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



Directorate of Higher Education Reviews

Programmes-within-College Reviews Report

**Bachelor of Science in Information Technology
Faculty of Information Technology
Royal University for Women
Kingdom of Bahrain**

**Date Reviewed: 5 – 8 May 2013
HC014-C1-R014**

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Acronyms

ACM	Association for Computing Machinery
CS	Computer Science
DHR	Directorate of Higher Education Reviews
FAC	Faculty Advisory Committee
FC	Faculty Council
FIT	Faculty of Information Technology
GCC	Gulf Corporation Countries
GITEX	Gulf Information Technology Exhibition
HEC	Higher Education Council of the Ministry of Education, Kingdom of Bahrain
IEEE	Institute of Electrical and Electronics Engineers
ILO	Intended Learning Outcome
IT	Information Technology
MIS	Management Information Systems
QQA	National Authority for Qualifications & Quality Assurance of Education & Training
QAAU	Quality Assurance and Accreditation Unit
RUW	Royal University for Women
SER	Self-Evaluation Report
SQL	Structured Query Language
WVU	West Virginia University

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 one, the programme will receive a ‘limited confidence’ judgement. If one or no Indicator is 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 Royal University for Women

A Programmes-within-College review of the Faculty of Information Technology was conducted by the DHR of the QQA in terms of its mandate to review the quality of higher education in Bahrain. The site visit took place from 5 – 8 May 2013 for the academic programmes offered by the college. These are: Bachelor of Science in Computer Science and Bachelor of Science in Information Technology.

This report provides an account of the review process and the findings of the Panel for the Bachelor of Science in Information Technology based on the Self-Evaluation Report (SER) and appendices submitted by the Royal University for Women (RUW), the supplementary documentation made available during the site visit, as well as interviews and observations made during the review site visit.

RUW was notified by the DHR/QQA on 13 November 2012 that it would be subject to a Programmes-within-College review of its Faculty of Information Technology with the site visit taking place over a period of 5-8 May 2013. In preparation for the review, RUW conducted its college self-evaluation of its programmes and submitted the SER with appendices on the agreed date on 31 January 2013.

The DHR constituted a panel of experts in the academic field of Information Technology and in higher education who have experience of external programme quality reviews. The Panel comprised four 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 the RUW will use the findings presented in this report to strengthen its Faculty of Information Technology. The DHR recognizes that quality assurance is the responsibility of the higher education institution itself. Hence it is the right of RUW to decide how it will address the recommendations contained in the Review Report. Nevertheless, three months after the publication of this Report, RUW is required to submit to the DHR an improvement plan in response to the recommendations.

The DHR would like to extend its thanks to RUW 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 Faculty of Information Technology.

1.3 Overview of the Faculty of Information Technology

The Faculty of Information Technology (FIT) has the vision to foster women's excellence and to attract them to technology-related fields, by offering programmes of international standards at a women's only educational institution. It offers two academic programmes, the Bachelor of Science in Information Technology (IT) and the Bachelor of Science in Computer Science (CS). There are currently a total of 52 students registered in both programmes including students currently undertaking the orientation programme. In the past four academic years, 34 students graduated (including those that will graduate in the current year). The data set provided by the FIT shows a number of academic staff associated with the programme that conflicts with information provided during interviews. The Panel found that the total number of academics actively contributing to the programme to comprise three full-time and three part-time staff members.

1.4 Overview of the Bachelor of Science in Information Technology

The Bachelor of Science in Information Technology (BSIT) comprises 120 credit hours that are expected to be completed in four academic years. Each academic year comprises two regular (15 weeks) semesters and a summer (seven week) semester.

There are 18 credits for the University Requirements, 66 for Department Requirements, and 36 for Major Requirements.

In the past four academic years, 15 students were admitted to the programme; six on a full-time basis and nine on a part-time basis comprising nine Bahrainis and six GCC nationals. In the same period, 14 students graduated from the programme (including those expected to graduate). Currently, registered students in the programme are 21 (one part-time and 20 full-time) comprising 14 Bahrainis and seven from GCC.

