

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



Directorate of Higher Education Reviews

Programmes-within-College Reviews Report

**B.Sc. in Information Systems
College of Information Technology
University of Bahrain
Kingdom of Bahrain**

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Table of Contents

Acronyms.....	2
1. The Programmes-within-College Reviews Process	4
2. Indicator 1: The Learning Programme	8
3. Indicator 2: Efficiency of the Programme	12
4. Indicator 3: Academic Standards of the Graduates	18
5. Indicator 4: Effectiveness of Quality Management and Assurance	24
6. Conclusion.....	28

Acronyms

ABET	American Board for Engineering and Technology
ABET CAC	ABET Computing Accreditation Commission
CAC	College Accreditation Committee
CILOs	Course Intended Learning Outcomes
IS	Information Systems
DAC	Department Accreditation Committee
DIS	Department of Information Systems
DHR	Directorate of Higher Education Reviews
HEC	Higher Education Council, Kingdom of Bahrain
ILO	Intended Learning Outcome
IT	Information Technology
MIS	Management Information Systems
NQF	National Qualifications Framework
PEOs	Programme Education Objectives
PIAC	Programme Industrial Advisory Committee
PILOs	Programme Intended Learning Outcomes
PIs	Performance Indicators
PSAC	Programme Student Advisory Committee
QAA	Quality Assurance Agency, U.K.
QAAC	Quality Assurance and Accreditation Centre (of UOB)

QQA	National Authority for Qualifications & Quality Assurance of Education & Training, Bahrain
SER	Self-Evaluation Report
UOB	University of Bahrain

1. The Programmes-within-College Reviews Process

1.1 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	

1.2 The Programmes-within-College Reviews Process at the University of Bahrain

A Programmes-within-College review of the College of Information Technology (IT) was conducted by DHR of the QQA in terms of its mandate to review the quality of higher education in Bahrain. The site visit took place on 9–11 December 2013 for the academic programmes offered by the college, these are: B.Sc. in Information System (BSIS); B.Sc. in Computer Science (BSCS); and B.Sc. in Computer Engineering (BSCE).

This report provides an account of the review process and the findings of the Panel for the B.Sc. Information System (BSIS) 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/QQA in May 2013 that it would be subject to a Programmes-within-College reviews of its College of IT with the site visit taking place on 9–11 December 2013. In preparation for the review, UOB conducted its college self-evaluation of all its programmes and submitted the SER with appendices on the agreed date in September 2013.

The DHR constituted a Panel consisting of experts in the academic field of Information Technology and Computing and in higher education who have experience of external programme quality reviews. The Panel comprised five external reviewers.

This Report records the evidence-based conclusions reached by the Panel 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 UOB will use the findings presented in this report to strengthen its BSIS. 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 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 in the BSIS.

1.3 Overview of the College of Information Technology

The College of Information Technology was established in 2003. The mission of the College revolves around excellence in student learning, generation and dissemination of knowledge, and community engagement. The College offers three undergraduate programmes which are B.Sc. in Computer Science, B.Sc. in Computer Engineering, and B.Sc. Information Systems. The three programmes were accredited by ABET on 2010. Moreover, the College offers M.Sc. programme in Information Technology for which there are still no graduates.

At the commencement of the 2013-2014 academic year, the number of students enrolled in the College was 1540, supported by 85 faculty members, 46 administrative staff, and an excellent infrastructure including computing facilities, classes, halls and offices available to students and faculty. The College assures the quality of its programmes through continuous processes of self-assessment that involves all its stakeholders. The College aspires to be a regional leader in the ICT education field,

promoting innovation and excellence through its programmes, research, and activities.

1.4 Overview of the B.Sc. in Information Systems

The B.Sc. in Information Systems (BSIS) programme is offered by the Department of Information Systems within the College of IT at UOB. The programme was originally initiated in the academic year 1999-2000 as a B.Sc. in Business Information Systems at the College of Business Administration, but was later modified in 2005 and offered as B.Sc. in Information Systems. The number of students admitted in year 2011 is 50% less than the number of students admitted in year 2010 which was increased in 2012 by 30% but it is still less than 2010. The number of admitted female students was higher than the number of admitted male students in the year 2010 (70%), 2011 and 2012 (60%). The number of graduates for 2010, 2011 and 2012 are 54, 45 and 58 respectively.

