



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

Directorate of Higher Education Reviews

Programmes-within-College Reviews Report

**B.Sc. in Electrical Engineering
College of Engineering
University of Bahrain
Kingdom of Bahrain**

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Table of Contents

Acronyms.....	2
The Programmes-within-College Review Process.....	3
1. Indicator 1: The Learning Programme	8
2. Indicator 2: Efficiency of the Programme.....	13
3. Indicator 3: Academic Standards of the Graduates.....	21
4. Indicator 4: Effectiveness of Quality Management and Assurance.....	27
5. Conclusion.....	33

Acronyms

BQA	Education & Training Quality Authority
BSEE	B.Sc. in Electrical Engineering
CILOs	Course Intended Learning Outcomes
DHR	Directorate of Higher Education Reviews
HEC	Higher Education Council of the Ministry of Education, Kingdom of Bahrain
ILO	Intended Learning Outcome
MIS	Management Information Systems
NQF	National Qualifications Framework
PAC	Program Advisory Committee
PCAP	Postgraduate Certificate in Academic Practice
PEOs	Programme Educational Objectives
PILOs	Programme Intended Learning Outcomes
PLEs	Programme Learning Expectations
QAAC	Quality Assurance and Accreditation Centre
SAC	Student Advisory Committee
SER	Self-Evaluation Report
SLEs	Student Learning Expectations
UILOs	University Intended Learning Outcomes

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 Education & Training Quality Authority (BQA) 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 BQA, 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 University of Bahrain

A Programmes-within-College review of the University of Bahrain was conducted by the DHR of the BQA in terms of its mandate to review the quality of higher education in Bahrain. The site visit took place on 4-7 April 2016 for the academic programmes offered by the College of Engineering, these are: B.Sc. in Chemical Engineering, B.Sc. in Process Instrumentation and Control Engineering, B.Sc. in Civil Engineering, B.Sc. in Mechanical Engineering, B.Sc. in Architecture, B.Sc. in Interior Design, B.Sc. in Electronics Engineering and B.Sc. in Electrical Engineering.

This Report provides an account of the review process and the findings of the Panel for the B.Sc. in Electronics Engineering programme based on the Self-Evaluation Report (SER) and appendices submitted by the University of Bahrain (UoB), the supplementary documentation made available during the site visit, as well as interviews and observations made during the review site visit.

UoB was notified by the DHR/BQA on 22 October 2015 that it would be subject to a Programmes-within-College review of its College of Engineering with the site visit taking place in April 2016. In preparation for the review, UoB conducted self-evaluations of all its programmes and submitted the SERs with appendices on the agreed date on 10 January 2016.

The DHR constituted a panel consisting of experts in the academic field of Engineering and in higher education who have experience of external programme quality reviews. The Panel comprised 15 external reviewers.

This Report records the evidence-based conclusions reached by the Panel for the B.Sc. in Electrical Engineering programme 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 the UoB will use the findings presented in this Report to strengthen its B.Sc. in Electrical Engineering programme. The DHR recognizes that quality assurance is the responsibility of the higher education institution itself. Hence, it is the right of UoB to decide how it will address the recommendations contained in the Review Report. Nevertheless, three months after the publication of this Report, UoB is required to submit to the DHR an improvement plan in response to the recommendations.

The DHR would like to extend its thanks to UoB 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 College of Engineering.

C. Overview of the College of Engineering

The College of Engineering, at UoB, owes its roots to the Gulf Technical College which was established in 1968 and which later became the Gulf Polytechnic in February 1981. In 1986, Amiri Decree No. (12) was issued to establish the University of Bahrain by a merger of the Gulf Polytechnic and the Bahrain University College. Following this decree, the new organization plan of the UoB was issued in November 21, 1987. The College of Engineering currently comprises five departments; namely the Department of Chemical Engineering, Department of Civil Engineering, Department of Electrical and Electronics Engineering, Department of Mechanical Engineering and Department of Architecture and Interior Design. The College is currently running a total of (11) academic programmes (8) at Bachelor and (3) at Master levels. The vision of the College of Engineering is to be among the leading colleges in the region and to maintain a respectful international status and reputation by sustaining a high quality of engineering education and scientific research. During the 2015-2016 academic year,

there were (143) full-time and (23) part-time faculty members supported by (60) administrative staff. The total number of students enrolled in the College at the time of the site visit was (4113) students. The College obtained ABET accreditation for six of its bachelor programmes in 2008 and 2014, these are the B.Sc. in Chemical Engineering, B.Sc. in Civil Engineering, B.Sc. in Electrical Engineering, B.Sc. in Electronics Engineering, B.Sc. in Mechanical Engineering and B.Sc. in Process Instrumentation and Control Engineering. In addition, the B.Sc. in Architecture obtained National Architectural Accrediting Board (NAAB) accreditation in 2014. Moreover, the College is in the process of obtaining accreditation by the Council for Interior Design Accreditation (CIDA) for the B.Sc. in Interior Design programme.

D. Overview of the B.Sc. in Electrical Engineering

The B.Sc. in Electrical Engineering (BSEE) is offered by the Department of Electrical and Electronics Engineering. The programme enrolled its first cohort in 1982 when it was run by the Gulf Polytechnic. The programme graduated its first batch in the year 1986 and the total graduates to date is 499. The Department of Electrical and Electronics Engineering has successfully passed accreditation by the American Board for Engineering and Technology (ABET) during the first semester of the academic year 2010-2011, which was renewed in the academic year 2014-2015.

The Department employs 25 full-time faculty members of which 22 are PhD holders (2 Professors, 9 Associate professors and 11 Assistant professors) and three MSc holders employed as lecturers. The faculty members are responsible for the delivery of the BSEE programme, in addition to the B.Sc. of Electronics Engineering and Master's in Electrical and Electronics Engineering programmes offered by the Department. The SER states that the total number of students enrolled in the programme during the academic year 2015-2016 was 417.