1.5 Summary of Review Judgements

Table 2: Summary of Review Judgements for the Bachelor of Science in Information Technology

Indicator	Judgement
1: The Learning Programme	Does not satisfy
2: Efficiency of the Programme	Satisfies
3: Academic Standards of the Graduates	Does not satisfy
4: Effectiveness of Quality Management and Assurance	Does not satisfy
Overall Judgment	No 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 aims of the programme cover management, theoretical knowledge and technical skills; the ability to adapt to the new technologies; the ability to take responsibility for their independent learning; preparing student to lead teams; ethical behaviour and professional responsibility; the ability to analyse, specify, construct, and evaluate specialized systems for small, medium and big organizations; and to communicate appropriately. The Panel views the aforementioned elements as a reflection of an IT graduate according to international norms. The programme aims also align with the RUW mission and the first part of RUW's Strategic Goal 3 to 'Engage students in a distinctive high quality learning experience ...' but no aim aligns with second part '... and encourages community engagement.' Community engagement is an important aspect of RUW's approach to education and the aims should reflect this. There is an active planning framework, as evidenced by current activity that proposes a significant revision of the programme. This proposal would reduce the number of aims from nine to five, but the weakness identified above is still evident. The Panel recommends that the aims of the programme be reviewed and revised in order to ensure alignment with the RUW mission and strategic goals.
- 2.2 The programme comprises 120 credits over four years. Each year comprises two regular (15 week) semesters, and there is a summer semester during which some courses are taught over seven weeks. The workload is acceptable, though 120 credits is marginally lower than standard programmes having credits between 124 and 128 over four years. The Panel assesses the workload for students to be suitable.
- 2.3 The courses are designed to meet programme learning outcomes that are classified into categories: Knowledge and Understanding; Subject-specific skills; Thinking skills; and General and Transferable skills. This approach should lead, in principle, to pedagogical approaches and assessment strategies that provide a good balance between knowledge and skills, and between theory and practice. The Panel has a number of concerns with respect to the extent to which this has been achieved.
- 2.4 The academic progression year-on-year and course-by-course is exhibited by the curriculum, which contains a number of courses that cover computer programming. The Panel would expect to see a coherent set of courses that move from introductory, through intermediate to advanced material and ILOs. There is evidence of progression through this set of courses across the academic years – in terms of the material covered, with a greater emphasis on more advanced aspects of programming tackled in later courses. However, this is not reflected in the learning

outcomes, which remain – particularly in the area of knowledge and understanding. The Panel recommends that RUW expedite the redesign of the Information Technology curriculum ensuring weaknesses in coverage, breadth and depth

- 2.5 The programme contains an introductory course, COS160 covering some aspects of C++, COS260 covering some aspects of Java, COS360 covering web programming, COS370 covering advanced C++, and related courses such as COS265 covering data structures using Java and COS290 covering Algorithms. However, COS265 has COS160 (and not COS260) as a prerequisite, though it is based on Java. COS290 also has COS160 as a prerequisite, though the textbook uses Java. COS370 has COS 160 as a prerequisite – which is appropriate in terms of the language. However, as an advanced course, it might be expected to be an intermediate rather than an introductory course as a prerequisite. This needs to be addressed.
- 2.6 The SER states that the programme is based on ‘... international expectations of the ACM/IEEE ...’. The relevant benchmark is the IT2008 document. The programme contains just one course, COS250 in the area of Networking. The Panel concludes that coverage of networks for IT is limited within the programme. The area of Data Management should include introductory and advanced material on databases, data modelling, and query languages. The programme contains just one course in this area, COS245. The coverage of Data Management is limited within the programme when compared to IT programmes of international standard. The area of programming is, perhaps, the central focus of an IT programme. There are, in fact, seven courses within the programme that cover programming: COS160, COS260, COS265, COS290, COS365, COS465, and COS370. However, the last four of these are in the electives within the programme. Consequently, there are some issues of coverage of this area. In particular, COS370, which covers object-oriented programming at an advanced level, is an elective and so may not be taken. Human-Computer Interaction is a fundamental component of an IT education and although COS440 provides an introduction to this topic, the overall coverage is limited when compared to international norms. The Panel recommends that the current curriculum be revised and reviewed to meet the requirements of the ACM/IEEE IT Curriculum and IT programmes International Standards.
- 2.7 The Panel notes that there is some evidence of academic research being included within courses comprising the programme. At the undergraduate level the incorporation of research is not usually a concern since research in IT emerges from practice and so it is not anticipated that it will feature to a large extent in the undergraduate curriculum.
- 2.8 There are many opportunities for embedding professional practice within the programme. The course specifications include a section that is designed to embed community engagement within courses. Thus, there is an assumption that

professional practice, through community engagement will be included. However, almost no course includes any details, though such would be possible in many areas. Exceptions are COS240 and COS275, which include guest lectures. One course, COS340, covers professional and ethical issues, yet no professional input is embedded. The Panel recommends that the Faculty address the lack of professional skills within the curriculum generally (as discussed above).