1.5 Summary of Review Judgements

Table 2: Summary of Review Judgements for the B.Sc. in Information Systems

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

2. Indicator 1: The Learning Programme

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

- 2.1 The mission and vision of the Department of Information Systems (IS) are clearly stated. The main programme aims are captured in a set of four Programme Educational Objectives (PEOs) and are mapped to the Department of IS mission. These are also mapped to the University Strategic Goals. Appropriate approvals are in place for the College of IT mission, IS Department mission, and PEOs. The Panel notes the use of PEOs and appreciates that they are aligned with the missions of UOB and the College of IT as well as the strategic goals of UOB.
- 2.2 The BSIS Programme has 132 credit hours to be completed in four years. There is a year-on-year academic progression with consideration of the balance of knowledge vs. skills and theory vs. practice, as well as consideration of the National Qualification Framework (NQF). The curriculum is described as sets of courses required to meet university requirements, courses needed to meet College of IT requirements, and courses required by the IS Department. There are also elective courses covering advanced topics. The curriculum is reasonable in the context of local needs, as evidenced from the feedback of members of the Programme Industry Advisory Committee and wider Information Systems norms. Students and employers were satisfied with the organization of the curriculum in general. However, it was pointed out by these stakeholders groups that the curriculum would benefit from the inclusion of recent developments, such as mobile applications. The Panel appreciates the general organization of the BSIS curriculum. However, the Panel recommends that the College include more modern courses, appropriate to information systems in the local context, to demonstrate UOB leading role in the region.
- 2.3 Major sources of curricular guidance for the BSIS Programme are the ABET Computing Accreditation Commission (CAC) 2009 criteria, Association for Information Systems (AIS) and Association of Computing Machinery (ACM) IS 2002 curriculum model. There has since been updated guidance from AIS/ACM in 2010 but mechanisms for curriculum changes are relatively slow at UOB. This means that adherence to AIS/ACM 2002 was still in progress when the AIS/ACM 2010 guidelines became available. Keeping up to date is especially important in an area like Information Systems where developments and changes are relatively rapid. The Panel was informed in interviews that there are moves in place to follow the AIS/ACM 2010 guidelines and to prepare for the second ABET accreditation, but curriculum changes at the Institution take a long time resulting in the delayed inclusion of new material into the curriculum. The Panel recommends that the

College works with the relevant authorities at UOB streamline processes for curriculum changes so the recent international standards can be reflected quickly in the BSIS Programme.

- 2.4 The BSIS Programme has a set of specified Programme Intended Learning Outcomes (PILOs) and has adopted the ABET CAC standards. The ten PILOs are mapped to four Programme Education Objectives (PEOs) in a relatively simple manner using a matrix. The Panel appreciates that the PILOs have been developed appropriately in general and are communicated to all stakeholders, but suggests that the mapping should be reviewed regularly to ensure the accuracy of the mapping as the BSIS Programme is revised in the future so as to remain in line with the latest AIS/ACM and ABET guidelines.
- 2.5 Each course has a set of Course Intended Learning Outcomes (CILOs) mapped to the PILOs using a matrix to ensure a complete mapping. The CILO-PILO mapping information is clearly documented. Mapping of courses to the Bahrain National Qualification Framework (NQF) has also been formulated. The Panel notes that some courses have CILOs biased towards knowledge rather than skills-based CILOs, especially at more advanced levels. The Panel also notes that, in some cases, CILOs are expressed as objectives rather than outcomes; for example, the courses ITIS 101 and ITIS 314 refer to “course objectives”. The Panel recommends that CILOS are regularly checked for the overall BSIS Programme by a faculty member experienced in the formulation of measurable learning outcomes.
- 2.6 The BSIS Programme curriculum includes an Industrial Training course of eight to nine weeks, worth one credit, where students are placed in government or private organisations. A number of forms exist for the evaluation associated with the running of the work-based training; these include Visiting Lecturer Evaluation, Industrial Supervisor Report and Student Report. The Panel is of the view that the Industrial Training Course is a worthwhile part of the BSIS Programme and appreciates the opportunity provided to the students to apply theory and perform tasks related to information technology.
- 2.7 In the delivery of the BSIS Programme, a good range of teaching methods is employed. These include: conventional lectures which tended to be interactive since the maximum class size was 40; practical and laboratory work that includes problem solving, and group work; a major Senior Project; and a period of industrial experience. Students interviewed by the Panel are generally satisfied with the teaching methods and the accessibility of faculty for help. There is also the opportunity for student to give their feedback on teaching and learning methods leading to continuous improvements. During the site visit, the Panel was given demonstrations of Blackboard and Moodle, Course Learning Environments, also

described as Virtual Learning Environments (VLEs). Blackboard is used on many courses and Moodle is used for some courses. These resources are appreciated by students and are provided for most courses to manage the set of materials associated with the delivery of the courses. However, the Panel noted the difficulty of access to these online resources during the site visit demonstrations. Students and staff interviewed by the Panel indicated that the VLEs typically enables students to have ready access to information such as the aims of the course, performance indicators, lecture slides, recommended reading, other hand-outs and support material, as well as assessment materials. The Panel suggests that all courses provided by the IS Department use learning management systems to provide a basic level of information. The Panel was encouraged to note that UOB has an e-Learning Centre to support staff in their endeavours toward greater but appropriate and effective use of e-Learning.

