هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-103
2022

Program Specification

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Program Name:	Cyber Security
Program Code (as per Saudi university ranking):	**061203**
Qualification Level:	Intermediate Diploma
Department:	**Unit of Technical and Engineering Majors**
College:	The Applied College
Institution:	King Khalid University
Program Specification:	New ☒ updated* ☐
Last Review Date:	15 August 2023

*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 Khamis Mushait- Al-Mahalah Campus.
2. Branches Offering the Program (if any):
Applied College Khamis Mushait, Al-Mahalah (Male and Female Campuses).
3. Partnerships with other parties (if any) and the nature of each:
NA
4. Professions/jobs for which students are qualified
After the successful completion of Cyber Security Program, Student will be able to apply for these positions/jobs. • Cybersecurity Technician • Security Compliance Technician • Data Protection Technician • Technical Support Technician
5. Relevant occupational/ Professional sectors:
• Information System Administrator. • Network administrator. • Information technology operation.
6. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
1. NA		
2.		
3.		
4.		

7. Exit Points/Awarded Degree (if any):	
exit points/awarded degree	**Credit hours**
▪ Certificate in English language and general skills	16
▪ Certificate in English language and Basic skills of cyber security	32
▪ Certificate of completion 48 hours in cyber security	48
▪ Certificate of intermediate diploma in cyber security	70
8. Total credit hours: (70)	

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

providing a distinguished and high-quality program that focuses on integrating scientific theories and practical training to qualify cybersecurity professionals' technicians capable of working in different areas of cybersecurity provide security services to all sectors and contribute to the development of society.

2. Program Objectives:

1-Students will earn the knowledge, skills, and values necessary for analyzing Cybersecurity problems by designing and applying appropriate solutions using best practices that will enable them to be professional and distinguished.

2- Preparing students to remain abreast of cybersecurity developments by Integrating applied real-world experience in learning. And alignment with the needs of the cybersecurity industry.

3- Students will apply cutting-edge technologies and solutions within a professional, legal, and ethical framework and work effectively with different teams.

4- Builds partnerships and cooperation between the program and public and private institutions related to cyber security.

5- Students will practice continued self-learning to keep their knowledge and skills up to date and support them in acquiring professional certificates in cyber security.

3. Program Learning Outcomes*

Knowledge and understanding	
K1	Describe the information systems components including networks, and operating systems and their roles in security architecture.
K2	Outlines the analytical methodologies used for vulnerability and risk assessment and management, incident response, and the interpretation of related information.
K3	Recognize the technologies, tools, and approaches used to secure organizations assets.
Skills	
S1	Implement cybersecurity solutions integrated with computer networks, operating systems, and internet technology.
S2	Design a security architecture for an organization based on the requirements, standards, and policies.
S3	Discover security vulnerabilities and cyber threats and mitigate the probability of the risks.
S4	Use software, technology, security tools and best practices in the cybersecurity field to protect information systems.
S5	Explain the security policies and procedures with stakeholders and their effectiveness
S6	Analyze the numerical data generated from risk assessment, digital forensics and security metrics and use them to develop a secure system strategy.

Values, Autonomy, and Responsibility	
V1	Adhere to cybersecurity ethics and demonstrate responsible citizenship.
V2	Self-learns emerging technologies, software, and tools in the field of cybersecurity and discusses them with colleagues
V3	Work effectively as a member or leader within a team and manage engagement in activities relevant to 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	2	10	14.28%
College Requirements	Required	2	5	7.14 %
Program Requirements	Required	17	45	64.2%
Capstone Course/Project	Required	1	4	5.7%
Field Training/ Internship	Required	1	6	8.57%
Residency year		NA	NA	NA
Others				
Total		23	70	100%