- 2.9 The programme ILOs are provided in the programme specification. However, these outcomes are poorly drafted, some combine skills that should be treated as distinct; there is some overlap, some are not appropriate for the categories they are placed within; and there are some omissions. For example, programme outcome B2 combines English language and computer language competencies. These are quite distinct skills and need to be separated. As it stands, a link between any course and this outcome is ambiguous. Similarly, programme outcome D2, combine communication skills and team working skills – again these are distinct. Programme outcome B4 states ‘The ability to obtain information technology skills related to the employment area such as business skills (data collection and assessment, problem analysis, time management) and technology skills (Database design and software development principles)’. This is overcomplicated and over-specific. Programme outcome D4 states ‘The ability to show how IT solutions including electronic commerce, or enterprise systems could enhance and improve a firm's business processes and its decision making.’ This is not a general or transferable skill but a subject-specific competence. Programme outcomes D2 and D3 are related, with D2 subsuming the more specific skills detailed in D3. There is significant overlap between B3 and D3 to the extent that only one outcome is needed to capture these aspects of communication. None of the programme ILOs covers ethics, though this is included in the aims of the programme and is included in courses within the programme. The RUW mission and goals stress community engagement – this is missing from the programme ILOs. The Panel recommends that the programme-level ILOs be reviewed and revised, ensuring a succinct and coherent set of relevant skills meeting the RUW mission and meeting international norms for Information Technology.
- 2.10 Many of the courses’ ILOs are not stated as competencies in a form that allows assessment instruments to determine whether or not students achieve them on the completion of the course. Some statements are vague and consequently it is not possible to design appropriate assessment or to determine what counts as their achievement. While, in general, the programme ILOs in the area of transferable skills are appropriate in type, many of those that are included in course specifications are not general transferable skills. In contrast, there are also missing outcome statements in this category. For example, the course COS240 includes group work, which leads to transferable team working skills. This course is appropriately linked in the matrix

to such a transferable skill at the programme level. However, there is no such outcome statement at the course level. Further, some links are missing with regard to the mapping of courses ILOs to programme ILOs. There are inconsistencies between the matrices of the programme. The Panel recommends that the course ILOs be reviewed and revised, ensuring that these are stated as measurable statements of competence and that the links are justified and complete.

- 2.11 The Panel acknowledges the internship worth three credits which is included in the programme. The course provides students with an opportunity to receive supervised professional training and experience in a work environment. It involves a learning contract, periodic meetings with a faculty representative, and professional mentoring. There is evidence that students gain exposure to IT systems during their internship and thus are able to meet specific ILOs in this area. However, the course specification is incomplete. There is almost no detail provided after the ILO statements. There is a need to tighten up expectations with more careful assessment and greater specificity. The SER in fact assesses that employer input into the assessment needs attention, and the Panel concurs. The Internship Policy is a mixture of policy and procedure. The Panel recommends that RUW expedite the review of the internship; clarify all roles and responsibilities - especially for employer involvement in assessment - and ensure a comprehensive approach involving course, policies, procedures, course specifications, regulations, and assessment.
- 2.12 A variety of teaching methods are employed. These include lectures, class exercises, discussions, presentations, laboratory work, supervised projects, and case studies. The courses comprising the programme often include coursework that involves independent study. This is evident from the course specifications. RUW has a Teaching and Learning Committee. The remit and minutes of this committee indicate that the focus of this committee is on academic standards and policies rather than on pedagogical matters although the Assessment Policy does suggest a pedagogical role for this committee. There is no evidence of teaching policy, though there are aspects of these matters, concerning assessment design in particular, which are contained in the Assessment Policy. The Panel appreciates the variety of teaching methods used.
- 2.13 RUW has well-defined assessment policies which the Panel appreciates. These are of international standard. Grade Distribution guidelines exist for all programme courses and are published for each semester. They show a variety of assessment methods, what assessments are applied to each course, and the grade percentage for each (assignments, participation, mid-term, and final). None of these percentages exceed a 50% weight. The Panel notes that course specifications include an overview of assessment and weightings. This is helpful. Although it is not yet implemented, the new Assessment Policy proposes that each course specification includes a matrix that describes how each assessment instrument aligns with the course ILOs .

