هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA
T14

Program Specifications
(Postgraduate Degree)

Program Name: Master in Cyber Security (MCS)
Qualification Level: Seven (Master)
Department: Information Technology Department
College: College of Computing and Informatics
Institution: Prince Musaid Bin Abdulrahman University

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A. Program Identification and General Information

1. Program Main Location:

College of Computing and Informatics, **Riyadh Centre**, Prince Musaid Bin Abdulrahman University, Saudi Arabia.

2. Branches Offering the Program:

Jeddah, Dammam

3. Reasons for Establishing the Program:

(Economic, social, cultural, and technological reasons, and national needs and development, etc.)

Innovation allows the government to provide world-class digital services to millions of people every day. These services become critical and have to be safeguarded for our way of life. Attacks on cybers are a key threat to our domestic security. The government addressed these challenges by doubling investments in cyber security and establishing national centers. The recently established National Cyber Security Authority will work together to improve national safety. The National Cyber Security Authority provides the Kingdom of Saudi Arabia with secure and flexible online space against cyber threats, responds to cyber incidents and supports information security operations. This protects information technology networks, systems and data and promotes online security for companies and employees. This will make Saudi Arabia the safest place for online business.

The proposed Master in Cyber Security (MCS) program will prepare cyber security experts for the needs of industry, community and government agencies in the Kingdom of Saudi Arabia. The program will enhance the national and technical ability in cybersecurity in order to speed up the growth of Saudi Arabia's ranks in the field of technology advancement to developing countries in line with established and internationally recognized standards and practices. It will ensure a high standard of cybersecurity across the Kingdom of Saudi Arabia and improve the country's cyber security research capabilities. The program provides expert technical experts in Saudi Arabia with experience with new cyber security technologies and offers excellent advancement opportunities. The program combines academia with businesses with government-leading research on technical aspects and promotes the 2030 administrative and Saudi plan to secure people's quality of life and promote a responsible nationality in a changing world.

4. System of Study

☐ Coursework & Thesis ☒ Coursework

5. Mode of Study

☐ On Campus ☐ Distance Education ☒ **Others (Blended)**

6. Educational and Research Partnerships

The PMAU collaborated with the Colorado State University-Global (CSUG) to develop the MCS program and teach the program courses (Ref.1.3). The CSUG is one of long-distance international accredited degree universities, and it is the first statutorily defined 100% online public university in the United States.

The PMAU is continuing the partnership collaboration with CSUG to deliver e-learning contents to the students of MCS program. Each section/course is delivered to the MCS students by two faculty members: one from the PMAU and one from the CSUG.

Moreover, the MCS program, in collaboration with the CSUG University, periodically reviews study plans and develops the courses contents. In a collaborative process between the MCS and CSUG faculty members, an annual review is conducted for each course and a Course Design Document

(CDD) is prepared and once approved, it is reflected on the course syllabus and Blackboard. Samples of approved CDD files are shown in the program annual report.

7. Total Credit Hours for Completing the Program: (36 Credit Hours)

8. Professional Occupations/Jobs:

At the end of the program, students will be prepared for the following professions and occupations:

- Project Manager.
- Information Security Analyst/administrator.
- Cyber Security Manager/director.
- Cyber Security Analyst/administrator.
- Information Security Manager/director.
- Information Technology Manager/director.
- Network Security Manager/director.
- Network Security Analyst/administrator.
- Educational and Academic field occupations in General and Higher Education Institutions.

9. Major Tracks/Pathways (if any)**: Not Applicable**

Major Track/Pathway	Credit Hours (For each track)	Professional Occupations/Jobs (For each track)
1. NA	NA	NA
1. NA	NA	NA
2. NA	NA	NA
3. NA	NA	NA

10. Intermediate Exit Points/Awarded Degree (if any)**: Not Applicable**

Intermediate Exit Points/Awarded Degree	Credit Hours
1. NA	NA
2. NA	NA
3. NA	NA

B. Mission, Goals, and Learning Outcomes

1. Program Mission:

Providing high-quality and flexible educational, scientific and research environment in the field of Cybersecurity to supply the labor market with qualified cybersecurity experts capable of performing professional services and producing innovative scientific research that contributes to the development of a knowledge society, meeting international requirements, solving community problems and facing future challenges in Cybersecurity.

2. Program Goals:

1. Provide experts in the field of cybersecurity to perform innovative research in cybersecurity and help achieving the kingdom long term plan of having experts in the field of cybersecurity.
2. Empower students with soft skills and values to effectively communicate and collaborate with others professionally, ethically, legally and serve society's requirements.
3. Ensure the knowledge and skills of students are in line with state-of-the-art cybersecurity techniques.

3. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.

The MCS program's mission and goals are very tightly related to the PMAU and the College of Computing and Informatics (CCI) missions and goals. We can achieve the vision of the CCI and PMAU by contributing to the development of the knowledge-based economy that the country deeply requires

by providing exceptional education, producing high-quality research, and establishing community relationships.

The PMAU Mission is: To provide an outstanding education to all segments of society that contribute to the production, dissemination, and utilization of knowledge in achieving social, cultural and economic development.

The PMAU institution's goals are:

1. Provide outstanding education to empower learners to achieve their academic & professional aspirations.
2. Build a leading regional role in e-learning.
3. Grow in digital innovation and Techpreneurship.
4. Strengthen engagement with communities across the Kingdom.
5. Achieve fiscal sustainability and expenditure efficiency.