- 2.8 The College of IT has a draft Teaching and Learning strategy that seeks to encourage attention to educational objectives and the use of current research and scholarship but also encourages increased use of e-learning and blended learning while ensuring attention to quality matters. The Panel was pleased to learn that students are provided with several opportunities for exposure to professional practices as well as the development of independent learning, these including course projects, Industrial Training course, senior projects professional workshops and field trips.
- 2.9 The College of IT has a set of well-documented assessment policies and regulations. A variety of formative and summative assessments methods are used to assess the extent to which students are meeting the Course ILOs. The assessment methods employed varied between courses, reflecting for instance, differing emphases on practical work. Typically assessment include class tests, practical activity, quizzes and examinations. The College of IT has a policy of providing feedback on student work within a period of two weeks; during senior projects, students received feedback from their advisors on a weekly basis. Students interviewed by the Panel indicated that they normally receive timely feedback on their written assessments and on their practical work during practical classes. The Panel appreciates that the assessment and feedback arrangements are implemented effectively.
- 2.10 In coming to its conclusion regarding The Learning Programme, the Panel notes, *with appreciation*, the following:
- The BSIS Program Educational Objectives are aligned with the missions of UOB and the College of IT as well as the strategic goals of UOB.
 - A year-by-year curriculum plan has been developed for the BSIS programme that demonstrates progression from year to year.
 - External sources have been used during programme development and revision.

- Programme and course learning outcomes have been developed and are appropriately aligned with each other.
- Industrial training is a requirement in the programme and provides the students with the opportunity to gain workplace experience.
- Well-defined policies for teaching, learning and assessment are in place.
- Feedback on students course work is prompt and efficient.

2.11 In terms of improvement the Panel **recommends** that the Department should:

- include more modern courses appropriate to information systems in the local context
- streamline processes for curriculum changes so that recent international standards can be reflected quickly in the BSIS Programme
- improve Course Intended Learning Outcomes (CILOs) of some higher-level courses to require advanced skills.

2.12 Judgement

On balance, the Panel concludes that the programme **satisfies** the Indicator on **The Learning Programme**.

3. 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.

- 3.1 In addition to meeting the overall university-wide admission requirements, students admitted to the BSIS Programme must meet the requirements of the College of IT, which include minimum achievement in English, Math, and Science. Applicants are selected on a competitive basis according to their high school GPA, aptitude tests and personal interviews. Students with weaknesses in oral and/or written English are required to take a one-semester orientation programme. During interviews, the Panel learned that the orientation programme is being expanded to two semesters. In addition to English, the expanded orientation programme will focus on math and study skills in order to improve student progression and retention.
- 3.2 The number of registered students has declined from almost 800 in 2010 to just over 600 in 2012. During this period, the number of males has shown an increase by about 30% while the number of females has declined by about 20%. The decline in number of females is related to an increase in programme options at UOB available to female students. Despite the decline in overall enrolment, demand for the programme remains strong. The number of students admitted to the orientation/foundation programme has decreased from 215 in 2010 to 98 in 2012. The Panel notes that although there are sufficient physical resources to handle 600+ BSIS students, the number of faculty is insufficient, particularly that some PhD holding faculty members teach more than three courses per semester, which is the normal teaching load in the IS Department.
- 3.3 There are clear lines of accountability with regard to the management of the BSIS Programme. The programme is managed by the chair of the IS Department with the support of 15 committees and five coordinators; these are the Senior Project, Training, Department Council Minutes, Exemption and Old Plan Advising, Exams Allocation and Invigilation, and Training Coordinator. The responsibilities of each committee and coordinator are well-documented and committee membership for the past three academic years is available. The Panel was informed in different interviews that committee decisions are forwarded to the IS Department chair who may then consult with the department council. Departmental decisions are consequently forwarded to the College of IT and University councils as appropriate. During the site visit interviews, it was evident that there are clear lines of accountability and that faculty members understood the processes well in general.
- 3.4 The IS Department has one Professor, two Associate Professors, 20 Assistant Professors, one Senior Lecturer, three Lecturers, and eight Graduate Assistants.

Faculty expertise is fairly broad and some are very active in professional development, professional activities, and publishing papers. In general, faculty members are appropriate for the BSIS Programme. The number of faculty is, however, insufficient to teach the programme and some faculty members teach an excessive number of credit hours (up to six sections in the second semester of the academic year 2012–2013). Although faculty who are assigned an overload are compensated for this additional work, the overload reduces the time available for them to pursue activities such as research, which is necessary to remain current in the discipline and is a requirement for professional advancement and promotion. The lack of a significant number of Full and Associate Professors in the department means that (a) leadership roles are filled by Assistant Professors whose time is better spent pursuing activities that would lead to promotion in the professorial ranks and (b) suitable mentors are not available for junior faculty. The Panel recommends that the Department increase the number of PhD faculty, especially Associate and Professors particularly for programme leadership and mentorship roles

- 3.5 UOB has a clear procedure for the recruitment of academic staff. Academic staff members interviewed by the Panel expressed their satisfaction with the induction they received. Although the teaching of faculty is evaluated each semester by students, a comprehensive evaluation of faculty performance is done only at the time of contract renewal for non-Bahraini academic staff and as part of promotion application procedures. The Panel learned from interviews that there is a plan to commence annual appraisals of all faculty members. The Panel encourages the College to expedite the finalization and implementation of this plan. While the procedures for promotion are comprehensive and fairly clear, the Panel is concerned that it takes approximately three years to process a promotion case from the time a candidate completes his/her portfolio. International norms are to process promotion cases in less than one year. The Panel recommends that the College works with the relevant UOB authorities to reduce drastically the time required to process promotion applications. Although the university has no documented retention procedures, several initiatives are implemented to support staff retention; these include competitive salary packages, financial support for research projects and attending conferences, as well as rewards for publishing in international journals.
- 3.6 UOB utilizes several management information systems to enable informed decision making; these include online systems for advising, registration, human resources and quality assurance system. The College of IT has developed its own offline advising system to supplement UOB's online system. This system was demonstrated to the Panel during the site visit. The supplementary system developed by the College better enables the advising of at-risk students and the assessment of graduation plans. The Panel was informed that UOB is in the process of upgrading its online

advising system. The Panel suggests that the capabilities of the offline system be incorporated into the upgraded online system.

