



هيئة جودة التعليم والتدريب
Education & Training Quality Authority
Kingdom of Bahrain - مملكة البحرين

Directorate of Higher Education Reviews

Programme Review Report

**Ahlia University (AU)
College of Information Technology
Master's Degree in Information Technology and
Computer Science (MITCS)**

Kingdom of Bahrain

Site Visit Date: 23–25 November 2020

HA004-C3-R004

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Acronyms

ABET	Accreditation Board for Engineering and Technology
ACM	Association for Computing Machinery
ADREG	Admission and Registration Information System
APRs	Academic Programme Reviews
AQAC	Accreditation Quality Assurance Committee
AU	Ahlia University
AUQAMS	AU Quality Assurance Management System
BQA	Education & Training Quality Authority
CAQA	Centre for Accreditation and Quality Assurance
CGPA	Cumulative Grade Point Average
CILOs	Course Intended Learning Outcomes
DHR	Directorate of Higher Education Reviews
HEC	Higher Education Council
HEIs	Higher Education Institutions
HR	Human Resources
ICT	Information and Communication Technology
IEEE	Institute of Electrical and Electronics Engineering
ILOs	Intended Learning Outcomes
KPI	Key Performance Indicator
MITCS	Master's Degree in Information Technology and Computer Science
NQF	National Qualifications Framework
PILOs	Programme Intended Learning Outcomes
QA	Quality Assurance
SER	Self Evaluation Report
T&L	Teaching and Learning
TLAC	Teaching, Learning and Assessment Committee

I. Introduction

In keeping with its mandate, the Education & Training Quality Authority (BQA), through the Directorate of Higher Education Reviews (DHR), carries out two types of reviews that are complementary. These are: Institutional Reviews, where the whole institution is assessed; and the Academic Programme Reviews (APRs), where the quality of teaching, learning and academic standards are assessed in academic programmes within various colleges according to specific standards and indicators as reflected in its Framework.

Following the revision of the APR Framework at the end of Cycle 1 in accordance with the BQA procedure, the revised APR Framework (Cycle 2) was endorsed as per the Council of Ministers' Resolution No.17 of 2019. Thereof, in the academic year (2019-2020), the DHR commenced its second cycle of programme reviews.

The Cycle 2 APR Review Framework is based on four main Standards and 21 Indicators, which forms the basis the APR Reports of the Higher Education Institutions (HEIs).

The **four** standards that are used to determine whether or not a programme meets international standards are as follows:

Standard 1: The Learning Programme

Standard 2: Efficiency of the Programme

Standard 3: Academic Standards of Students and Graduates

Standard 4: Effectiveness of Quality Management and Assurance

The Review Panel (hereinafter referred to as 'the Panel') decides whether each indicator, within a standard, is 'addressed', 'partially addressed' or 'not addressed'. From these judgments on the indicators, the Panel additionally determines whether each of the four standards is 'Satisfied' or 'Not Satisfied', thus leading to the Programme's overall judgment, as shown in Table 1 below.

Table 1: Criteria for Judgements

Criteria	Judgement
All four Standards are satisfied	Confidence
Two or three Standards are satisfied, including Standard 1	Limited Confidence
One or no Standard is satisfied	No Confidence
All cases where Standard 1 is not satisfied	

The APR Review Report begins with providing the profile of the Programme under review, followed by a brief outline of the judgment received for each the indicator, standard, and the overall judgement.

The main section of the report is an analysis of the status of the programme, at the time of its actual review, in relation to the review standards, indicators and their underlying expectations.

The report ends with a Conclusion and a list of Appreciations and Recommendations.

II. The Programme's Profile

Institution Name*	Ahlia University (AU)
College/ Department*	College of Information Technology Department of Information Systems
Programme/ Qualification Title*	Master's Degree in Information Technology and Computer Science (MITCS)
Qualification Approval Number	Cabinet of Ministers Decision No. (1626-03) of 2001 Higher Education Council Letter No. (2008/م - 81) of 2008
NQF Level	Level 9
Validity Period on NQF	3 April 2016 – 3 April 2021 (Valid for five years)
Number of Units*	12
NQF Credit	144
Programme Aims*	<ul style="list-style-type: none"> • To equip students with advanced professional knowledge and skills in areas of information technology and computer science in accordance with international standards. • To nurture an innovative research culture that encourages students and faculty to undertake independent and collaborative high-quality research. • To enable students to identify multifaceted problems in their area of specialization and to design, analyze, implement and manage efficient solutions for them using current information technologies. • To motivate graduates to apply tools, skills, and techniques of information technology in their current and future work environment to increase their organization's productivity and to gain a competitive advantage. • To prepare graduates to demonstrate ethical behavior and to be professionally competent and motivated to life-long learning.
Programme Intended Learning Outcomes*	<p>A. Knowledge and Understanding</p> <p>A1: Concepts and Theories: Demonstrate knowledge and understanding of the advanced concepts, principles, techniques, paradigms and theories of computing and information technology.</p> <p>A2: Contemporary Trends, Problems and Research: Demonstrate an informed and critical awareness of the current problems, research</p>

issues and methods, technological advancements pushing the frontier of knowledge in the field of Information Technology and Computer Science.

A3: Professional Responsibility: Demonstrate cognizance of and adhere to the professional and legal standards as an IT practitioner, and develop continuing awareness of best practices used by IT Professionals with respect to how to manage a computerized system.

B. Subject-specific skills

B1: Problem Solving: Identify, formalize, and solve IT/CS problems; plan, design, and implement their computable solutions.

B2: Modeling and Design: Design and develop models for computational systems, components, or processes to meet desired needs within realistic constraints.

B3: Application of Methods and Tools: Use effectively advanced methods and software tools used in modern computing practices.

C. Critical Thinking Skills

C1: Analytic: Evaluate the complexity of challenging real world problems in conceptual terms; identify the appropriate computational resources (input) needed to solve them and analyze the effectiveness and efficiency of output accordingly generated.

C2: Synthetic: Develop and integrate components of a complex computing system using modern approaches such as object-oriented methodology.

C3: Creative: Create new or improve existing ideas, concepts, techniques, methods, tools, and theories in the field of IT and Computer Science and identify ways in which these can be applied to solve existing, new or anticipated problems.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1: Communication: Express and communicate ideas cogently, persuasively and effectively, in written and oral form, to a diverse range of audiences and stakeholders.

D2: Teamwork and Leadership: Work effectively as a member/leader of a team of technical people who may plan, design, implement, manage, monitor and evaluate a computational system or process.

D3: Organizational and Developmental Skills: Engage in life-long learning and continuing self development to hone professional and organizational skills. Assimilate effective work habits including but not limited to time management skills.

D4: Ethical and Social Responsibility: Recognize, accept, and follow ethical and social responsibility and respond positively to the needs of society by identifying, employing and utilizing effectively the advanced computing and information solutions and technologies.

* Mandatory fields

III. Judgment Summary

The Programme's Judgment: Confidence

Standard/ Indicator	Title	Judgement
Standard 1	The Learning Programme	Satisfied
Indicator 1.1	The Academic Planning Framework	Addressed
Indicator 1.2	Graduate Attributes & Intended Learning Outcomes	Partially Addressed
Indicator 1.3	The Curriculum Content	Partially Addressed
Indicator 1.4	Teaching and Learning	Addressed
Indicator 1.5	Assessment Arrangements	Addressed
Standard 2	Efficiency of the Programme	Satisfied
Indicator 2.1	Admitted Students	Addressed
Indicator 2.2	Academic Staff	Partially Addressed
Indicator 2.3	Physical and Material Resources	Addressed
Indicator 2.4	Management Information Systems	Addressed
Indicator 2.5	Student Support	Addressed
Standard 3	Standard 3: Academic Standards of Students and Graduates	Satisfied
Indicator 3.1	Efficiency of the Assessment	Addressed
Indicator 3.2	Academic Integrity	Addressed
Indicator 3.3	Internal and External Moderation of Assessment	Partially Addressed
Indicator 3.4	Work-based Learning	Not Applicable
Indicator 3.5	Capstone Project or Thesis/Dissertation Component	Addressed
Indicator 3.6	Achievements of the Graduates	Partially Addressed

Standard 4	Effectiveness of Quality Management and Assurance	Satisfied
Indicator 4.1	Quality Assurance Management	Addressed
Indicator 4.2	Programme Management and Leadership	Addressed
Indicator 4.3	Annual and Periodic Review of the Programme	Addressed
Indicator 4.4:	Benchmarking and Surveys	Partially Addressed
Indicator 4.5:	Relevance to Labour market and Societal Needs	Addressed

IV. Standards and Indicators

Standard 1

The Learning Programme

The programme demonstrates fitness for purpose in terms of mission, relevance, curriculum, pedagogy, intended learning outcomes and assessment.