The CCI Mission is: To prepare qualified, professional, and excellent talents in the field of computer science and information technology and contribute to serving the community by offering various learning programs, conducting scientific research that contributes to solving community problems in technology and informatics, as well as offering consultancy and training services in the college fields with the availability of qualified faculty members and excellent learning environment.

The CCI college's goals are:

1. To keep pace with academic advances in international universities in the field of computation and informatics.
2. To increase learners' experience by enabling them to solve academic and practical problems in their areas of specialization.
3. To enable graduates to compete in the fields of computation and informatics.
4. To support continuous development through partnerships with local and international companies.
5. To connect programs through integrated courses designed and taught through advanced technology.
6. To integrate academic programs by bridging the gap between theoretical advances and practical applications.
7. To participate in offering consultation and training programs in the fields of computer science and IT within community service programs.

Table B.1 shows the mapping between the MCS program's goals and the PMAU institute's goals, while Table B.2 shows the mapping between the MCS program's goals and CCI college's goals.

Table B.1: Mapping between MCS's goals and PMAU's goals

PMAU institution's goals	MCS program's goals		
	MCS-1	MCS-2	MCS-3
PMAU-1	✓		
PMAU-2			
PMAU-3			✓
PMAU-4		✓	
PMAU-5			

Table B.2: Mapping between MCS's goals and CCI's goals

CCI college's goals	MCS program's goals		
	MCS-1	MCS-2	MCS-3
CCI-1	✓		
CCI-2	✓		
CCI-3			✓
CCI-4	✓		
CCI-5		✓	
CCI-6			✓
CCI-7		✓	

4. Graduate Attributes:

The MCS program's graduate attributes are listed below:

1. Use the gained knowledge to prevent cyberattacks and cybercrimes against data, systems, and equipment threats.
2. Recognize security problems and violations and find efficient solutions by implementing various strategies, creating security plans, and tracking network activities.
3. Economic development by using the gained skills and experience.
4. Commitment to professional ethics.
5. Creative and critical thinking.
6. Effective communication orally and in written forms.
7. Effective teamwork collaboration.
8. Lifelong learning and continuing education.

The PMAU's graduate attributes are listed below:

1. Knowledge: Demonstrate high level of understanding of the fundamentals, processes, and contributions associated with the academic discipline.
2. Critical Thinking: Employ critical thinking skills, by applying knowledge, for making well-reasoned arguments and effective decisions.
3. Personal and Responsibility Skills: Practice the lifelong skills needed in all social, economic, mental and emotional health aspects.
4. Technological Mastery: Illustrate effective utilization of technological tools and methods relating to the program of study.
5. Ethics & Values: Utilize skills that exhibit ethical behavior to characterize accountable, responsible and contributing citizens to the society.
6. Community Engagement: Recognize the social and environmental responsibilities through the participation of extra-curricular activities.
7. Teamwork: Demonstrate team spirit and leadership skills in a collaborative and inclusive environment.

Table B.3 shows the alignment between the program's graduate attributes and university's graduate attributes.

Table B.3: Alignment program's graduate attributes with university's graduate attributes.

No	MCS program's graduate attributes	PMAU's graduate attributes
1.	Use the gained knowledge to prevent cyberattacks and cybercrimes against data, systems, and equipment threats.	Demonstrate high level of understanding of the fundamentals, processes, and contributions associated with the academic discipline.
2.	Recognize security problems and violations and find efficient solutions by implementing various strategies, creating security plans, and tracking network activities.	Illustrate effective utilization of technological tools and methods relating to the program of study.
3.	Economic development by using the gained skills and experience.	Recognize the social and environmental responsibilities through the participation of extra-curricular activities.
4.	Commitment to professional ethics.	Utilize skills that exhibit ethical behavior to characterize accountable, responsible and contributing citizens to the society.
5.	Creative and critical thinking.	Employ critical thinking skills, by applying knowledge, for making well-reasoned arguments and effective decisions.
6.	Effective communication orally and in written forms.	- Demonstrate team spirit and leadership skills in a collaborative and inclusive environment.

		- Recognize the social and environmental responsibilities through the participation of extra-curricular activities.
7.	Effective teamwork collaboration.	Demonstrate team spirit and leadership skills in a collaborative and inclusive environment.
8.	Lifelong learning and continuing education.	Practice the lifelong skills needed in all social, economic, mental and emotional health aspects.

5. Program Learning Outcomes*

In the academic year 2020/2021 and according to recommendations provided by the PMAU Vice Presidency for Planning, Development and Quality (VPPDQ) and an expert from the NCAAA, the number of MCS PLOs was reduced from **10 to 6** without prejudice to the courses CLOs or the adopted mapping matrix.

Knowledge and Understanding	
K1	Explain in detail various cyber security models, their capabilities, structure, strengths and weaknesses; and the risks associated with transferring and storing information assets in global organizations.
K2	Critically demonstrate state-of-the-art solutions to protect information assets from internal and external threats, risks and intrusions.
Skills	
S1	Analyze various strengths and weaknesses of IT networks and their vulnerabilities to both internal and external threats and intrusions.
S2	Develop and evaluate the best cyber security practices and solutions for protecting the Internet and information networks from internal attacks, external cyber-attacks, and intrusions.
S3	Demonstrate the application of effective teamwork, oral and written communication, and research skills.
Values	
V1	Provide advanced solutions to ethical and legal issues related to use of Cybersecurity in local and global environments.

