

الهيئة الوطنية
للمؤهلات وصنمان جودة التعليم والتدريب
National Authority for Qualifications &
Quality Assurance of Education & Training



Directorate of Higher Education Reviews

Programmes-within-College Reviews Report

**Bachelor of Science in Informatics Engineering
College of Engineering
AMA International University
Kingdom of Bahrain**

**Date Reviewed: 6-8 December 2015
HC073-C2-R073**

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Acronyms

ABET	Accreditation Board for Engineering and Technology
AMAAT	AMA admission test
AMAIU	AMA International University
BSIE	Bachelor of Science in in Informatics Engineering
CILOs	Course Intended Learning Outcomes
CIS	Campus Information System
CQI	Continuous Quality Improvement
CRC	Curriculum Review Committee
DHR	Directorate of Higher Education Reviews
EAC	Engineering Accreditation Commission
FDP	Faculty Development Plan
GPA	Grade Point Average
HEC	Higher Education Council
HRD	Human Resources Department HRD
HRMS	Human Resource Management System
ILO	Intended Learning Outcome
IQA	Internal Quality Audits
MIS	Management Information Systems
PAST	Performance Appraisal Systems for Teachers
PD	Professional Development

PEO	Programme Educational Objectives
PIAP	Programme Industry Advisory Panel
PILOs	Programme Intended Learning Outcomes
PLAO	Placement Linkage and Alumni Office
QA	Quality Assurance
QAAO	Quality Assurance and Accreditation Office
QMS	Quality Management System
QQA	National Authority for Qualifications & Quality Assurance of Education & Training
SER	Self-Evaluation Report
SES	Self-Evaluation Survey
SO	Student Outcomes
TBI	Teacher's Behaviour Inventory
TLA	Teaching learning and Assessment
TOS	Table of specifications
WBL	Work-based Learning

The Programmes-within-College Reviews Process

A. The Programmes-within-College Reviews Framework

To meet the need to have a robust external quality assurance system in the Kingdom of Bahrain, the Directorate of Higher Education Reviews (DHR) of the National Authority for Qualifications & Quality Assurance of Education & Training (QQA) has developed and is implementing two external quality review processes, namely: Institutional Reviews and Programmes-within-College Reviews which together will give confidence in Bahrain's higher education system nationally, regionally and internationally.

Programmes-within-College Reviews have three main objectives:

- to provide decision-makers (in the higher education institutions, the QQA, the Higher Education Council (HEC), students and their families, prospective employers of graduates and other stakeholders) with evidence-based judgements on the quality of learning programmes
- to support the development of internal quality assurance processes with information on emerging good practices and challenges, evaluative comments and continuing improvement
- to enhance the reputation of Bahrain's higher education regionally and internationally.

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

Indicator 1: The Learning Programme

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

Indicator 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 3: Academic Standards of the Graduates

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

Indicator 4: Effectiveness of Quality Management and Assurance

The arrangements in place for managing the programme, including quality assurance, give confidence in the programme.

The Review Panel (hereinafter referred to as ‘the Panel’) states in the Review Report whether the programme satisfies each Indicator. If the programme satisfies all four Indicators, the concluding statement will say that there is ‘confidence’ in the programme.

If two or three Indicators are satisfied, including Indicator 1, the programme will receive a ‘limited confidence’ judgement. If one or no Indicator is satisfied, or Indicator 1 is not satisfied, the judgement will be ‘no confidence’, as shown in Table 1 below.

Table 1: Criteria for Judgements

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

B. The Programmes-within-College Reviews Process at the AMA International University

A Programmes-within-College review of the programmes offered by the College of Engineering at AMA International University was conducted by the DHR of the QQA in terms of its mandate to review the quality of higher education in Bahrain. The site visit took place on 6-8 December 2015 for the academic programmes offered by the College, these are: Bachelor of Science in Informatics Engineering and Bachelor of Science in Mechatronics Engineering.

This Report provides an account of the review process and the findings of the Panel for the Bachelor of Science in Informatics Engineering based on the Self-Evaluation Report (SER), and appendices submitted by AMA International University (AMAIU), the supplementary documentation made available during the site visit, as well as interviews and observations made during the review site visit.

AMAIU was notified by the DHR/QQA on 15 April 2015 that it would be subject to a Programmes-within-College reviews of the programmes offered by the College of Engineering with the site visit taking place in December 2015. In preparation for the review, AMAIU conducted a self-evaluation of the two programmes offered by the College and submitted the SERs with appendices on the agreed date on 1 September 2015.

The DHR constituted a panel consisting of experts in the academic field of informatics engineering and in higher education who have experience of external programme quality reviews. The Panel comprised four external reviewers.

This Report provides an account of the review process and the findings of the Panel for the Bachelor of Science in Informatics Engineering based on:

- (i) analysis of the Self-Evaluation Report and supporting materials submitted by the institution prior to the external peer-review visit
- (ii) analysis derived from discussions with various stakeholders (faculty members, students, graduates and employers)
- (iii) analysis based on additional documentation requested and presented to the Panel during the site visit.

It is expected that AMAIU will use the findings presented in this Report to strengthen its Bachelor of Science in Informatics Engineering. The DHR recognises that quality assurance is the responsibility of the higher education institution itself. Hence, it is the right of AMAIU to decide how it will address the recommendations contained in the Review Report. Nevertheless, three months after the publication of this Report, AMAIU is required to submit to the DHR an improvement plan in response to the recommendations.

The DHR would like to extend its thanks to AMAIU for the co-operative manner in which it has participated in the Programmes-within-College review process. It also wishes to express its appreciation for the open discussions held in the course of the review and the professional conduct of the faculty and administrative staff of the AMAIU.

C. Overview of the College of Engineering

AMA International University-Bahrain was established in September 2002 as a member of the AMA Education System, which is based in the Philippines. Its mission as a private international university is to provide access to quality education through its commitment to outcome-based instruction, research and community engagement to produce highly skilled and competent graduates dedicated to life-long learning, and responsive to the growing socio-economic needs of Bahrain and the region. The College of Engineering was established in 2002 to produce highly competent, multi-disciplinary specialists in the field of engineering who have problem solving skills to meet the diverse demands of the industries and the enthusiasm for conducting research. Directly under the College of Engineering, two programmes are offered, being Bachelor of Science in Informatics Engineering and Bachelor of Science in Mechatronics Engineering. The College of Engineering has sought accreditation for its programmes with the Accreditation Board for Engineering and Technology (ABET)

and both of its programmes were accredited under the 'General Criteria Only' in 2013. At the time of the site visit, the College of Engineering had 21 full-time, five part-time academic staff and two full-time administrative staff. The total number of students in the College was 533 students. The majority of registered students are from Bahrain while others are from neighbouring countries as well as internationally

D. Overview of the Bachelor of Science in Informatics Engineering

The Bachelor of Science in Informatics Engineering (BSIE) programme is offered by the College of Engineering at AMAIU. The programme commenced at the time of AMAIU's establishment to produce graduates who can practice as successful informatics engineers for the advancement of society and to promote professionalism in informatics engineering practice. The programme had its first intake in 2002, where 23 students were registered in both first and second semesters. In 2005, the programme graduated seven students in its first batch. The BSIE curriculum was revised to produce updated versions in 2008-2009, 2010-2011 and 2013-2014 in response to local and regional market needs. At the time of the site visit, the total number of graduates were 321, the programme had 160 registered students and there were 10 faculty members contributing to this programme.