Indicator 1.1: The Academic Planning Framework

There is a clear academic planning framework for the programme, reflected in clear aims which relate to the mission and strategic goals of the institution and the college.

Judgment: Addressed

- The Ahlia University's (AU) vision embraces the Higher Education Strategy (HEC) 2014-2024 and the national priorities. The AU vision statement clearly states its aspiration to achieve excellence in its three core functions of Teaching and Learning (T&L), research, and community engagement. The AU's mission statement translates the university's vision by striving to move the frontier of human knowledge forward and elevating the social and living standards of the society. AU made the effort to plan its processes to ensure relevance and fitness of the programme while complying with existing regulations of the HEC and BQA. The AU Academic Planning Framework comprises of (a) The Study Plan, (b) The Programme Review, and (c) The Annual Operational Plan.
- The College of IT has an annual Operational Plan through which it assesses the quality of its programmes and their delivery. The plan sets KPIs for several objectives to measure their performance. However, the research related objective 'Encourage research among faculty' is measured through the number of conducted seminars and number of published papers. The Panel notes during interviews with staff members that the quality of the thesis work is also assessed through feedback given by the external examiners. Furthermore, interviews with the programme management team revealed that the college mitigates potential risk on programme delivery. The Panel is satisfied that the annual College Operational Plan sets some goals to mitigate potential risks to the delivery of the programme and the actions to be taken.
- As per the Qualification Placement Decision (3 April 2016) of the General Directorate of National Qualifications Framework (GDQ), the Master's Degree in Information Technology and Computer Science (MITCS) offered by the AU sufficiently meets all of the Validation Standards, and thus was placed on the National Qualifications Framework (NQF) Level 9. AU provided as evidence the letter of approval by the University Council on the proposed re-mapping and re-validation procedures of AU qualification, and the

mapping between the programme aims and Programme Intended Learning Outcomes (PILOs) to NQF level 9. The Panel is satisfied that the mapping between the Programme aims and PILOs, and mapping to NQF level 9 is appropriate.

- The Panel notes that the programme/qualification's title is concise and indicative of the content of courses in the study plan and the level of the degree. The programme/qualification's title is accurately documented on the certificates, programme description documents and the university's website.
- The programme specification document shows that the programme has clear and appropriate aims, which relate to the mission and strategic goals of AU. During the interview with the stakeholders, the Panel was informed that the programme aims are regularly revised as per the stakeholders' feedback. The programme aims are reviewed by the College in consultation with the advisory board and external reviewers.
- The programme aims contribute to the achievement of the college and institution mission and strategic goals. The SER also shows a mapping between the programme objectives and university's mission.

Indicator 1.2: Graduate Attributes & Intended Learning Outcomes

Graduate attributes are clearly stated in terms of intended learning outcomes for the programme and for each course and these are appropriate for the level of the degree and meet the NQF requirements.

Judgment: *Partially Addressed*

- The AU generic graduate attributes, which an AU graduate is expected to have, are described in the T&L Plan 2016-2020. The graduate attributes were mapped to the PILOs. However, the PILOs matrix that represents the mapping is not clearly perceived. For example, the graduate attribute #4 is mapped to PILOs: A2, B2 and B3. This mapping is not self-explanatory. None of the PILOs clearly embeds graduate attribute #4: "Research autonomously and be able to present knowledge in a proper context and perspective". Hence, the Panel recommends that AU should revise the mapping between the generic graduate attributes and the PILOs to ensure clear inclusion of all graduate attributes in the PILOs.
- The PILOs and the programme objectives are clearly stated in the SER, and are available in several university publications, such as the university website and handbook. The provided evidence shows the mapping matrix between PILOs and the Course Intended Learning Outcomes (CILOs). However, the linkage between PILOs and the Programme aims is not provided. The Panel notes that programme aim #2, which is 'to encourage innovative research among faculty and students' is not clearly embedded in the PILOs. The Panel recommends that the College of IT should revise the PILOs to ensure that they clearly reflect all the programme aims. Moreover, the Panel suggests that the College of IT develops a mapping between the PILOs and programme aims of MITCS.

- The PILOs are clearly written. However, most PILOs contain several verbs, which is not advisable. The SER states that the PILOs meet the NQF requirements and international norms through benchmarking. Although AU provided evidence that the PILOs are aligned to the NQF, there is no evidence that the PILOs were benchmarked with similar international programmes. The provided documents contain the benchmarking of the study plan with other universities, but not of PILOs. The Panel recommends that MITCS should benchmark the PILOs with those of similar international programmes.
- The SER states that the CILOs are directly derived from the PILOs. The CILOs Achievement Summary shows the achievement percentage of the CILOs, where CILOs of courses contribute to the achievement of the corresponding PILOs. The course specifications (syllabi) contain the mapping between CILOs and NQF level 9. Scrutiny of the courses by the Panel, revealed that some CILOs contain compound outcomes. For example, outcome B1 stated 'Identify, formalize, and solve IT/CS problems; plan, design, and implement their computable solutions '. The SER does not provide an explanation on how these compound outcomes are measured. The Panel notes from the interview with academic staff that AU does not have a formal mechanism to measure compound outcomes. Hence, the Panel recommends that the College of IT should develop a formal mechanism to revise and measure CILOs and PILOs with compound outcomes.
- The CILOs are mapped to the corresponding PILOs as indicated in the SER. The evidence provided present a summary of the courses' CILOs and PILOs. A mapping of the Dissertation course (ITCS599) CILOs with the PILOs was also presented. The Panel is of the view that the learning outcomes of the research component of the programme are consistent with the PILOs.

Indicator 1.3: The Curriculum Content

The curriculum is organised to provide academic progression of learning complexity guided by the NQF levels and credits, and it illustrates a balance between knowledge and skills, as well as theory and practice, and meets the norms and standards of the particular academic discipline.

Judgment: Partially Addressed

- The revised MITCS study plan shows academic progression semester-by-semester. MITCS requires students to complete a total of 36 credit hours: six mandatory courses (18 credit hours), two elective courses (6 credit hours), and a dissertation (12 credit hours). The Panel is satisfied with the student workload as it is consistent with similar regional and international programmes. The sequence of the course offerings is based on prerequisites as shown in the Qualification Structure of the MITCS programme. The Panel notes that the revised study plan shows appropriate progression in terms of NQF levels and credits.
- The SER indicates that the MITCS curriculum has undergone many reviews that considered the market needs, benchmarking results, regional and international standards, and feedback from all stakeholders. During the interviews with the academic staff, the

Panel was informed that the MITCS is regularly updated and a revised study plan was recently approved. The extra evidence shows benchmarking of the MITCS study plan with three other universities regionally and internationally.