* Add a table for each track or Exit Points/Awarded Degree (if any)

C. Curriculum

1. Study Plan Structure

Program Structure		No. of Courses	Credit Hours	Percentage
Course	Required	**11**	**33**	**91.67%**
	Elective			
Graduation Project (if any)		**1**	**3**	**8.3%**
Thesis (if any)		-	-	-
Field Experience (if any)		-	-	-
Others (.....)		-	-	-
Total		**12**	**36**	

* Add a table for each track (if any)

2. Program Courses:

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 1	CS501	Research Methods in Computational Studies	Required	-	3
	CS507	Introduction to Cyber Security and Digital Crime	Required	-	3
	CS512	Cryptography Fundamentals	Required	-	3
Level 2	CS564	Cyber Defense in Web Based Attacks	Required	CS507	3/ Lab
	CS566	Securing Enterprise Infrastructure using Cyber Security Techniques	Required	CS507	3/ Lab
	CS663	Digital Forensics and Investigations	Required	CS507	3/ Lab
Level 3	CS613	Security Threats and Countermeasures in Complex Organizational Networks	Required	CS507	3/ Lab
	CS642	Innovative Solutions in Software Security	Required	CS507 & CS564	3/ Lab
	CS645	Information Security Management, Legal and Ethical Issues	Required	CS507	3
Level 4	CS666	Advanced Principles of Cyber Security	Required	CS507 & CS564	3/ Lab
	CS683	Ethical Hacking and Penetration Testing	Required	CS564	3/ Lab
	CS698	Capstone Project in Cyber Security	Required	Department Approval	3

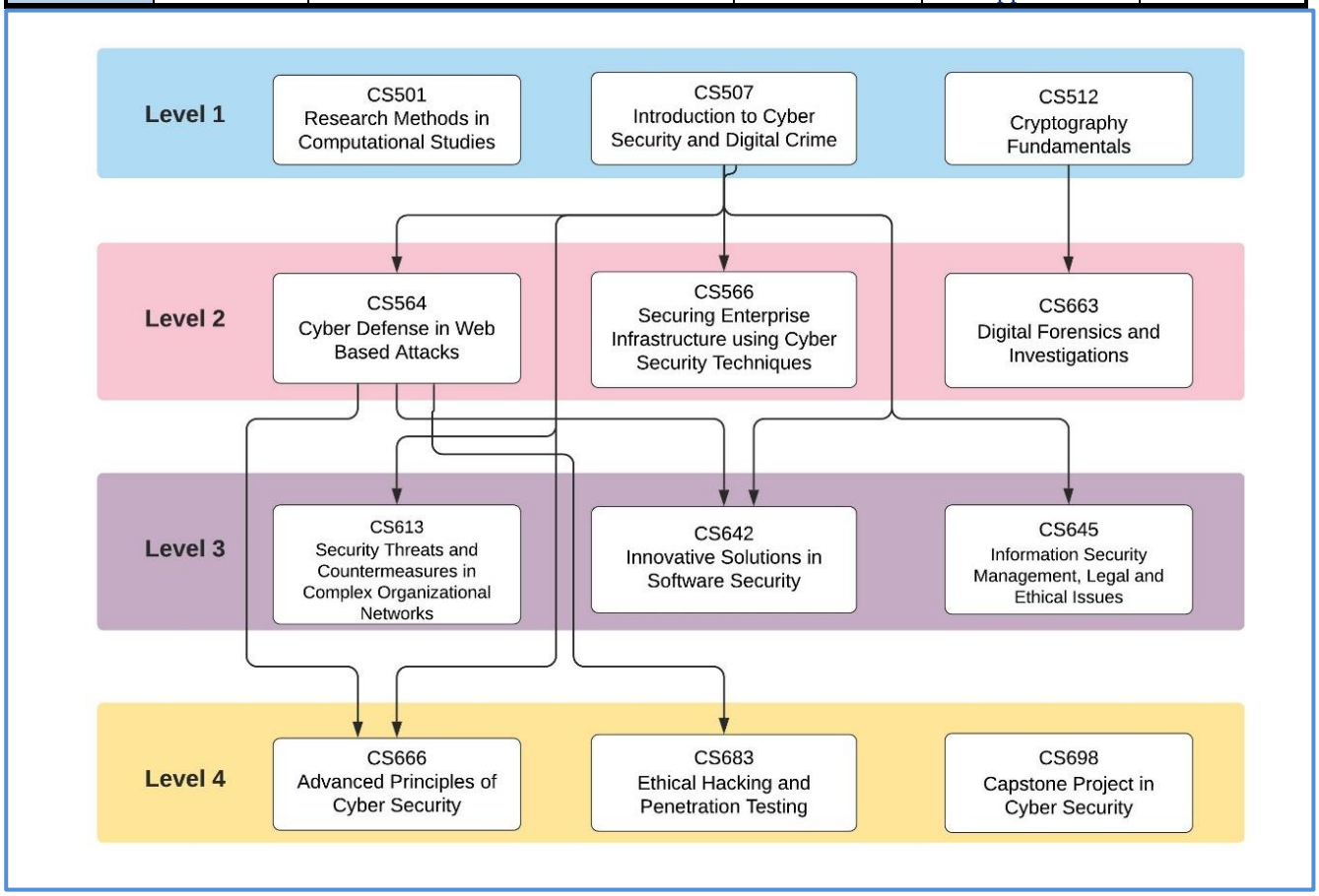


Figure 1: The MCS Study Plan

3. Course Specifications

Insert hyperlink for all course specifications using NCAAA template

All MCS course specifications categorized according to levels can be accessed here.