E. Summary of Review Judgements

Table 2: Summary of Review Judgements for the Bachelor of Science in Informatics Engineering Programme

Indicator	Judgement
1: The Learning Programme	Does not satisfy
2: Efficiency of the Programme	Does not satisfy
3: Academic Standards of the Graduates	Does not satisfy
4: Effectiveness of Quality Management and Assurance	Satisfies
Overall Judgement	No Confidence

1. Indicator 1: The Learning Programme

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

- 1.1 The College of Engineering at the AMAIU has goals and objectives, which are derived from the university's mission, that stipulate producing highly competent graduates with problem solving skills to meet the demands of industry and who have the enthusiasm for conducting research. The BSIE programme has a clear academic planning framework, which includes the Programme Educational Objectives (PEOs), programme aims, and Programme Intended Learning Outcomes (PILOs). The programme aims state that graduates would 'practice as successful informatics engineer for the advancement of society' and 'promote professionalism in informatics engineering practice', which are aligned with the university's mission and the college objectives and are appropriate for the level of the programme and its intended purpose. The Panel appreciates that there is a clear academic planning framework adopted for the BSIE programme, with clear aims that are appropriate for the level and type of the programme and contribute to the university's mission.
- 1.2 The BSIE curriculum was last revised in 2012, producing the 2013-2014 plan, which stipulates that graduating students should complete 204 credits over the course of 12 trimesters, not including the remedial courses by taking 12 to 18 credits per trimester. The Panel notes that the students' workload is considered suitable and comparable to other universities. Furthermore, the curriculum includes laboratory sessions for all major courses that expose students to professional practice through industry standards such as design software and CISCO laboratory, as well as to give them the opportunity to apply the theory learned in the classroom in a practical way providing a balance between theory and practice. According to the BSIE curriculum summary, the curriculum plan is divided into four areas, general education courses (24 credits), mathematics and science (61 credits), computing courses (36 credits) and engineering and related courses (83 credits). The Panel scrutinised the curriculum summary and notes that the 204 credits are distributed amongst the following areas: English = 12, general education and social sciences = 12, mathematics and science = 61, computer science = 48, core engineering = 36 and other engineering = 35. This credit distribution indicates that the core engineering courses represent 17.6%, other engineering courses 17.1%, and computing courses 23.5% of the curriculum. Furthermore, a list of courses that are categorised as engineering courses in the BSIE programme, (Data Communications and Networking 1, 2, 3 and 4), are offered by the Computer Science (CS) Department and are taught by the CS faculty. The Panel is concerned that this skews the programme towards computer science instead of the curriculum being geared towards informatics engineering. The Panel recommends revising the programme by taking into consideration the weightage of the core courses in the

programme to give appropriate balance for the specialisation courses in the BSIE programme. Moreover, the Panel notes that although there are some courses with the titles required for an informatics engineering programme, there is an absence of core components that are expected to be included in the programme, such as Communication systems, Digital Signal Processing, Digital Control, Real Time Systems, Computer Organisation and Architecture from Computer Engineering perspective, and advance topics in Logic Design. Furthermore, courses such as Power Electronics and Power Systems are more relevant to the programme than some of the engineering courses currently offered. In addition, the Panel notes that the 'Electronics 1' course, which has the 'University Physics 2' as its prerequisite, is scheduled at the same semester with 'Electric Circuit Theory 1', and the Panel is of the view that for students to grasp the contents of Electronics circuits, they must have a good prior knowledge in circuit theory. The Panel recommends that the College should ensure that all fundamental engineering components are included in the curriculum and realign the curriculum to offer fundamental courses before the advanced specialisation courses.

- 1.3 The BSIE programme includes course specifications using a standard template that incorporate detailed and relevant information on the course such as course aims and objectives, Course Intended Learning Outcomes (CILOs), weekly breakdowns of the curricula that include teaching and assessments methods as well as mapping of CILOs to PILOs and textbooks and references. Interviews with staff confirmed that the syllabi are updated by an informal benchmarking process with other ABET accredited programmes as well as utilising the feedback from the external examiners and the Programme Industry Advisory Panel (PIAP). The Panel studied the breadth of the syllabi included in the programme and notes that these are not similar to typical informatics engineering programmes. The Panel notes the absence of fundamental introductory topics. For example, the programme syllabi does not include introductory communication topics that cover spectral analysis, transmitting and receiving systems; pulse shaping and matched filtering; sampling, noiseless source codes for data compression, and block and convolutional channel codes for error correction. Furthermore, the Panel is concerned with the depth of the engineering topics covered by the syllabi. For example, although the curriculum includes a course on computer organisation and architecture, the course syllabus does not go to the details of computer building blocks and does not cover Microprocessors architecture, addressing modes, memory architecture, hierarchy and interfacing, various bus protocols, interrupts, DMA, I/O peripherals and interfacing. Similarly, the 'Electromagnetics' course does not cover fundamental topics, such as time varying fields, concepts and applications of Maxwell equations, electromagnetic waves and propagation, plane waves and reflection, waveguides and basic antennas. In addition, the depth of the content of the 'Electronics 1' course is inappropriately specified where Diodes are covered from week 1 to week 11, while transistors are covered from week

12 to week 13, rendering the course very basic. The Panel also notes that open-ended projects start late in the programme, (i.e. in year 3), and the Panel is of the view that open-ended projects should be introduced in the syllabus earlier during the delivery of the programme. The Panel recommends that the College should revise the BSIE syllabi to ensure that all main topics required for such programme are covered and that the breadth and depth of the syllabi are suitable for the programme type and degree.

- 1.4 The BSIE programme specification includes the Programme Educational Objectives (PEOs) and the Programme Intended Learning Outcomes (PILOs). The Panel notes that the PILOs are clearly articulated in four categories, being; knowledge and understanding, subject-specific skills, thinking skills, and general and transferrable skills, aligned with the PEOs and clearly mapped to the institution's mission. During interview sessions with the programme team, the Panel was informed that the PILOs were adopted directly from the ABET student outcome and benchmarked informally with other institutions to ensure appropriateness of level. The Panel studied the PILOs and notes that these are measurable and appropriate to the type and level of the programme. Moreover, during interview sessions the Panel confirmed that the PILOs are communicated to the staff and students. The Panel acknowledges that the adopted PILOs are measurable, appropriate to the level of the programme, clearly stated in the programme specification, and are made available to students and staff online as well as in the College Catalogue.
- 1.5 The BSIE programme incorporates course specification documents that provide information on the CILOs, which are classified into four categories: knowledge and understanding, subject-specific skills, thinking skills, and general transferable skills. During student interviews, the Panel confirmed that they are aware of the CILOs, which are included in the course specifications they receive. Moreover, the programme specification document provides a curriculum skills map that links each course in the programme with the PILOs, allowing the measurement of the achievement of PILOs. However, the Panel notes that some of the mappings are flawed, where some courses, such as 'Industrial Attachment', 'Informatics Engineering Design Project A and B', are mapped to every PILO. Furthermore, the CILO's level of complexity is not evident in some courses and are not suitable for the level of the course, such as 'Electric circuits 1' and 'Electronics 2'. The Panel recommends revising the level of complexity of the CILOs, and their mapping, to ensure their effective contribution to the programme and that these ILOs are at the appropriate level.
- 1.6 The BSIE programme has a compulsory Work Based Learning (WBL) course 'Industrial Attachment', which carries six credits and its prerequisite is set at fourth year standing. The Panel notes that there are course objectives and CILOs, as well as a

clear policy for the implementation and assessment of the course, which clearly defines the roles and responsibilities of the student, the training supervisor and course coordinator. Furthermore, the policy and the CILOs are well communicated to the students in the WBL Handbook, as was confirmed during the interviews. Students are required to complete 240 hour of onsite training and the assessment of the course is shared between the training supervisor in the industry, who is well informed by the College on the requirements of the course, and the practicum instructor at the College in a ratio of 70% and 30% respectively. During interviews, stakeholders expressed their support for this course, as it not only provides industrial experience but also contact with perspective employers for the students. The Panel appreciates that there is a clear policy for the assessment and supervision of the 'Industrial Attachment' course, which is communicated to stakeholders.