- 3.7 The University has strict policies and procedures to ensure the security of students' and instructors' records authorization, responsibilities and roles, website features and auditing. Access to learner records is controlled by the Deanship for Admission and Registration. Students interviewed by the Panel indicated that they can access their records at any time using the online registration system. The accuracy and confidentiality of students' information and academic records are fully observed by the university. The students, the department's chair and the students' advisor are the only individuals that can access these records. Those authorized to access learner records are required to change their password every 120 days. The approval status of grades is recorded in an audit table. Accuracy of records is ensured by returning all graded work (other than the final exam) to students who can then verify the accuracy of their computer record. Although marked final exams are not returned to students, students may request a re-evaluation of their results through an appeal process.
- 3.8 During the site visit, the Panel toured the physical resources available to the IS department. There are ten classrooms available for use by the department all of which are equipped with whiteboards, computers, and projectors, and are sufficient in number and capacity for the BSIS Programme. In addition, the department has access to a big hall that can accommodate up to 180 students and is used for seminars and workshops. The department also has nine computer laboratories each having an average of 28 stations and a total of 263 computers. However, there are no specialist laboratories to support the teaching of advanced topics such as multimedia with the result that the delivery of the curriculum is light on hands-on experience. The Panel notes that although students have access to a sufficient number of general purpose PCs, there is no file server that these PCs can access. This means that students must either use the same PC at all times resulting in delays when someone else is using that PC or must carry their data on portable media as they move from PC to PC, which, besides being inconvenient, increases the risk of spreading computer viruses and data loss. The Panel encourages the College to use a shared file server to greatly reduce these problems. The students have access to the UOB main library and the College of IT library, both of which have an appreciable collection of resources relevant to the BSIS programme. Overall, library facilities are excellent and the eResources are accessible from off as well as on-campus locations. UOB continues to expand its library holding with the result that the number of articles and books borrowed through inter-library loans has dropped by about 70% between 2010 and 2012. In this same period, the number of library users has increased 30%. Students interviewed by the Panel expressed overall satisfaction with the available facilities and learning resources.

- 3.9 One computer system is used to track problems associated with labs and another to track utilization. The usage of e-learning resources such as Blackboard and Moodle is tracked by the Zain e-learning centre. The tracking data indicates that 44 Information Systems courses used either Blackboard or Moodle in the academic year 2012–2013 and that 90% or more of the user activity was focused on the content and grades areas with the rest being devoted to email, messages and discussions. The Panel suggests that the IS Department increase the number of courses that utilize Blackboard or Moodle. Although data on the usage of the library’s digital resources was not available at the time of the Panel’s visit, the library has recently installed the software needed to collect this data.
- 3.10 UOB has an online technical support system that students and staff may use to report laboratory problems. Students and staff may also seek the assistance of laboratory technicians and IT centre support staff. In addition, the IS department has a “Labs and Equipment Committee” responsible for overseeing laboratory activities and updating of hardware and software. However, students interviewed by the Panel indicated there is not a sufficient number of laboratory technicians to meet growing demand. This needs to be addressed. The Zain e-learning centre provides training on the efficient use of Blackboard and Moodle. The Panel was informed during the touring of library facilities that the Division of Library Instruction provides information literacy training to faculty and students. Library orientation programmes may be set up for new students and faculty by giving a two-day notice. Moreover, field specific instruction on library resources may also be arranged. The Deanship of Student Affairs provides non-academic counselling and guidance including personality development support, financial support as well as psychological and social support. The Career Counselling Office organizes an annual Careers Day as well as several workshops to prepare students for Careers Day. Students indicated during interviews that they are generally satisfied with the level of academic and non-academic support provided to them.
- 3.11 New students participate in an induction day held at the beginning of each academic year and is organized by the Deanship of Student Affairs in collaboration with the Deanship of Admissions and Registration, the library as well as the College of IT and the IS Department. Different student bodies, such as the student council, scientific societies and student clubs are also involved in the orientation programme. Students who attended the induction programmes informed the Panel that they were introduced to the university rules and regulations, the College as well as the IS department and academic programme, all of which they found helpful in easing their enrollment in the IS department. Information imparted in the induction day is comprehensive. Students are also given a handbook that documents UOB’s regulations and facilities. In response to a stakeholder assessment of the 2012–2013 induction day, the 2013–2014 induction day comprised enhancements such as bi-

lingual induction at the college level, induction was scheduled several times during the semester to accommodate schedules, and a session on plagiarism was included. The Panel appreciates the comprehensive arrangements for the orientation of new students.