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	
	K1	K2	S1	S2	S3	V1
CS501	I (CLO1)	I (CLO2)		P (CLO3)	I (CLO4, CLO5)	I (CLO6)
CS507	I (CLO1, CLO2)		M (CLO3)	M (CLO4)	M (CLO5)	M (CLO6)
CS512	P (CLO1)		P (CLO2)		M (CLO3)	M (CLO4)
CS564	I (CLO1, CLO2)			M (CLO3), I (CLO4, CLO5)		I (CLO6)
CS663	I (CLO1)	I (CLO2)	M (CLO3)	P (CLO4)	M (CLO5)	I (CLO6)
CS613	M (CLO1)	M (CLO2)	M (CLO3)	P (CLO4)		I (CLO5)
CS566	I (CLO1, CLO2)		P (CLO3)	P (CLO4)	M (CLO5)	I (CLO6)
CS642	P (CLO1)	M (CLO2)	M (CLO3)	M (CLO4)		M (CLO5)
CS645	M (CLO1)	M (CLO2)	M (CLO3)	P (CLO4)		M (CLO5)
CS666	I (CLO1)	I (CLO2)	M (CLO3)	I (CLO4)		I (CLO5)
CS683	M (CLO1)	I (CLO2)	M (CLO3)	P (CLO4)		M (CLO5), I (CLO6)
CS698	M (CLO1)	M (CLO2)	M (CLO3)	P (CLO4)	M (CLO5)	M (CLO6)

* Add a table for each track (if any)

5. Teaching and Learning Strategies to Achieve Program Learning Outcomes

Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes.

The MCS program use several effective teaching strategies. The most used teaching strategies are:

- Group teaching (F2F Lectures)
- Virtual sessions
- Class discussions
- Active learning (group-work case studies and projects)
- Interactive lectures
- Individual capstone projects.
- Presentations
- Writing research papers

Extracurricular Activities:

The Deanship of Admission and Student Affairs provides extracurricular activities for All PMAU students according to a plan seeking to achieve the PMAU educational goals. In addition, the MCS students can:

- Participate in Coding workshops/competitions.

- Join Clubs

6. Assessment Methods for Program Learning Outcomes.

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

To measure the achievement of program learning outcomes (PLOs), the MCS program uses the following assessment methods:

Direct methods:

- Individual and Group assignments and critical thinking activities
- Project/Case Study/Research paper presentation
- Capstone Project evaluation
- Online quizzes.
- Plagiarism checking for assignments and projects
- Midterm and final exams

Indirect methods:

- Course evaluation surveys
- Exit survey of final year students
- Employers' survey and feedbacks
- Program KPIs

D. Thesis and Its Requirements (if any)

1. Registration of the thesis:

(Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

N/A

2. Scientific Supervision:

(The regulations of the selection of the scientific supervisor and his/her responsibilities, as well as the procedures/ mechanisms of the scientific supervision and follow-up)

The MCS program has no academic supervision since it does not provide any thesis to its students. However, the program has a capstone project (CS698), and it has a capstone project supervision plan. The capstone project supervision can be accessed here.

3.Thesis Defense/Examination:

(The regulations for selection of the defense/examination committee and the requirements to proceed for thesis defense, the procedures for defense and approval of the thesis, and criteria for evaluation of the thesis)

N/A

E. Student Admission and Support:

1. Student Admission and Transfer Requirements, and Courses Equivalency

- Bachelor's degree in computer science, Computer Engineering, Information Systems, Software Engineering, Information Technology.
- GPA 3.00/5.00, 2.00/4.00, or equivalent grades.
- Minimum score on either of the following tests: IELTS 5.0, STEP 76.

2. Student Counseling Services

(Academic, career, psychological and social)

- Faculty members are required to post their contact information as well as office hours on Blackboard.
- All faculty have physical and virtual office hours each week. Students can contact them via email, video conference, messages, or phone. Faculty are also available throughout the week and respond to students.
- Students of the MCS Program have the right to use the health care provided in the health facilities of PMAU.
- Students of the MCS Program take advantage of the available credit services and facilities such as electronic university books, sports facilities, basements, car parking.
- The on-line Da'am System is available to solve any technical issues students face during lectures and exams.
- The periodic meeting for male and female students is held on a fixed basis at the beginning of each semester, where all students can send direct inquiries and raise inquiries to the Dean of the CCI.
- Different activities and services were implemented at the PMAU and IT department levels to support students during their study journey. For example, the PMAU has efficient Student care center portal contains all necessary units the student needs, such as the social counseling unit, Mental Health Support Unit, The academic advising unit, The career counseling and career support unit, The scholarship and aid unit, Talent and Creativity Unit, and the Disabilities Support Unit. This Student care center portal can be reached via https://seu.edu.sa/aasa/en/student-care-center/
- The university seeks to guarantee students' rights and seeks to educate them about their rights and responsibilities. Therefore, the university established two committees to protect students' rights

  Sub-Committee for the Protection of Student Rights:

  - It considers all educational and administrative grievances and complaints of students, except for administrative matters outside the framework of the college.