- 1.7 The Panel notes that AMAIU has a clearly defined policy on Teaching, Learning and Assessment (TLA), which stipulates using a range of teaching methods such as lectures, laboratory sessions, assignments, case studies and student presentations. The policy is developed and reviewed as needed to ensure the quality of teaching methods. Furthermore and as noted earlier, the course specifications state the teaching methodology employed per topic, which is linked to specific CILOs. Guidelines are also published for the delivery of the 'Informatics Engineering Design Project A and B' as well as for the 'Industrial Attachment' course. Furthermore, laboratory sessions provide a learning environment that allows students to apply the theoretical knowledge gained in classrooms. In addition, the 'Moodle' platform is used to augment teaching with an e-learning tool and access is provided to the e-library and e-references. During interviews, students confirmed the availability of learning materials on 'Moodle'. The Panel notes that these teaching and learning methods and systems encourage independent learning of students at their own pace. Moreover, the Panel concludes from the evidence and interviews with both faculty and students that they are satisfied with the implemented teaching and learning methods. The Panel appreciates the implemented teaching and learning methods that support the attainment of the ILOs.
- 1.8 The assessment policy is part of the institution wide TLA policy and specifies the general criteria, guidelines and best practices for teaching, learning and assessment. The Panel notes that the document includes procedures for formative and summative assessment, plagiarism, academic misconduct, appeal systems, assessment rubrics and a grading system. To ensure the alignment of CILOs with assessment, the Moderation of Assessment policy is in place. Moreover, there is a Review and Approval of University Policies manual that governs policy updates. During interviews, the Panel confirmed that staff are aware of the TLA policy and that students know the relevant information, which is provided to them in the course specification and the Student Handbook. In addition, the Programme Head checks the marks for grade consistency

and students have the opportunity to go to their advisors and the Dean for any academic issues. The Panel appreciates that the assessment policy and procedures include mechanisms to ensure that students' assessment and examination are conducted in a systematic and transparent manners and that these are known to all academics and students. Nonetheless, during faculty and students interviews, the Panel was informed that grade distribution is governed by the TLA policy and is uniform for all courses in the programme despite their level and course contents. The Panel recommends revising the mark distribution for all courses to ensure that these are course dependent according to the type, level and ILOs of the course.

1.9 In coming to its conclusion regarding The Learning Programme, the Panel notes, *with appreciation*, the following:

- There is a clear academic planning framework adopted for the BSIE programme with clear aims that are appropriate for the level and type of the programme and contribute to the university's mission.
- There is a clear policy for the assessment and supervision of the 'Industrial Attachment' course, which is communicated to stakeholders.
- There is a formal teaching and learning policy which is implemented to support the attainment of the intended learning outcomes.
- The assessment policy and procedures are clear, are known to all academics and students, and include mechanisms to ensure that students' assessment and examination are conducted in a systematic and transparent manner.

1.10 In terms of improvement the Panel **recommends** that the College should:

- revise the BSIE programme by taking into consideration the weightage of the core courses in the programme to give appropriate balance for the specialisation courses
- ensure that all fundamental engineering components are included in the curriculum and realign the curriculum to offer fundamental courses before the advanced specialisation courses
- revise the syllabi to ensure that all main topics required for the BSIE programme are covered and that the breadth and depth of the syllabi are suitable for the programme type and degree
- revise the level of complexity of the course intended learning outcomes and their mapping to the programme intended learning outcomes
- revise the mark distribution for all courses to ensure that these are course dependent according to the type, level and intended learning outcomes of the course.

1.11 Judgement

On balance, the Panel concludes that the programme **does not satisfy** the Indicator on **The Learning Programme**.

2. Indicator 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.

- 2.1 AMAIU has an institutional admission policy, which has undergone a series of revisions with the latest being published in August 2015. The Panel notes that staff and students are informed of the admission requirements, which are also posted on the university's website and in the Student Handbook. To be admitted, applicants require a high school certificate or equivalent. However, the admission policy does not specify high school subject requirements or a cut-off grade. The main criteria for admission is based on obtaining 70% admission rating which is the sum of the result of the AMAIU admission test (AMAAT) score (70%) and the Dean's interview score (30%). Students who do not meet the AMA admission test requirement for engineering students, (70% in mathematics test and 60% in English test), take remedial courses. However, applicants from AMA International School are exempted from the AMA admission test and the Panel was not provided with clear justification for such exemption. Moreover, the latest revision of the admission policy states 'removal of the Science and Logic Reasoning and incorporate instead in the programme specific mathematics examinations'. During interviews, the Panel was informed that the science component has been incorporated in the engineering programme specific AMAAT mathematics examinations. The Panel examined the AMAAT mathematics examination during the site visit, and notes that the science component within the AMAAT mathematics examination is marginal and is not sufficient for evaluating the students' competency in science. This was indicated also in the external examiner's report, which indicates that the test only covers mathematical components. Moreover, application requirements for students transferring from other institutions are defined in the institutional admission policy, but no admission criteria are defined for these students. The Panel recommends that the College should revise the admission policy to ensure a better match between the applicant's competencies and the level and type of the programme and specify clear criteria for admitting transferred students.
- 2.2 The programme attracts mainly Bahraini students but there is a number of students from other nationalities. All students are registered as full-time students and the ratio of male to female students has been steadily increasing, which was just over 6:1 in 2014-2015. The Panel notes that the high school score of the admitted students range from 65% to 90% with an average of 78%. Whereas indicated earlier, students who do not meet the AMA admission test requirement for engineering students are required to take remedial courses. The Panel notes that evidence shows that these remedial courses ('Remedial Mathematics', 'Modular English 0', 1 and 2), helped students who failed the AMAAT to improve their scores, in first trimester of 2014-2015 on average from 43.49 prior to taking the remedial mathematics course to 73.07 post taking the

course. Nonetheless, during interviews, the faculty identified that the main challenge that students encounter is associated with their academic standards, and specifically with regards to their mathematics background, and the Panel also noted that the pass rate in several courses is in the region of 50%. Moreover, the Panel notes that students who fail the AMAAT mathematics examination are able to proceed to the first year of the programme and take engineering and science courses while at the same time take the remedial mathematics course. The Panel is concerned with the readiness of these students for the engineering and science courses. The Panel recommends that the College should ensure that the profile of admitted students matches the BSIE programme aims in having adequate mathematical and scientific background that enable them to progress through the programme.

- 2.3 The institution's Organisation Chart provides an outline of the college and programmes' reporting structure. The Dean coordinates with the Programme Head and represents the College in the University Academic Council. The Dean also chairs the Curriculum Review Committee and the meetings with the PIAP. The management of the programme is administered by the Programme Head who decides on matters related to the delivery of the programme and reports to the Dean. The Programme Head is assisted by specialisation coordinators, in main engineering and mathematics areas, who communicate directly with the course coordinators that in turn coordinate with the faculty member assigned to deliver the course. The Panel confirmed from interviews with staff and the reviewed evidence that various committee meetings are held regularly at the college and programme levels, and that academic and administrative staff are well informed about decisions related to the programme management. The Panel appreciates that there are clear lines of accountability with regard to the management of the BSIE programme.
- 2.4 The College of Engineering catalogue for 2015-2016 indicates that there are 14 faculty members contributing to the College, where six of them are specialised in fields related to informatics engineering but none directly. Nonetheless, evidence provided on faculty specialisation indicate that the College has 21 faculty members who contribute to the delivery of the programme of which three are specialised in informatics engineering and nine in related fields. Moreover, the Panel noted that three new academic staff were recruited after the submission of the SER, two full-time PhD holders and one part-time MSc holder. The Panel is concerned with the instability in the faculty profile. Moreover, during meetings with faculty, alumni and students, the Panel came to know that some faculty members are teaching courses outside their area of specialisation, which can be attributed to the limited number of faculty who are specialised in informatics engineering, as noted above. The Panel recommends that the College should ensure that the programme is supported with sufficient number of faculty with relevant specialisation, which would enhance the student's learning and research experience. The Panel viewed evidence of faculty timetables from different

sources and notes that these are inconsistent and the Panel advises that the College should keep better records of its faculty teaching loads. The Panel also notes from the evidence and interviews that while the credit hours on the staff time-tables are maintained within the institution's load assignment criteria, the teaching hours and administrative load of some faculty is high. In addition, the Panel was informed during the site visit that faculty members are often requested to fill for other faculties who leave the College abruptly. This instability and heavy teaching and administrative load has resulted in a lack of faculty research activities, as depicted in the provided evidence. The Panel urges the College to revise its policy on faculty workload to ensure that these are suitable and provide the faculty with the time needed to participate in research and community engagement.