* Add a separated 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	1501 ENG	English Language -1	Required		5	College
	1201 SKILL	Modern communication skills	Required		2	College
	1301 CIS	Introduction to Computer	Required		3	College
	2434 CIS	Computer Networks	Required		3	Program
	1331 CIS	Introduction to Computer Programming	Required		3	Program
Level 2	1502 ENG	English Language - 2	Required	1501 ENG	5	College
	1311 SEC	Cyber security Fundamentals	Required	2434 CIS	3	Program
	2313 CIS	Operating systems	Required	1301 CIS	3	Program
	2342 CIS	Internet Technologies	Required	1301 CIS	3	Program
	1212 SEC	Cryptography Fundamentals	Required	1301 CIS	2	Program
Level 3	2421 SEC	Ethical Hacking	Required	1311 SEC	4	Program
	2322 CIS	Database Systems	Required	1301 CIS	3	Program
	2341 SEC	Secure Software Design and Development	Required	1311 SEC	3	Program
	2244 CIS	Advanced Computer Networks	Required	2434 CIS	2	Program
	2251 SEC	Trends of New Technology	Required	------	2	Program
	1241 CIS	Computer Ethics and Society	Required	------	2	Program
Level 4	2231 SEC	Network Security Administration	Required	2244 CIS	2	Program
	2322 SEC	Digital Security & Forensics Principles	Required	2421 SEC	3	Program
	2242 SEC	Applications Security	Required	2341 SEC	2	Program
	2323 SEC	Penetration Testing	Required	2421 SEC	3	Program
	2224 SEC	Risk Assessment and management Fundamentals	Required	1311 SEC	2	Program
	2452 SEC	Applied Project	Required	2341 SEC	4	Program
Level 5	3653 SEC	Field Training	Required	Complete 64 hours	6	College

* 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)

4. Program learning Outcomes Mapping Matrix:

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

Course code & No.	Program Learning Outcomes											
	Knowledge and understanding			Skills						Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	S4	S5	S6	V1	V2	V3
1501 ENG								I			I	
1201 SKILL								P			P	
1301 CIS	I		I	I							I	I
2434 CIS	I	I			I	I	I				I	I
1331 SEC	I			I			I				I	I
1502 ENG												
1311 SEC	I	I	I	I	I	I	I			I		I
2313 CIS	I		I	I			I	I				I
2342 CIS	I		I	I	I					I		
1212 SEC		I	I	I			I					I
2421 SEC	P		P	P		P		I		P		P
2322 CIS	P		P	P	P			P			P	P
2341 SEC		P	P	P	P	I						P
2244 CIS	P	I	P	P			P		I		P	
2251 SEC	I		I			P	P	P		P		
1241 CIS	P		P		P		P	P		M		P
2231 SEC	M	M	M	M	M		P		I		P	M
2322 SEC		P	P			P	P	P	I	P		P
2242 SEC	M	M		M	M		M	P	P		M	
2323 SEC		M				M	M			M		M
2224 SEC		M	M			M	P	M	M	M		M
2452 SEC	M	M		M	M		M		M	M	M	M
3653 SEC	M		M	P			P	P	P	M	M	M

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

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

1- Classroom Lectures (Theory and practical).
2- Team Work
3- Case studies
4- Discussion
5- Discussion
6- Self learning
7- Challenge Based learning
8- practical Projects
9- Supervise field training properly.

6. Assessment Methods for program learning outcomes.

The assessment measures are categorized into direct and indirect methods of assessment. They are carried out for both courses and program levels.

❖ Course Level:

➢ Direct assessment

➢ Assessment phase

Tools Used: The actual attainment levels of students in a course through exams, quizzes, reports, assignments, and challenge bases exercise.

➢ Evaluation phase

- Define Levels of attainment of Learning Outcomes (LOs) for evaluating students' direct assessment results.
- Tabulate and Display LOs Achievement based on students' direct assessment results.
- Comment on LOs assessment.