- The Panel notes that the variety of courses in the revised study plan provide a balance between theory and practice, and between knowledge and skills in the curriculum. Moreover, the Panel is of the view that the benchmarking of the study plan with those of similar programmes is an indication of this balance.
- The MITCS Programme shows appropriate depth and breadth of subject coverage as indicated by evidence of course syllabi, revised study plan and supported by benchmarking with similar regional and international programmes. The Panel is satisfied with the course content and variety of courses in the programme.
- The SER and the provided list of textbooks used by the courses of MITCS indicate that textbooks and references are current and appropriate. After scrutiny of the MITCS course syllabi, the Panel notes that some of the mappings between the course topics and the CILOs are not clearly justified. For example, in the ITCS518-Mobile Application Development, how can EditText, TextView and Button Form Validation be mapped to CILO A2, which states 'Recognize the current computing issues and research on emerging mobile computing technologies'. Hence, the Panel recommends that the College of IT should revise the mapping of the topics with the CILOs.
- The SER does not explain or show evidence of how the ILOs of the research component (ITCS599) are measured and what are the criteria for achieving the CILOs and PILOs. Therefore, the Panel recommends that the College of IT should develop a formal mechanism to evaluate and improve its MITCS courses.
- There is evidence in the Student Handbook, Guidelines for the Supervision of Master's Degree Dissertation and Progress records of students in the ADREG system that students receive appropriate training on the principles and ethics of conducting scientific research in the ITCS specialization. During the interview with the stakeholders, the Panel noted a general sense of satisfaction with the academic performance and research experience of the MITCS students and graduates.

Indicator 1.4: Teaching and Learning

The principles and methods used for teaching in the programme support the attainment of programme aims and intended learning outcomes.

Judgment: Addressed

- AU has a T&L Plan (2016-2020) that refers to the use of a range of teaching and learning methods. Moreover, the course syllabi show the specific T&L methods for each course. The T&L Plan is derived from the University Strategic Plan.

- The SER indicates that the MITCS programme employs a variety of teaching methods such as lectures, laboratories, case studies, student presentations, and individual and team assignments. The Panel notes that the teaching methods in the MITCS programme are in line with the AU T&L Plan as well as with the teaching practices of Master programmes worldwide. However, no evidence was provided to indicate that these T&L methods were informed by research findings. Hence, the Panel recommends that the MITCS should revise its teaching and learning methods to ensure that they are based on research findings. Each course syllabus shows the mapping between its T&L methods with CILOs, PILOs and course topics. The Panel is satisfied that the described T&L methods enable the attainment of the PILOs.
- E-Learning is not a part of the AU T&L Policy but the Institution offers a digital platform for students and staff to access digital resources. With the recent worldwide pandemic, E-Learning became an important alternative T&L delivery platform. The College meeting minutes, dated April 2020 state that teaching is conducted online in the respective semester. The Panel is of the view that the E-learning environment at AU supports the T&L goals and thus the attainment of the PILOs.
- The T&L Plan (2016-2020) includes graduate attributes that encourage students to develop and experience independent and lifelong learning. The Panel notes that some courses require students to perform experiments and expose them to professional practice. However, no evidence is shown to reflect the participation level of students in their learning. Therefore, the Panel recommends that the College of IT should develop a formal mechanism to ensure the participation of students in independent learning.
- To show that the AU learning environment strengthens the students' perceptions and research capabilities, the SER provides examples of students' thesis proposals and journal publication. The Panel notes from the evidence provided that the AU conducted a survey to study the effectiveness of the MITCS research environment and supervision. The practical component of some of the courses includes solving real-life problems and thus strengthens the students' perceptions and research capabilities. During the interview with the faculty and students, the Panel notes that the thesis work motivates the students to create and innovate.
- As indicated by the SER, the Programme's learning environment promotes the concept of lifelong learning by encouraging the students to participate in various extra-curricular activities, such as student competitions. Moreover, in some courses, students are required to present their course project and participate with their peers in group discussion to solve problems. From the interviews, the Panel notes that the students and alumni expressed their satisfaction with the learning environment and its relevance to the industry. Hence, the Panel is of the view that the learning environment promotes all types of learning including lifelong learning.

Indicator 1.5: Assessment Arrangements

Suitable assessment arrangements, which include policies and procedures for assessing students' achievements, are in place and are known to all relevant stakeholders.

Judgment: Addressed

- AU has an Assessment Manual that sets out the policies and procedures of the different types and levels of programmes in the university. The SER indicates that these policies were revised recently to ensure that they adhere to the standards set by the Higher Education Council (HEC), BQA and NQF. The AU Assessment Manual prescribes a comprehensive assessment framework that includes guiding principles, policies, procedures, processes, regulations and criteria for the design, conduct, marking, verification and moderation of formative and summative assessments. The Panel is of the view that the assessment guidelines are appropriate for the level of the programme and are regularly implemented.
- The Panel notes that the Assessment Manual is disseminated to academic staff and students through the website and AU SharePoint and that students have access to the Assessment Manual. This was corroborated during the interviews with faculty members and students.
- Criteria and marking mechanisms of the formative and summative functions are clearly stipulated in the Assessment Manual. During the interviews with the faculty, the Panel noted that the assessments include both formative and summative assessment. Formative assessment is used to give students prompt feedback on the work, especially during the thesis work. During meetings with their supervisors, which are conducted regularly, students present their progress and receive feedback from supervisors on their experiments, research findings, software tools used, report writing, etc. The Panel is satisfied that such summative and formative assessments are appropriate and assist student in further learning.
- The SER indicates that ethics and principles of scientific research are followed according to the university policies. In the Assessment Manual, the evaluation of research considers the ethics and principles of scientific research in different disciplines. MITCS students are required to take the Research Methods course (ITCS550), which introduces the research ethics and principles of scientific research. An academic Misconduct Policy, which regulates the ethics in scientific research, is part of the Assessment Manual. For example, Thesis reports are submitted through the Turnitin system to produce a similarity report. A 15% similarity is tolerated as per the university policy. However, no justification of this tolerance range (15%) was provided. Hence, the Panel suggests that the College of IT develops a mechanism to investigate further the parts of the reports with tolerated-similarity to make sure that the whole work belongs to the student and that, in general, the evaluation of the thesis work considers the ethics and principles of scientific research

- The SER indicates that Thesis supervisors hold regular meetings with their supervisees to monitor the progress of the students. Their performance and progress in the course work are also being monitored. However, there is no formal mechanism in place to monitor the student's progress in their thesis work (refer to Standard 3, Indicator 5).
- The SER describes a well-developed procedure for verification and moderation to monitor students' progress in their course work. AU has developed transparent mechanisms for monitoring students' progress through the internal and external moderation (refer to Standard 3, Indicator 3). An internal moderation committee is formed every semester by the College and applies the assessment criteria set out in the Assessment Manual. This committee conducts the verification before and after the assessment takes place to ensure the coverage, clarity, accuracy and fairness of the assessment. The Panel is of the view that the mechanisms employed for monitoring students' progress through the internal and external moderations are transparent and appropriate.
- The Academic Misconduct and Plagiarism Policy and Procedure are part of the Assessment Manual, which states that cases of academic misconduct are taken seriously by AU. AU made provisions, which are prescribed in the Student's Handbook, for addressing academic misconduct and students' appeal. The SER indicates that AU acknowledges and strives to prevent academic misconduct in the form of: (1) plagiarism; (2) data falsification; (3) use of third-parties (tacit personation) or cheat-ware sites; (4) free-riding collusion; (5) recycling collusion; and (6) active personation. Emphasis on academic misconduct is also made through the Graduate Guidelines for Students' Appeals. Although no evidence was provided to show an example of student's appeal, the Panel confirmed during the interview with students that the students can appeal examination marks.

Standard 2

Efficiency of the Programme

The programme is efficient in terms of the admitted students, the use of available resources - staffing, infrastructure and student support.

Indicator 2.1: Admitted Students

There are clear admission requirements, which are appropriate for the level and type of the programme, ensuring equal opportunities for both genders, and the profile of admitted students matches the programme aims and available resources.