- 2.5 AMAIU has clear policies and procedures in place for recruitment, appraisal and promotion, which are detailed in the Faculty Manual. These policies are disseminated to newly hired faculty members through an orientation programme delivered by the Human Resources Department (HRD), the Dean and a peer-monitoring scheme. Faculty appraisal is conducted every trimester to evaluate faculty teaching ability and other attributes that cover advising, research, university and community services, where input is provided by the Dean, Programme Head and students. During staff interviews, the Panel confirmed that the staff are satisfied with the arrangements in place for the orientation programme and staff appraisal, and that two staff members were promoted in 2012 and 2013. Faculty recruitment is initiated by the Dean then submitted to the HRD, who post an advertisement for vacancy, if necessary, at the university websites as well as local online recruitment websites. The Panel notes from interviews and the SER that the hiring request is submitted according to short term need (two months before each trimester) without referring to an overall hiring plan that studies the long term teaching requirements necessary to cover the various sub-specialisations of the programme. Furthermore, three academic staff (two full-time and one part-time) have been hired locally after submitting the SER, who had not been specified in a hiring plan, and one of the newly recruited staff had joined the Department two months after starting the trimester. Interviewed students voiced their concerns with academic staff retention and commented that sometimes up to four faculty members can change in the same course within a semester. The Panel studied the profile of the academic staff contributing to the programme in this and previous academic years, and is concerned that the list of faculty members contributing to the programme keeps changing. Moreover, the programme depends heavily on part-time teaching staff to deliver core courses and the College has difficulty in retaining part-timers, which may affect the stability and certainty in the delivery of the programme. The Panel recommends that the College should develop and implement a long-term plan to improve staff retention rates and recruit full-time faculty members who have long-term commitment to ensure effective delivery of the programme.

- 2.6 AMAIU has an effective Management Information System (MIS) comprising of two platforms, namely, the Campus Information System (CIS) and the Human Resource Management System (HRMS). The CIS includes the Registration System, Admission System, Student Financial System and Grading System. Various reports and aggregated data can be retrieved from the CIS. To help the advising process, the CIS provides curriculum and progression plans as well as list of students at risk of academic failure. Furthermore, faculty members can generate reports on students' graduation eligibility, and also use the CIS to submit course grades, where these are monitored by the Dean. During interviews, the staff were able to demonstrate how the MIS platforms are used to obtain information about the weekly activities of the faculty members and staff, the use of library and e-resource, as well as cohort data. The Panel notes that the AMAIU MIS provides adequate reports that can be utilised for monitoring and decision-making purposes by the administration and faculty at different level of authorisation.
- 2.7 AMAIU has policies on securing student records, for data backup and restoration and on grade erratum. Touring the campus, the Panel observed that there is a systematic filing and safekeeping of student records. Every student has a physical folder holding his/her information in addition to a scanned electronic version of it. The students' folders are stored in filing cabinets located at a securely locked and safe room at the registration office. Faculty members have a time-locked privileged access to grade entry to ensure accuracy and integrity of students' records. Furthermore, grades can only be changed after getting an approval by the Dean, Registrar and the internal auditor. The Panel reviewed the samples of audit trails and found that it is sufficient to detect unauthorised access. The Panel was informed that all activities performed by the MIS are backed up regularly and two copies are saved into hard disks, which are stored in a secured fireproof vault, as well as on an off-site back-up facility. Moreover, access levels are implemented to ensure that only authorised users can access the appropriate data. The Panel appreciates the availability of effective policies and procedures that are implemented consistently to ensure security of learner records and accuracy of results.
- 2.8 The Panel toured the College facilities and visited the registration office, admission office, students' counselling office, IT centre, laboratories, digital library room, the main library, auditorium hall (equipped with audio/video system), prayer rooms, first aid clinic, student lounges and the cafeteria. The Panel found that these facilities are adequate for the programme aims and students' needs, which include Wi-Fi. Furthermore, learning resources are available through 'Moodle' e-learning platform for all programme courses and through online databases such as IEEE Digital Library, EBSCO Online Database, and ACM Digital Library. The library is equipped with sufficient number of computers and iPads that enable students to access the databases and the eBooks collections of the university. In addition, the library provides adequate

and up-to-date books, journals, magazines, and references for the BSIE programme, which are available for in-house reading and in multiple copies for off-site loan. The Panel acknowledges the availability of adequate facilities and resources to support the programme. The Panel also visited the laboratories and found that the College has a dedicated laboratory for conducting and displaying senior design projects. In addition, the networking and digital laboratories are well equipped with hardware and software facilities that are able to cover the practical aspects of the specialisation courses. Moreover, each laboratory has multimedia projectors and internet connectivity that ease the course delivery and allows students to access e-learning resources. During interviews, the Panel received positive feedback from the PIAP about the computing and laboratory facilities. However, during interviews with students and alumni, there was concern about the failure in conducting some experiments due to faulty laboratory modules or devices, causing students to work in larger group, hence hindering the practical learning experience. The Panel recommends that the College should enforce the implementation of its laboratory maintenance plan and ensure that laboratory resources are regularly monitored and maintained.

- 2.9 During the site visit tour to the digital library, the Panel noted evidence of tracking reports generated by AMAIU Library Monitoring System that regularly tracks the utilisation of AMAIU e-resources and e-Reference database. The usage of 'Moodle' e-learning platform is also monitored and statistical reports are generated. In addition, the IT Department uses the HRMS to generate reports about the utilisation of classrooms and laboratories. During interviews, staff were able to demonstrate how these reports are disseminated to the programme decision makers, enabling them to evaluate the efficiency of their utilisation, for example on updating equipment and software needs. The Panel acknowledges the existence of tracking systems that determine the usage of laboratories, e-learning and e-resources and encourages the College to further utilise these systems to ensure that all its learning resources are properly maintained.
- 2.10 During the site visit, the Panel noted that AMAIU provides student support in several areas. The staff at the university library provide adequate assistant to students' library needs and students have access to e-learning whereby all course materials are posted on 'Moodle' platform. Furthermore, the staff at the IT Department provide assistance and support to students on the use of available IT resources, e-learning tools and installed software in the laboratories, where students have access to an open computer laboratory, which is available from 8:00AM to 8:00PM, Sunday to Thursday. Moreover, the University has a number of consultation rooms whereby faculty members meet with their students during consultation hours to provide additional feedback about student's performance and to attend to any other academic concerns, however, these rooms are so close to each other with no doors, causing difficulty in

running multiple consultation sessions simultaneously. The Panel also visited the Students Affairs and Guidance Office and learnt that the Office provides support and orientation to students on any co-curricular and/or extracurricular activities, where the Guidance Officer, in coordination with the faculty, provides counselling sessions to the students. The Panel notes that the location of the student's guidance office does not provide adequate privacy for the students seeking counselling support, and suggests facilitating a formal separation between the students' guidance/counselling room and the students' activity office to improve privacy. During interviews with students and from survey results, the Panel notes that students are satisfied with the various support they receive. The Panel appreciates the university provisions for student support in terms of library, IT facilities, e-learning, e-resources and guidance.