  Main Committee for Student Rights Protection:

  - It considers all students 'grievances and complaints filed against the administrative authorities at the university and grievances coming from the sub-committees

3. Special Support
(low achievers, disabled, gifted and talented)

In collaboration with Students Affairs Office, the requirements for special need applicants are provided. Such as elevators between classes' floors, cars' parking and toilets' seats. In addition, the PMAU has efficient student care center portal contains all necessary units the student needs, such as the social counseling unit, Mental Health Support Unit, The academic advising unit, The career counseling and career support unit, The scholarship and aid unit, Talent and Creativity Unit, and the Disabilities Support Unit. This student care center portal can be reached via https://seu.edu.sa/aasa/en/student-care-center/

Moreover, students with special needs are provided with dedicated programs designed to serve them on an individual basis. In addition, there is a specialized psychological and social counseling unit to provide help when needed (Email: pscu@seu.edu.sa).

Talented and outstanding students receive financial incentives and rewards. The CCI collage is challenging talented students through different completions. This contribution aims to spread the spirit of competition among students and motivate them to excel and be creative. The college regularly holds a competition to select the best graduation projects at the level of all university branches and is evaluated by a group of faculty members, as the competition includes educational and applied fields for undergraduate students and Masters. The college also encourages and supports students to participate in local and international conferences and competitions, such as cybersecurity conferences and competitions, programming competitions, and artificial intelligence.

F. Teaching and Administrative Staff

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills	Required Numbers		
	General	Specific		M	F	T
Professors	• Information Technology • Computer Science	• Web systems security • Systems security Administration • Network Security • Cybersecurity	-	**1**	**1**	**2**
Associate Professors	• Information Technology • Computer Science	• Web systems security • Systems security Administration • Network Security • Cybersecurity		**5**	**2**	**7**
Assistant Professors	• Information Technology • Computer Science	• Web systems security • Systems security Administration • Network Security • Cybersecurity		**10**	**9**	**19**
Lecturers	-	-				
Teaching Assistants	-	-				
Technicians and Laboratory Assistants	-	-				
Administrative and Supportive Staff	Holding Bachelor's/ diploma degree		Computer Skills Microsoft Office programs skills	**2**	**1**	**3**
Others (specify)	-	-	-	-	-	-

A detailed list for teaching staff can be accessed here.

2. Professional Development

2.1 Orientation for New Teaching Staff

Describe briefly the process used for orientation of new, visiting and part-time teaching staff

A full Orientation Course is available on Blackboard, new faculties are required to undertake the course prior to start teaching in the PMAU (Ref.5.45). The course has complete information divided into six units as follows:

Unit 1: PMAU's E-Learning Model
Unit 2: Student-Centered Learning Approach
Unit 3: PMAU's Electronic Environment

Unit 4: E-Course Functionality
Unit 5: Additional Blackboard Functionality
Unit 6: Instructor Behavior in E-Learning Environment

Each unit has its own assignments and quiz; upon completing the units, the candidate is asked to sit an online comprehensive test.

Nevertheless, experienced faculties are always available to assist their new colleagues.

Part-time faculty contracts are linked to course offerings. If any of the full-time faculty cannot teach a course offering, then the part-time faculty is contracted to teach that course offering.

2.2 Professional Development for Teaching Staff

Describe briefly the plan and arrangements for academic and professional development of teaching staff (e.g., teaching & learning strategies, learning outcomes assessment, professional development, etc.)

- Encourage the teaching staff to attend courses and workshops related to the development of their teaching skills (Ref.5.30, Ref.2.16, Ref.2.47).
- Audited, annually, teaching performance for faculty members.
- Provide advice and guidance to improve and enhance the performance of teaching.
- Encourage members to enroll in training courses and workshops in other areas.
- Encourage faculty members to attend conferences and symposia.
- Promote scientific contact through visits and visiting professors.
- Encourage faculty members to enroll in continuing education programs.

By the above points, the teaching staff can pursue professional development of their teaching and research skills.

G. Learning Resources, Facilities, and Equipment

1. Learning Resources.

Policies and Procedure for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

The PMAU has developed a faculty development program designed to strengthen instructional quality and to cultivate a community of faculty who are recognized regionally and nationally as experts in the field of online education and learning management system.

- Encourage staff members to attend courses and workshops related to the development of their teaching skills such as workshops in Blackboard.
- Provide advice and guidance to improve and enhance the performance of teaching.

Other professional development including knowledge of research:

- Encourage members to enroll in training courses and workshops in other areas.
- Encourage department members to attend conferences and symposia.

- Promote scientific contact through visits and visiting professors.
- Scientific meetings and briefing ongoing and distribution of publications.
- Encourage staff members to enroll in continuing education programs.

2. Facilities and Equipment

Policies and Procedure for providing and quality assurance of Facilities and Equipment (Library, laboratories, medical facilities, classrooms, etc.).

The campuses, where the MCS program is provided, have modern classrooms with electronic gadgets required for the smooth execution of class hours. The students also avail the opportunities to interact with faculty during visiting hours who are required to be in their allocated office spaces, which are also furnished with all facilities needed for a blended learning environment, including needed hardware and software.