E. Summary of Review Judgements

Table 2: Summary of Review Judgements for the B.Sc. in Electrical Engineering

Indicator	Judgement
1: The Learning Programme	Satisfies
2: Efficiency of the Programme	Satisfies
3: Academic Standards of the Graduates	Satisfies
4: Effectiveness of Quality Management and Assurance	Satisfies
Overall Judgement	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 There is a coherent academic planning framework for the B.Sc. Electrical Engineering programme (BSEE) that clearly sets out the aims, indicating the broad purposes for offering the programme. The programme planning takes due cognisance of and provides clear mapping with respect to the university and college's vision and mission statements and their strategic goals which was confirmed during interview sessions. The aims of the programme are appropriate for the programme and are mapped to the University Intended Learning Outcomes (UILOs), the Program Education Objectives (PEOs) and the Programme Intended Learning Outcomes (PILOs). The Panel appreciates that the programme has clear aims that are appropriate to the programme type and level and are aligned to the college and university mission and sets of goals.
- 1.2 The BSEE curriculum is structured as a four years, eight semesters programme consisting of 137 credit hours distributed over 46 courses, and incorporates two summer industrial training courses. The curriculum is built on an adequately firm foundation of mathematics (21 credits) and basic science courses (12 credits) that prepare the students for the general and specialised engineering courses. Progression is illustrated through the set of courses proposed for each semester within the study plan and the clear set of pre-requests provided. General knowledge and graduate attributes are developed *via* courses on human rights and principles, modern history of Bahrain and citizenship and engineering ethics. Graduate attributes are further enhanced by 10 credits of communication related courses. The Panel appreciates that the curriculum is well developed to meet the aims of the programme and is structured to provide progression across the courses and over years. During interview sessions with staff and students, the Panel confirmed that the study plan generally allocates suitable workload for students. Nonetheless, the Panel considers 137 credits as an excessive loading on the students and advises the College to investigate the possibility of reducing it when the next periodic review of the programme is scheduled. Moreover, the programme study plan is well designed to allow for integration of theory with practice by means of extensive laboratory work, which is included in most of the specialised courses, enabling students to acquire the skills needed and link these to knowledge gained during theoretical classes. Students are also exposed to professional practice *via* industrial training course 1 & 2, bearing one credit each. Moreover, the Junior Project at one credit and the Senior Design Project at three credits further expose students to professional practice. The Panel appreciates that theory and practice, and knowledge and skills are well-integrated throughout the BSEE curriculum. Nonetheless, the Panel noted that the time allocated for the senior design project is short and recommends that the College should investigate the possibility of

expanding it into 2-semester, six credits course in its next periodic review of the programme.

- 1.3 Course specifications are clearly stated for each course using a course syllabus template that includes the course description, course content and weekly breakdown, teaching and learning methods, assessment tools and weight and Intended Learning Outcomes (ILOs). The syllabi clearly indicate adequate breadth including a significant diversity in the electrical engineering courses, underpinning well-defined and relevant elective courses in the senior years. The elective courses listed ensure adequate depth and opportunities for specialisation within certain narrowly defined areas of electrical engineering. The laboratories and experimental parts are clearly stated in the course syllabus and are adequate, as confirmed by the laboratory visits and students' interviews, to provide hands-on experience and to apply the theory learnt in the complete range of courses. The Panel notes with appreciation that the syllabus meets the requirements for a bachelor programme in electrical engineering in terms of breadth and depth. Notwithstanding the above, during interview sessions with students and alumni the Panel was informed that a few laboratory sessions lack hands-on training as students are asked sometimes (example: Power Engineering Laboratory) to only take measurements using an already set-up workstation. The Panel recommends that the College should ensure that students benefit from the full-range of the hands on experience the syllabi indicate.
- 1.4 There are clearly stated Programme Intended Learning Outcomes (PILOs), which are adopted from ABET standards for engineering programmes and are further detailed to meet the specific needs of the programme. The PILOs are suitably mapped to the Programme Educational Objectives (PEOs) and the University Intended Learning outcomes (UILOs). The Panel studied the PILOs, and find these appropriate for the award's level and type and are aligned to the programme's mission and objectives. During interview sessions, the Panel was informed that the PILOs are discussed during the Department Council and with the Programme Industrial Advisory Committee (PIAC). Interviewed faculty members were well aware of these PILOs and how they should be achieved. The Panel appreciates that the PILOs are clearly stated, suitable for the type and level of the programme and are aligned to the programme aims and objectives
- 1.5 Course Intended Learning Outcomes (CILOs) are stated in the course specifications. The CILOs were last reviewed in 2014-2015 to ensure that they are suitable for the type and level of the course, are properly aligned to the PILOs and include suitable high order cognitive skills expected from the students. Students are well informed about the CILOs through the course plans provided to them at the beginning of each semester. The Panel studied the CILOs and notes that these are generally clear, measurable and suitable for the course content and level. Moreover, the CILOs are

mapped to the PILOs as indicated in the SER. The Panel studied the mapping and notes that, generally, CILOs are properly mapped to the PILOs. However, the Panel advises that care should be taken when assigning elective courses to PILOs. Moreover, the Panel noted that in a few courses such as Electric Drives II (EENG 447), the CILOs do not fully reflect the course content and could benefit from a further revision. The Panel advises the College to further revise these.

- 1.6 Work-Based learning forms a part of the BSEE curriculum and students have to attend two one-credit industrial training courses (EENG 299 & EENG 399), which are usually attended during the summer session and their pre-request is the completion of 45 and 85 credit hours respectively. The courses has suitable CILOs, which are mapped to the PILOs to indicate the courses' contribution to the achievement of learning outcomes. For each course, students are expected to work for a minimum of eight weeks at a relevant industry. A training coordinator facilitates the placement and monitors the student progress. The assessment policy of the course is covered in the 'Study and Exam Regulations', and the 'Assessment and Moderation Policy'. These include rubrics to be used by the university supervisor and the industry supervisor to assess the student. The Panel advises that the assessment rubrics be revised to further detail how scores are allocated per criteria. During interview sessions, the Panel was satisfied that the faculty members and students are well informed about the courses and their contribution to the achievement of the PILOs. The Panel appreciates that there is an industrial training element in the programme, which is relevant and adds a positive value to the achievement of the PILOs.
- 1.7 The College of Engineering adopts a set teaching and learning guidelines, which are followed to ensure the quality and the consistency of the teaching and learning experiences students receive. A variety of teaching methods, such as interactive teaching, problem-solving, case-based learning, and e-learning, are implemented for the delivery of all courses. These are indicated in the course specifications and are appropriately mapped to the CILOs and hence the PILOs and PEOs. Students' participation in and responsibility for learning is inculcated *via* a student-centred model of teaching and learning which encourages participation in group activities, pair work and peer support. The Panel studied the provided course files and notes that the range of teaching and learning methods used is extensive and sets a good example of blended learning. Interviewed students indicated their high satisfaction with the teaching and learning experience. The Panel appreciates that the programme utilises a variety of teaching and learning methods, which include methods that support students' participation in their learning.
- 1.8 UoB has developed a set of policies and procedures to guide the assessment of students work and ensure that these are suitable for the type and level of the programme, fair and transparent. These include the IDEAS Handbook, developed by

the University QAAC, 'Study and Examination Regulations at the University of Bahrain', 'Assessment and Moderation Policy', and 'Anti-plagiarism Policy', which interviewed faculty were well informed of. The SER identifies the need to utilise both formative and summative assessment and these are well-documented in the course specifications which include the distribution of marks among assessment methods. Interviewed students indicated that they are informed about the general assessment policies during the induction programme. In addition, information about assessment tools used, the time of the assessment and the grade distribution used within each course is communicated to them *via* the course plans distributed at the beginning of each semester. During the site visit, the Panel studied the study plans provided in the course files and noted that these include a wide range of assessment tools such as midterm and final examinations, quizzes and laboratory reports. The Panel also noted that rubrics are provided to assess the evaluation of learning outcomes. However, the use of well-structured rubrics is not consistent across the learning programme. The Panel encourages the College to further improve the faculty's ability to develop and utilise these rubrics. The Panel also confirmed that adequate guidelines exist to ensure that both written and oral feedback is provided to students. Students are allowed to have access to their graded work, including examination papers and key answer sheets, and the SER states that the maximum time allowed for feedback is two weeks. Appeals are dealt with *via* a process of submission of a 'Final Exam Appeals Form', which initiates a re-marking of work with a new set of instructors assigned by the department Chair. The Panel appreciates that there are clear assessment policy and procedures that faculty and students are well aware of and provide a provision for feedback and students' appeal. The policy for plagiarism is handled *via* the Anti-plagiarism Policy and the library staff assist students understanding of copyright and issues surrounding academic plagiarism. Nonetheless, the Panel noted that some acts of plagiarism are evident in the provided student projects and assignments. The Panel recommends that the College should ensure the full implementation of the Anti-plagiarism Policy.