- 3.12 Policies and procedures governing at-risk students (students with a GPA below 2.0) as well as general advising procedures are well documented. The IS Department uses UOB's online advising system to identify at-risk students as well as an indigenously developed offline advising system to track the progress of at-risk students. At-risk students are unable to register without advisor approval. During interviews with staff and students, the Panel learned that peer tutoring as well as workshops are conducted by the Office of Students' Advice and Guidance to support at-risk students.
- 3.13 The IS department provides the students with adequate opportunities for informal learning through the organizing of activities that stimulate the students to gain skills and knowledge beyond the classroom. Examples of informal learning activities include IT symposium, professional workshops, conferences and Tamkeen professional development courses. Between February 2012 and March 2013, ten workshops/seminars were conducted. The Panel appreciates the department's efforts in expanding the students' experience and encourages the college to continue conducting extra-curricular activities pertaining to Information Systems.
- 3.14 In coming to its conclusion regarding the Efficiency of the Programme, the Panel notes, *with appreciation*, the following:
- The BSIS Programme attracts high-calibre students.
 - There are clear lines of accountability in the management of the programme and these are well-understood by staff.
 - Academic staff members are satisfied with the induction they receive.
 - Management information systems are effectively used for registration, advising, and human resources.
 - The UOB campus and the College of IT building provide an excellent learning environment.
 - There is a good number of general-purpose computer laboratories equipped with a sufficient number of PCs.
 - The libraries have a rich collection of IT-relevant resources that are accessible from off-campus.
 - A comprehensive induction programme is conducted for new students regularly.
 - Adequate informal learning opportunities such as workshops and seminars are available to students.

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

- increase the number of PhD faculty, especially Associate and Professors particularly for programme leadership and mentorship roles
- expedite the implementation of the staff appraisal plan
- reduce the time required to process promotion cases
- increase the number of laboratory technicians to support students learning
- provide specialist laboratories to serve the teaching of advanced IS topics.

3.16 **Judgement**

On balance, the Panel concludes that the programme **satisfies** the Indicator on **Efficiency of the Programme**.

4. Indicator 3: Academic Standards of the Graduates

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

- 4.1 The programme's graduate attributes are clearly stated as Programme Expected Objectives (PEOs), Programme Intended Learning Outcomes (PILOs) and Course Intended Learning Outcomes (CILOs). The achievement of these outcomes is assessed through direct and indirect assessments, both of which are documented in course portfolios. The direct assessment of student learning employs tools such as exams, quizzes, assignments and reports. The Panel notes that course portfolios map assessment instruments to CILOs in *Faculty/Course Self Assessment* forms and CILOs to PILOs in *Faculty Course Assessment Report* forms. PILOs are also indirectly assessed through a number of surveys and evaluations. The surveys include Alumni, Employer, PIAC and Senior Exit Survey, whereas the evaluations include Online Course Evaluation, Senior Project Evaluation and Industrial Training Supervisor Evaluation. The PEOs are assessed with respect to UOB alumni and employers. The Panel appreciates that the graduate attributes are clearly stated and that an appropriate range of assessments is used to measure the outcomes.
- 4.2 The programme uses AIS/ACM, ABET and the QQA National Qualifications Framework (NQF) as reference points. The BSIS Programme adheres to the AIS ACM 2010 guidelines for curriculum content in Information Systems well. There is also evidence of a start to benchmarking against 17 universities with IS programmes (mainly in the US and the UK). The universities selected are of variable levels of quality and reputation, and the information used is publicly available on these universities' websites. UOB considers itself to be a leading university in the region and hence the Panel suggests the college should be more explicitly aware of the quality of the IS programmes and universities against which it undertakes benchmarking. The Panel recommends that the College undertake formal benchmarking of BSIS at a deeper level with similar programmes offered regionally and internationally.
- 4.3 A College-wide assessment strategy entitled "Assessment, Grading, and Moderation Policy" was recently approved and disseminated to all faculty and students. The "Exam Moderation and Grade Distribution Strategy" is also in place. The assessment procedures are described in the SER. The Panel notes that there are mechanisms in place to review and approve assessment policies. Students informed the Panel during interviews that they are in general satisfied with assessment procedures and are especially content concerning the speed of assessment. Overall, the Panel found good evidence in the provided documentation and during site visit that the policies, procedures and regulations for assessment are in place and they are being followed.