- 2.11 The University conducts an orientation programme for the newly admitted and transferred students at the beginning of each term to let them be acquainted with its policies and procedures. Students Affairs and Guidance Office is responsible for organising the orientation programme and providing newly admitted students with a copy of the Student Handbook. During interviews, students elaborated that the orientation programme includes a presentation about relevant academic policies and procedures, the composition of the university administration, college faculty and staff, information about the programme, and the facilities at AMAIU, as well as being briefed about the supports and services provided by the Students Affairs and Guidance Office. During interview sessions, students expressed high satisfaction with the information provided at the orientation day. In addition to the orientation programme, AMAIU offers two non-credited compulsory Euthenics courses that provide students with information related to their academic needs, services and facilities of the University and the roles and responsibilities of staff within the College. The Panel appreciates the university's approach in orienting newly admitted and transferred students.
- 2.12 AMAIU has a Policy on Student Academic Support Services that defines the roles and responsibilities of the academic affairs and academic support services units. The policy also includes procedures for dealing with students at risk of academic failure, students with special needs and the allocation of an academic advisor for every student. During the site visit, the Panel viewed a sample of student's academic advisor portfolios and found that it contains student's progression documents. During staff interviews, the Panel was informed that course instructors are asked to identify students who fail in the midterm examination and schedule tutorial sessions to provide them with extra support. Moreover, the registrar office submits an at-risk report to the Dean at the end of each trimester, and the Dean issues a notice to every student included in the list] and informs their respective academic advisers and the Students Affairs and Guidance Office. Consequently, academic advisers inform at-risk students that the maximum allowable credit units for the following trimester are fifteen. Furthermore, the progress

of at-risk students is monitored every trimester and are recorded by their advisor which indicates some improvements in students' performance. Interviewed students noted the above and added that students with learning difficulties are referred by their advisor to the Students Affairs and Guidance office. The Panel appreciates that there is a formal mechanism for advising and tracking the progress of at-risk students.

2.13 The Panel visited the Students Affairs and Guidance Office and was informed that co-curricular and extra-curricular annual activities are organised by the Office and by the students' council, including various sport activities that are organised on-campus utilising the campus sport facilities. Furthermore, the Panel noted during the tour that a few students participate in international competitions, such as the World Robot Olympiad competitions, whereby the AMAIU team won the competition for two consecutive years and the AMAIU students represented the Kingdom of Bahrain in World Robot Olympiad held in Russia in November 2014. Further evidence shows students' participation in community engagement activities such as fund raising events for orphans, charity dish, blood donation, and visits to the industry. The Panel acknowledges the College efforts in exposing the students to informal learning experience through their participation in a multitude of activities.

2.14 In coming to its conclusion regarding the Efficiency of the Programme, the Panel notes, *with appreciation*, the following:

- There are clear lines of accountability with regard to the management of the BSIE programme.
- There are effective policies and procedures that are consistently implemented to ensure security of learner records and accuracy of results.
- There are provisions in place for student support in terms of library, IT facilities, e-learning, e-resources and guidance.
- There are arrangements in place for the orientation of newly admitted and transferred students.
- There is a formal mechanism for advising and tracking the progress of at-risk students.

2.15 In terms of improvement, the Panel **recommends** that the College should:

- revise the admission policy to ensure a better match between the applicant's competencies and the level and type of the programme, and specify clear criteria for admitting transferred students
- ensure that the profile of admitted students matches the programme aims in having adequate mathematical and scientific background that enable them to progress through the programme
- ensure that the programme is supported with sufficient number of faculty with relevant specialisation

- revise its policy on faculty workload to ensure that these are suitable and provide the faculty with the time needed to participate in research and community engagement
- develop and implement a long-term plan to improve staff retention rates and recruit full-time faculty members who have long-term commitment to ensure effective delivery of the programme
- enforce the implementation of its laboratory maintenance plan and ensure that laboratory resources are regularly monitored and maintained.

2.16 Judgement

On balance, the Panel concludes that the programme **does not satisfy** the Indicator on **Efficiency of the Programme**.

3. Indicator 3: Academic Standards of the Graduates

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

- 3.1 Graduate attributes are stated in the programme specification under the PEOs and there are eleven PILOs, which are explicitly achieved through the adoption of the eleven student outcomes stated in the Engineering Accreditation Commission (EAC) criteria of ABET. The PEOs include graduate attributes such as; graduates who would 'practise as successful informatics engineer for the advancement of society and promote professionalism in informatics engineering practice'. The graduate attributes specified in the PEOs are mapped to PILOs, which in turn are linked to the CILOs, through a mapping matrix used in each course specification, and these are mapped to the assessment tasks. Furthermore, graduate attributes such as lifelong learning skills are evaluated in the 'Informatics Engineering Design Project A and B', 'Industrial Attachment' and case studies. In addition, the Panel was informed during interview sessions with staff that AMAIU has a formal policy for the assessment and evaluation of PEOs, which states that feedback on graduate attributes is facilitated through Alumni Survey and Employer Survey, and the survey results are analysed. The Panel appreciates that the graduate attributes are clearly stated as PEOs which are linked to the PILOs. Nonetheless, the Panel is concerned with the effectiveness of the assessment mechanisms used for evaluating the achievement of ILOs as detailed in the sections below.
- 3.2 AMAIU has an institutional wide policy on benchmarking, which includes both informal and formal approach. An informal benchmarking was conducted in September 2015 and the Panel notes from the evidence provided that currently only the course contents are informally benchmarked with data collated over the internet and other public documents, where similar programmes that are ABET accredited are selected for benchmarking purposes. Other areas identified in the policy on benchmarking have not been addressed yet. The Panel studied the programmes selected for the benchmarking conducted in 2015, and notes that these are computer engineering programmes (from UoB, SQU and Islamic University of Malaysia). This being the case, the Panel concludes a structural defect in the BSIE programme, as noted earlier in paragraph 1.2, where major courses are therefore missing. Nonetheless, the Panel acknowledges the efforts of the College in benchmarking the programme, and the evidence of course revision on these basis, but notes that the benchmarking process is still in its infancy and requires further action to formally implement it and to benefit from the process and expand it to go beyond course content benchmarking. The Panel recommends that the College formalise its benchmarking process and expand its scope beyond the programme structure and content, as stated in its existing benchmarking policy.

- 3.3 There is an assessment and monitoring policy, which is part of the AMAIU TLA policy that is well defined and communicated to the students and faculty. During interviews, faculty members and students informed the Panel that both formative and summative assessment types are implemented and that all assessments have rubrics (scoring guide) to assess students' achievements. The formative being part of laboratory sessions, homework and 'Moodle', whilst the prelim, midterm, end of semester examinations as well as the final projects are all summative in nature. The College implements internal and external moderation of assessments at course level and there are monitoring mechanisms for the assessment procedures including the use of the external examiner of the programme. According to the SER, the implementation of the assessment policy is monitored both at the college and institution levels. For example, the College Continuous Quality Improvement (CQI) Committee monitors and reports on assessment and grading, while at the institution level, the Quality Assurance and Accreditation Office (QAAO) oversees the policy implementation. The Panel notes that there is an Improvement Plan on CQI Report but no evidence was noted for the implementation of the changes made as a result of these plans. The Panel acknowledges the college's efforts to ensure the dissemination, implementation and monitoring of the assessment policy, which was noted during interviews and the review of the evidence. Nonetheless, the Panel recommends that the College should consider the implementation of improvement plans on assessment, which are reported by various committees, to facilitate continuous improvement.
- 3.4 The University implements various internal and external monitoring and evaluation methods in order to ensure appropriateness of the assessment of the course outcomes using its policy on PILOs assessment and evaluation. The Panel viewed the course specifications and notes that courses' assessment are mapped to the CILOs, which are mapped to the PILOs. Furthermore, there is a Course Intended Learning Outcome Assessment Plan for each course to ensure that each CILO has a set of appropriate assessment methods, where the plan defines the marking weight of each assessment tool and the assessment criteria. To ensure that outcomes are addressed to the required standard, external examiners are provided with the assessment tools as well as the PEOs, PILOs and CILOs. The external examiners include in their evaluation reports comments about the adequacy and the alignment of the assessment methods to the learning outcomes and, if applicable, appropriate recommendations for improvement. Furthermore, periodic examinations are subject to internal review to ensure the alignment of assessment with outcomes and are inspected by three levels including: the specialisation coordinator, the Programme Head and the Dean. During faculty interviews, the Panel confirmed that they are informed on assessment and moderation mechanisms and how to align course assessment with their outcomes. The Panel notes that there are mechanisms in place to ensure alignment of assessment to the learning outcomes. Nonetheless, in some of the viewed courses, the Panel notes an inconsistent approach in how an individual CILO is aligned to a particular assessment task. For