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

- The programme has clear aims that are appropriate to the programme type and level and are aligned to the college and university mission and sets of goals.
- The curriculum is well developed to meet the aims of the programme and its level and is structured to provide progression across the courses and over years.
- Theory and practice, and knowledge and skills are well-integrated throughout the BSEE curriculum.
- The syllabi meet the requirements for a bachelor programme in electrical engineering in terms of breadth and depth.

- The programme intended learning outcomes are clearly stated, suitable for the type and level of the programme and are aligned to the programme aims and objectives.
- There is an industrial training element in the programme, which is relevant and adds a positive value to the achievement of the programme intended learning outcomes.
- The programme utilises a variety of teaching and learning methods, which include methods that support students' participation in their learning.
- There are clear assessment policy and procedures that faculty and students are well aware of and provide a provision for feedback and students' appeal.

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

- investigate the possibility of expanding the Senior Design Project into 2- semesters, six credits course in its next periodic review of the programme
- ensure that students benefit from the full-range of the hands on experience the syllabi indicate
- ensure the full implantation of the Anti-plagiarism Policy.

1.11 **Judgement**

On balance, the Panel concludes that the programme **satisfies** 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 There is a well-defined university wide admission policy for undergraduate programmes with stringent admission standards including a University Aptitude Test (UAT), an interview and a medical examination. Applicants must have a valid high school certificate with a minimum score of 70% from a science or technical stream or equivalent. Applications are processed centrally, and students are distributed amongst the programmes based on their priority of selected programmes, high school score, performance in UAT and interviews. The SER states that students accepted in the College of Engineering's programmes are required to enrol in a one semester orientation programme comprising a 'non-credited nine hours per week course in English'. Students scoring 90% or better in the high-school certificate, scoring 90% or higher in English language subjects in high school, or passing the TOFEL test with a minimum of 550 points or the IELTS with 5.5 points or more are exempted from the orientation programme. Policies and procedures are published on the university website and in the University Catalogue, and in the Students Handbook. Interviewed students and staff members were well informed about the admission policy and procedures. The Panel appreciates that there are formal admission policy and procedures that are published and are known to students and staff.
- 2.2 As stated above, admitted engineering students are expected to have adequate knowledge and skills in science, mathematics and English that meet the needs of the programme and enable them to optimize their usage of the university infrastructure such as library holdings, laboratories as well as access to the world-wide web. The Panel studied the students profile provided and noted a substantial drop in the number of graduates between the academic years 2011-2012 to 2013-2014 although the number of registered students has increased. Moreover, the length of study periods of most of these graduates was at five years or more and has increased in the recent years. Hence, the Panel recommends that the College should revise its orientation programme and the admission cut off score to ensure that students admitted acquire the knowledge and skills needed by the programme.
- 2.3 There is a clear organisational chart that is appropriate for the management of the BSEE programme. The SER states that the Chairperson of the Department of the Electrical and Electronics Engineering is the main person responsible for the programme. The Chairperson heads the Department Council, which is responsible for taking decisions related to the programme needs. These decisions are then raised to the College Council and the University Council, by the Chairperson and the Dean respectively, where needed. The Chairperson is supported by the teaching groups and

the departmental standing committees, each with its own accountability, such as the Planning and Development Committee, Quality Assurance and Accreditation Committee, Research and Staff Development Committee and Lab Development Committee. Moreover, a course coordinator is assigned for each course to manage the course design and implementation. Detailed structure of these groups and their responsibilities are well documented and confirmed during the site visit. Interviewed staff and students were well informed about the programme management and lines of decision making. The Panel appreciates that there is a formal structure for the management of the programme with clear lines of accountability that students and staff are well informed off.

- 2.4 The Electrical and Electronics Engineering Department is responsible for the delivery of the BSEE programme. The Department employs 25 full-time faculty members of which 22 are PhD holders (2 Professors, 9 Associate professors and 11 Assistant professors) and three MSc holders employed as lecturers. The faculty members are responsible for the delivery of the BSEE programme, in addition to the B.Sc. of Electronics Engineering and Master's in Electrical and Electronics Engineering programmes offered by the Department. The Panel studied the submitted faculty profile and their CVs and notes that the academic staff members responsible for the delivery of the programme have suitable academic qualifications with most of them having teaching experience exceeding 10 years. Their fields of specialisation cover the basic branches of the programme such as power systems, energy conversion, and control. Moreover, the full-time equivalent faculty is calculated at 23.6 with a student-to-staff ratio of 24:1 and faculty-to-course offered in a semester at approximately 1:3.3, which are acceptable. The Panel appreciates that there is sufficient number of faculty members to deliver the BSEE programme with suitable qualifications and specialisations needed. Provided evidence indicate that faculty members participate in seminars and conferences and have produced 40 publications during the period 2009-current. However, the Panel noted that the number of conference contributions and peer reviewed journal papers have substantially declined over the last three years. Interviewed staff members indicated that this is due to budget constraints. Moreover, only about 50% of the staff members have industrial experience. Hence, the Panel recommends that the College should develop and implement a plan to support its faculty members and enable them to further develop their research and industrial experience profile.
- 2.5 UoB has clear recruitment, promotion and retention policies and procedures, which are communicated to the staff and staff members interviewed during the site visit were well informed about these policies. The recruitment policy is transparent and the minutes of meetings of the Department, College and University Council indicate that decisions on selection of new staff members are achieved through consultation at a university, college and programme level. Staff retention is realised through providing

benefits and periodic salary increment, in addition to the support provided in terms of teaching, and supporting research publication and conference attending. Interviewed staff indicated their general satisfaction. The Panel appreciates that there are clear recruitment and retention policy and procedures, and that recruitment decisions are achieved through consultation at a university, college and programme level. The policy and procedure for promotion are clearly explained in the SER as spelled out in a university publication. Evidence provided indicates that the University provides some funding for research, training, publication awards and conference attendance. These are provided for both Bahraini and non-Bahraini staff. Nonetheless, the Panel noted that the number of faculty members promoted is very low. During interview sessions, faculty members confirmed the relatively long process they have to endure for the promotion. Numbers cited during the interview sessions indicated that this is a problem on a university level, as at the time of the site visit, less than 15 faculty members were considered for promotion throughout the university (out of more than 800 faculty members). The Panel recommends that the College should study the reasons behind the low promotion numbers, and develop and implement a plan to support its faculty to be promoted.