➢ Indirect assessment

➢ Assessment phase

(Carried out by each section instructor - near completion of semester)

Tools Used:

- Course survey [Course Learning Outcomes (CLOs) and Program Learning outcomes (PLOs) Survey]

➢ Evaluation phase

- Define Levels of Attainment of PLOs for evaluating indirect assessment survey.
- Tabulate and Display PLOs Achievement based on Indirect Surveys
- Comment on PLOs assessment

❖ Program Level:

➢ Direct assessment

➢ Assessment phase

Tools Used:

- The actual attainment levels of students in taught courses.
- Define Level of Attainment of PLOs for evaluating students' direct assessment results

➢ Evaluation phase

- Tabulate and Display PLOs Achievement based on students' direct assessment results.
- Comment on PLOs assessment

➢ Indirect assessment

➢ Assessment phase

Tools Used:

- Course Surveys (CLOs survey)
- Exit Surveys
- Alumnus Surveys
- Employer Surveys
- Training Survey

D. Student Admission and Support:

1. Student Admission Requirements

In order to accept the student, it is required to meet the general and special conditions for admission to King Khalid University, and the relevant program (Cyber Security diploma program). We find that there are conditions for admission and study mentioned in the list of studies and tests for the undergraduate level at the Deanship of Admission and Registration at the university, including that the student obtains a high school diploma (the percentage is determined annually according to the conditions of admission). In addition to the commitment of King Khalid University, which seeks to adhere to the Saudi classification of educational levels and disciplines based on the international classification, which states that Applied Colleges offer diploma programs at the fifth.

In addition to the above, the Applied College at King Khalid University is committed to the Saudi classification issued and approved for educational levels and specializations, which is compatible with the international classification.

2. Guidance and Orientation Programs for New Students

Every year, the College administration organizes an orientation program for the new students of all programs. An academic component to orientation will give the new students the advantage they will need in making the transition from high school to college life. The program begins before classes start. Through this orientation, brochures and information bulletins are distributed to all students. The program includes the following:

- A live presentation illustrating a welcome word from the dean as well as overview of the services offered to students and advice for a successful academic life.
- A tour to the college buildings and labs. To discover and know the classrooms, labs. Staff offices etc.,

3. Student Counseling Services

An academic advising unit must be available at the college and program levels.

- ✓ The Academic Services Unit must be available at the program and college levels.
- ✓ There should be a coordinator for academic and training guidance; This coordinator connects each group of students with an academic and training advisor.
- ✓ The advisor guides the student and assists him in overcoming the difficulties that he may encounter during his study and training. The advisor also guides and assists the student to take appropriate decisions related to educational and training aspects during his college years.
- ✓ Tables of office hours for faculty members should be placed on the program website and on program members' offices.
- ✓ Assigning a faculty member to each group of program students as an academic and training supervisor.
- ✓ Holding meetings between program coordinators in the various branches, and heads of academic and guidance units to discuss the problems and difficulties facing students.

A group of 20 students are assigned to an academic advisor (faculty member) to provide academic counselling. Students meet the academic advisor when they need. The academic advisors have students' data. Students with poor performance (GPA < 2.3) are closely monitored and are provided with appropriate counselling. Students can get advice on academic matters from academic advisors. They can also have discussions on course and lecture-specific problems. Each faculty member allocates 4 office hours per week in the timetable for student counselling.

4. Special Support

The university administration establishes a specific central office for student advising.

The special needs unit seeks to provide guidance services for students with special needs and help them adapt to the university environment. On the other hand, the guidance and psychological counseling unit seek to provide psychosocial counseling services to students at all levels, finding solutions to the psychological and behavioral problems that impede their academic performance.

For talented students:

- ✓ The deanship of students' affairs takes care of all talented students in all fields like cultural, social, sports, etc.
- ✓ The program organizes a ceremony at the end of the academic year to honor outstanding and talented students.

For low achievers students:

Every academic year, the faculty holds meetings with students with low GPAs. Each academic advisor discusses this issue with the student. Moreover, also the program supervisors meet all these students to identify their problems and the causes of such lower GPAs. Most of the academic problems resolve after these meetings.