Judgment: Addressed

- The admission requirements are published in several university documents as well as in the AU website. The admission requirements ensure equal acceptance opportunities regardless of gender or race. AU has a special committee to identify and look after students with special needs. This facilitates the admission, registration and academic needs of students with special needs. Generally, the Admission Policy is clearly stipulated. The Panel acknowledges that the Admission Policy stipulates a clear and detailed procedure for admitting students with special needs.
- The admission requirements are appropriate for the MITCS level and consistent with international academic standards. Admission is based on several criteria, such as minimum undergraduate degree CGPA, undergraduate degree discipline, passing an interview and English language proficiency level. However, as noted from the interview with faculty, the College of IT does not have a formal mechanism for assessing the level of English language proficiency. Therefore, the Panel recommends that the College of IT should develop a formal mechanism for assessing the students' English language entry level.
- The study plan of the MITCS contains three foundation courses (Introduction to Information Security – ECCE501, Object-Oriented Programming – ITCS516, Data Structures & Algorithms – ITCS517) to support students with inadequate background, such as students coming from other related disciplines to the MITCS. Such students are admitted by AU conditionally, subject to passing the interview and the foundation courses. The Panel is satisfied with the set of foundation courses offered to the MITCS students.
- The SER indicates that the Admission Policy has provisions for applicants transferring from other institutions within the country or from abroad to ensure that the applicants' earned credits are transferred. Student can transfer up to 50% of the required total credits

of the programme. The institutions from which the applicants are transferring, must be recognized and accredited by the HEC in Bahrain. The Panel is of the view that the procedure of the Master's Degree Transfer Admission is in line with those of similar programmes in the region.

- As stated in the SER, and confirmed in interview with staff, the Admission Policy is reviewed regularly by the Department, College of IT and in coordination with the Deanship of Student Affairs and University Council. The entry requirements are revised based on student performance and benchmarking with admission policies of other similar programmes in Bahrain. Moreover, the programme-specific requirements are based on benchmarking with those of other similar regional and international programmes.

Indicator 2.2: Academic Staff

There are clear procedures for the recruitment, induction, appraisal, promotion, and professional development of academic staff, which ensure that staff members are fit-for-purpose and that help in staff retention.

Judgment: Partially Addressed

- The Human Resources Policy and Procedure Handbook clearly states the recruitment procedure and induction of faculty at AU. The SER presents some examples of the implementation of faculty recruitment procedure. The academic faculty promotion procedure is presented in the Academic Staff Bylaws. The Department mentors the new faculty members during the first semester to ensure that the delivery and assessment of courses are conducted as per the AU Mentoring Procedure. The Panel acknowledges the availability of the Mentoring Policy and Procedure of new faculty members. In addition, AU has a set of rules and regulations for academic faculty promotion to the ranks of professor and associate professor.
- AU applies its Rules and Regulations of Research to promote research among faculty. However, the SER does not indicate how this policy is implemented at the College level or how its effectiveness is evaluated. Therefore, the Panel recommends that AU should develop a formal mechanism to measure the effectiveness of the research policy.
- The academic staff teaching load is 15 hours across all ranks, which the Panel considers high as compared to other universities in the region. It is also not clear from the SER whether other duties (administrative, supervision, etc.) are counted towards the 15-hour load. From interviews with senior management and faculty, the Panel learned that the supervision of students is not counted towards the faculty load. Moreover, from the provided evidence, the Panel notes that the number of preparations of taught courses per faculty member, on average is four different courses. Therefore, the Panel recommends that the AU should consider reducing the teaching load of faculty to give them more time to conduct quality research.

- The number of academic staff in the College of IT is nine: one associate professor, five assistant professors and three lecturers. In addition to two support staff. The six PhD-holders, which include the Dean and two Chairpersons, serve in all the programmes of the IT College (two BSc one MITCS and one PhD). The SER does not indicate how the College manages to distribute the teaching, community engagement, research and administrative loads among the six faculty members. In addition, the SER does not discuss how the faculty load is calculated to maintain it in line with the regional and international standards. Therefore, the Panel recommends that the AU should develop a workload policy that is in line with regional and international standards.
- The College of IT has arrangements to provide its faculty with professional training and there is evidence to show that the college supports faculty and staff professional development. A Professional Development Committee at AU revises an annual Professional Development Plan based on the needs of staff as depicted in their appraisal forms and based on the staff feedback related to professional development.
- The SER indicates that the College of IT has plans to train some of its faculty members in supervision of postgraduate students as part of its collaboration with Brunel University in running the PhD programme. During interview with the programme management, the Panel notes that several faculty members have already received the supervisor training, which was conducted by Brunel University London. The Panel appreciates the effort exerted by the College to provide its faculty members with the opportunity to be trained as professional postgraduate supervisors.
- As stated in the SER and confirmed in interviews with staff, HR policies and procedures are in place to ensure staff retention. Furthermore, the Panel noted that the retention rate of academic staff in 2019 was 100%, however the number of academic staff is very small in the College to make any accurate conclusion on the effectiveness of the HR retention policies.

Indicator 2.3: Physical and Material Resources

Physical and material resources are adequate in number, space, style and equipment; these include classrooms, teaching halls, laboratories and other study spaces; Information Technology facilities, library and learning resources.

Judgment: Addressed

- AU maintains 24 classrooms and 12 IT laboratories to cover its teaching activities. During the interviews with staff, the Panel noted that the utilization reports of laboratories and classrooms show that these resources are adequate. The Panel confirmed the sufficiency and appropriateness of classes and laboratories in the interviews with students and alumni. However, the current location of the AU campus, inside a shopping mall, is a cause of concern as it does not provide the students with adequate space for outdoor

activities and hence of the Panel urges the AU to expediate its plans to move to a new campus.

- The SER indicates that AU maintains IT facilities to support its programmes, faculty, and students. This support is done by means of providing software and hardware and maintenance. However, the provided supporting documents do not show the effectiveness of the policies for software license renewal and the frequency of computer machine replacement. Hence, the Panel recommends that AU should develop a mechanism to show the effectiveness of the policies for renewing software licenses and the frequency of computer machine replacement.
- AU has a library that provides physical and electronic resources to faculty and students. It accommodates a collection of standard books and references across all the disciplines. Additionally, it provides faculty and students with access to all its digital resources. However, the SER does not show a study on the effectiveness of the library resources for the MITCS students and faculty. Interviews with staff, indicated that AU assesses the effectiveness of the library resources through conducting student surveys. The library at AU provides access to online journals and reference materials that are particularly useful to the MITCS students. Furthermore, the library Information Centre provides access to reference books for the MITCS students. The Panel confirmed such information during the interviews with the management team and library personnel.
- As stated in the SER and the evidence provided, the College of IT has a laboratory maintenance plan. The Panel finds the plan appropriate and describes the tasks to be completed by the laboratory assistants before and during each semester.
- AU has professional security services to ensure campus security and safety of faculty, staff, and students. The SER presented different measures and facilities that support the safety and security of the university resources and its visitors. Moreover, AU provides health insurance coverage to its students and staff. First Aid kits are placed in different places across the AU campus for easy access. The Panel is of the view that the health and security measures in the AU campus are appropriate.

Indicator 2.4: Management Information Systems

There are functioning management information and tracking systems that support the decision-making processes and evaluate the utilisation of laboratories, e-learning and e-resources, along with policies and procedures that ensure security of learners' records and accuracy of results.

Judgment: Addressed

- The SER indicates that AU has the ADREG system, which is a management information system, to support the university's decision-making. ADREG supports various functionalities and reporting to help administrators and faculty members in their activities and decisions.

- The ADREG system generates reports on the utilization of all classrooms and laboratories with specific day and time that can be used for planning activities. The minutes of a meeting was provided as an evidence to show that ADREG is utilized to identify at-risk students. Moreover, classroom and laboratory utilization reports are generated through ADREG. AU uses Moodle, which is a Learning Management System, to provide e-learning and e-resources to students and academic staff. From interviews with staff, the Panel learned that the ADREG reports are used in the planning of AU activities.
- AU has an Authentication of Certification Policy to ensure the security of students' records. The authentication of certificates is conducted prior to the issuance of certificates by two means: authentication of the required documents and the authentication of issued certificates.
- The SER indicates that AU awards certificates and transcripts in a timely fashion. As explained in the authentication procedure, the certificates pass through a number of approval and verification steps starting with the Graduation Officer and ending with final approval from the President and the University Council. The approval steps are recorded by means of the signatures of the administrators involved as well as direct approval through ADREG by all concerned administrators.

Indicator 2.5: Student Support

There is appropriate student support available in terms of guidance, and care for students including students with special needs, newly admitted and transferred students, and students at risk of academic failure.