- 2.6 The SER states that faculty performance is evaluated by the department Chair during contract renewal, which only applies to non-Bahraini staff, or when a faculty member applies for promotion, which was confirmed during interview sessions. Faculty members are also evaluated by students at the end of each semester. The Panel was informed that the outcomes of these surveys are communicated to the Dean, the department Chair and the faculty member. Nonetheless, the Panel was not provided with evidence on how these are utilised to inform staff professional development (See Paragraph 4.9). The Panel also noted that there is no formal induction procedure for new staff. During interview sessions, the Panel was informed that induction is performed informally at the programme level. The Panel recommends that the College should develop and implement a formal induction programme at the university, college and department level for the newly appointed staff members.
- 2.7 UoB has a functioning management information system (MIS), consisting of a number of software programmes, used to inform some of the activities needed by the programme. The Online Registration System allows students to add, drop and replace courses during the registration period. They can also pay the registration fee online. Interviewed students expressed their satisfaction with the online registration services. The system contains students' details including biographic and academic data/records, provides students with information about their academic progress and supports academic advising of the students enrolled in the programme. During interview sessions, the Panel was informed that efforts are currently underway to make the system available on smart phones through a mobile application. The MIS team also runs periodic teaching and evaluation surveys and mini assessment surveys

for various departments and programmes. The Panel appreciates the existence of an MIS that provides detailed information about the students, has a provision for online registration and fee payment, and supports academic advising process. In addition, the HR intranet system provides information about academic and administration staff members that can be used by the department Chairperson to enable informed decision-making. However, evidence provided and discussions during the site visit interviews did not clarify how the system is utilised to inform the handling of capital equipment, operational and human resource budgets. Moreover, the Panel was not provided with evidence on the MIS system being utilised on a department or college level to inform decision-making based on retention, graduation and success rate beyond students' academic advising and identifying and supporting at-risk students. Hence, the Panel encourages the College to further utilise the MIS system in generating periodic reports that are used to inform decision-making.

- 2.8 The University has policies and procedures in place to ensure the security of learners' records and accuracy of results. During interview sessions, the Panel was informed that at the university level, the Deanship of Admission and Registration is responsible for ensuring the security of students' main records. These are maintained both in hard and soft copies, access to which is limited based on level and authority. There is a formal policy in place to ensure security of records through a defined authorization mechanism, storage of data, privacy of information, exchange of information, the usage of anti-virus and security tools, and the security agreements with users. The University has a backup plan where an electronic backup of students' records is executed after each main registration and grade entry stage as per the IT policies and procedures. The Panel toured the facilities and noted that physical facilities and computers access on site are secure and available only for authorized personal and students as per the level of authorization. Moreover, students' marks and grades are recorded by faculty members through a transparent process which is ensured by the department Chairperson and is additionally validated by the Registration Department. The Panel appreciates that there are policies and procedures that are consistently implemented to ensure the security of students' records and the reliability of the students' grades entering mechanism.
- 2.9 During the site visit, the Panel toured the facilities of the Isa Town Campus. Facilities visited by the Panel included: teaching halls, laboratories, studios, staff offices, the main food court, the student activity hall, the Library and other facilities. The Panel recognizes the quality and number of teaching and learning spaces available to students and values that many facilities were improved as per the Programme Student Advisory Committee's request such as the Wi-Fi and other physical facilities, which interviewed students confirmed during the site visit. Blended learning is facilitated by the extensive multimedia facilities and installed Ethernet, Fibre Optic and Wi-Fi networks. The Panel notes with appreciation that general facilities available are

suitable for the needs of the programme and the students. The Panel also visited the specialised laboratories utilised for the delivery of the BSEE programme. The Electrical and Electronics Engineering Department has 11 specialised laboratories covering the main areas of specialisations needed for the proper delivery of the programme. These are managed by dedicated technicians who are responsible for ensuring safety in the laboratories. The Panel notes that these laboratories are well equipped with modern equipment to provide students with the practical experience. However, a few laboratories, such as 'Circuit I Laboratory', still contain antique equipment that need replacement. The SER states that all laboratories are monitored for safety and the functionality of the equipment and infrastructure. However, the Panel is concerned that the service dates for some fire-extinguishers in the Electrical workshop and the Store have lapsed and that safety signs relevant to the use of specific machineries are not suitably placed. The Panel recommends that the College should address this. The departmental laboratory infrastructure is further supported by the college's computer laboratories that are equipped with adequate software (13 venues with a total of 290 computers) with its own Director and staff. The Panel, in general, appreciates the department's laboratory infrastructure and the computer laboratories provided to the BSEE students. The Library has a staff of 34 and is well stocked with traditional resources. It also makes significant contributions to blended and e-learning by subscribing to several large digital databases and many science and engineering e-journals and e-books. There are also extensive inter library services that provide books and journal papers not available locally. Other available learning resources include the 'Blackboard' system and 'Moodle'. The Panel acknowledges that the current library holding is sufficient for the programme needs.

- 2.10 UoB employs a number of tracking systems to evaluate the utilisation of its different resources, including the usage of classrooms and laboratories. During interview sessions, the Panel was informed that laboratory technicians are responsible for tracking the utilisation of the laboratories and ensuring that sufficient equipment and consumables are available. These are arranged for at the beginning of each semester and monitored throughout the delivery of the courses. Moreover, a computing inventory system has been introduced to maintain all computer equipment of the College. The e-learning centre provides data on the usage of each course/session materials and the library recently implemented the LibQUAL system, which is a web-based survey to help in assessing and improving its services. The Panel acknowledges the existence of these tracking systems and encourages the College to further utilise these data to inform its decision-making with regards to the BSEE programme.
- 2.11 The SER indicates that UoB provides its students with a range of support that include support for the usage of the laboratories, library and e-resources, academic advising, counselling and health care. The Career Counselling Office supports students through liaising with the industry to provide students with suitable opportunities for on-job

training and advocating for the programme graduates to be employed, in addition to conducting workshops on leadership development, CV writing and job interviews. Moreover, the Deanship of Students Affairs organises and oversees students' activities such as peer learning and youth delegation programmes while the university health clinic provides comprehensive on campus services. Interviewed students were satisfied with the range of support provided to them. The Library provides a range of services, such as library induction, open days and training workshops, which are offered to students and staff. Moreover, the IT Centre runs information literacy training and the e-learning Centre provides students with support for the usage of 'Moodle' and 'Blackboard'. Senior Exit Surveys' outcome indicate that students are satisfied with the support provided in terms of the Library, IT and e-learning. The Panel appreciates the range of social and career counselling provided to students, in addition to the support provided by the Library and the ICT Centre, which was confirmed during interview sessions. Interviewed students informed the Panel that, within the first laboratory session of each course, safety instructions are given together with instructions about the use of laboratory equipment. Moreover, laboratory technicians and demonstrators are usually available to render support. However, during meetings with alumni and students, some pointed out to the Panel that some laboratory technicians were not very helpful and/or knowledgeable. The Panel suggests that the College further investigate this issue. All enrolled students are assigned an academic advisor upon enrolling in the programme, however, except for at-risk students, the process used to monitor and follow-up students' progress is unclear and performed informally at the programme and individual level between the student and academic staff. The Panel acknowledges the range of academic support provided to students and encourages the College to develop an overarching support policy in collaboration with the University, in order to ensure consistency and equity amongst students.

