هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

# Annual Program Report
# (Postgraduate Degree)

| | |
|---|---|
| **Program Name:** | **Master in Cyber Security (MCS)** |
| **Qualification Level:** | **Seven (Master)** |
| **Department:** | **Information Technology** |
| **College:** | **College of Computing and Informatics (CCI)** |
| **Institution:** | **Prince Musaid Bin Abdulrahman University** |
| **Academic Year:** | **2020-2021** |
| **Main Location:** | **Riyadh** |
| **Branches offering the Program:** | **Dammam**<br>**Jeddah** |

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## A. Implementation of Previous Action Plan

Considering the recommendations of the previous year annual report, list the planned actions and their status.

| Priorities for Improvement | Planned Actions | Responsibility of Action | Planned Completion Date | Level of Completion | | If Not Completed | |
|---|---|---|---|---|---|---|---|
| | | | | Completed | Not Completed | Reasons | Proposed Actions |
| 1. | Lab support for all courses requiring practical training at all levels of the graduate program | Information technology department | Sep. 2021 | Yes | | | |
| 2. | Specializations courses during level 03 have been reviewed. | Information technology department | May 2021 | Yes | | | |
| | | | | | | | |

## B. Program Statistics

### 1. Students Statistics (in the year concerned)

| No. | Item | Results |
|---|---|---|
| 1 | Number of students enrolled at all levels of the program | **187** |
| 2 | Number of students who started the program | **146** |
| 3 | Number of students who graduated | **19** |
| 4 | Number of students who completed major tracks within the program (if applicable) | |
| | a. | - |
| | b | - |
| | c. | - |
| 5 | Number of students who completed an intermediate award specified as an early exit point (if any) | - |

**Number of students who started the program based on Branch and Gender:**

| 2020-2021 | | |
|---|---|---|
| Branch | Students | Gender |
| Riyadh-Females | 51 | F |
| Riyadh-Males | 48 | M |
| Jeddah-Females | 24 | F |
| Jeddah-Males | 11 | M |
| Dammam-Males | 12 | M |
| **Total** | **146** | |

### 2.Analysis of Program Statistics

(including strengths, areas for improvement, and priorities for improvement)

**Strengths :**

- Students can complete the program requirements in 4 semesters.

**Areas for Improvement:**

- The number of students graduated on time (within 4 semesters) is 19 with a graduation rate of 76%. However, students are workers in different sectors and would like to take two courses in each semester instead of three. In addition, fees are an important factor..
- Open new female branches.

**Priorities for Improvement:**

- Open new female branches.

## C. Program Learning Outcomes Assessment

### 1. Program Learning Outcomes Assessment Results.

**The full measurement reports can be accessed here.**

| # | Program Learning Outcomes | Assessment Methods (Direct and Indirect) | Performance Target | Results |
|---|---|---|---|---|
| **Knowledge and Understanding** | | | | |
| K1 | Explain in detail various cybersecurity models, their capabilities, structure, strengths and weaknesses; and the risks associated with transferring and storing information assets in global organizations. | **Direct Assessment Tool**<br>Actual Grades<br>Capstone project<br>Course Practical Activities<br>**Indirect Assessment Tool**<br>NA | 70% | 85.71% |
| K2 | Critically demonstrate state-of-the-art solutions to protect information assets from internal and external threats, risks and intrusions. | **Direct Assessment Tool**<br>Actual Grades<br>Capstone project<br>Course Practical Activities<br>**Indirect Assessment Tool**<br>NA | 70% | 80.86% |
| **Skills** | | | | |
| S1 | Analyze various strengths and weaknesses of IT networks and their vulnerabilities to both internal and external threats and intrusions. | **Direct Assessment Tool**<br>Actual Grades<br>Capstone project<br>Course Practical Activities<br>**Indirect Assessment Tool**<br>NA | 70% | 84.30% |
| S2 | Develop and evaluate the best cybersecurity practices and solutions for protecting the Internet and information networks from internal attacks, external cyber-attacks, and intrusions. | **Direct Assessment Tool**<br>Actual Grades<br>Capstone project<br>Course Practical Activities<br>**Indirect Assessment Tool**<br>NA | 70% | 80.72% |