Judgment: Addressed

- The Deanship of Student Affairs comprises several directorates to provide services to students such as counselling and guidance, especially for students with difficulty in academic progression. In addition, the deanship provides advising services, admission and registration services and sports activities services. The evidence shows a summary report of the 2020-2021 Students Satisfaction survey on all support services. The Panel is of the view that the library, laboratory, e-learning, e-resources, guidance and care services provided to postgraduate students are appropriate.
- The SER indicates that the Directorate of Professional Relations provides students with career guidance services. The directorate organizes career days to provide students with opportunities regarding their future career. The evidence shows a summary report of the 2020-2021 Students Satisfaction survey on all support services. The Panel is of the view that the career guidance services provided to students are appropriate.
- The Deanship of Graduate Studies holds an orientation day every semester to introduce new students to the student services available at AU and university procedures. It was

confirmed during the interview with the staff and students that the induction services for the newly admitted students is in place and is appropriate.

- AU has an Academic Advising Policy in place to support students in progressing through their study plans and thus achieve the graduate attributes. The policy states that every student must meet his/her advisor at least once per semester to discuss the student's academic progress. This was confirmed in interviews with faculty and students. The Panel is satisfied that the academic advising is appropriate and support achieving the PILOs.
- During the interview with the programme management, the Panel was informed that AU's policies promote equality between students in terms of admission regardless of gender. AU Human Resource policies and procedure take into consideration the needs of its employees, men and women, in line with the Bahraini law and regulatory requirements. In addition, AU has set a policy to support students with special needs to help them integrate easily into the university system.
- The Academic Advising Policy stipulates that more frequent meetings with an advisor are required if a student is at risk or on probation. After being identified with the help of ADREG, at-risk students are provided with extra support such as extra help session, counselling and more meeting sessions with the thesis supervisor. AU formed a special committee called the Special Needs Admission Committee to investigate the applications of students with special needs. The Panel is of the view that the policy to support at-risk students is appropriate and adequate to postgraduate students.
- The SER does not provide information on how the support services to students is assessed or on how they can be improved. The Panel noted during interviews with staff, that a Students' Satisfaction survey is used to collect feedback on the provided services, however no evidence is shown on the existence of a mechanism to improve these services. Therefore, the Panel recommends that AU should develop a formal mechanism for improving the support services based on the collected feedback of its stakeholders.

Standard 3

Academic Standards of Students and Graduates

The students and graduates of the programme meet academic standards that are compatible with equivalent programmes in Bahrain, regionally and internationally.

Indicator 3.1: Efficiency of the Assessment

The assessment is effective and aligned with learning outcomes, to ensure attainment of the graduate attributes and academic standards of the programme.

Judgment: Addressed

- The SER states that the MITCS programme applies a variety of assessment methods in each course and the evidence submitted in a sample of CILO assessment file supports the statement. These methods include final written examinations, tests and mini projects that assess the programming competency and the student's problem-solving capability in small project tasks. Each applied assessment method contributes towards the final grade as seen in the course syllabus and the sample CILO assessment file. The Panel acknowledges that the assessment methods applied in the programme are valid, reliable and appropriate for assessing the level of complexity expected at the Master's degree level; and are in line with current good practices that meet the academic standards of the programme.
- The SER states that there are mechanisms in place, in the form of internal and external verification and moderation and through the provision of the curriculum skills map to ensure the alignment of assessments with the ILOs and graduate attributes. The curriculum skill map provides the ILOs covered in each IT course within this programme. The PILOs and consequently the CILOs are aligned, to ensure achievement of the graduate attributes within the MITCS programme. In addition, in the interviews with the external evaluators, they confirmed the alignment of the assessment tools with the ILOs and the graduate attributes in the courses that they had assessed. On further inspection of the sample course ITCS509, the Panel found that there is alignment between the assessment and the CILOs.
- The SER states that there are mechanisms to ensure that the graduates' achievements meet the PILOs. The PILOs assessment is conducted via an end-of-semester PILO evaluation exercise through the aggregation of each CILO evaluation, and the CILOs that do not contribute to the achievement of the PILOs are discussed at the departmental level as a way of providing feedback to improve the course content. This was supported by the evidence submitted. The Assessment Manual states that it is the responsibility of the course instructor/coordinator to ensure that each assessment method and the assessment items are aligned to the ILO. Interviews with the academic staff who gave an account of

the procedure they undertake when preparing for their assessment materials concurred with the statements in the SER. The supporting evidence illustrated the students' achievement in a CILO assessment. During interviews with the academic staff, they stated that the mechanism to ensure that the graduates' achievement is aligned to PILO is conducted via an end-of- semester PILO evaluation exercise and that it uses aggregates of each CILO evaluation to make the PILO assessment. The achievement of PILO for several semesters is illustrated in the MITCS PILO attainment matrix. The Panel acknowledges that an appropriate mechanism is in place to ensure that graduates' achievements are aligned to the PILOs.

- The Panel notes that there are mechanisms to monitor the implementation and improvement of assessments. The statements made by the academic staff interviewed concurred with the submitted evidence. From reports of internal moderation of assessment, end-of-semester PILOs' evaluation exercise and feedback from the external examiners on assessment, improvements on course assessment methods and content are made after being discussed in the programme/department meetings. The Panel acknowledges that the mechanisms to monitor the implementation and improvement of assessments are in place.

Indicator 3.2: Academic Integrity

Academic integrity is ensured through the consistent implementation of relevant policies and procedures that deter plagiarism and other forms of academic misconduct (e.g. cheating, forging of results, and commissioning others to do the work).

Judgment: Addressed

- The policy and procedures related to academic integrity are stated clearly in the AU Assessment Manual and cover academic integrity of the whole range of assessments, including matters pertaining to ethics and research. The SER states that these policy and procedures are disseminated to students and staff through the Graduate Guidelines – Academic Misconduct. Academic staff and students interviewed showed awareness of the existence of the policy on academic integrity and demonstrated some knowledge about the procedures of academic misconduct stated in the Graduate Guidelines. From interviews with students, the Panel notes that information on academic integrity is also delivered during the orientation week and through constant reminders to students by the academic staff. The Panel acknowledges that the programme has appropriate academic integrity and procedures in place.
- The SER presents a description of sound processes for deterring and detecting plagiarism and academic misconduct, which are consistently implemented. The academic misconduct detection process is clearly defined for all types of assessments in the AU Assessment Manual V.5 as well as in the Guidelines for Supervision of Dissertations. The responsibility of detecting academic misconduct lies with the academic faculty member for course work and the supervisor for dissertation. Faculty members and students who

were interviewed showed an awareness of these processes, but their knowledge is more focused on plagiarism rather than on all forms of academic misconduct. The Panel acknowledges that the programme has sound processes for deterring and detecting plagiarism, however, it has observed that not much attention is paid to other forms of academic misconduct, although they are covered in the policy and procedures. The Panel suggest that the programme place more emphasis on the detection and prevention of all forms of academic misconducts such as freeriding, collusions and recycling collusion in order to produce a future generation of professionals with academic and professional integrity.

- The MITCS programme relies on the use of a plagiarism detection system (Turnitin) to detect acts of plagiarism in students' assignments and reports and prevent the students from conducting plagiarism. Class assignments such as reports are subjected to plagiarism detection using Turnitin to determine the similarity index after students' submission. For dissertation or project work, the submission of the research proposal and thesis must include a report on the Turnitin similarity index of less than 15%. This enculturation has made the programme successful in preventing plagiarism. The Panel acknowledges the success of the College of IT in combatting plagiarism in the programme. However, there is no formal report on the incidence of other forms of academic misconduct such as those stated in the policy (acts of data falsification, tacit personation, freeriding collusion, recycle collusion and active personation). To present a comprehensive view of academic integrity, the Panel suggests that the College of IT keeps a formal record of academic misconduct and plagiarism every semester even when there is no occurrence of formal cases. This record will not only provide a summary report on incidences of the various types of academic misconduct but can also provide statistics of similarity index for each course requiring plagiarism detection. The record will thus assist the programme to evaluate the trend of plagiarism and academic misconduct.