- 2.12 In addition to the orientation programme, which is compulsory for students who score less than 80% on their aptitude test, UoB has a formal induction day for newly admitted students organised by the Deanship of Students Affairs, where the colleges' Deans, department Chairpersons and course coordinators participate in delivering the event to the students. During interview sessions, the Panel confirmed that the induction programme comprises both a general orientation section at the university level, and a programme specific section during which students are provided with relevant information, which include the students' Handbook, and the programme plan that is further explained by a dedicated team of instructors. The Panel appreciates that the induction programme is organised at both the university and programme level and caters specifically for the needs of the BSEE students. Nonetheless, during interview sessions, the Panel came to know that the number of students who attend the induction programme is low. Moreover, it is unclear how students that do not attend the induction are provided with the information needed. The Panel

recommends that the College should provide alternative provisions for those students who do not attend the induction programme.

- 2.13 As stated earlier, every student is assigned an academic advisor from the first day he/she commence in the programme. The SER states that there is appropriate academic support in place to track students' progress, identify students at risk of academic failure and provide interventions for them. This is available through a communication system between the IT Department, MIS administration and academic staff. Interviewed staff members indicated to the Panel that the follow-up support for these students is implemented at a programme level through an action plan. However, the Panel noted that although the system is available, much of student support is performed informally between the students and the academic staff. The Panel acknowledges that policies and procedures are in place to identify at-risk students and provide timely intervention for students at risk. Nonetheless, the Panel is concerned that this is not reflected on the students' performance, as the graduation rate seems to have substantially dropped between the academic year 2011-2012 and 2013-2014, while the number of registered students has increased (See Paragraph 2.2). The Panel recommends that the College should evaluate the effectiveness of its at-risk student policy and revise it accordingly.
- 2.14 The SER states that the Department of Electrical and Electronics Engineering expands students' learning experience through informal learning which is provided *via* workshops, seminars, conferences and competitions. In addition, the University's English Clinic Center provides the students with opportunities to improve their English language in general. The creativity and innovation of the students are developed and encouraged *via* the senior project exhibition, which rewards the top three projects. Interviewed students indicated their high satisfaction with such opportunity to interact with the community and industry. During the site visit, the Panel was informed that students lead the organisation of a number of activities through students' societies and clubs and participate in sport tournaments organised by the University. In addition, a number of activities are organised by the Division of Social and Cultural Activities of the Deanship of Students Affairs. The Panel notes with appreciation the many activities attended and organised by the students that enriches their learning experience.
- 2.15 In coming to its conclusion regarding the Efficiency of the Programme, the Panel notes, *with appreciation*, the following:
- There are formal admission policy and procedures that are published and are known to students and staff.
 - There is a formal structure for the management of the programme with clear lines of accountability that students and staff are well informed off.

- There is a sufficient number of faculty members to deliver the BSET programme with suitable qualifications and specialisations needed.
- There are clear recruitment and retention policy and procedures, and the recruitment decisions are achieved through consultation at a university, college and programme level.
- There is a management information system that provides detailed information about the students, has a provision for online registration and fee payment, and supports academic advising process.
- There are policies and procedures that are consistently implemented to ensure the security of students' records and the reliability of the student grades entering mechanism.
- General facilities available are suitable for the needs of the programme and the students.
- A wide range of social and career counselling is provided to students, in addition to the support provided by the Library and the ICT Centre.
- There is an induction programme that is organised at both the university and programme level and caters specifically for the needs of the BSEE students.
- A wide range of opportunities for informal learning is provided to the programme's students to expand their knowledge and experience.

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

- revise the orientation programme and admission cut off score to ensure that students admitted acquire the knowledge and skills needed by the programme
- develop and implement a plan to support the faculty members and enable them to further develop their research and industrial experience profile
- study the reasons behind the low promotion numbers, and develop and implement a plan to support the promotion of faculty members
- develop and implement a formal induction programme at the university, college and department level for the newly appointed staff members
- develop and implement a monitoring mechanism to ensure that all fire-extinguishers are functional and that safety signs relevant to the use of specific machineries are suitably placed in all laboratories
- provide alternative provisions for newly admitted and transferred students who do not attend the induction programme
- evaluate the currently utilised policy and procedure for identifying and supporting students' at risk of academic failure and revise these accordingly.

2.17 **Judgement**

On balance, the Panel concludes that the programme **satisfies** 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 The BSEE programme has clear PEOs (PEO1, PEO2, PEO3) setting the attributes of the programme graduates. These are mapped to the University Intended learning outcomes, which identify the general attributes of a graduates of the UOB. The PILOs (a-k) are mapped to the PEOs as illustrated in the submitted SER and are broken into a number of Performance Indicators (PIs) for which a rubric is provided to assess the students' achievement on a 4-level scale. Students' achievement of these outcomes is assessed using direct quantitative measures, in addition to students' surveys and feedback from the PIAC, which provide qualitative measures of the outcomes achievement levels. It was evident from the discussions with the faculty during the site visit that the current system has gone through a number of development stages and is subject to continuous discussions and revisions. As per the continuous improvement process, action plans are developed and implemented on a programme and course level to further ensure that programme graduates attain the learning outcomes stated. The Panel appreciates that graduate attributes are clearly stated in terms of PEOs and PILOs and that there is a system, which is subject to continuous evaluation and review, utilised to evaluate the level of graduate achievement. Notwithstanding the above, the Panel noted that the Senior Design Project course (EENG490) is not used as a course to assess students' outcome achievement, and advises the College to rectify this.
- 3.2 There is a formal benchmarking policy at the university level that stipulates the benchmarking principles and procedures to be used and clearly states the responsibilities of the QAAC, VP academics, college's Dean and the department Chairperson in the process. The SER states that the College of Engineering has elected ABET as its primary benchmarking reference point where the accreditation process was utilised to determine and verify the equivalence of the programme regionally and internationally and the process has resulted in the programme receiving ABET accreditation twice; in 2010-2011 and 2014-2015. The Panel was not provided with any other evidence on benchmarking the programme with similar programmes offered locally regionally and internationally. While the Panel acknowledges the decision to make the internationally accepted benchmark its primary reference point and recognises this resulting in the programme receiving ABET accreditation, the Panel notes that the benchmarking process mainly comprised a comparison of subject contents, ILOs and credit levels. It did not include admission requirements, progression rates, academic standards, teaching and learning strategies. The Panel recommends that the College should benchmark the BSEE programme with similar

programmes offered locally, regionally and internationally and expand its benchmarking activities to include all aspects of the programme and its outcomes.