| | | | | |
|---|---|---|---|---|
| S3 | Demonstrate the application of effective teamwork, oral and written communication, and research skills. | **Direct Assessment Tool**<br>Actual Grades<br>Capstone project<br>Course Practical Activities<br>**Indirect Assessment Tool**<br>NA | 70% | 76.40% |
| **Values** | | | | |
| V1 | Provide advanced solutions to ethical and legal issues related to use of cybersecurity in local and global environments. | **Direct Assessment Tool**<br>Actual Grades<br>Capstone project<br>Course Practical Activities<br>**Indirect Assessment Tool**<br>NA | 70% | 85.54% |

**Comments on the Program Learning Outcome Assessment results.**

All PLOs achievement rates are satisfactory. The above results of measurements were relied on the MCS assessment plan shown below, which presents the alignment of PLOs with program courses.

| 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) |

* Include the results of measured learning outcomes during the year of the report according to the program plan for measuring learning outcomes
** Attach a separate report on the program learning outcomes assessment results for male and female sections and for each branch (if any)

## 2. Analysis of Program Learning Outcomes Assessment

(including strengths, Areas for Improvement:, and priorities for improvement)

**Strengths :**

All PLOs achievement rates are satisfactory. The achievement rate values for all program learning outcomes show that the target values are achieved.

| |
|---|
| **Areas for Improvement:** |
| NA |
| **Priorities for Improvement:** |
| NA |

## D. Summary of Course Reports

### 1. Teaching of Planned Courses / Units

List the courses / units that were planned and not taught during the academic year, indicating the reasons and compensating actions.

| Course | Units/Topics | Reasons | Compensating Actions |
|---|---|---|---|
| NA | NA | NA | NA |
| | | | |
| | | | |
| | | | |
| | | | |

### 2. Courses with Variations

List courses with marked variations in results that are stated in the course reports, including: (completion rate, grade distribution, student results, etc.), and giving reasons for these variations and actions taken for improvement.

| Course Name &Code | variation | Reasons for variation | Actions taken |
|---|---|---|---|
| NA | NA | NA | NA |
| | | | |
| | | | |
| | | | |
| | | | |

### 3. Analysis of Course Reports' Results

(including strengths, Areas for Improvement:, and priorities for improvement)

**Strengths :**

- Most of the instructors were fully committed to the delivery of the course, have good interaction with students, use blackboard tools effectively, and were enthusiastic about what they were teaching.
- Reviewing the courses' contents is an ongoing process. All MCS instructors participate in reviewing their courses during the academic year. An example of reviewing process can be access here.
- 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 given in Ref.2.38 and Ref.2.39.
- The tasks the students had to do to succeed in the course, including graded assignments and tasks; and criteria for assessment, were made clear to them at the beginning of the course.

- The course outlines (including the knowledge and skills the course was designed to develop) were made clear to the students at the beginning of the course.
- The course contents were covered as scheduled across all three branches.
- Each course instructor must prepare the course reports at the end of every semester stating their problems faced, or concerns raised concerning all aspects of the planning and delivery of the course contents including course learning outcomes, facilities & services for the support of teaching and learning. Evaluation of all courses and the program is done based on individual course reports. Based on the feedback from the program report, necessary adjustments are made in the program to enhance the quality of the program and to continue its relevance.
- Every course is assessed by using:
  a. Direct Rubrics to assess the achievement of the CLOs.
  b. Course Evaluation Survey: To assess the overall quality of course delivery.
  - Each course group analyzes result assessments based on the chosen assessment tools and prepares a consolidated report of the recommendations and submits it to the Quality Assurance Committee for further improvement.
  - The IT department, which offers the MCS program, compiles all the recommendations from the course groups and various assessment tools and submits them to the Department Council.
  - Department Council reviews recommendations and approves the changes required to improve the program.