Indicator 3.3: Internal and External Moderation of Assessment

There are mechanisms in place to measure the effectiveness of the programme's internal and external moderation systems for setting assessment instruments and grading students' achievements.

Judgment: *Partially Addressed*

- The Panel noted there are formal and appropriate procedures for the internal moderation of assessment, and these are made available in the AU's Assessment Manual and the Internal and External Moderation Policy. Internal moderators are selected based on clear criteria published in the Assessment Manual. As the programme applies a variety of assessment methods, the Panel learned from the interviewed academic staff that assessments whose weightage are 10% or less, are not moderated. The Panel observed an execution of an internal moderation exercise where the internal moderators' feedback on the pre-assessment materials were given to improve the quality and appropriateness of the assessment materials and the action taken after feedback of the pre-assessment was given. The evidence for the pre-assessment internal moderation is seen in a sample of

moderation shown in the Internal Moderation Forms and sample pre-assessment internal moderation of the course ITC514. For the post-assessment internal moderation, there is some evidence of the practice as shown in the sample for the course ITC509. However, the Panel observed that the practice of post-assessment internal moderation is loose as the criteria of fairness and consistency of the grading is not addressed. Therefore, the Panel recommends that the internal moderation practice especially for the post-assessment needs to be improved to enable the feedback on the consistency and fairness of the grading.

- The Panel observed that the internal moderation contributes toward the improvement of the courses and the programme through the implementation of a pre-assessment internal moderation. Feedback from the pre-assessment internal moderation improves the quality and appropriateness of the assessment. The outcomes of the internal moderation process are monitored as part of the annual monitoring process and periodic review process and eventually become part of the improvement of the courses and the programme.
- The SER indicates that there are formal mechanisms for the evaluation of the effectiveness of the programme's internal moderation. Examples provided as evidence, include the Minutes of College Council meetings on reducing the major assessments weight to be verified and moderated and a sample of Internal Verification Forms. The Panel acknowledges that the formal mechanism for evaluating the effectiveness of the programme's internal moderation is in place and meets the relevant professional and academic standards.
- The procedure for external moderation follows the procedures described in the AU Assessment Manual V.5 – Internal and External Moderation Policy. The external moderation is conducted by the programme external examiner who is selected based on the Criteria for External Assessor Appointment and is appointed for a term of two semesters. The external moderation exercise takes place during the post assessment where the external examiner provides feedback on the fairness and consistency of grading, the appropriateness of the difficulty level/complexity of assessment. A sample of external moderation of the final examination was provided as evidence and the interview with the current and previous external examiners confirmed that the external moderation takes place.
- The external moderation also provides a mechanism that contributes towards the improvement of the courses and the programme. The evidence for the existence of the mechanism is observed based on the reports of the external moderation and the interview with the present and past external examiners. The external examiners interviewed conveyed their general satisfaction with the quality and appropriateness of the assessment materials and the consistency and fairness of the grading while acknowledging that there are also some weaknesses. Therefore, it is evident that the external moderation process contributes towards the overall assessment process and that outcomes are monitored as part of the annual monitoring process and periodic review process.

- There are mechanisms for evaluating the effectiveness of the programme's external moderation which are monitored by the Centre for Accreditation and Quality Assurance (CAQA) in coordination with the Teaching, Learning and Assessment Committee (TLAC) that is chaired by the Vice President for Academic Affairs. The issue of the effectiveness of the external moderation is addressed in the TLAC meetings. Evidence is seen in the external examiner forms and the report of the external moderation. In the interview, the external examiners expressed their satisfaction that their feedback regarding the weaknesses in the quality and appropriateness of the assessment materials are well received by the programme management and the College of IT as the issues were raised and discussed in department and the TLAC meetings and actions for future improvement are being taken.

Indicator 3.4: Work-based Learning

Where assessed work-based learning takes place, there is a policy and procedures to manage the process and its assessment, to assure that the learning experience is appropriate in terms of content and level for meeting the intended learning outcomes.

Judgment: Not Applicable

Indicator 3.5: Capstone Project or Thesis/Dissertation Component

Where there is a capstone project or thesis/dissertation component, there are clear policies and procedures for supervision and evaluation which state the responsibilities and duties of both the supervisor and students, and there is a mechanism to monitor the related implementations and improvements.

Judgment: Addressed

- The research component of the curriculum, known as Dissertation in Information Technology and Computer Science, is a 12-credits non-taught course, which account for about one third of the total credits needed to graduate. The criteria set for the approval of the dissertation topics/titles include, that the topics must be in the area of active research of the latest technologies in the IT and Computer Science field and that they should serve the Bahrain market. The Panel notes that the criteria set are relevant and aligned to the mission and strategic goals of AU and contribute effectively to the PILOs.
- To enable the effective delivery of the dissertation component, the programme abides by the AU policies and procedures. These policies and procedures clearly state the role of supervisors and students and are communicated to all stakeholders in a print form as well as through the AU website. This was confirmed in the interviews with the students and supervisors. The Panel acknowledges that the programme has clearly stated the roles and responsibilities of supervisors and students in the dissertation and the roles and responsibilities have been made known to both parties.

- The SER states that the monitoring and review of the students' dissertation progress is handled by the programme coordinator to ensure that all supervisory meetings are recorded in the Admission and Registration System (ADREG). A sample of the Master's Supervision Record from the ADREG System shows the record of supervisory meetings, which can be accessed by both the supervisors and programme coordinator. The supervisors have access to record the meeting while the programme coordinators have access to monitor the dissertation progress. The monitoring covers issues of supervisors, assessment forms and final dissertation. The thesis supervision process described in the SER concurred with the interviewed supervisors' statements on the thesis supervision process. The supervisors also acknowledged that the programme monitors the process of dissertation supervision through regular meetings between students and their supervisors that are recorded in ADREG. Students and alumni interviewed acknowledged that they have regular meetings with their supervisors to report on and discuss the status of their progress. They conveyed their satisfaction with the availability of the research resources they require for their research which includes reference materials and the infrastructure to conduct their research (computer laboratory, computers, internet access, software). The external examiners in their comments also mentioned some form of a mechanism for monitoring related implementations and improvements of this process. As part of the monitoring process, the programme incorporates the Postgraduate Symposiums organized by the college as a venue where students can present their work and receive feedback from a panel of reviewers.
- The SER indicates that the mechanism for the assessment of the dissertation component is appropriate and similar to the assessment mechanism of equivalent programmes in other universities. The dissertation is examined through an oral examination and an examination of the written dissertation. The evaluation criteria used are mostly relevant except that the criterion of innovativeness is not included as an evaluation criterion. The Panel was informed during the interview with the academic staff that the criterion of innovativeness was the pre-condition used to approve a research proposal to ascertain that all students' dissertation work is innovative. The Panel perceived this as a missed opportunity to record explicitly the innovativeness of students' research work, as the issue of innovativeness may not arise at the proposal stage but may appear as the research progresses. There is only a pass/fail grade for the dissertation and the passing mark is 70. The external examiners interviewed acknowledge that the quality of research work is generally good, with a few exceptionally good ones worthy of a journal publication. The Panel suggests that the programme includes the criteria of innovativeness in the evaluation form.

Indicator 3.6: Achievements of the Graduates

The achievements of the graduates are consonant with those achieved on equivalent programmes as expressed in their assessed work, rates of progression and first destinations.

