each track (if any).

5. Teaching and learning strategies applied to achieve program learning outcomes.

Describe teaching and learning strategies and curricular and extra-curricular activities adopted to achieve the Program's learning outcomes in all areas.

- Small group work.
- Research activities
- Class Activities
  - Lectures.
  - Tutorial
  - Solved examples
  - Whole group discussions

6. Assessment Methods for program learning outcomes.

Describe assessment methods (Direct and Indirect) that can be used to measure the achievement of program learning outcomes in all areas.

The Program should devise a plan for assessing Program Learning Outcomes (all learning outcomes should be assessed at least twice in the bachelor program's cycle and once in other degrees).

Observation

reports

- Short quizzes
- Homework assignments
- Written exam

D. Student Admission and Support:

1. Student Admission Requirements

High school diploma or equivalent

2. Guidance and Orientation Programs for New Students

(Include only the exceptional needs offered to the students of the Program that differ from those provided at the institutional level).

- duties and rights of students, admission requirements, department regulations, and any relevant information to the students.
- Each new student is assigned to an advisor who will guide him.

The department plans a meeting with new students to orient them and answer their questions at the beginning of each year.

3. Student Counseling Services

(Academic, professional, psychological, and social)
(Include only the exceptional needs offered to the students of the Program that differ from those provided at the institutional level).

An academic advisor is assigned to each Student.

- Faculty are instructed to display schedules on office doors with at least 6 office hours weekly free for advising

- A guideline program handbook has to be published between the students containing all duties and rights of students, admission requirements, department regulations, and any relevant information to the students.

- The department website has to contain rich information about cybersecurity program activities, a program handbook, and relevant guiding details.

4. Special Support

(Low achievers, disabled, gifted, and talented students).

People with Special Needs Unit in UQU is concerned with providing several services for this category of students, including;

- Issuing care entry licenses.
- Allotting seats for them in the transportation mean of the students.
- Allotting toilets for them at all buildings of the university
- Allotting seats and tables for them in all study halls

- Allotting lounges for them in all colleges. Such lounges must fit their needs and include chairs, tables, and drinking water;
- Giving care to their study schedules and taking into consideration the closeness of the classrooms in this regard
- Introducing the students' clubs to them along with the students' activities and preparing them in such a manner that fits their special needs.
- To engage them in the student's meetings by inviting them to such meetings and soliciting their opinions on the quality of their services.
- To communicate with the centers and companies relevant to providing services for people with special needs to provide all their educational requirements, including equipment, books, technologies, audiovisuals, etc.
- To exempt them from paying fees of all student services and all purchases from shop services inside the university campus and to make agreement with the traders and investors in this regard.
- To invite them to participate in the summer centers organized by the university.
- To help them get jobs in the Hajj season with the companies, including Tawafa companies.

Giving them priority in the self-employment programs

E. Faculty and Administrative Staff:

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professor						
Associate Professor		2				
Assistant Professor		7				
Lecturer		6				
Teaching Assistant						
Technicians and Laboratory Assistants						
Administrative and Supportive Staff						
Others (specify)						

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

Learning resources required by the Program (textbooks, references, e-learning resources, web-based resources, etc.)

List of textbooks assigned in the course specification forms

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

- Classroom well equipped with at least 40 adequate seats.
- Laboratory well equipped with at least 20 adequate seats.
- Internet connection

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the Program)

The program follows the university and college regulations and arrangements concerning maintaining healthy and safe environment.

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to the quality assurance manual.

2. Procedures to Monitor Quality of Courses Taught by other Departments

The quality unit coordinates with the department for periodic auditing of the strategies via the following specific surveys and reports designed for this purpose:

- surveys distributed to faculty members who are executing the program
- surveys distributed to faculty members from other colleges inside the university
- surveys distributed to the current students
- surveys distributed to the alumni students
- Survey the field training.

After that, a workshop is organized to discuss the strategies and their improvements based on the analysis of the collected surveys. The quality unit organizes periodic meetings, seminars, and workshops to monitor and review the program continually.