The approved recommendations are then finally sent to the course instructors for their immediate implementation which in turn are followed up with the appropriate course groups. The department monitors the improvement in the course learning outcomes and takes the required actions for further improvement of the program in the next academic semester.

**Areas for Improvement:**

Provide clear and concise instructions for assignments to ensure students understand the objectives and requirements.

Strive for efficiency in providing timely feedback and grades, allowing students to reflect on their performance in a timely manner.

Explore additional avenues to foster teamwork skills among students, such as introducing group projects, collaborative assignments, or interactive activities that promote teamwork and collaboration.

Ensure that all expectations for success in the course, including graded assignments, tasks, and assessment criteria, are clearly communicated from the beginning. Provide comprehensive and detailed guidelines or rubrics to help students understand what is expected of them.

Update the interactive lecture to include relevant learning resources.

Instructors should provide clear and constructive feedback on assignments to ensure students' understanding and progress. Be easily accessible and available to address students' queries and concerns promptly. Demonstrate full commitment to course delivery.

| |
|---|
| Clarify the connections between the course and other courses within the program to establish a better understanding of the overall curriculum.<br><br>Address concerns about exam coverage by ensuring comprehensive coverage of all topics studied.<br><br>Incorporate more effective strategies and resources to enhance independent learning. |
| **Priorities for Improvement:**<br>1. Provide clear and concise instructions for assignments to ensure students understand the objectives and requirements.<br>2. Strive for efficiency in providing timely feedback and grades, allowing students to reflect on their performance in a timely manner.<br>3. Instructors should provide clear and constructive feedback on assignments to ensure students' understanding and progress. Be easily accessible and available to address students' queries and concerns promptly. Demonstrate full commitment to course delivery.<br>4. Explore additional avenues to foster teamwork skills among students, such as introducing group projects, collaborative assignments, or interactive activities that promote teamwork and collaboration.<br>**5.** Update the interactive lecture to include relevant learning resources. |

**Example of assessing the MCS program based on the course reports**

The faculty members provide recommendations on improving the program materials. 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. In the CCD report, the rationale for revision was mentioned. As an example of assessing the program based on the course reports, the IT department received a recommendation in the course reports mentioned by some program instructors to reduce the number of course assessments from almost 20 to 10 assessments, to maintain the quality of work the students submit (Ref.2.56). The department approved the recommendation, and the new assessment plan was adopted for the academic year 2021/2022.

## E. Program Activities

### 1. Student Counseling and Support

| Activities Implemented | Brief Description* |
|---|---|
| Arrangements for availability of professors and teaching staff for individual student consultations and academic advice | All professors are expected to be available for one hour per week for office hours and one hour per week for classroom instruction. |
| Solving technical issues | The on-line Da'am System is always available to solve any technical issues faced by students during lectures and exams. |
| Assigning Academic Advisors | Students can get help on their academic plan, understand the pre-request courses and choosing their courses by contacting their academic advisor. |

| | |
|---|---|
| Orientation meeting | The MCS program holds an orientation meeting for all new-registered students at the beginning of their study about the program study plan, PMAU and CCI regulations and policies, assessments and grades policy, PMAU E-services, .. etc. Example can be accessed here. |

**Comment on Student Counseling and Support** **

- Faculty members had post their contact information as well as office hours on Blackboard.
- All faculty had physical and virtual office hours each week where students contacted them via email, video conference, messages or by phone. Faculty were also available throughout the week and responded to students.
- Students of the MCS Program had the right to use the health care provided in the health facilities of PMAU.
- Students of the MCS Program took advantage of the available credit services and facilities such as electronic university books, sports facilities, basements, car parking, etc...
- On-line Da'am System was available to solve any technical issues faced by students during lectures and exams.
- The periodic meeting for male and female students was held on a fixed basis at the beginning of each semester, where students sent direct inquiries and raised 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