IT equipment's include:

1. State of the art computing machines and laptops for faculty members.
2. 24 hours uninterrupted high-speed Internet provision at all the campuses.
3. Provision of PMAU portal accounts to all the students and faculty members.
4. Blackboard system as a teaching platform with accounts for all teachers and students to manage their academic activities and conduct virtual sessions.
5. Attendance, grading, E-mail, and other relevant software.
6. Access to Saudi Digital Library (SDL) for all students and faculty alike.
7. Blackboard includes full course contents for faculties and students enrolled for any particular course. This includes all needed references.
8. Online books are available from WileyPlus, with which the University has a contract.
9. The CCI college also offers hard copies of textbooks to faculty members.

In addition, the PMAU has a collection development policy where the librarians communicate with stakeholders to identify strengths and weaknesses to best align the collection with current research and curricular needs. The librarian makes final purchasing decisions with input from the administration, faculty, and students.

The PMAU librarian brings new resources to the attention of different stakeholders for consideration, coordinates trials to electronic resources, negotiates site licenses and user agreements, maintains current subscription lists as well as works with select consortia/PMAU to share resources.

The following selection criteria are considered when evaluating resources:

- Facilitation of online teaching and learning.
- Provision of relevance to the existing collection's strengths and weaknesses.
- Restrictions on the number of users, simultaneous users, or access points.
- Delivery to users in a timely and convenient manner.
- Affordability, or comparative cost including the cost of acquisition, licensing, maintenance, service, and potential preservation.

- Availability of technical support and acceptable licensing requirements.

In addition, the PMAU has a subscription to the SDL to provide E-books and other publications for all its employees and students, where each PMAU's employee or student can access SDL and directly download scientific references. The SDL can be accessed via the available icon on the PMAU's homepage or directly from their website.

It is mandatory for all classes to be held in professionally designed classrooms during the face-to-face hour. Each class is equipped with an electronic podium with the facility to record lecture and sound control apart from other features. Each classroom is connected to the Internet. Multimedia support is available in every classroom. In addition, each classroom is equipped with general amenities like air-conditioning, sufficient lighting, and proper sitting arrangements. All classrooms are regularly monitored to ensure that none of the assets is in bad or disorderly shape.

3. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program)

Maintaining a safe and healthy environment is a priority for the PMAU. This will positively impact the learners and make them successful in their study. In this regard, the PMAU maintains the safety of the university buildings and the safety of university staff from fire situations, prevent losses, prevent detention inside elevators, maintains environmental integrity, and follow up and organizes the work of the safety project.
The PMAU Safety Department ensures that the alarms are valid in coordination with the concerned authority, ensures the fire equipment is valid, set up safety and firefighting shifts, prepares evacuation plans for the buildings during the fire, God forbid, and cooperates with civil defense and red crescent. Kindly refer to https://seu.edu.sa/aosas/en/home/ for more details.

In addition, the PMAU pays great attention to all aspects of its members' care, especially with regard to health services. For example, there is an evening clinic that treats emergencies. Kindly refer to https://seu.edu.sa/aoms/en/home/ for more details.