The quality committee:

- Measure the course learning outcomes each term.
- Measure the key performance indicators

- Measure the program learning outcomes through the final exit exam each term.
- Enhance the academic advising and career counseling
- Activate the advising committee.

Every 4 years, a complete and comprehensive program assessment is performed.

3. Procedures Used to Ensure the Consistency between Main Campus and Branches (including male and female sections).

- Establishing a coordinator for each course between the male and female sections.
- Continuous communication between the two parts of male and female students throughout the semester to consult and take notes and recommendations.
- Unifying course references between the male and female sections.
- Unifying the tests between male and female students in one course, and the coordinator of each course does this
- Assessment and evaluation of the program by reviewers and consultants from faculty members of other colleges
- Design and distribution of dedicated surveys to the institutions which hire our graduated students to collect their opinions on the overall program and use their feedback in the improvement process

4. Assessment Plan for Program Learning Outcomes (PLOs),

- **Annual program reports**
- **Program Advisory Committee's recommendation**
- **Faculty self-reports in course reports**
- **Student Course evaluation**
- **Evaluation of questionnaires that measure opinions of stakeholders (employers - Students – teaching staff- …) on the program quality.**
- **Written exams**
- **Practical exams**
- **Reports and evaluation of research activities**

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	Teaching staff and final year students	Survey	End of academic year

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
effectiveness of teaching & assessment	Students, faculty, alumni, program leaders	Survey	End of semesters
Learning resources	Students, faculty	Survey, visits	End of academic year
Partnerships	Faculty, program leader	Survey, visits, interviews	End of academic year

Evaluation Areas/Aspects: e.g., leadership, effectiveness of teaching & assessment, learning resources, services, partnerships, etc.
Evaluation Sources: students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, etc.
Evaluation Methods: e.g., Surveys, interviews, visits, etc.
Evaluation Time: e.g., beginning of semesters, end of the academic year, etc.

6. Program KPIs*

The period to achieve the target (____) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	**KPI-P-01**	**Students' Evaluation of Quality of learning experience in the program**	3.6 (72%)	Average rating of the overall quality on a five point scale in an annual survey of final year students.	Final year Students
2	**KPI-P-02**	**Students' evaluation of the quality of the courses**	4.0 (80%)	Average rating of students on a five-point scale on overall evaluation of courses.	Each end of semester
3	**KPI-P-03**	Completion rate	80%	Proportion of students entering undergraduate programs who complete those programs in minimum time.	End of final year Students
4	**KPI-P-04**	**First-year students' retention rate**	90%	Percentage of students entering programs who successfully complete first year.	End of First academic year new Students
5	**KPI-P-05**	**Students' performance in the professional and/or national examinations**	NOT	Percentage of students or graduates who were successful in the professional and/or national examinations, or their score average and median	

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
.....	**KPI-P-06**	**Graduates' employability and enrolment in postgraduate programs**	70%	Percentage of graduates from the program who, within a year of graduation, were: a. employed within 12 months, b. enrolled in postgraduate programs during the first year of their graduation to the total number of graduates in the same year.	Each end of semester
	KPI-P-07	**Employers' evaluation of the program graduates' proficiency**	3.5	Average of the overall rating of employers for the proficiency of the program graduates on a five-point scale in an annual survey	End of academic year
	KPI-P-08	**Ratio of students to teaching staff**	30:1	Ratio of the total number of students to the total number of full-time and full-time equivalent teaching staff in the program	End of academic year
	KPI-P-9	**Percentage of publications of faculty members**	40%	Percentage of full-time faculty members who published at least one research paper during the year	End of academic year

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
				to total faculty members in the program	
	KPI-P-10	**Rate of published research per faculty member**	4	The average number of refereed and/or published research per faculty member during the year (total number of refereed and/or published research to the total number of full-time or equivalent faculty members during the year).	Final year Students
	KPI-P-11	**Citations rate in refereed journals per faculty member**	2	The average number of citations in refereed journals from published research per faculty member in the program (total number of citations in refereed journals from published research for full-time or equivalent faculty members to the total research published).	End of academic year

*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	**Umm Al-Qura University Council**
Reference No.	**851141114462/190365**
Date	**1446/11/22**