* including action time, number of participants, results and any other statistics.
** including performance evaluation on these activities

## 2. Professional Development Activities for Faculty and Supporting Staff

| Activities Implemented | Number of participants | | Brief Description* |
|---|---|---|---|
| | Faculty | Supporting Staff | |
| Undertake an orientation Course which is available on Blackboard, by new faculties prior to start teaching in the PMAU | All new faculty | | A full Orientation Course is available on Blackboard, new faculties are required to undertake the course prior to start teaching in the PMAU. The course has complete information divided into six units as follows:<br><br>Unit 1: PMAU's E-Learning Model<br>Unit 2: Student-Centered Learning Approach<br>Unit 3: PMAU's Electronic Environment<br>Unit 4: E-Course Functionality<br>Unit 5: Additional Blackboard Functionality<br>Unit 6: Instructor Behavior in E-Learning Environment |
| Orientation meeting | All new Capstone supervisors | | The MCS program holds an orientation meeting for all faculty who supervise the capstone project (CS698) for the first time at the beginning of the semester. Example can be accessed here. |

**Comment on Professional Development Activities for Faculty and other Supporting Staff** **

| Activities Implemented | Number of participants | | Brief Description* |
|---|---|---|---|
| | Faculty | Supporting Staff | |
| The faculty and supporting staff have the opportunity to pursue professional development of their teaching and research skills by joining workshops for exam creations and quality workshops to develop their skills in filling quality files (conducted by The Vice Presidency for Planning, Development and Quality). | | | |

* including action time, number of participants, results and any other statistics.
** including performance evaluation on these activities

## 3. Scientific Research, Innovations and Inventions

**a .Research Achievements** (in the year concerned)

A research production statement of the faculty and students in the MCS program can be accessed here. In addition, the performance report of applying the scientific research plan in 2020/2021 can be accessed here.

| Scientific Production Source (Research Group/Research Chair/Individual Research/Research Project, etc.) | Number of Participants | | Classification of Scientific Production (Research ,worksheets ,books , inventions, etc.) | Production Status (Published, accepted for publication, patented, etc.) |
|---|---|---|---|---|
| | Students | Teaching Staff | | |
| Individual Research | Results appear here | | Research Publication | Published |
| Research Group | | | Research Publication | Published |
| Individual Research | | | Patent | Published |
| | | | | |
| **Total** | | | | |

* Attach a research production statement of the faculty and students in the program including basic data such as (researcher's name ,research title ,publishing entity ,publishing date, etc.)
** In the case of multiple scientific production ,the program lists the numbers for each classification individually (Example in individual research :if the total number is (10) in the case of production (6) published ,and (4) acceptable for publication, etc.)

### Comment on Research Achievements

We can infer from the analysis provided that this year's publications that the rate of published research per faculty member was increased. However, the percentage of publications of faculty members should be improved. The department's research groups should be activated to improve the research process even further.

**b .Theses** (approved during in the year concerned)

| Thesis Title | Researcher's Name | Supervisor's Name | Grade |
|---|---|---|---|
| NA | NA | NA | NA |
| | | | |

### Comment on Theses

NA

## 4. Analysis of Program Activities

(including strengths, Areas for Improvement:, and priorities for improvement)

**Strengths :**

- The dean of the CCI and other administrative staff held a meeting with students and discussed many topics regarding teaching and exams. Also, the issues that students faced during the semester were addressed by the dean.

- Students had participated in several competitions in the kingdom of Saudi Arabia. The CCI College encouraged students to register in the CyberHub competition provided by the Saudi Federation for Cybersecurity, Programming, and Drones. The CCI College has participated in the initiative with ten teams, and they competed strongly with other universities.
- The faculties had attended several workshops during the academic year to improve their skills in teaching and researching as well as to adopt the most recent in the computer field and transfer this knowledge to students. In addition, a meeting was conducted with the new faculties to discuss the college's policies and regulations. Meetings were conducted to the faculties by program coordinator to explain the teaching strategies and assessment plan.