H. Program Management and Regulations

1. Program Management
1.1 Program Structure
(Including boards, councils, units, committees, etc.)

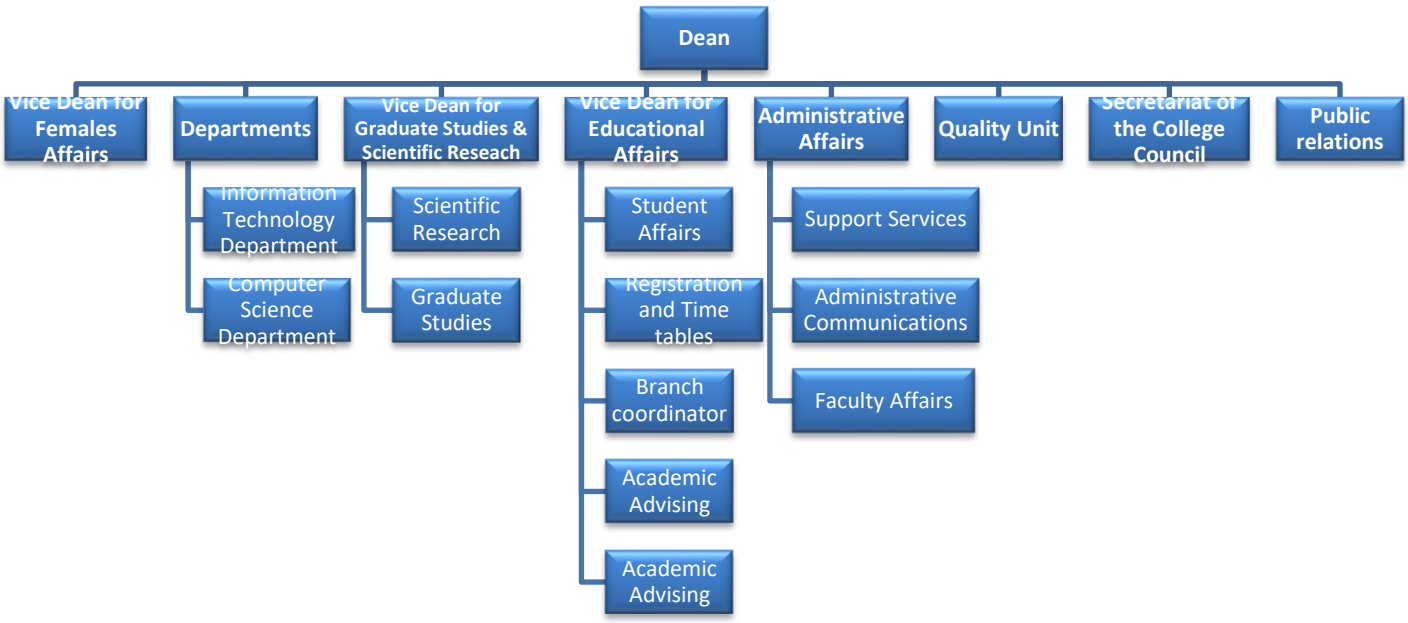


Figure 2: Program Management Structure

1.2 Stakeholders' Involvement

Describe the representation and involvement of stakeholders in the program planning and development. (Students, professional bodies, scientific societies, alumni, employers, etc.)

The MCS Program Council and other related committees continuously monitor the quality of teaching and learning activities and regularly review the received feedbacks from the involved stakeholders (students, trainers, and employers) to improve the program outcomes and its KPIs and therefore strengthening the current curriculum. Recommendations for the program improvement, which are collected via dedicated surveys, are mentioned in the annual report.

The results collected through the program's course report documents are used in planning-development and decision-making processes as shown in section G of the Course Report. Recall that this section presents how the course can be improved and what actions are needed to take for the next semester or the next year depending on the nature of the improvement. In this regard, the faculty members provide recommendations on improving the program materials at the end of each semester. These recommendations are compiled into one integrated course report. After, the completed course reports are reviewed and analyzed by the course coordinators to decide the needed changes to curriculum, learning activities, and planned outcomes. Once the integrated course report is approved by the IT department chair, the modifications are assigned to the respective course coordinator and the course committee members to work on (Ref.2.2). This process is accomplished in collaboration of the CSUG by preparing a CDD. Samples of approved CDD files are given in Ref.2.38 and Ref.2.39.

Besides, curriculums are evaluated by students; the college utilizes several methods for allowing students to provide feedback on their courses and professors. Course and professor surveys are distributed at the end of

each course. These surveys allow students to rate the effectiveness of their professor, and the quality of the course itself in both Liker scale and discursive format. Attached sample of course evaluation survey (Ref.3.11). Professors will also obtain feedback from students throughout the course.

2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

1. Deanship of Admission & Students Affairs – Rules and Regulations for all PMAU students https://seu.edu.sa/aasa/ar/rules-and-regulations
2. Necessary forms: https://seu.edu.sa/aasa/ar/forms
3. Psychological and social counseling unit: pscu@seu.edu.sa
4. Academic advising (https://seu.edu.sa/aasa/en/student-care-center/#third)

I. Program Quality Assurance

1. Program Quality Assurance System

Provide online link to quality assurance manual

The MCS program quality assurance system can be accessed from here. The quality assurance at all CCI programs follows the PMAU quality assurance system, which can be accessed via the link: https://seu.edu.sa/media/6277/quality-assurance-guide.pdf

2. Program Quality Monitoring Procedures

The MCS program has an assessment plan that links course-based and external assessments with the program learning outcomes. This faculty-driven process collects data in the courses using an electronic rubric-based tool integrated with the Blackboard learning environment, to automatically track, record, and tally instructor-evaluated work and provides students with comprehensive feedback of their submission and faculty comments. Data collected from the rubrics is aligned with the program learning outcomes. At the end of each semester, the assessment data is prepared in a Learning Outcomes and Quality Indicator report. The reports are then reviewed by instructors and academic leadership to determine necessary changes to the curriculum, learning activities, and planned outcomes.

The assessment plan allows faculty to analyze assessment data and make program improvements for each learning outcome. Regular meetings are held among faculty and academic leadership to determine any needed changes in curriculum, learning activities, or planned outcomes. The results of the assessment process and the faculty and academic leadership recommendations for changes are reported to the college council and curriculum committee.

Student learning is monitored twice a year to determine if changes in curriculum, teaching, or operational modifications are needed. The learning assessment process is linked to the annual Academic Program Action Plan to provide an opportunity to develop a meaningful dialogue about student learning and program relevance and cohesion with the institution's strategic plan and budget process.

The IT department monitors the MCS program quality and improvement. Every academic year the committee prepares a detailed assessment and improvement plan based on learning outcomes and related KPIs and put the plan for the next academic year. The MCS assessment plans and reports can be accessed from here.

Periodic Review of the MCS program and its courses

The periodic review of the MCS program and its courses is a continuous process through which the program and the 12 courses are reviewed each semester. At the end of each semester, the course reports are completed and submitted at the beginning of the next semester. In addition, the annual program report is prepared at the end of the academic year, which includes the results of student and faculty, and other stakeholders' surveys. The completed course reports are reviewed and analyzed by the course coordinators and department chairman to make necessary improvements.