Judgment: *Partially Addressed*

- Based on the scrutiny of students' assessments (examination and dissertation), the Panel notes that the level of students' achievements is appropriate. The Panel also notes that from the students' dissertation, AU is able to produce worthy academic publications in academic journals.
- The ratios of admitted students to successful graduates is satisfying as reflected in the provided evidence that records the graduate's length of study, retention and year-on-year progression. The mean length of study for the graduates from the cohorts 2018/2019 and 2019/2020 is 2.3 years compared to the study duration of 2.0 years. The external examiners interviewed said that this may be due to the actual duration needed to complete the dissertation which usually exceeds the duration allocated. Hence, the Panel suggests that AU further improves the current ADREG system used in documenting the students' dissertation progress by including functions similar to those used in the PhD programme offered by the AU-BU partnership which documents students' research progress through the utilization of a digital performance dashboard that not only records the student's dissertation work progress but issues a warning status if the progress is slow, to alert both the student and supervisor.
- The retention rate for the cohorts 2017/2018, 2018/2019, 2019/2020 and 2020/2021 are 91.6%, 93.3%, 100.0% and 100.0% respectively reflecting a high retention rate. Year on year progression on current students shows more than 90% of the students attained a CGPA higher than 3.00. The Panel acknowledges that the record of successful graduates in the programme is above satisfactory.
- Based on the interview with the stakeholders, the Panel notes that the graduates of this programme are able to secure jobs in Bahrain's IT job market and some are holding high positions in the government sector. The Panel suggests that the programme collect more data on students' achievement during and after their course of study.
- There is lack of evidence that shows students' progression and that graduate destinations data is used to ensure that academic standards are met. Although some efforts were made to collect graduate destination data through the Alumni Club, still these were not comprehensive. Therefore, the Panel recommends that AU should exert more effort to collect data on students' progression and graduate destinations and use them as evidence to ensure that academic standards are met.
- There is some evidence of graduate satisfaction and employer satisfaction with the graduates' profile. AU conducted an employer satisfaction survey in 2013, with four employers of the MITCS graduates as a sample. The results of the survey showed a high level of employers' satisfaction. However, this evidence is outdated. The Panel recommends that AU should develop a new employer satisfaction survey and conduct this survey regularly.

Standard 4

Effectiveness of Quality Management and Assurance Academic Standards of Students and Graduates

The arrangements in place for managing the programme, including quality assurance and continuous improvement, contribute to giving confidence in the programme.

Indicator 4.1: Quality Assurance Management

There is a clear quality assurance management system, in relation to the programme that ensures the institution's policies, procedures and regulations are applied effectively and consistently.

Judgment: Addressed

- The AU has developed clear Quality Assurance (QA) policies and procedures since 2010. The recent version of the QA Manual was approved by the University Council in April 2019. It is a university-wide document that includes all the relevant QA policies and regulations for the Institution and its academic programmes. The QA Manual was updated in 2012, 2016, 2019 and recently in April 2020. Based on the interview with staff, the Panel notes that the policies and procedures are accessible through the internal SharePoint website for all staff and faculty.
- AU Quality Assurance Management System (AUQAMS) is managed by CAQA which is the responsible unit for QA management. It coordinates QA activities and quality-related issues in teaching as well as interactions with the Accreditation and Quality Assurance Committee (AQAC). End-of-semester reports and actions toward improvement of the programme are discussed at the departmental council meetings. Based on the interviews with the College leadership and QA teams as well as the submitted evidence from meeting minutes and AU policy and procedures. The Panel notes that although the College is applying the university AUQAMS, there is no sufficient evidence to support systematic monitoring of the quality assurance measures. The Panel, therefore, recommends that the effectiveness of the QA measures in relation to the MITCS programme should be systematically monitored and improved.
- As per the AU programme review process, the Department reports to the College Council for review and endorsement. The monitoring duties are managed by CAQA and TLAC. The outcomes of the monitoring activities are communicated to relevant stakeholders. It was confirmed during the interviews with the staff from the College of IT that the monitoring activities and their outcomes are communicated to them. The Panel is satisfied with the implementation of policies and procedure in the College of IT. The implementation of the programme review process is consistent with the University policies and procedures.

- The University's policies and procedures are accessible to AU community through the AU Centre for Information and Documentation ACID. Academic and support staff can also find the procedures and policies in the staff handbook. There is evidence of faculty's awareness and involvement in the QA policies and procedures. The provided evidence shows a summary report of the academic staff involvement and satisfaction with QA and accreditation activities; the report indicates that the level of satisfaction among the surveyed respondents (40) is above 80%. During interviews, the Panel notes that faculty members are aware of the regular updates of the procedures and policies regarding the QA but lack sufficient knowledge of the requirements of annual and periodic review. Therefore, the Panel recommends providing more training to academic staff on the requirements of annual and periodic reviews.
- AUQAMS is monitored by the CAQA and AQAC as well as by the TLAC. Moreover, AU has a newly established unit, called the Legal Affairs and Compliance Unit, to ensure that all decisions and activities of the University are compliant with the regulations and guidelines.

Indicator 4.2: Programme Management and Leadership

The programme is managed in a way that demonstrates effective and responsible leadership and there are clear lines of accountability.

Judgment: Addressed

- AU and the College of IT have an appropriate organizational chart that clearly shows the name and position of staff responsible for the MITCS programme. The University and the College organizational structures are shown in the provided evidence. In addition, the College of IT has a committee for the management of the MITCS programme, which conducts regular meetings with recorded minutes as evidenced by the supporting documents. The committee has four members; these are the programme coordinator (Dean of the College), Chairperson of the IT Department (programme coordinator of the Bs in Information Technology), the programme coordinator for the Bs in Multimedia Systems and the Chairperson of the computer engineering programme.
- The reporting lines are clear starting from the Department Council through the College Council and up to the University Council. The academic standards of the programme are discussed at several levels. During the virtual site visit, the Panel noted that the Dean of the College is at the same time the MITCS Programme Coordinator. The Panel finds that this arrangement of having two roles assumed by one personality may create confusion and conflicts with regards to responsibilities and accountability and hence, needs to be addressed as a matter of urgency. Therefore, the Panel recommends that the AU should appoint a coordinator for the MITCS programme other than the Dean.
- The AU Bylaws defines clear responsibilities for the various academic positions and committees. The key stakeholders in the College are the Dean, the Chairperson of IT

Department, and the Programme Coordinator. The evidence provided describes the role and academic responsibilities of both the Dean and the Chairperson. In addition, the management of the programme is assisted by a set of committees which facilitate and link the decision-making process across the College and University. Both the Department Council and the College Council are Committees inside the College with defined terms of reference. Moreover, the roles and responsibilities of other entities such as the College Advisory Board and the Information and Communication Technology ICT Centre are clearly defined. The Panel notes that the terms of reference of the College Advisory Board is outdated (from 2013). Therefore, the Panel recommends that the AU Bylaws should be reviewed periodically.

- The SER clearly specifies that the academic responsibility and custodianship of academic standards lie with the Chairperson of the Department and the Dean, who acts, at the same time, as the MITCS programme coordinator. The academic standards on proposing and approving curriculum-related issues are made by the College curriculum committee and the University curriculum committee. The minutes of both committees are shown in the evidence provided. Although there is a clear description of the academic responsibility and custodianship indicating that the task of maintaining academic standards rests at different levels, the Dean holds dual responsibility (refer to recommendation above).
- As per the professional development activities report and interviews with the faculty members, the Panel notes that the programme management team attended several professional development activities to ensure effective leadership. The Panel acknowledges the effort exerted by the programme management team in striving for continuous improvement in leadership.

Indicator 4.3: Annual and Periodic Review of the Programme

There are arrangements for annual internal evaluation and periodic reviews of the programme that incorporate both internal and external feedback, and mechanisms are in place to implement recommendations for improvement.

Judgment: Addressed

- The SER indicates that the MITCS programme follows the AU QA policy for periodic review of the academic programmes. The end of semester report is reviewed and endorsed by the Department and College Councils before it gets analysed by the CAQA.
- The CAQA in coordination with the TLAC serves as a monitoring authority to ensure the implementation of the recommendations coming from the end-of-semester reports. CAQA monitors the implementation of the recommendations of the end-of-semester reports. The evidence provided in the summary report analysis of the programme end-of-semester report, the minutes of TLAC committee, and IT Department Council minutes meeting show examples of suggestions for programme improvement, which were discussed in several college and university level committees' meetings.