**Areas for Improvement:**

- The CCI College should get evolve with alumni students regularly. Alumni unit should be activated.
- The CCI College should work with the students affairs department to organize workshops for unemployed alumni.

**Priorities for Improvement:**

- The CCI College should get evolve with alumni students regularly. Alumni unit should be activated.

## F. Program Evaluation

### 1. Evaluation of Courses

| Course Code | Course Title | Student Evaluation ( Yes-No) | Other Evaluations (Specify) | Developmental Recommendations |
|---|---|---|---|---|
| CS501 | Research Methods in Computational Studies | Yes | N.A | - Provide more specific and concise instructions for assignments to ensure students understand the objectives and requirements.<br>- Strive for efficiency in providing feedback and grades, allowing students to reflect on their performance in a timely manner |
| CS507 | Introduction to Cyber Security and Digital Crime | Yes | N.A | - Explore additional avenues to foster teamwork skills among students. Introduce group projects, collaborative assignments, or interactive activities that promote teamwork and collaboration<br>- Ensure that all expectations for success in the course, including graded assignments, tasks, and assessment criteria, are clearly communicated to students right from the beginning. Provide comprehensive and detailed guidelines or rubrics to help students understand what is expected of them. |

| Course Code | Course Title | Student Evaluation ( Yes-No) | Other Evaluations (Specify) | Developmental Recommendations |
|---|---|---|---|---|
| CS512 | Cryptography Fundamentals | Yes | N.A | - The course modules are well organized and covered the fundamental topics of the course.<br>- Strive for efficiency in providing feedback and grades, allowing students to reflect on their performance in a timely manner |
| CS564 | Cyber Defense in Web Based Attacks | Yes | N.A | - Instructors should give timely feedback to students.<br>- Provide comprehensive and detailed guidelines or rubrics to help students understand what is expected of them. |
| CS566 | Securing the Enterprise Infrastructure with Cyber Security Techniques | Yes | N.A | - Clear feedback to students on their performance will increase their understanding |
| CS663 | Digital Forensics and Investigations | Yes | N.A | - Instructors should give timely feedback to students.<br>-Provide comprehensive and detailed guidelines or rubrics to help students understand what is expected of them.<br>- The interactive lecture should be updated to include relevant learning resources |
| CS613 | Security Threats and Countermeasures in Complex Organizational Networks | Yes | N.A | - Students require a clear course outline at the beginning, including the intended knowledge and skills to be developed. It is essential to provide explicit instructions on what students need to do to succeed in the course, including clear guidelines for graded assignments, tasks, and assessment criteria.<br>- Additionally, students expect easy accessibility to the required textbook and course materials. |

| Course Code | Course Title | Student Evaluation ( Yes-No) | Other Evaluations (Specify) | Developmental Recommendations |
|---|---|---|---|---|
| CS642 | Innovative Solutions in Software Security | Yes | N.A | - Students require an instructor who provides clear and constructive feedback on assignments, ensuring their understanding and progress. It is essential for the instructor to be easily accessible and available to address students' queries and concerns promptly.<br>- Students expect instructors who demonstrate full commitment to the course delivery, including starting classes on time, maintaining regular presence, and delivering well-prepared material. |
| CS645 | Information Security Management, Legal and Ethical Issues | Yes | N.A | - Students identified several areas for improvement, including the need for clarification regarding what transpired during the course.<br>- They also mentioned the importance of establishing clear connections between this course and other courses within the program. |
| CS666 | Advanced Principles of Cyber Security | Yes | N.A | - There was a concern that the exams did not adequately cover all the topics studied.<br>- Additionally, they expressed a need for greater clarity regarding course-related information and its connection to other courses within the program. |
| CS683 | Ethical Hacking and Penetration Testing | Yes | N.A | - Based on student feedback, it is clear that there are several areas in the course that can be improved. These improvements will help optimize the overall learning experience.<br>- Additionally, there is an opportunity to incorporate more effective strategies and resources to enhance independent learning. |

| Course Code | Course Title | Student Evaluation ( Yes-No) | Other Evaluations (Specify) | Developmental Recommendations |
|---|---|---|---|---|
| CS698 | Capstone Project in Cyber Security | Yes | N.A | - To optimize the capstone project course, it is important to reassess and tailor the teaching strategies and methods to effectively align with the course content.<br>- Furthermore, the course should offer ample opportunities for students to develop their team work skills within the context of the capstone project. |
| | | | | |