As mentioned above, at the level of the MCS program, the process of the course and program monitoring is a continuous process, which takes place every semester. These course reports are used as key references for making decisions to improve the program. The periodic review is used to conduct periodic self-studies of the program, which contributes to the process of reviewing developments and changes in the program during the previous period. The course coordinators, together with the department chairman, who are responsible for following up the development of the MCS program and its courses must verify the following:

- The course specifications are compatible with the program specification.
- The used teach methods and strategies are suitable and efficient to measure the CLOs.
- The courses are periodically updated.

Figure 3 illustrates the improvement workflow for the MCS program and its course reports, which is a cycle of gathering evidence such as PLOs, statistics, KPIs, surveys' results, reviewing the reports of the courses and program, analyzing the evidence considering the issues and concerns, and finally evaluating the reports and results related to the program performance. This process is conducted to assist in defining the necessary improvements to the courses and program.



Figure 3: Improvement Cycle of the MCS program

3. Arrangements to Monitor Quality of Courses Taught by other Departments.

NA

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

The MCS program, as all other programs at PMAU, adopts standardized teaching and assessment ways for all students in all branches. This means that all students study the same course contents, submit the same assignments, and subject to the same assessment methods.

5. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships.

The CCI college entered a collaborated partnership with Colorado State University-Global (CSUG) since 2012. All regulations appear in the attached agreement [Ref.1.3].

As mentioned in Part A of this program specification, the collaboration with CSUG is to develop the MCS program and teach the program courses. CSUG to deliver e-learning contents to the students of MCS program. Each section/course is delivered to the MCS students by two faculty members: one from the PMAU and one from the CSUG. Moreover, the MCS program, in collaboration with the CSUG University, periodically reviews study plans and develops the courses contents. In a collaborative process between the MCS and CSUG faculty members, an annual review is conducted for each course and a Course Design Document (CDD) is prepared and once approved, it is reflected on the course syllabus and Blackboard. Samples of approved CDD files are shown in the program annual report.

6. Assessment Plan for Program Learning Outcomes (PLOs), and Mechanisms of Using its Results in the Development Processes

- The IT department, which provides the MCS program, is responsible for monitoring program quality and improvement. Every academic year the committee prepares a detailed assessment and

improvement plan (usually based on learning outcomes and related indicators). The prepared plan states, among other things, the assessment process, the tools used and how improvements are conducted and documented.

- A major component of the assessment plan is the creation of faculty course groups. The course groups are responsible for evaluating the quality of course delivery for courses in their groups and suggesting improvements in their areas based on process indicators.
- Students' evaluation and their grades are also considered.

The MCS assessment plans and reports can be accessed from here.

7. Evaluation of Program Quality Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Effectiveness of Teaching	Student, Graduates, Alumni, Faculty	Surveys	End of semesters
Learning resources	Student, Graduates, Alumni, Faculty	Surveys	Throughout the academic year
Assessment	Student, Graduates, Alumni, Faculty	Surveys	End of semester

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

8. Program KPIs*

The period to achieve the target (2) year.

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1	KPI-PG-01	Percentage of achieved indicators of the program operational plan objectives	100%	Statistical data	By the end of each academic year
2	KPI-PG-02	Students' Evaluation of quality of learning experience in the program	4.5/5	Survey	By the end of final academic year
3	KPI-PG-03	Students' evaluation of the quality of the courses	4.2/5	Survey	By the end of each semester
4	KPI-PG-04	Students' evaluation of the quality of scientific supervision	4.6/5	Statistical data	By the end of final academic year
5	KPI-PG-05	Average time for students' graduation	4	Statistical data	By the start of second academic year
6	KPI-PG-06	Rate of students dropping out of the program	10%	Statistical data	By the end of professional / national examinations
7	KPI-PG-07	Graduates' employability	50%	Survey	After graduation
8	KPI-PG-08	Employers' evaluation of the program graduates' proficiency	4/5	Statistical data	By the start of each semester
9	KPI-PG-09	Students' satisfaction with the provided services	4/5	Survey	After one year of employment

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
10	KPI-PG-10	Ratio of students to faculty members	Male: less than 25 Female: less than 25	Survey	By the end of the academic year
11	KPI-PG-11	Percentage of faculty members' distribution based on academic ranking	Assoc. Pro. = 25% Assist. Pro. = 70% Full Prof 5%	Statistical data	By the start of each semester
12	KPI-PG-12	Proportion of faculty members leaving the program	1%	Statistical data	By the start of each year
13	KPI-PG-13	Satisfaction of beneficiaries with learning resources	4/5	Statistical data	By the start of each semester
14	KPI-PG-14	Satisfaction of beneficiaries with research facilities and equipment	4.8/5	Statistical data	By the end of the academic year
15	KPI-P-15	Percentage of publications of faculty members	75%	Statistical data	By the end of the academic year
16	KPI-PG-16	Rate of published research per faculty member	5:1	Statistical data	By the end of the academic year
17	KPI-PG-17	Citations rate in refereed journals per faculty member	15:1	Statistical data	By the end of the academic year
18	KPI-PG-18	Percentage of students' publication	Journals: 10% Conference: 10%	Statistical data	By the end of the academic year
19	KPI-PG-19	Number of patents, innovative products, and awards of excellence	No. Patent: 10 No. awards:5	Statistical data	By the end of the academic year

*** The program KPIs' target values have been determined according to the previous round of KPIs measurements.**

j. Specification Approval Authority

Council / Committee	CCI Quality and Academic Accreditation Committee
Reference No.	01/2021
Date	September 09, 2021