example, the 'University Physics 2' course is linked with the PILOs 'a', 'b' and 'd', where 'd' covers a range of general and transferable skills but the assessment methods for these are specified as various summative assessments, including preliminary examination and final examination. The Panel is of the view that written examinations are not suitable for assessing the achievement of general and transferable skills and advises reviewing the process of assigning and mapping assessments to the CILOs and hence PILOs for those courses. Furthermore, the Panel notes that the programme has one threshold, $\geq 50\%$, for success level that is applied to the assessment of CILOs, and hence PILOs. Moreover, the analysis of CILOs is conducted mainly at the final years of the curriculum and primarily for courses at the 500 and 600 levels. In addition, the data of all the courses is aggregated and the average is taken, which is not an accurate evaluation of students' performance. For example, in the case of PILO 'B1' or 'Sob', 'an ability to design and conduct experiments, as well as to analyse and interpret data', the students' abilities and skills vary from one year to another and thus the overall aggregated average results in skewing the assessment outcome. The Panel advises the College to revise the mechanisms used for the assessment of CILOs, and student achievement, to provide greater indications of the students' performance and to enable the improvement of the curriculum elements needed to elevate the students' performance.

- 3.5 There is a policy on moderation of assessment, applied for the BSIE programme, which incorporates the internal moderation of assessment and grading system. Internal moderation is conducted both before and after the assessment processes. Pre-moderation is applied to ensure the alignment of CILOs to the assessment and the post-moderation is applied to ensure consistency of the marking and its fairness. In every trimester, the Programme Head selects moderators and double markers for each course and the Dean is responsible for the appointment of the moderators and members of the CQI committee. During faculty interviews, the Panel was informed that the CQI committee is responsible for quality audits of assessment and for the preparation of reports on moderation of assessment, mark distribution, appropriateness of the examination to the assessed ILOs, and the correctness of the assigned marks. The CQI also checks the level of each major examination to ensure compliance with the ILOs. From the viewed evidence, the Panel notes that the internal moderation system contributes to the review and improvement of courses. The Panel appreciates the mechanisms put in place to measure the effectiveness of the programme's internal moderation system for setting assessment instruments and grading student achievement.
- 3.6 The procedure for external examination and the use of external examiners to ensure achievement of the academic standards of the college's teaching, learning, and assessment processes is outlined in the policy on moderation of assessment. The External Examiner Guidelines document provides instruction for the verification of

course content, the learning outcomes and assessment. During interviews, the Panel was informed that two external examiners were appointed, for a two-year contract, to examine the courses and the assessment tools used. Furthermore, external examiners also review capstone projects, assessments of industrial attachment, the attainment of ILOs, and whether faculty's feedback on assessment to the students being adequate. Moreover, the outcomes of the external examination process are reviewed by the PIAP and then the Curriculum Review Committee, and recommendations are discussed and approved by the Academic Council. Nonetheless, during interviews with external examiners, the Panel was informed that they do not receive feedback on actions taken as a result of their report. The Panel notes that the College has adequate procedures in place for the implementation of the external moderations and encourages the College to inform external examiners about the actions taken as a result of their report.

- 3.7 The Panel viewed samples of course files for the BSIE programme, which included course specifications, lecture notes, students' assessed work, final year projects, 'Industrial Attachment' reports and examination papers. The Panel notes that the preliminary examination is normally scheduled two weeks after the commencement of the trimester, and the preliminary test questions were found to be relatively simple, but carried the same weight as that allocated for the midterm examination. The Panel suggests revising the assessment levels and their weights, such that the weight of the preliminary test to be reduced to a level comparable with the amount of material covered in the test. The Panel also viewed a sample of students' course grade sheets and notes that they are within a normal distribution but slightly skewed towards the lower end of the scale. Furthermore, and as reported earlier, the Panel notes that the level of complexity of some courses is below the required rigour leading to lower levels of expected student achievements which was evident in their assessed work, in courses such as; 'Electric Circuit Theory 2' and 'Electronics 1'. The Panel recommends that the College review the level of complexity of course assessments and student work in the BSIE programme so that the level of student achievements are at par with the required rigour for the type of the programme.
- 3.8 The BSIE programme implements a number of mechanisms to assess the achievement of their graduates, which include indirect measurements, such as student exit surveys, student self-evaluation, alumni survey, employer survey and the grade distribution of graduates. Furthermore, viewed evidence clearly show various levels of mapping between the PEOs, PILOs, CILOs and ultimately their assessment, and how they are aligned to ensure the achievement of the PEOs and the graduate attributes. The Panel studied Grade Point Averages (GPAs) of the graduates and note that the distribution of these in 2014 were from 2.1 to 2.84 with an average of 2.39 and 40% of the graduates achieving a GPA below 2.25, which is acceptable, where AMAIU grading scale ranges from 1 (being the highest) to 5 (being the lowest). Survey outcomes indicate that the stakeholders' satisfaction with the graduates of the BSIE programme is at a satisfactory

level (77% alumni satisfaction and 75% employer satisfaction). This was confirmed during interview sessions. Nonetheless, the Panel notes that the passing mark is set at 50% of the total mark, which is not the norm in programmes adopting the credit system. Therefore, the Panel recommends that the College consider the passing mark in its benchmarking activities.

- 3.9 According to the SER, the student cohorts of the BSIE Programme of the academic years 2008-2011 indicate an average progression rate from year 1 to year 2 of 63%. The progression rates from year 2 to year 3 and similarly from year 3 to year 4 is on average 73%, resulting in a year-on-year cumulative average of 70%. In addition, the retention rate for the cohort reported is 73% for academic year 2008-2009, 71% for 2009-2010, and 63% for 2010-2011, while the retention rates for 2012-2013 and 2013-2014 were 88% and 83% respectively. For 2008-2009 intake, 29% of the students graduated within 5-6 years, indicating that students study an average of 12-15 credits per trimester. Moreover, the average study period for 2009-2010 and 2010-2011 are within 5-6 years. During interview sessions, the Panel was advised that the longer period could be attributed to the fact that many students are in full-time employment. According to the Alumni Report, 69% of the graduates of the BSIE programme from the last two years, 2013-2014 and 2014-2015, are employed in related disciplines and the remaining are employed in other fields of practice or types of activities. During interviews, the Panel confirmed the findings in the reports and notes that a data collecting system is in place. The Panel notes that ratios of admitted students to successful graduates including rates of progression, retention, year-on-year progression, length of study and first destinations of graduates, are acceptable and are within those achieved on equivalent programmes locally, which cater for students who are in full-time employment. Nonetheless, the Panel notes that, based on the viewed evidence and discussions during the site visit, a high percentage of students are departing the programme, especially between the first-second year (37%) and second-third year (27%). The Panel is of the view that these are high attrition rates compared to similar programmes internationally. The Panel recommends that the College conduct a formal study to investigate the reasons for the high attrition rate and develop a plan to mitigate these.
- 3.10 The BSIE programme has an 'Industrial Attachment' work-based course in the second trimester of the fourth year and is assigned six credit units, where students have to complete 240 work hours. The University policy on WBL requires all students to undertake an attachment with a relevant company in the discipline. The policy defines the role and responsibilities of the student, the training supervisor and course coordinator as well as the deployment and assessment of WBL. The student is assessed on the submission of an Industrial Attachment Accomplishment Report, progress reports and performance evaluation, which are conducted by the training supervisor. During interviews, the Panel was informed that the PIAP has been instrumental in