- 3.3 UoB has a set of policies that has been strengthened recently to ensure that students' work is assessed in a fair, transparent and robust way. These include the 'Regulations of Study and Examination at University of Bahrain' 'Moderation of Examinations and Assessment' policy, the 'QAAC Assessment Strategy', 'Anti-plagiarism Policy' and the 'Programme Quality Assurance and Enhancement Policy'. Main items related to assessment and grading are included in the Students Handbook. Moreover, at the beginning of each semester, students are provided with course outlines, which stipulate the assessment plan, types of assessment weight and criteria for marking. This was confirmed during students' interview sessions. Evidence provided and interviews with faculty indicated that assessment policies are consistently implemented. Nonetheless, the Panel noted that in a few courses, the assessment criteria were not clear and the rubrics used for marking some of the students' work were poorly formulated and not consistently applied. During interview sessions with faculty members and registration staff members, the Panel confirmed that students' grades are approved by the department Chairperson and the Dean before these are published to students. The department Chairperson is also responsible for arranging the invigilation of the final examinations to ensure their integrity. The SER also states that grade distribution is moderated through discussion between the instructor and two members from the grade distribution committee if the average total mark was below 70%. The Panel acknowledges that, in general, policies and procedures relevant to assessment are consistently implemented and are made available to students.
- 3.4 The SER states that a course assessment form is utilised to ensure the alignment of all assessment tools (tests, assignments, projects, midterm and final examination) with the learning outcomes. During interview sessions, the Panel was informed that the College sets a stringent commitment that assessment methods be designed to evaluate the level of CILOs' achievement. As the CILOs are mapped to the PILOs, the assessments in turn contribute to the evaluation of the achievement of the PILOs. The SER states that the QAAC is responsible for ensuring that the assessment is aligned to the outcomes 'through profile review at the completion of each semester'. However, reviewing the course files provided, the Panel observed and was concerned that mapping between the CILOs and the examination questions are not available in some course files. This is a concern especially as pre-assessment moderation is not adopted by the College or the Department, misalignment is detected only after students sit the assessment. Hence, the Panel recommends that the College should ensure that the monitoring process is embedded more firmly in the operational culture to ensure that assessments are properly aligned with the learning outcomes and that structured documentary evidence is maintained.

- 3.5 UOB has 'Study and Exams Regulations' document that describes the responsibilities for assessment and moderation of grades. For courses offered in multi sections, all instructors contribute in setting the examination paper, which is finalised by the course coordinator and the examination paper is graded collectively. Moreover, senior projects are assessed by a panel of examiners that include two internal and one external examiners. The Panel furthermore notes that students grade distribution is approved by the department Chairperson and the Dean before it is published to students. During interview sessions, the Panel was informed that post-assessment moderation is conducted by the QAAC, where course files, including assessment tools, are subject to revision and comments on the level of assessment and its relevance to the learning outcome it is assessing is commented on. Nonetheless, the Panel is concerned that single-section courses are not subject to pre-assessment moderation and that post-assessment moderation is conducted by the QAAC only and not by specialised faculty members. The Panel recommends that the College should expand its internal-moderation system to include a pre-assessment moderation for all its courses and that pre- and post-assessment moderation is conducted by specialised faculty members.
- 3.6 UoB and the department's assessment policies indicate that only the assessment of the Senior Design Projects and industrial training courses include external examiners. During interview sessions, the Panel was informed that by subjecting the programme to external accreditation by a professional body, such as ABET, the programme will be externally moderated. Whilst the Panel agrees that this forms a type of external moderation, as students' work is reviewed by the external accrediting body, it is a post-assessment moderation that occurs only periodically. Hence, The Panel recommends that the College should revise its moderation policy to include external moderation of its assessment tools beyond the Senior Design Projects.
- 3.7 During the site visit, the Panel was provided with ample samples of students' assessed work. These included quizzes, midterm and final examinations, assignments and students senior projects. The course files provided included three samples of students' assessed work (highest, average, and lowest). The Panel studied the samples provided and notes that the assessment types and levels are suitable for the course level, content and CILOs and that the level of achievements of the students is generally appropriate for a bachelor's degree in electrical engineering. Moreover, the grades awarded are of an acceptable level. The Panel also studied the samples of students' senior projects and notes that students' work is comparable with what can be found at other institutions offering similar programme. The Panel appreciates that, in general, students work is appropriate for the type and level of the programme and is comparable with what can be found at other institutions offering similar programme.

- 3.8 The Electrical and Electronics Engineering Department employs direct measurements and multiple surveys to determine the levels of its graduates' achievement. Performance indicators (PIs) as detailed in the SER are derived from the rubrics set by the Department. Based on the achievement of the students, four levels of achievement of the PIs are defined and the need for improvement is identified if the number of students achieving the required level is below 80%. The reports generated are reviewed by the QAAC in the following semester and presented with recommendations to the Department Council for action. This was confirmed during interview sessions. The Panel also studied the grade distribution of the programme's graduates for the students' batches for the years 2012-2015 and notes that these are normal and align with what is expected in such programme. Moreover, as stated earlier, students' work is in general suitable for the type and level of the programme. Hence, the Panel appreciates that the levels of achievement of graduates meet programme aims and intended learning outcomes.
- 3.9 The College of Engineering monitors students' pass rates, completion and exit rates *via* reports submitted by the department Chairperson and the registrar office. Nonetheless, the data provided on graduates' destination contradict with each other. Moreover, the length of the study periods of most of the programme graduates is at five years or more. In addition, statistics provided in the SER indicate that the drop-out rates from the BSEE programme range between 33.3% and 46.3% during the academic years 2012-2013 and 2014-2015. The SER indicates that a study was conducted and published in 2011 about students' dropout at UoB and that most of the study recommendations have been implemented. Nonetheless, the improvement in the student dropout has been minimal. The Panel urges the College to study the causes of the high students' dropout rates and the long period of study and implement a mitigation plan that includes a revision of the procedures used to identify and support at-risk students (See Paragraphs 2.2 & 2.13).
- 3.10 As stated under Indicator 1, the BSEE programme includes two one-credit industrial training courses each comprising a two-month long (200 hour) internship at an approved site. The allocation of students is managed by the Department and the industrial liaising department at the university level where available training sites are identified and students are allocated. The Department assigns faculty members to supervise students and liaise with the on-job supervisor who is provided with a clear rubric on what is expected from the training and how to assess the trainee. During interview sessions, the Panel was informed that students are visited at least twice during the training period to monitor their progress. Students are required to write a report and present it as part of their assessment. Interview sessions revealed that stakeholders highly appreciate the process. The Panel appreciates that the work-based learning is properly managed and assessed to ensure appropriate learning experience. Nonetheless, whilst the evidence submitted to the Panel indicates that assessment is

robust in general, in a few cases assessment was not recorded well and there were some missing information. The Panel encourages the College to closely monitor the implementation across all trainees (See Paragraph 3.4).