- 4.4 Achievement of CILOs is measured using direct assessment techniques, typically in examinations, assignments and quizzes. A matrix maps PILOs to PEOs and CILOs to PILOs, enabling measurement at these various levels. Assessment plans are in place that indicate in which CILOs are measured. Thus, suitable mechanisms are in place to aid the alignment of assessment with CILOs. The Panel notes that the alignment is not always as effective as it could be and suggests closer monitoring of this assessment by an experienced faculty member would be beneficial. The Panel also notes that not every course portfolio contained complete information on the assessment mechanisms, such as which questions in an examination were used to assess a specific CILO. However, evidence was viewed by the Panel during the site visit indicating that such mappings exist. The Panel suggests that all relevant assessment material would be better stored in course portfolios for easy access and checking. The Panel recommends that the Department ensure a more consistent and complete population assessment materials in the course portfolios together with appropriate and effective monitoring of course portfolios with respect to assessment. This could help in maximizing the validity and usefulness of assessment data.
- 4.5 There is an *Exam Moderation and Grade Distribution Strategy* for internal moderation. The IS Department has effective processes in place to review grade distributions of courses at the end of each semester. There is a process to review examinations but this could be more transparent (e.g., additional written documentation in course portfolios, minuted actions of relevant committees). The use of a consistent coversheet for tests and examinations is being encouraged. While there was some evidence of internal moderation taking place in multi-section courses, the Panel was unable to find evidence in the case of single-section courses. The Panel recommends the establishment of more thorough internal moderation procedures to ensure appropriateness of examinations, consistency of assessment plans, and fairness of grading.
- 4.6 The SER states that no external moderation of assessment takes place since UOB follows the American university model. This was confirmed during site visit discussions. The Panel notes some evidence of external marking in the Senior Project. The Head of Department and faculty members interviewed by the Panel indicated that they are content with the situation and there are currently no plans for a wider adoption of external moderation. The Panel nevertheless encourages the IS Department to adopt effective external moderation practices since it provides numerous benefits. For instance, increased industrial participation in senior projects would not only provide external input on student performance and appropriateness of curriculum but also create closer ties between UOB and industry as well as students and potential employers.

- 4.7 Course portfolios provide evidence that, in general, courses are at the appropriate level. This can mainly be seen in the level of difficulty of the final examinations of courses. In general, the Panel is of the view that the work of students compares well regionally. It is also within the acceptable scale of achievement internationally. The Panel also learned that a College of IT student team won the local and regional Microsoft Imagine Cup competitions in 2009 and achieved third place in 2010, which are indications of the achievements of the programme's students.
- 4.8 The IS Department relies mainly on survey results of alumni and employers as well as input from the Programme Industrial Advisory Committee to determine the adequacy of graduate achievements. The results of the surveys on the achievement of PILOs are detailed in the SER and supporting documents. The Panel was informed that the recommendations of these stakeholders with regard to enhancing graduates' achievements are incorporated into the programme through the curriculum committee. Discussions of the Panel with alumni and employers during the site visit indicated a great level of satisfaction with the quality of graduates. The Panel also notes that the grade distributions provided in course portfolios indicate grading standards comparable to peer institutions.
- 4.9 The SER provides data on dropout rates and retention rates. During 2010–2012, the dropout rate varied from 6–22%, with some of the variation outside the control of UOB. No data was provided for comparison with other universities in the region. Based on the data provided, the Panel notes that there is a comparatively high and quite variable dropout rate. The Panel learned that a study entitled "Students' Dropout and Decline in Study at University of Bahrain", published in 2011, provided an analysis of the factors contributing to students' dropout rates at the university. During interviews, the Panel learned that the high dropout rate was sometimes due to external events. To do a more meaningful analysis, the Panel recommends that the Department conduct a cohort-based analysis of graduation rates and retention rates.
- 4.10 Work-based learning takes place in the ITIS492 Industrial Training course, normally undertaken for two months in the summer. During interviews, employers expressed their satisfaction with this training as it provides them with an opportunity to vet new employees; however they indicated that even more training could be undertaken by students (for example, as an elective course). Students were in general satisfied with the Industrial Training although they pointed out that it needs to sometimes be more relevant to the BSIS Programme. An *Industrial Training Report Form*, *Industrial Training Report*, *Staff Visit Report*, and *Industrial Supervisor Assessment Form* are used for this course. While the Panel is of the view that these forms could be simplified, they are comprehensive and demonstrate commitment to Industrial Training. Rules and regulations are available on a Google website, with a link provided to it. However, this website does not contain rules and regulations that are

obviously marked as such and is in any case outside the UOB website. The Panel suggests that all important online material associated with the BSIS Programme in general and Industrial Training in particular should be maintained on the main UOB website. Overall, the Panel encourages the College to develop the Industrial Training course further for the BSIS Programme. In particular, more external placements outside UOB would be beneficial and placements with particular relevance to information systems should be chosen.