- AU has created policy and procedures for developing, reviewing, and closing postgraduate programmes. The current QA Manual includes a chapter about academic programme review frameworks. The programme review process was created to ensure continued currency of the programme, where reviews are carried out as part of the three-year programme review cycle. The Panel notes that the last review of the MITCS programme was conducted in 2019; the resultant recommendations of this review process were discussed and approved in one of the department council meetings as evidenced by the department meeting minutes of March 2020.
- The periodic programme review contains several inputs including, benchmarking and feedback from external evaluators and advisory board, feedback of students, alumni, employers, and graduates. A recent benchmarking study for the MITCS programme with Master programmes of three universities showed that the course structure of the MITCS programme matches those of the universities involved in the benchmarking study. The Panel notes that the advisory board provides feedback to improve the MITCS programme. There is also evidence to confirm that the detailed action plan for the MITCS programme review was based on the stakeholders' feedback. The Panel acknowledges that the MITCS periodic review process includes input from a wide range of appropriate stakeholders and that their feedback is included in an action plan.
- The CAQA monitors the implementation of the periodic review of all programmes at AU as per the AU QA Manual. A detailed action plan was reported based on the outcomes of university-wide procedures for the MITCS programme. The Panel acknowledges the MITCS successful attempts for closing the quality assurance loop based on the outcomes of the programme reviews, as for example in introducing new courses to the programme such as the Internet of Things and Cyber Security courses. However, the systematic monitoring of the effectiveness of these improvements based on the periodic review process is not clear. Therefore, the Panel recommends monitoring the effectiveness of these improvements based on the periodic review.

Indicator 4.4: Benchmarking and Surveys

Benchmarking studies and the structured comments collected from stakeholders' surveys are analysed and the outcomes are used to inform decisions on programmes and are made available to the stakeholders.

Judgment: Partially Addressed

- The MITCS programme conducted a benchmarking study with other similar programmes in Bahrain, regionally and internationally. The SER states that the ACM/IEEE model curriculum was considered for the benchmarking. However, the benchmarking with ACM\IEEE model curriculum was not supported by the submitted evidence or during the interviews with faculty. See recommendation in the bullet point below.

- The programme benchmarking was discussed in several meetings at the college and department levels in order to endorse the changes recommended by the benchmarking reports. The Panel notes that the benchmarking outcomes were considered for the programme enhancement in general. However, there was no sufficient evidence to show consistent adherence to the AU's policy in relation to the benchmarking process and its monitoring. Panel recommends that the programme should adhere to the university benchmarking policy and procedures for consistency purpose and should extend the scope of the benchmarking to cover areas such as the study plan and course contents and ensure that ACM/IEEE reference curriculum are considered.
- The College of IT relies on the Centre of Measurement and Evaluation for conducting regular university and programme surveys for students, alumni, advisory board members and employers. The College minutes of meetings indicate that summary reports of the conducted surveys were analysed. The Panel believes that surveys constitute an important input for the decision makers to initiate some changes in the programme or to enhance its services. Therefore, the Panel encourages the College to use the outcomes of the analysed surveys for decisions related to the programme improvement.
- As per the SER and based on the interview with the academic staff, the programme uses several mechanisms such as meetings, informal gatherings or even in the classroom to communicate improvements made to the programme to all stakeholders including students. The Panel notes that programme improvements were also communicated to members of the advisory board and recorded in the meeting minutes.
- From the evidence provided, surveys' summary reports and interviews with various groups of stakeholders, the Panel notes that the stakeholders are satisfied with the programme and improvements made based on their feedback. The Panel acknowledges the fact that the stakeholders are satisfied with the graduates of the MITCS programme.

Indicator 4.5: Relevance to Labour market and Societal Needs

The programme has a functioning advisory board and there is continuous scoping of the labour market and the national and societal needs, where appropriate for the programme type, to ensure the relevancy and currency of the programme.

Judgment: Addressed

- The College of IT has an external Advisory Board appointed by the University Council. The Advisory Board has clear terms of reference as shown in the Roles and Responsibilities of the College External Advisory Board. The Advisory Board's members are mainly from the IT domain who hold various managerial positions in the country. The Panel noted that the appointment of the Advisory Board was on May 2017 and evidence was not provided for its reappointment after its two-years term expired. Hence, the Panel recommends that the College should adhere to the ToR specified for the College Advisory Board with respect to selection of its members and the period of their appointment.

- A detailed example of feedback from the Advisory Board is shown in the evidence provided. The Advisory Board suggested improvements in the programme structure, such as introducing new courses. The new courses added are Computer Architecture, Parallel and Distributed Computing as well as some electives such as Internet of Things and Machine Learning. The Panel notes that these recommended programme changes were approved by the University Council and implemented by the programme.
- An informal programme market needs study and employability skills was recently conducted to ensure the compliance of the programme with the labour market. AU has a Policy for Needs Assessment. The Panel notes that some courses, such as the Artificial Intelligence course, were revised based on the results of the market needs. During the interviews with the employers, the Panel notes that the employers are satisfied with the graduates of the MITCS programme.
- Based on the interview with the programme management team and feedback from the Advisory Board, the Panel learned that apart from an informal study, no formal market research has been conducted. The informal study for the market needs analysis does not follow a well-defined structure and guidelines. Therefore, the Panel recommends that the College of IT should develop a formal mechanism to collect and analyse data about the market needs to align the programme with the labour market needs.
- During the interviews with the programme management team, the Panel noted that the College tries to maintain the MITCS programme up-to-date and aligned to the market needs. Recently, the programme structure was revised and approved for implementation, starting from 2020/2021. The Panel notes, however, that the main triggers for such programme revision were the reviews and feedback from various stakeholders of the programme. Please refer to the recommendation in the preceding bullet point.

V. Conclusion

Taking into account the institution's own self-evaluation report, the evidence gathered from the interviews and documentation made available during the virtual site visit, the Panel draws the following conclusion in accordance with the DHR/BQA *Academic Programme Reviews (Cycle 2) Handbook, 2020*:

There is Confidence in the Master's Degree in Information Technology and Computer Science (MITCS) of College of Information Technology offered by Ahlia University (AU)

In coming to its conclusion regarding the four Standards, the Panel notes, with appreciation, the following:

1. The effort exerted by the College to provide its faculty members with the opportunity to be trained as professional postgraduate supervisors.

In terms of improvement, the Panel recommends that the AU should:

1. Revise the mapping between the generic graduate attributes and the PILOs to ensure clear inclusion of all graduate attributes in the PILOs.
2. Revise the PILOs to ensure that they clearly reflect all the programme aims.
3. Benchmark the PILOs with those of similar international programmes.
4. Develop a formal mechanism to revise and measure CILOs and PILOs with compound outcomes.
5. Revise the teaching and learning methods to ensure that they are based on research findings.
6. Develop a formal mechanism to ensure the participation of students in independent learning.
7. Develop a formal mechanism for assessing the students' English language entry level.
8. Develop a formal a mechanism to measure the effectiveness of the research policy.
9. Consider reducing the teaching load of faculty to give them more time to conduct quality research.
10. Develop a workload policy that is in line with regional and international standards.
11. Develop a mechanism to show the effectiveness of the policies for renewing software licenses and the frequency of computer machine replacement.
12. Develop a formal mechanism for improving the support services based on the collected feedback of stakeholders.

13. Improve the internal moderation practice especially for the post-assessment to enable feedback on the consistency and fairness of the grading.
14. Exert more effort to collect data on students' progression and graduate destinations and use them as evidence to ensure that academic standards are met.
15. Develop a new employer satisfaction survey and conduct this survey regularly.
16. Systematically monitor and improve the effectiveness of the QA measures in relation to the MITCS programme.
17. Provide more training to academic staff on the requirements of annual and periodic reviews.
18. Appoint a coordinator for the MITCS programme other than the Dean.
19. Review periodically the AU Bylaws.
20. Monitor the effectiveness of improvements made based on the periodic review.
21. Adhere to the university benchmarking policy and procedures for consistency purpose and extend the scope of the benchmarking to cover areas such as the study plan and course contents and ensure that ACM/IEEE reference curriculum are considered.
22. Adhere to the ToR specified for the College Advisory Board with respect to selection of its members and the period of their appointment.
23. Develop a formal mechanism to collect and analyse data about the market needs to align the programme with the labour market needs.