facilitating vacancies for industrial placements from the companies and students confirmed that WBL provided them with real industry experience. Furthermore, students noted that the 'Industrial Attachment' course helps them in gaining full-time employment in the same company that they do their industrial attachment. Moreover, the companies that provide industrial attachment gave positive feedback on the students and the 'Industrial Attachment' course, and noted that they also get an opportunity to provide feedback on the relevance of the course, which is implemented in improving the course. For example, the number of hours for on-site training were increased in the revised curriculum from 120 to 240 hours to give longer exposure for students in industry and the laboratory hours for the related 'Safety Engineering' course were increased from one to two hours. The Panel notes with appreciation the implemented measures by the College for the management and assessment of work based learning. However, the Panel notes that a member of the Placement Linkage and Alumni Office (PLAO), who is a member of the administration staff and does not have an engineering background, conducts on-site visits to monitor the student activities on site. The Panel is of the view that academic faculty members should participate in conducting the on-site mentoring and evaluation of the students as it is an academic element of the course. Likewise, the Panel suggests that the College arranges for the training and orientation of the Practicum Supervisor on completing the relevant parts of the student evaluation as these parts are worth 70% of the final course mark. The Panel recommends revising the WBL policy to include the role of faculty members in all aspects of its management to ensure quality and consistency of the industrial supervision and assessment.

- 3.11 The BSIE programme has two design project courses, 'Informatics Engineering Design Project A and B', in the second and third trimester of the fourth year. Working in groups, students select a project related to their employment place, in case they are employed, or a research based project to develop an engineering system. The University Research Guidelines are implemented such that a design course supervisor is assigned to each group of project students, and these guidelines, as well as the anti-plagiarism guidelines, govern the writing of the project reports. Project students are evaluated through progress monitoring forms, a group project report and a working prototype. Assessment is conducted by an examination panel, where the Research Guidelines stipulate the grade distribution of the projects as follows; final report 30%, prototype 30% and oral presentation 40%. During interviews, the Panel confirmed that clear guidelines are available to both students, and the external examining panel member who also receive appropriate training for the monitoring and marking of the course outcomes. Furthermore, the Panel notes that students consider the design project courses an important part of their learning, and that they gain relevant technical experience, and they were highly satisfied with the close supervision and follow-up received from the course instructors. Moreover, the Panel notes that the level and the scope of the senior design project courses in the final year are appropriate

and provide a good combination of analytical knowledge and design skills. The Panel appreciates the clear implementation of policies and procedures for managing the design projects.

- 3.12 The BSIE Programme has a highly motivated Programme Industry Advisory Panel (PIAP). The PIAP members have their roles and responsibilities stated in their appointment paper and in the PIAP policy and procedures. The Panel notes that the PIAP committee is composed of five members; three representatives from industry; one representative from a professional organisation and one alumnus, all with relevant industry experience appropriate for the programme needs. Furthermore, during interviews, PIAP members expressed their views and recommendations, which are reflected in the viewed minutes of PIAP meetings. The PIAP meets periodically twice a year and faculty members as well as the Programme Head and the Dean attend the meetings. During interviews and from the viewed evidence, the Panel notes that the feedback from PIAP is taken into consideration and has impacted on some changes in the curriculum, such as introducing project management and professional ethics courses. Moreover, members of the PIAP feel that the standards of the BSIE programme are constantly improving, and more so after ABET accreditations. The Panel is pleased with the College's active engagement with the PIAP and the contributions of PIAP in support of the BSIE programme.
- 3.13 The BSIE programme and the College use a set of tools to regularly evaluate alumni and employers satisfaction. The college also collects exit data periodically to evaluate student's satisfaction and the achievement of PILOs. The alumni survey contains three sections: general information, assessment of the PEOs and the experience of the alumni with the academic programme and the College of Engineering facilities. The employer survey includes two sections: general information about the person filling the survey and their experience with the graduates of the programme. Survey results show that alumni are satisfied with the extent that their education has contributed to their professional and personal development as graduates of the BSIE programme, with a weighted mean of 3.93 and 3.86 out of 5 for the surveys conducted in 2013-2014 and 2014-2015, respectively. The results of the employer satisfaction with the BSIE graduates show a weighted mean of 4.3 out of 5 for the batch of 2012-2013. During interviews with alumni, they expressed their satisfaction with the programme though some indicated that they had suggested adding more engineering courses in the programme and some remarked that they did not hear about alumni activities. Furthermore, employers are generally satisfied with the graduates and more so with their generic skills. The Panel notes the perceived level of graduate and employer satisfaction with the standards of the graduate profile.

3.14 In coming to its conclusion regarding the Academic Standards of the Graduates, the Panel notes, *with appreciation*, the following:

- There are clear graduate attributes, which are stated as programme educational objectives, and are linked to the programme intended learning outcomes.
- There is a formal mechanism in place for internal moderation that contributes to the review and improvement of the programme courses.
- There are well-implemented measures for the management and assessment of work based learning.
- There are clear policies and procedures implemented for managing the design projects.

3.15 In terms of improvement, the Panel **recommends** that the College should:

- formalise the benchmarking process and expand its scope beyond the programme structure and content, as stated in the existing benchmarking policy, as well as to consider the passing mark during the benchmarking activities
- develop a mechanism to systematically monitor the implementation of improvement plans on assessment
- review the level of complexity of course assessments and student work in the BSIE programme
- conduct a formal study to investigate the reason for the high attrition rate and develop a plan to mitigate these
- revise the Work Based Learning policy to include the role of faculty members in all aspects of its management.

3.16 **Judgement**

On balance, the Panel concludes that the programme **does not satisfy** the Indicator on **Academic Standards of the Graduates**.

4. Indicator 4: Effectiveness of Quality Management and Assurance

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

- 4.1 There is a suite of institutional policies and procedures that are available to staff, faculty and students through a set of handbooks, such as the Student Handbook; Faculty and Employees Manual; Academic Policies and Procedures; and Policies and Procedures Manual. The 'Policy and Procedures on Review and Approval of University Policies' is in place for the management of these policies and procedures. Primary responsibility for monitoring the implementation of the university's policies and procedures rests with the QAAO, while the implementation is carried out by the college's CQI Committee and overseen by the Dean and the Programme Head. The Panel is of the view that the nature and scope of these policies, and their implementation and oversight, are in general sufficient. In terms of the communication of these policies and procedures to staff, evidence of mechanisms for this was provided, for example, workshops that were held on this topic, and faculty were found to be generally aware of what is expected of them in the QA process on the course level. Nonetheless, during interviews, the Panel noted that the faculty were not involved in the development of the policies and procedures and the QA process beyond the course level, as elaborated below. The Panel notes the availability of institutional policies and regulations and the mechanisms for communicating them to the staff, which are adequate for the needs of the programme and encourages the College to further involve the faculty members in the development and improvement of these policies and procedures.
- 4.2 The management of the programme takes place through a reporting line that starts from the Programme Head, to the Dean and up to the Provost. Under the Programme Head, there are both Specialisation Coordinators and Course Coordinators, who relate more directly to concerns related to the course delivery. During interviews, the Panel noted the limited involvement of the Dean in the management of the College, where rather direct academic responsibility and authority is exerted by the university's higher management in connection with programme management. Similarly, the involvement of Programme Head is in question, on matters of details pertaining to the overall programme quality assurance, even though the programme management appears to be done in a clear way and one in which the expected standards are articulated and monitored. Moreover, faculty involvement in the QA process seemed to be limited at the course level only. The Panel therefore recommends that the programme team should increase its role and level of leadership in the programme maintenance, with the important aim of increasing the faculty members' ownership of the quality of the programme as a whole and its delivery.