- 3.11 The BSEE programme includes a three credits Senior Design Project (EENG490) which offers the final year capstone experience, and the Senior Project Committee is responsible for monitoring the implementation process. The Senior Project Policy and Resolutions document clearly stipulates the responsibilities of the supervisor and the student. At the start of the course, students are required to fill a proposal form, in which the design problem statement, realistic constraints and standards used are defined. The proposal is then submitted to the Senior Project Committee for review and approval. During interview sessions, the Panel confirmed that communication between the supervisor and the students is managed *via* the 'Blackboard' learning management system. A detailed Project report template is utilised to guide the student in developing the end of project report. Students are also required to present their work to a panel of two examiners and an external examiner during the project exhibition. Marks are distributed amongst examiners as follow: (50%) for the supervisor, (20%) for the internal examiners each and (10%) for the external examiner. The Panel appreciates that there are policy and resolutions that clearly state the role and responsibilities of the supervisor and the student and that the grading is done by a panel that includes internal and external examiners.
- 3.12 The SER states that the BSEE programme is advised by two bodies; the Program Industrial Advisory Committee (PIAC) consisting of 16 engineers representing the industry and government entities, and the Program Students Advisory Committee (PSAC) consisting of 10-15 students selected on their GPA scores. During interview sessions, the Panel was informed that the PIAC, PSAC and department representatives meet and discuss issues relevant to the offering such as the curriculum, programme outcomes, student performance. Minutes and recommendations are forwarded to the Department Council. The Panel was provided with evidence that the two bodies are used effectively for informed decision making such as increasing the hands-on practical experience students are exposed to and strengthening their communication skills. The Panel appreciates the existence of these two active committees that participate in the programme improvement.
- 3.13 UoB measures employers and alumni satisfaction using surveys administrated yearly and every two years, respectively. The SER states that these questionnaires are used to identify the level of satisfaction with the attainment of the PEOs and PILOs. The Department conducted a number of employers and alumni surveys last of which was during the first semester of the academic year (2014-2015). The results of these surveys indicate an overall satisfaction with the programme and its outcomes. Moreover, interviewed alumni and employers indicated their high satisfaction with the

programme and its outcome. The Panel appreciates that alumni and employers are satisfied with the programme and its outcome.

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

- Graduate attributes are clearly stated in terms of PEOs and PILOs and there is a system, which is subject to continuous evaluation and review, utilised to evaluate the level of graduate achievement.
- In general, students work is appropriate for the type and level of the programme and is comparable with what can be found at other institutions offering similar programme.
- The levels of achievement of graduates meet programme aims and intended learning outcomes
- The work-based learning is properly managed and assessed to ensure appropriate learning experience.
- There are policy and resolutions that clearly state the roles and responsibilities of the supervisor and the student and the grading is done by a panel that includes internal and external examiners.
- There is a well-functioning and active programme advisory system that consists of the Program Industrial Advisory Committee and the Program Students Advisory Committee.
- Alumni and employers are satisfied with the programme and its outcome.

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

- benchmark the BSEE programme with similar programmes offered locally, regionally and internationally and expand the benchmarking activities to include all aspects of the programme and its outcomes
- ensure that the monitoring process is embedded more firmly in the operational culture to ensure that assessments are properly aligned with the learning outcomes and that structured documentary evidence is maintained
- expand the internal-moderation system to include a pre-assessment moderation for all the courses and that pre- and post-assessment moderation is conducted by specialised faculty members
- revise the moderation policy to include external moderation of its assessment tools beyond the Senior Design Projects.

3.16 **Judgement**

On balance, the Panel concludes that the program **satisfies** 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 UoB has a comprehensive set of policies, procedures and regulations for university-wide academic, admission, human resources and other matters. These are available on the university's web sites, where they are accessible by the university community, and the College of Engineering expands that with its own website that includes *inter alia* related policies, procedures, regulations and news. In addition, students have access to the relevant policies and procedures through the orientation programme, Students Handbook and requests to the Dean's office. The SER states that Adherence to university policies and procedures are operated at two levels. At the university level, there is a Quality Assurance and Accreditation Centre (QAAC), which works directly with the colleges' Dean. This office is responsible for the consistency and alignment of the implementation of the policies and its related procedures. At the college level, the Dean and the Chairpersons are responsible for implementation and management. The Panel appreciates that there is a set of appropriate policies and procedures with clear responsibilities that are accessible by staff and students. However based on the evidence provided in the course files and the staff interviews, the Panel found that a few policies relevant to the programme, such as moderation and the use of assessment rubrics, are applied inconsistently. Hence, the Panel recommends that the College should further enhance the mechanisms for communicating new institutional policies to respective stakeholders to ensure shared understanding and effective implementation.
- 4.2 Management of the programme is the responsibility of the department Chairperson, who reports to the Dean of the College. The Chairperson heads the Department Council and the Department is represented in the College Council by the Chairperson and a senior faculty member. In addition, there is a range of committees that have the responsibility for accreditation, curriculum development, academic matters, administration and events and further support the role of the department Chairperson. During interview sessions, the Panel learned that permanent committees are formed at the beginning of each academic year while *ad hoc* committees, such as recruitment, promotion and invigilation committees are formed based on need. The Panel appreciates that the programme management demonstrate effective and responsible leadership.
- 4.3 UoB has a formal Quality Assurance Manual that provides comprehensive information about policies and procedures relating to Quality Assurance (QA). The Quality Assurance and Accreditation Center (QAAC) has the overall responsibility for

monitoring and evaluating the effectiveness of the quality management system at the University. The Departmental Quality Assurance and Accreditation Committee operates under the guidance of the College Quality Assurance and Accreditation Committee, which is responsible to the QAAC. The Panel acknowledges the provision of a structured internal quality assurance within the Department and the College. Nonetheless, the Panel is concerned that effectiveness of the system is measured in terms of acquiring ABET accreditation rather than a continuous improvement process and that the focus of the internal QA monitoring process is on the policies and their implementation rather than the evaluation of the policies and the effectiveness of application. The Panel encourages the College to further evaluate the effectiveness of its internal quality assurance system in creating a culture of continuous enhancement.

- 4.4 Quality assurance policy and procedures have been established formally at the University since 2009, and a range of QA activities has been conducted since then as evident throughout the SER. During interview sessions, the Panel confirmed that faculty members are regularly briefed in meetings and workshops about QA principles and mechanisms adopted to quality assure the programme. In addition, the IDEAS Handbook provides guidance on the role of faculty members in ensuring the quality of the programme design and delivery and the achievement of the stated programme learning outcomes. The Panel appreciates that the College provides capacity-building opportunities for academic staff to enhance their understanding of quality assurance concepts. However, the Panel notes that technical support staff members are not always included in workshops and meetings pertaining to quality improvement and encourages the College to ensure their full involvement in these activities.
- 4.5 New programmes are developed and introduced based on the 'Program Quality Assurance and Enhancement Policy and Procedures', which emphasises the need to evaluate the relevance of the programme to the market needs and the aims and objectives of the Department and the University as a whole and its alignment to external accrediting bodies' requirements. The policy stipulates the role of the Departmental Curriculum Committee, Department Council, College Curriculum Committee and College Council in ensuring that the programme is designed and developed in line with published policies and procedures before submitting it to the University Council for approval, and the Board for final endorsement. During interview sessions, the Panel was informed that the College did not introduce new programmes in the last three years. The Panel acknowledges that the policy adopted for designing and developing new programmes is fit for purpose.
- 4.6 Based on the university's internal Quality Assurance manual, an evaluation report is prepared by teaching staff for each taught course at the end of every semester. The report stipulates analysis of students' achievement and grade distribution, evaluation