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						
Assistant Professor	**Network**	**Security**	**CISSP, OSCP Certified**	**2**	**3**	5
Lecturer	**Computer Science**	**Security**	**CEH, Security + certified**	**2**	**3**	5
Teaching Assistant	**Computer Science**	**Computer Science**	**CCNA Certified**	**1**	**2**	3
Technicians and Laboratory Assistant	**Computer Science**	**Computer Science**	A+ **Certified**	1	1	2
Administrative and Supportive Staff						
Others (specify)						

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

There is a process followed by faculty and teaching staff for planning and acquisition of textbooks, references, and other resource material, including electronic and web-based resources.

1. Faculty are submitting the following lists to the library administration:

- A list of textbooks and appropriate references.
- A list of important electronic databases.
- A list of specialized periodicals.

2. Faculty are also submitting a list of the specialized software packages to the General Administration of Information Technology through the college administration.

- Faculty continuously updating the list of used textbooks.
- Continuous updating to the specialized software packages.
- Digital Library Available on University website.
- Additional teaching materials are made available anytime by the course teachers through the blackboard (lms.kku.edu.sa).

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

* Determine the needs and work on them through the educational services committee of the program from periodic reports.

* Ensure the appropriateness of the equipment in the halls and laboratories to ensure

The Applied college has a robust infrastructure that supports the achievement of learning outcomes. These include libraries, laboratories, classrooms, and medical facilities.

• Library

The college has provided a thoroughly prepared and equipped library with all books and scientific publications. It also contains computers that allow access to multiple electronic resources like the Saudi Digital Library (SDL), which provides access for students and staff to comprehensive journals and e-book collections from the central science and technology publishers, Wiley, Elsevier, IEEE, and Springer.

• Laboratories

There are seven computer labs as follows:

- ✓ Four general-purpose computer labs
- ✓ Computer maintenance lab
- ✓ Computer Network lab
- ✓ Cyber security lab

• **Classrooms**

The Applied College has a wide range of classroom facilities to meet the needs of its teaching and learning mission. General-purpose classrooms are centrally scheduled, managed, and designed to serve the campus community. In addition, there are smart classrooms with a wide range of equipment, technology, and resources. General-purpose classrooms are sufficiently flexible to meet the pedagogical requirements of the many departments, faculty, and students who use them.

- ✓ Classrooms contain 30 to 60 seats.
- ✓ All classrooms are with modern teaching facilities.
- ✓ Air conditioning.
- ✓ Computer projector.

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

The university administration establishes a specialized administration for security and safety issues to maintain a health and safe environment at the university campus.

- ✓ All the buildings of the college are equipped with the safety signs and fire alarms and protection systems.
- ✓ All labs. are equipped with safety tools, fire protection and warning signs.

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to quality assurance manual.

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

For Quality Education all the activities of the department are initially discussed internally, and suggestions are forwarded to the Department council for further consideration and suitable decisions.

Program quality is monitored through several procedures:

1. Course coordination.
2. End-of-semester course reports.
3. Annual program reports.
4. Annual KPIs reports.

The Department activities are planned and executed with the following committees.

1. Quality and Academic Development Committee deals with all quality related activities based on ADAQ (Academic Development and Quality Deanship) guidelines.
2. Timetable Committee deals with all tasks related to timetable and room allocation.
3. Curriculum Committee responsible for the program curriculum and make necessary changes to maintain the consistency of the program.
4. E-Learning Committee facilities E-Learning services to the staff and students.
5. Academic Project Committee provides guidelines to the students and evaluate the same.
6. Examination Committee manages examination process of the department
7. Equipment and Facilities: Committee prepare the requirements of the laboratories and libraries.
8. Measurement and Evaluation Committee to evaluate the performance of department semester-wise.

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

The following arrangements are used to ensure the consistency between main campus and branches (including male and female sections):

1. **Centralized mechanism/policy for program and course development**.
   Permission to introduce changes to the program specification, study plan, and course specifications are only given to the department council in main campus.
2. **Course Coordination.**
   Course coordination ensures that course coverage, teaching and learning activities, and assessment methods are comparable across all campuses and sections.
3. **Annual Program Reports and End-of-Semester Reports.**
   These two reports are used to monitor for any inconsistency between campuses and sections at the level of courses and the program.