- 4.11 In practice, the BSIS Programme has a functioning Senior Project (ITIS499). A handbook, the *IS Senior Project Course Handbook*, is in use giving guidance for students. In addition, a number of forms are used to follow up on students' progress during their projects' period. These include registration form, project proposal, progress report-1, progress report-2, and progress report-3, project poster, final report as well as a senior project achievement form. Projects are marked by the supervisor and two others, sometimes an external examiner from industry. Marks are averaged in general rather than reached by consensus. Upon examining a number of projects, the Panel noted that supervisors tend to mark high (the lowest mark seen was 84%, B+, and most are over 90%). The Panel learned that this is due to the high motivation of students to achieve good results on this aspect of the BSIS Programme. Currently most students gain an 'A' grade making it difficult to identify and reward exceptional students (e.g., those suited to postgraduate study). Projects are normally joint between two or more students with most marks being common. The Panel suggests that more marks could be allocated individually to students. The Senior Project is scheduled for Semester 7 in the UOB *Undergraduate Programs Catalogue 2013/14* and two electives are taken in Semester 7 and 8 in parallel if the catalogue timetable is followed. The Panel learned that the project often extends over two semesters (e.g., 7 and 8) in practice. The Panel suggests that undertaking electives before the project could allow the knowledge gained from these to feed into the project more effectively.
- 4.12 There is a plagiarism policy and Turnitin software is used for plagiarism detection, mainly for the Senior Project. From different interviews, it was apparent to the Panel that there is some confusion with regard to the percentage of plagiarism allowed in student work. The Panel encourages the Department to offer more training on plagiarism and the use of Turnitin software to spread a culture of zero-tolerance across all faculty members and students.
- 4.13 There is a Programme Industry Advisory Committee (PIAC) comprising employers in IT-related government and industry positions and a Programme Students Advisory Committee (PSAC). The Panel held a discussion with a number of PIAC members which demonstrated the suitability and engagement of its members. It is evident to the Panel that the PIAC is an important source of advice on the needs of

the industrial IT community. Examples of programme improvements made in light of PIAC and PSAC inputs were provided to the Panel; these include the revision of PEOs and curriculum improvements. The Panel appreciates the valuable contribution of the PIAC and PSAC to the BSIS Programme and finds them to be worthwhile initiatives. The Panel was informed during interviews that the PSAC meets each semester but the PIAC less often, the last two meetings being in 2010 and 2012. The Panel encourages the Department to meet more regularly with the PIAC.

- 4.14 The Panel met with five alumni of the BSIS programme and a number of employers, many also members of the PIAC. During discussions, both alumni and employers indicated a great level of satisfaction with the quality of graduates. An Alumni Survey indicates general satisfaction with the BSIS programme PEOs; however, graduates would like to have more practical IT, analytical, and communication skills included in the curriculum. There has also been feedback on the PEOs from the PIAC and employers who indicated that senior projects could be designed to tackle the IT industry's problems. The Panel notes that UOB is seen as a leading university in Bahrain with respect to its graduates.
- 4.15 In coming to its conclusion regarding the Academic Standards of the Graduates, the Panel notes, *with appreciation*, the following:
- The programme's graduate attributes are clearly stated as PEOs, PILOs and CILOs.
 - An appropriate range of direct and indirect assessment tools is used for the measurement of outcomes.
 - The IDEAS Handbook comprehensively describes university-wide assessment processes.
 - The level of final examinations is in general appropriate for a Bachelor's degree.
 - Comprehensive policies for industrial training are in place and are implemented.
 - A handbook for the Senior Project giving detailed guidance for students has been developed and is used.
 - Industrial and student advisory boards actively participate in the direction of the programme.
 - Employers are satisfied with the quality of graduates.
- 4.16 In terms of improvement, the Panel **recommends** that the Department should:
- undertake formal benchmarking of BSIS programme with similar programmes offered regionally and internationally
 - enhance internal moderation for marking of students work
 - extend external moderation from senior projects to a wider set of assessments
 - conduct cohort analysis of graduation and retention rates.

4.17 Judgement

On balance, the Panel concludes that the programme **satisfies** the Indicator on **Academic Standards of the Graduates**.

5. 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.

- 5.1 University policies, procedures and regulations are published and made available to faculty members and to students on UOB's website. In particular, academic policies regarding student's admission, progression and transfer are available to all students on induction day and on the college intranet. Prior to their adoption, new rules and regulations are made available to all faculty and administrative staff, and they are discussed during department council meetings. The Panel noted from the Senior Exit Survey and confirmed by sampling that the policies, procedures and regulations are properly and consistently applied across the College, a matter verified internally at three levels of Quality Assurance Committees: Department, College and University.
- 5.2 The programme is managed by the Department, headed by a Chairperson who is typically distinguished and experienced in higher education. The Chairperson meets regularly with the department council which includes all faculty members and which has responsibility for all academic decisions. The IS department has an elaborate committee structure comprising 14 committees, in addition to *ad hoc* committees established as needed. The committees have clear responsibilities and terms of reference and they report into meetings of the department council. Decisions on important matters such as the approval of a programme have to be ratified at College level by the College Council. In the view of the Panel, the programme is managed in an effective and responsible manner.
- 5.3 The quality assurance management system operates at three levels. The Department quality assurance is the responsibility of the Departmental Accreditation Committee (DAC); the College of IT has a College Accreditation Committee (CAC) and a Director for the Quality Assurance Office to check the overall quality of the programme; and there is a Quality Assurance and Accreditation Center (QAAC) at University level. The assessment of programmes is outcome-based and focuses on the PEOs, PILOs and CILOs, which are all related and assessed regularly, as detailed in the IDEAS Handbook. Each year the Department prepares a self-assessment report that includes data about the operation of the programme, about strengths and weaknesses of the Programme, about faculty, and about resources and includes an action plan for improvement. This annual report is submitted to QAAC, which provides appropriate feedback. The CILOs and assessment tools tend to be revised on an annual basis with the PEOs and the PILOs being revised every three to four years, major changes being based on the yearly assessments. To support the system of reporting, certain formal mechanisms had been put in place. In February 2011, the

University Council had approved the Procedure for Programs Quality Assurance, together with the format of the QAAC Self-Evaluation Template and the QAAC Self-Evaluation Improvement Plan Templates. The Panel appreciates that a comprehensive quality assurance system operates at university, college and department level.