## 2. Evaluation of Scientific Supervision

### a. Students Evaluation of Scientific Supervision

| **Evaluation Date : N.A.** | **Number of Participants: N.A.** |
|---|---|
| **Students Feedback** | **Program Response** |
| **Strengths:**<br>• | |
| **Areas for Improvement:**<br>• | |
| **Suggestions for improvement:**<br>- | N.A |

### b. Other Evaluation of Scientific Supervision

| **Evaluation method :** | **Date:** | **Number of Participants :** |
|---|---|---|
| **Summary of Evaluator(s) Review** | | **Program Response** |
| **Strengths:**<br>NA | | NA |
| **Points for Improvements:**<br>NA | | NA |
| **Suggestions for improvement**<br>NA | | NA |

**Remark:**

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 in addition to follow-up reports. The capstone project supervision and its follow-up reports can be accessed here.

## 3. Students Evaluation of Program Quality

| **Evaluation Date : 17/01/2021 and 14/04/2021** | **Number of Participants: 1983** |
|---|---|
| **Students Feedback** | **Program Response** |
| **Student Survey reports can be accessed from here: (Survey_1, Survey_2).**<br><br>**These surveys were filled by all students of IT department (including the MCS program).** | The IT department evaluate the performance of faculty members and encourages them to establish good communication with the students and use technology effectively to deliver course |

| | |
|---|---|
| **Strengths:**<br>• The learning resources (E-books, PowerPoint, videos, etc.) were relevant to most of the program courses.<br>• The instructor uses blackboard tools effectively.<br>• Most of the program courses helped the student to develop his/her self-learning ability.<br>• The instructor provides clear and useful feedback on assignments.<br>• Grading of tests and assignments in the course was fair and reasonable.<br>• Most of the program courses were well structured and well organized.<br>• Most of the program courses helped the student to develop his/her team work skills.<br>• Most of the program courses helped the student to improve his/her ability to think and solve problems rather than just memorize information.<br>• The tasks the student has to do to succeed in the course, including graded assignments and tasks; and criteria for assessment, were made clear to the student at the beginning of the course. | content more efficiently. In addition, The department continuously evaluates the courses and their contents to assure enabling students the ability to develop thinking and solving problems skills. |
| **Areas for Improvement:**<br>• The assignment of some of the program courses should be improved and should be relevant to course topics.<br>• Marks for assignments and tests for some program courses should be provided to student within a reasonable time.<br>• The instructor for some program courses should provide clear and useful feedback on assignments | The IT department continuously evaluates the courses to assure enabling students the ability to develop thinking and solving problems skills.<br>The assignment of some program courses will be reviewed and improved to ensure their relevance to the course topics. We will strive to align the assignments more closely with the learning objectives and content covered in the courses.<br><br>We acknowledge the importance of timely feedback for assignments and tests. Efforts will be made to provide marks for assignments and tests within a reasonable time frame, allowing students to receive feedback in a timely manner and reflect on their performance.<br><br>We understand the value of clear and useful feedback from instructors. Steps will be taken to ensure that instructors provide comprehensive and constructive feedback on assignments, helping students understand their strengths and areas for improvement. |
| **Suggestions for improvement:**<br>NA | No suggestions given by students |