Course Coordinator must follow the progress of the course, and the exam questions with CLOs and ensure the updated Course Specification and Course plan are followed on all campuses.

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

A well-developed assessment plan is applied to assist the program learning outcomes in every domain of learning Quality development and its improvement of the program is directly controlled and managed by the university higher authority along with the deanship of development and quality's supports, monitoring, and commitment to establish quality culture.

Dean of the College has formed several committees and sub-committees of representatives from program's administrators, faculty members, and other staff members. Direct involvement of all the academic and administrative staffs of the program creates a generous quality environment in the college as well as in the department that supports further development, control, and improvement of the quality culture within the program. Committees and sub-committees of the college supports and advice on mechanism, policies, procedures, management, and implementation of activities and tasks related to quality control and improvement in the program.

Improvements in quality are appropriately acknowledged and great achievements recognized. Faculty members are involved in the quality improvement processes and their participation is required in all sorts of activities. Seminars, workshops, training programs relating to quality have been provided by Deanship for development and quality, ensures continued quality monitoring.

- The assessment plan for the PLOs includes assessments of students' work and performance (i.e., results of summative and formative assessments).
- The data gathered through assessments help the program improve the curricula, teaching, learning, and thereby enhance the effectiveness of the program based on evidence from students' learning outcomes.
- The assessment results are reported in the annual program report and in a separate detailed report. Both documents include improvement plans that are implemented in the operational plan of the following academic year

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Assessment	Student	Exams	End of the semester
Effectiveness of Teaching	Faculty, Student, Graduate	Surveys through the electronic gate	End of the semester
Learning Resources	Faculty, Student, Graduate	Surveys through the electronic gate	End of the semester

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, and others.
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 (one) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-P-01	Percentage of achieved. indicators of the program operational plan objectives	80%	(Number of indicators achieved / total number of indicators) *100	At the end of the year
2	KPI-P-02	Students' Evaluation of quality of learning experience in the program	80%	A questionnaire	At the end of the semester
3	KPI-P-03	Students' evaluation of the quality of the courses	80%	A questionnaire	At the end of the semester
4	KPI-P-04	Completion rate	80%	Proportion of undergraduate students who completed the program in minimum time in each cohort	At the end of the year
5	KPI-P-05	First-year students retention rate	80%	Percentage of first-year undergraduate students who continue at the program the next year to the total number of first-year students in the same year	At the end of the year
6	KPI-P-06	Students' performance in the professional and/or national examinations	80%	Percentage of students or graduates who were successful in the professional and / or national examinations, or them. score average and median (if any)	At the end of the year

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
7	KPI-P-07	Graduates' employability and enrolment in postgraduate programs	80%	A questionnaire	At the end of the year
8	KPI-P-08	Average number of students in the class	80%	Average number of students per class (in each teaching session/activity: lecture, small group, tutorial, laboratory or clinical session)	At the end of the semester
9	KPI-P-09	Employers' evaluation of the program graduate's proficiency	80%	A questionnaire	At the end of the year
10	KPI-P-10	Students' satisfaction with the offered services	80%	A questionnaire	At the end of the year
11	KPI-P-11	Ratio of students to teaching staff	80%	Ratio of the total number of students to the total number of full-time and fulltime equivalent teaching staff in the program	At the end of the year
12	KPI-P-12	Percentage of teaching staff distribution	80%	Percentage of teaching staff distribution based on: a. Gender b. Branches c. Academic Ranking	At the end of the year
13	KPI-P-13	Proportion of teaching staff leaving the program	80%	Proportion of teaching staff leaving the program annually for reasons other than age retirement to the total number of teaching staff.	At the end of the year
14	KPI-P-17	Satisfaction of beneficiaries with the learning resources	80%	A questionnaire	At the end of the year

*including KPIs required by NCAAA

H. Specification Approval Data:

COUNCIL / COMMITTEE	Curriculum and Plans Committee
REFERENCE NO.	1.1.23
DATE	22/1/2023