- 4.3 AMAIU has an institutional Quality Manual, and a Quality Assurance and Accreditation Office established to monitor the programme's compliance with these procedures. The College compose its college development plan and faculty development plan as part of this system, and has a CQI committee that monitors programme quality assurance. The Panel notes the existence of several committees that are involved in the QA and management of the programme, such as the College Council, the Academic Council, as well as faculty meetings with the programme managers. Furthermore, the analysis of PILOs for the programme is done annually, using not only CILOs and maps of these to the programme level (which were provided in the course portfolios), but input from external stakeholders (primarily through the PIAP). The Panel notes that while examples of programme improvement were given during the visit, such as the introduction of two mathematics courses necessitated by ABET requirements, it was less clear how these may have emanated directly from the systematic implementation of quality assurance processes that were described to the Panel. The Panel recommends that the College should evaluate the effectiveness of its quality assurance mechanisms to ensure systematic programme improvements.
- 4.4 AMAIU as well as the College of Engineering conduct workshops and faculty development activities to deepen knowledge of QA processes, and interviewed faculty members seemed generally aware of how their work on the course level fed into the programme QA processes. However, during meetings the Panel noted that despite the relative clarity on procedures to be followed with respect to their own courses in quality assurance and outcome assessment, faculty members seemed less clear (and perhaps, not highly involved) on the integration of the course level results and improvements into the programme as a whole. As stated in paragraph 4.2, the Panel is of the view that programme faculty members should be encouraged to broaden their QA knowledge and involvement beyond their own courses to include more holistic consideration of the overall programme quality.
- 4.5 The University has a published policy on the development of new programmes, and according to the SER, the College Review Committee has the responsibility for assessing the need for introducing a new programme. The process includes market needs assessment, analysis of the competition and risk, as well as the potential demand amongst prospective students. The Panel is of the view that the provided policy includes appropriate consideration of relevance to institutional mission, a proper market analysis, and subject to the QA procedures already established. During interviews, the Panel was informed that this policy has been followed recently for a new application for a programme in environmental engineering, which is currently under consideration by the HEC. The Panel viewed evidence of the College conducting several activities as part of the programme development process which are generally in line with its policy on the development of new programmes. The Panel

acknowledges that there is an appropriate policy for the development of new programmes, which has been implemented.

- 4.6 According to the SER, there is a policy for Programme Development, Review and Enhancement which is implemented by the College. The primary mechanism for this is the annual Self-Evaluation Survey on the programme level. The Panel viewed evidence of recent efforts for improvements on the course level, utilising the input of appropriate specialisation and course coordinators and was able to confirm this utilisation through detailed examples of course level outcome reports that were provided. During interviews, the Panel was informed that the recommendations for course revisions are first developed amongst the Programme Head and the appropriate coordinators, and then taken forward to the College Council, as appropriate. The Panel appreciates that annual internal programme review takes place and recommendations for improvement are generated and utilised to inform programme improvement.
- 4.7 The Programme Development, Review and Enhancement policy is in place for conducting periodic reviews of the programme; the scope for such reviews is comprehensive and includes admission, learning resources, market demands as well as curricular detail. The SER states that the expected cycle for programme review is 3-5 years; while during interview sessions the Panel was informed that this cycle is 4 years. The Panel viewed evidence of the programme enhancement and review process as depicted in the programme review summary report conducted in 2010-2012 and notes that the procedure for programme review relies heavily on feedback from PIAP. Nonetheless, there is no clear mechanism for incorporating the feedback from other stakeholders (in the form of surveys, like the senior exit survey or alumni survey) in the periodic review process of the programme. The Panel notes that, in general, both internal and external mechanisms, which are stated in the policy for periodic reviews of the programme, have been used to make improvements, but a systematic and consistent approach is not evident (See paragraph 4.3).
- 4.8 The SER indicates that the College implements course evaluation surveys, senior exit surveys, alumni surveys, employer surveys, student satisfaction surveys and employee surveys. The Panel was provided with examples of all these surveys, and the analysis results for most. During interviews, staff were able to clarify to the Panel how mechanisms are put in place for improvements, such as the course level surveys and exit surveys being used in the PILOs review on the programme level. The strongest mechanism, however, for such structured feedback appeared to be through the biannual meetings of the PIAP. During interviews, the Panel noted that PIAP members were well aware of the laboratory and curricular improvements that had been made and had specific suggestions about many of them, and they confirmed that their most formal feedback provided was received and acted upon by the College. The

Panel acknowledges that there are structured feedback collection systems but notes that there is no evidence of systematic and consistent approach in using feedback from all stakeholders to effect programme improvements (See paragraph 4.3).

- 4.9 The College has a Faculty Development Plan (FDP) and documentation was provided of a sample of an individual faculty development plan, where these individual faculty development plans are collated by the Dean and used to form the College plan. According to the SER, staff Professional Development (PD) focuses on their individual needs in teaching, research, community engagement, quality assurance and accreditation. Faculty submit their PD plans to the Department head who summarises them and forwards them to the Dean. Furthermore, financial support is provided to encourage research, conference attendance and membership of professional bodies. Moreover, the University facilitates internal and external staff development activities for faculty and support staff. During interviews, the Panel explored the effectiveness of PD arrangements extensively with the faculty and several indicated that they had attended professional meetings either as contributors, such as research contributions, or as PD opportunities, and that separate budgets are available for both. The Panel appreciates the staff PD system in place, which is functional and provides faculty with the growth opportunities that they need to improve their capabilities and overall programme delivery.
- 4.10 According to the SER, the policy on programme development, review and enhancement stipulates that potential labour market needs and current trends in the engineering sector are incorporated in programme review. The programme supplements the available sector market studies, such as Tamkeen's reports and the HEC's report on Industry and Employer Graduate Skills Requirement, and the recent university-commissioned study by a formal consultant firm with the feedback gained through biannual meetings of its own PIAP to stay connected to the labour market and its needs. During interviews, the Panel was informed that the PIAP provide feedback on market needs, which is acted upon by the College, and stakeholder confirmed that the BSIE programme meets a strong market need in Bahrain associated with the ICT sector. The Panel appreciates that the university conducted a formal study to scope labour market needs.
- 4.11 In coming to its conclusion regarding the Effectiveness of Quality Management and Assurance, the Panel notes, *with appreciation*, the following:
- There is an annual internal programme review that informs the implementation of recommendations for improvement.
 - There is a staff professional development system, which is functional and provides faculty with the growth opportunities.
 - There is a formal study conducted by the University to scope labour market needs.

4.12 In terms of improvement, the Panel **recommends** that the College should:

- increase the role of programme leadership, and its level of leadership, in the programme maintenance, with the important aim of increasing the faculty members' ownership of the quality of the programme as a whole and its delivery
- evaluate the effectiveness of the quality assurance mechanisms to ensure systematic programme improvements.

4.13 **Judgement**

On balance, the Panel concludes that the programme **satisfies** the Indicator on **Effectiveness of Quality Management and Assurance**.

5. Conclusion

Taking into account the institution's own self-evaluation report, the evidence gathered from the interviews and documentation made available during the site visit, the Panel draws the following conclusion in accordance with the *DHR/QQA Programmes-within-College Reviews Handbook, 2014*:

There is no confidence in the Bachelor of Science in Informatics Engineering of College of Engineering offered by the AMA International University.