



Program Specification

(Bachelor)

Program: Information Security

Program Code (as per Saudi university ranking): 61203

Qualification Level: Intermediate Diploma

Department: Applied Sciences

College: Applied Sciences

Institution: Umm Al Qura University

Program Specification: New updated*

Last Review Date: 29-12-2024

*Attach the previous version of the Program Specification.



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A. Program Identification and General Information

1. Program's Main Location :

Applied College

2. Branches Offering the Program (if any):

N/A

3. Partnerships with other parties (if any) and the nature of each:

N/A

4. Professions/jobs for which students are qualified

Cyber Security Risk Technician
Cyber Security Compliance Technician
Cyber Security Checker
Cyber Security Defense Technician
Cyber Security Technician
Systems security analyst
Vulnerability Assessment Technician
Digital Forensics Technician
Cyber-crime investigation Technician

5. Relevant occupational/ Professional sectors:

1. Government and Public Sector,
2. Banking, Finance, and Healthcare ,
3. IT, Telecommunications, and E-commerce,
4. Energy, Infrastructure, and Education,
5. Consulting, SMEs, and Digital Forensics

6. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
1. Diploma in Information Security	60	CynerSecurity Technician

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

exit points/awarded degree	Credit hours
1. Associate Technician	36

8. Total credit hours: 60



B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

Providing students with quality information security education to inspire discovery, lifelong learning and professional services with community engagements.

2. Program Goals:

Graduates of the program will:

1. Have a successful career in practicing the knowledge and skills of information security for solving problems and designing appropriate solutions following the best practices to respond to the needs of the labor market.
2. Contribute effectively to the profession of information security as an individual, team member and leader.
3. Engage actively in lifelong learning, career growth, and community services.
4. Demonstrate ethical and social values in their professional practices.

3. Program Learning Outcomes*

Knowledge and Understanding

K1	General and interrelated knowledge and understanding of the foundations, theories, principles and technical concepts in the field of cybersecurity.
K2	Knowledge and understanding of the analytical methodologies used in cybersecurity topics and the interpretation of information related to them

Skills

S1	Use a range of theoretical and technical knowledge in related sciences; and adapt them to reflect theoretical understanding in specific and unfamiliar contexts in cybersecurity.
S2	Apply critical thinking and creativity, for providing innovative practical solutions in moderately complex and unfamiliar contexts related to the field of cybersecurity.
S3	Use study and investigation methodologies to benefit from their results to solve problems of moderate complexity in cybersecurity.
S4	Select and use a variety of practices and technical tools; and adapt them to carry out practical moderately complex activities in the field of cybersecurity.
S5	Communicate in appropriate forms to demonstrate understanding and knowledge transfer to the beneficiaries in the field of cybersecurity.

Values, Autonomy, and Responsibility

V1	Adhere to cybersecurity ethics; and demonstrate responsible citizenship.
V2	Manage learning and work independently; set goals and work towards achieving them; and take decisions regarding learning with moderate degree of autonomy.
V3	Manage tasks and activities related to cybersecurity; and work under indirect supervision.
V4	Work cooperatively and lead the teamwork to perform a range of tasks with moderate responsibility; and work towards achieving common goals effectively.
V5	Promote health, psychological and social aspects related to the field of cybersecurity.

* 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	1	2	3%
	Elective			
College Requirements	Required	3	10	17%
	Elective	1	2	3%
Program Requirements	Required	15	40	67%
	Elective			
Capstone Course/Project				
Field Training/ Internship		1	6	10%
Residency year				
Others				
Total		21	60	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		٤	College
	AP1510	Professional skills	Required		٢	College
	APIS1201	Introduction to Cybersecurity	Required		٢	Program
	APIS1202	Problem Solving and Programming	Required		٣	Program
	APIS1203	Operating Systems	Required		٢	Program
	APIS1204	IT Systems Components	Required		٢	Program
	APIS1205	Math for Computer Science	Required		٢	Program
Level 2	AP1302	English Language 2	Required		٤	College
	AP1310	Values and ethics	Required		٢	College
	APIS2206	Cybersecurity Design Principles	Required	Introduction to Cybersecurity	٢	Program
	APIS2207	Cyber Crimes and Threats	Required	Introduction to Cybersecurity	٣	Program



Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	APIS2208	Computer Networks	Required	Operating Systems	٣	Program
	APIS3209	Policy, Legal , Ethics and Compliance	Required	Introduction to Cybersecurity	١	Program
	APIS2210	Database Concepts	Required	Math for Computer Science	2	Program
Level 3	AP1201	Applications in AI	Required		٢	College
	APIS3211	Malware and Risk Analysis	Required	Cyber Crimes and Threats	٣	Program
	APIS3212	Digital Forensics	Required	Cyber Crimes and Threats	٣	Program
	APIS3213	Fundamentals of Ethical Hacking	Required	Policy, Legal , Ethics and Compliance	٤	Program
	APIS2214	Web Security	Required	Computer Networks	٣	Program
	APIS3215	Networks Security	Required	Computer Networks	٣	Program
Level 4	APIS4901	Cooperative Training	Required		٦	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)

[Course Specifications](#)





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	S1	S2	S3	S4	S5	V1	V2	V3	V4	V5
APIS1201 Introduction to Cybersecurity	I		I	I		I			I			
APIS1202 Problem Solving and Programming	I		I	I							I	
APIS1203 Operating Systems		I	I									
APIS1204 IT Systems Components	I	I	I	I							I	
APIS1205 Math for Computer Science	P		P				P					
APIS2206 Cybersecurity Design Principles	P	P	P			P			P			
APIS2207 Cyber Crimes and Threats	P	P	P	P							P	
APIS2208 Computer Networking	P				P				P			
APIS3209 Policy, Legal, Ethics and Compliance	P		P					P				P
APIS2210 Database Systems	M	M	M	M			M		M			
APIS3211 Malware and Risk Analysis	M		M	M			M				M	
APIS3212 Digital Forensics	M	M	M			M	M	M	M	M		





Course code & No.	Program Learning Outcomes											
	Knowledge and understanding		Skills					Values, Autonomy, and Responsibility				
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3	V4	V5
APIS3213 Fundamentals of Ethical Hacking		M	M		M	M	M	M	M		M	
APIS2214 Web Security	M			M	M	M		M				
APIS3215 Network Security	M				M	M						
APIS4901 Cooperative Training	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.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, catch the flag, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

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).

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, catch the flag competitions, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations,



graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

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).

- 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.
- 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).

The Applied College supports the students who have special needs, such as low achievers, disabled, gifted, and talented. The College introduces the best of the advising scheme and puts the plan of their schedules carefully to meet the college, and university expectations.

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	CS, IT	Information Security	N/A			
Associate Professor	CS, IT	Information Security	N/A	1	1	2
Assistant Professor	CS, IT	Information Security	N/A	3	3	6
Lecturer	CS, IT	Information Security	N/A	3	3	6
Teaching Assistant			N/A			
Technicians and Laboratory Assistants	IT, CS	IT, Linux, Database servers, Networks Admin	N/A	5	5	10
Administrative and Supportive Staff			N/A			
Others (specify)			N/A			

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

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

- Central University Library.
- Online university databases.
- Local library run by the college: provides textbooks required by course specifications.
- Request each faculty member to provide a list of resources and references that ensure the benefit of the program and coordinate with the concerned entities inside the university to provide the lists aforementioned, which will be stored in the college and department library to make it available for the students
- A department committee studies the provided lists.
- This committee performs a periodic re-evaluation of the resources and references.

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)



The program benefits of the college and university libraries, laboratories, medical, and entertainments facilities.

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



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

- 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

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
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 (4) 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-0 ^o	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
6	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
7	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
8	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
9	KPI-P-9	Percentage of publications of faculty members	40%	Percentage of full-time faculty members who published at least one research paper	End of academic year





No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
				during the year to total faculty members in the program	
10	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
11	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.	851141114462/190358
Date	1446/11/22