* Attach report on the students evaluation of program quality

## 4. Other Evaluations (if any)

(e.g. Evaluations by independent reviewer, program advisory committee, and stakeholders (e.g., faculty members, alumni, and employers)

| **Evaluation method : N.A.** | **Date: N.A.** | **Number of Participants: N.A.** |
|---|---|---|
| **Summary of Evaluator(s) Review** | | **Program Response** |
| **Strengths:**<br>•<br>• | | |
| **Points for Improvements::**<br>•<br>• | | |
| **Suggestions for improvement**<br>•<br>• | | |

* Attach independent reviewer's report and stakeholders' survey reports ( if any)

## 5. Key Performance Indicators (KPIs)

List the results of the program key performance indicators (including the key performance indicators required by the National Center for Academic Accreditation and evaluation)

**The full analysis of KPIs for the MCS program in 2020/2021 can be accessed here.**

| No | KPI | Target Benchmark | Actual Value | Internal Benchmark | Analysis | New Target Benchmark |
|---|---|---|---|---|---|---|
| **1** | Percentage of achieved indicators of the program operational plan objectives | 100% | 100% | 100% | Achieved | 100% |
| **2** | Students' Evaluation of quality of learning experience in the program | 4.0 | 3.5 | 3.86 | Not Achieved | 4.0 |
| **3** | Students' evaluation of the quality of the courses | 4.5 | 4.1 | 4.1 | Not achieved | 4.5 |
| **4** | Students' evaluation of the quality of scientific supervision | 4.5 | 3.89 | 4.28 | Not achieved | 4.5 |
| **5** | Average time for students' graduation | 4 | 4 | 4 | Achieved | 4 |
| **6** | Rate of students dropping out of the program | 10% | 8.3% | 21.9% | Achieved | 5% |
| **7** | Graduates' employability | 94% | 94.7% | 93.5% | Achieved | 95% |
| **8** | Employers' evaluation of the program graduates' proficiency | 4.5 | 4.6 | 4.4 | Achieved | 4.7 |
| **9** | Students' satisfaction with the offered services | 3.5 | 2.5 | 3.0 | Not achieved | 3.5 |
| **10** | Ratio of students to teaching staff | Less than 25 for male and female | Male : 5.7:1<br>Female :5:1 | Male : 6.2:1<br>Female: 3.3:1 | Achieved | Less than 25 for male and female |

| No | KPI | Target Benchmark | Actual Value | Internal Benchmark | Analysis | New Target Benchmark |
|---|---|---|---|---|---|---|
| **11** | Percentage of faculty members' distribution based on academic ranking | Assoc. Pro. = 25% Assist. Pro. = 70% Full Prof 5% | Assoc. Pro. = 23.8% Assist. Pro. = 71.4% Full Prof. 4.8% | Assoc. Pro. = 26.7% Assist. Pro. = 73.3% | Achieved partially | Assoc. Pro. = 30% Assist. Pro. = 65% Full Prof 5% |
| **12** | Proportion of teaching staff leaving the program | **1%** | 4.8% total (M 0%, F16.7%) | 0% total (M 0%, F 0%) | The value increased in 2020/2021 | **1%** |
| **13** | Satisfaction of beneficiaries with learning resources | 4 | 3.9 | 4.5 | Reduction by 0.6 in 2020/2021 | 4.5 |
| **14** | Satisfaction of beneficiaries with research facilities and equipment | 4.8 | 4.4 | 4.7 | Reduction by 0.3 in 2020/2021 | 4.8 |
| **15** | Percentage of publications of faculty members | 90% | 66.67% | 86.6% | Not achieved | 90% |
| **16** | Rate of published research per faculty member | 3:1 | 3: 1 | 2.9:1 | achieved | 4:1 |
| **17** | Citations rate in refereed journals per faculty member | 12:1 | 10.8:1 | 11.9:1 | Not achieved | 12:1 |
| **18** | Percentage of students' publication | Journals: 5% Conference :5% | Journals: 3.4% Conference: 0% | Journals: 0% Conference: 4.8% | Not achieved | Journals: 5% Conference :5% |
| **19** | Number of patents, innovative products, and awards of excellence | No. Patent: 5 No. awards:5 | No. Patent: 4 No. awards:0 | No. Patent: 0 No. awards:0 | Not achieved | No. Patent: 5 No. awards:5 |

**Comments on the Program KPIs and Benchmarks Results :**

Some values such as the research publications and citations should be improved.