- 5.4 The processes of assessing the CILOs and the PILOs utilize the data obtained from the course portfolios such as the results of assessments and the evaluations of outcomes. The related processes are well defined and their implementation, though not uniformly adhered to, is generally reasonable. Typically the DAC reviews these portfolios. In addition each semester a university level process requires students to complete a course evaluation; statistical information derived from this is sent to instructors and to the Chairperson of the department.
- 5.5 A number of workshops has been arranged for the academic and administrative staff to increase their awareness on quality assurance matters. Topics covered in these workshops include formative and summative assessment, development of rubrics, and grade distribution. However, during interviews, the Panel noticed discrepancies in the faculty's knowledge in regard to assessment procedures and related issues. The Panel encourages the College to ensure the involvement of all academic and support staff in quality assurance capacity-building activities so that they can effectively participate in relevant quality issues.
- 5.6 A policy for the development and approval of new programmes and courses was recently approved by the University Council in October 2013. At the time of the site visit, the Panel did not have the opportunity to observe the adherence to the policy as it has not yet been implemented. The Panel encourages the Department to monitor the implementation of the current policy for the development and approval of new programmes in order to permit timely, yet carefully considered and effective changes to programmes.
- 5.7 A self-evaluation report (SER), is annually submitted to the QAAC to provide an overview of the effectiveness of quality assurance arrangement of the IS department. In light of the SER, an improvement is developed with specific recommendations for improvement. As part of the annual programme evaluation, faculty members compile course portfolios for the courses they taught. These portfolios contain assessment reports on the achievement of CILOs. The CILO assessment results are used to measure the PILOs. In addition, PILOs are assessed using a set of Performance Indicators (PIs). The Panel appreciates that a comprehensive set of assessment data is collected on all courses taught within an academic year. The Panel notes with appreciation that the feedback from both internal and external stakeholders is taken into consideration and feeds into the improvement process.

- 5.8 Arrangements for the periodic internal and external reviews of the IS programme are in place and are set by the QAAC. In addition to internal reviews, the IS department seeks external professional bodies, such as ABET, ACM and AIS, to perform reviews of the programme. The Panel learned from interviews that changes to the Programme curriculum in 2010 were based on internal surveys and an external reviewer report in 2010 and that minor changes suggested after 2010 have been approved. The Panel encourages the Department to use feedback more effectively from employers about Industrial Training as well as the Senior Project as potentially useful information for programme improvement.
- 5.9 Feedback from employers, alumni, PIAC and PSAC is collected through surveys which are then analysed and the outcomes are used for programme improvements. An extensive summary of survey results and improvement actions taken by the department since 2009 is provided in the SER. During interviews, the Panel learned that the survey analysis results are discussed during PIAC meetings and are made available to all stakeholders.
- 5.10 Since its establishment, the College of IT encouraged its faculty to attend local and international conferences, seminars, and workshops. Faculty members interviewed by the Panel expressed their satisfaction with the professional development opportunities provided to them. The Panel is pleased to learn that some faculty members have also completed the “Postgraduate Certificate in Academic Practice (PCAP) programme” that is offered by the university to enhance the faculty’s teaching practice. In order to formalize the professional development activities, the College established a Professional Development Committee in March 2013 mandated to develop the college’s professional development plan and organize professional development activities to encourage the faculty in developing their skills. The Panel recommends that the College expedite the development and implementation of the professional development plan and to evaluate and improve the professional capabilities of the faculty.
- 5.11 In scoping the labour market, the department relies mainly on the feedback from PIAC members. During PIAC meetings, discussions are held on the professional needs of the IT industry and advice is given on how the programme can meet the labour market needs. In addition, a number of important General Studies about higher education and labour market needs are also considered to help ensure scoping. The Panel recommends that the Department conducts more meetings with the PIAC to discuss Bahrain and Gulf area markets needs.
- 5.12 In coming to its conclusion regarding the Effectiveness of Quality Management and Assurance, the Panel notes, *with appreciation*, the following:

- Policies, procedures and regulations are publically available and consistently applied across the college and department.
- There is an effective management structure within the college and department.
- A comprehensive quality assurance system operates at university, college and department levels.
- A comprehensive set of data is collected on an annual basis and is used for programme improvement.
- Arrangements are in place for the internal and external reviews to improve the Programme.
- The programme formally uses feedback from stakeholders for programme improvement.
- Adequate support for professional development is provided for faculty members.
- Initiatives for entrepreneurship are available to students.

5.13 In terms of improvement, the Panel **recommends** that the Department should:

- meet more regularly with the Program Industry Advisory Committee
- develop a strategy for staff development to measure, evaluate, and improve the professional capabilities of the staff, and to implement this.

5.14 **Judgement**

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

6. 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, 2012*:

There is confidence in the B.Sc. in Information Systems in the College of Information Technology offered by the University of Bahrain.