of the adequacy of the prerequisites and comments on course content and changes if needed. During interview sessions, the Panel was informed that these reports are submitted to the Departmental Quality Assurance and Accreditation Committee and discussed in the Department Council and as a result minor changes are introduced to the course where needed. Moreover, students' course-specific evaluations play a central role in the continuous assessment of the programme. These surveys cover such topics as the quality of the syllabus, the learning goals, the instructor performance, the teaching and assessment methods. These surveys are analysed by the Centre for Measurement with the outcomes as an input for course revision or faculty mentoring. During interview sessions, the Panel was informed that the responses to these student-completed surveys are processed and the compiled outcomes are given to the department Chairperson and the relevant instructors, though only the quantitative outcomes, but not to the students. The qualitative responses of students, i.e. their comments, are not normally considered. The Panel heard from the faculty that they were therefore less able to understand the quantitative survey outcomes because they lacked the qualitative comments of their students. The Panel notes that the faculty should receive both quantitative and qualitative results from the student evaluations of their courses. Overall, the Panel appreciates that there is continuous programme evaluation and review at the department level and that minor amendments are relatively quick to implement.

- 4.7 Periodic programme reviews are undertaken through a multi-faceted mechanism. A key quality assurance procedure is the bi-annual submission of a self-evaluation report prepared by the Department. This is driven by the Departmental Quality Assurance and Accreditation Committee, supervised by the College level Quality Assurance and Accreditation Committee, which finally reports to the QAAC. Faculty members are involved in both committees and the Centre. The review mechanism also utilises the outcomes of regular surveys sought from industry representatives, employers and students to ensure the fitness of the programme to serve ever changing industrial needs. The Panel was provided with evidence on the review of the programme, last of which was completed and documented in June 2014. The Panel appreciates that the periodic programme review is thorough and incorporates input from different stakeholders and that the revised programme is approved *via* the hierarchical approval process up to University Council. The Panel also encourages the College to develop a mechanism to critically assess the implemented improvement in terms of the achievement level of the desired impact. Moreover, the Panel is concerned at the long lead-time to affect significant programme changes as alluded to during staff interviews. The Panel recommends that the College should work with the University to ensure a suitable time frame for the development and finalisation of the programme periodic reviews.

- 4.8 Stakeholders' input is solicited at the university, college, programme and course levels. The intent is to provide necessary feedback for decisions on programme revision and development. A range of relevant input sources is used to ensure that the programme is up to date and meets internal and external stakeholders' expectations. This includes government entities, employers, graduates, exiting seniors, Programme Industry Advisory Committee (PIAC), comments from professional accreditation bodies, faculty members and students. A number of methods for soliciting input are utilised to engage with these stakeholders. Written surveys, such as employers surveys, and students course satisfaction surveys, are a prominent method for obtaining stakeholder views. Structured conversations with exiting seniors and with industry leaders, as with the PIAC, are another source of stakeholder polling. Clear evidence of inputs derived from stakeholder engagements is reported throughout the SER. These findings are then utilised to improve the programme. During interview sessions, the Panel was informed that the Department is now working on updating the programme as a result of issues raised by and recommendations received from the PIAC. The Panel appreciates the range of methods utilised to collect stakeholders feedback to inform decision making on programme delivery and development. Notwithstanding the above, there is little evidence of feedback being provided to stakeholders on programme development due to their input. The Panel recommends that the College should develop a mechanism to communicate the collated outcomes of the feedback and the changes introduced as a result, to the relevant stakeholders.
- 4.9 Professional development of teaching and administrative staff of the programme is important for effective conduct and development of the programme. The SER states that faculty attend conferences, workshops and seminars both in and outside the Kingdom of Bahrain. The Panel acknowledges the Postgraduate Certificate in Academic Practice (PCAP) training programme, which is made available to faculty members to enhance their knowledge and skills of teaching and learning in higher education context. Moreover, evidence was provided on a range of quality assurance workshops offered by the QAAC and a list of seminars conducted by the College. During interview sessions with management, the Panel was informed about the institution's desire to move to compulsory continuous professional development with the target of supporting staff who are not performing well and further enhancing the skills of high performing staff members. However, the Panel is concerned that staff development activities have tapered off during the preceding two years. Staff interviews pointed to a reduction in available funding which has a negative impact of staff ability to attend workshops, seminars and conferences. Moreover, faculty members noted during interview sessions that the high teaching load and administration responsibilities also made attending professional development programmes difficult. Hence, the Panel recommends that the College should develop and implement suitable mechanisms to ensure continued momentum in staff development.

- 4.10 The SER states that scoping of labour market requirements is undertaken mainly by employers and alumni surveys and through the PIAC. The Panel acknowledges the department's effort in using the HEC's studies including Future Skills and preparing graduates for the 21st century and High Level Analysis of Higher Education and Future Needs of Bahrain, and the labour Fund's (Tamkeen) study of the labour market needs to inform the development of the programme. Nonetheless, the Panel recommends that the College should conduct a formal study of the labour market, in close collaboration with academic and industry stakeholders, to assess the long-term trends in the labour market and ensure that programme graduates meet the future 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 a set of policies and procedures suitable for the management of the programme with clear responsibilities that are accessible by staff and students.
 - The programme is managed in a way that demonstrates effective and responsible leadership.
 - Capacity-building opportunities are provided for academic staff to enhance their understanding of quality assurance concepts and their roles and responsibilities.
 - There is continuous programme evaluation and review at the department level and minor amendments are relatively quick to implement.
 - The periodic programme review is thorough and incorporates input from different stakeholders and the revised programme is approved *via* the hierarchical approval process up to University Council.
 - A range of methods is utilised to collect stakeholders feedback to inform decision making on programme delivery and development.
- 4.12 In terms of improvement, the Panel **recommends** that the College should:
- further enhance the mechanisms for communicating new institutional policies to respective stakeholders to ensure shared understanding and effective implementation
 - work with the University to ensure a suitable time frame for the development and finalisation of the programme periodic reviews
 - develop a mechanism to communicate the collated outcomes of stakeholders' feedback and the changes introduced as a result, to the relevant stakeholders
 - develop and implement suitable mechanisms to ensure continued momentum in staff development
 - conduct a formal study of the labour market, in close collaboration with academic and industry stakeholders, to assess the long-term trends in the labour market and ensure that programme graduates meet the future labour market needs.

4.13 Judgement

On balance, the Panel concludes that the program **satisfies** the Indicator **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/BQA Programmes-within-College Reviews Handbook, 2014*:

There is confidence in the B.Sc. in Electrical Engineering of College of Engineering offered by the University of Bahrain.