## 6. Analysis of Program Evaluation

(including strengths, Areas for Improvement:, and priorities for improvement)

**Strengths :**

Independent review of academic performance for the programs offered by CCI was conducted by department of Quality Assurance. Following matters of interest were raised:

1. The team showed great satisfaction in conduct of courses in blended learning environment. However, they emphasized for further ensuring availability of faculty members to the students.
2. The CCI instructors use the Blackboard tools effectively in lectures including assessment tools such as assignments, quiz, and discussion board.
3. The CCI instructors are fully committed to the course plan and to the curriculum.
4. The CCI instructors encourage, motivate, and support students to be success in their studying.

**Areas for Improvement:**

- Regularly review the received feedbacks from students, instructors, and employers to improve the program outcomes.

- Provide hardcopies or softcopies of the textbook to the faculty members teaching this master program.

**Priorities for Improvement:**

- Regularly review the received feedbacks from students, instructors, and employers to improve the program outcomes.

## G. Difficulties and Challenges Faced Program Management

| Difficulties and Challenges | Implications on the Program | Actions Taken |
|---|---|---|
| Every year the faculty members are supposed to submit their academic research and achievements. | It is a time-consuming process. | An on-line faculty profile should be available and updated accordingly. |
| Not all faculty members have textbooks for the courses they teach. | **N.A** | • Faculties should return the books at the end of each semester to the branch<br>• Order or request books.<br>• Investigate courses which can use E-books for the delivery of the course. |
| The annual report should be generated automatically by Tawkeed system like the others intermediary reports | **N.A** | Link all the data of the course reports and course files to generate the annual report and complete directly in Tawkeed system |
| | | |

*Internal and external difficulties and challenges

## H. Program Improvement Plan

**Remark**: The approved MCS Operational Plan can be accessed from Ref.1.5.

| No. | Priorities for Improvement | Actions | Action Responsibility | Date | | Achievement Indicators | Target Benchmark |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| **1** | IT industry collaboration to be initiated with active participation of students and faculty for current concepts and understanding. | Development of training programs in collaboration with IBM and other enterprises operating inside the kingdom.. | Head of IT department | 09/01/ 2021 | 05/31/ 2022 | Number of partnerships | 1 |
| **2** | Content development and feedback from faculty should be carried out for each semester | The process has already been established and during each semester, faculty feedback is being sought to improve and revise the courses being offered. | Faculty members teaching in the master program | 09/01/ 2021 | 05/31/ 2022 | Number of Courses | 3 |
| **3** | Faculty incentives for more research contribution should be announced. | Faculty have already been actively encouraged to participate in research programs offered by university. Research incentives have been offered in form of publication grants and research project support. | Faculty members teaching in the master program | 09/01/ 2021 | 05/31/ 2022 | Number of Initiatives | 1 |
| **4** | Update the interactive lecture to include relevant learning resources. | Update interactive lectures with relevant learning resources to enhance student engagement and improve the overall effectiveness of the learning experience. | Faculty members teaching in the master program | 09/01/ 2021 | 05/31/ 2022 | Increased student engagement and participation | 3 |

## I. Report Approving Authority

| | |
|---|---|
| **Council / Committee** | CCI Quality and Academic Accreditation Committee |
| **Reference No.** | 01/2021 |
| **Date** | September-2021 |

## J. Attachments :

- **A separate cohort analysis report for male and female sections and for each branch (if any)**
- **A report on the program learning outcomes assessment results for male and female sections and for each branch (if any)**

- **A research production statement of the faculty and students in the program including basic data such as (researcher's name, research title, publishing entity, publishing date, etc.)**
- **A report on the students evaluation of program quality**
- **Independent reviewer’s report and other survey reports (if any)**