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

- There is an internship within the programme which provides students with good exposure to IT systems and professional practice.
- There is an active planning framework that makes significant revision of the IT programme.
- Various teaching and learning methods are used and there is independent learning in some coursework.
- There are well-defined assessment policies.

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

- review and revise the aims of the programme
- expedite the review and revision of the curriculum ensuring greater coherence, progression in skills development and focus on practice
- expedite the redesign of the IT curriculum ensuring weaknesses in coverage, breadth and depth are addressed through alignment with suitable international benchmarks and norms
- revise the programme ILOs, ensuring a succinct and coherent set of relevant skills
- revise the course ILOs and the mapping of the courses to the programme ILOS
- expedite the review of the internship
- revise course specifications according to the Assessment Policy, ensuring alignment between assessment instrument and ILOs.

2.16 **Judgement**

On balance, the Panel concludes that the programme **does not satisfy** 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 The programme requires entering students to have completed Secondary Education or its equivalent. The minimum high school score required is 70%. It also requires that a student score a minimum level of English Language Proficiency in IELTS overall band score of 5.5 or TOEFL with a score of 513 in the paper-based version or equivalent. The student may elect to take the RUW English Placement Test with an overall score of 5.5. Students who do not score the English Language minimum requirement may enrol in the English Orientation programme for a maximum of two semesters. Successful students are awarded a certificate by Edexcel International. During interviews with students, the Panel found that they value the English Orientation programme and found that their proficiency in English has improved. The Panel appreciates the English Orientation Programme.
- 3.2 Student data covering the years from 2009-2010 to 2012-2013 suggests that students admitted are capable of successfully completing the programme. The Panel was informed during interview sessions visit that no students in the Faculty of IT followed the Art and Humanities track in secondary school. However, the Panel found evidence, during the visit, of at least one case where a literature-stream student gained admission. Nothing prevents an applicant with such a profile from admission. The Panel suggests that RUW consider reviewing and revising its admissions requirements, ensuring that students are admitted with appropriate secondary school preparation.
- 3.3 The management structure within the Faculty of IT includes a Dean and a Head of Department. The job description and key responsibilities of each of these roles are clearly stated. The Faculty Checklist shows all the administrative responsibilities across the Faculty. However, because there are so few faculty members in the Faculty of IT, there is an overlap in the allocation of these responsibilities. The good running and management of the programme requires that the Dean and Head of Department have a reduced load of courses during regular and summer semesters, but this is not currently practised. RUW needs additional academic staff to address these matters particularly as the programme grows.
- 3.4 The total number of students in the FIT is 46. The number of academic staff in the Faculty of IT is three and there are also three part-time academics employed. Two of the three full-time staff members have senior administrative duties (one is the Dean and the other is Head of Department). Although the staff-to-student ratio is 1:11, the total number of academic staff members who are assigned to the programme at

present could be improved. During interviews, the Panel found that the Dean was on long medical leave and that this has meant that the faculty were facing exceptional challenges with respect to staffing during this period. This notwithstanding, the Panel assessed that the current lack of human resources is a major obstacle to the effective running of the programme. Some areas of expertise that the programme currently lacks are Software Engineering, Databases, AI, and Data Mining. There is a need to recruit more faculty members to offer the students a richer learning environment especially as enrolment in the programme grows. The recruitment plan should address the number of staff needed and also the different expertise areas that are needed in order to deliver courses across the curriculum. The Panel learned that there is no policy for the recruitment of part-time staff. The Panel recommends that RUW develop and implement a comprehensive faculty plan that ensures that RUW employs a sufficient number of academic staff to cover the teaching requirements of the programme, with the required specialization, good relationship with students, reasonable teaching load to be able to cover academic administrative duties, and the use of part-time academic staff (where needed).

- 3.5 The Research Output Report 2010-2011 shows research activity takes place. Additional documentation shows further evidence of research activity, though some of this pertains to staff who are no longer employed by RUW. The Panel acknowledges that the FIT has a defined research theme, which is hoped will continue to be pursued.
- 3.6 The Panel noted that there are clear policies on recruitment, appraisal and promotion for the staff. Staff turnover in the Faculty of IT is high. None of the full-time staff members who were employed by RUW three years ago are still contracted. The Panel learned that three staff members left the FIT at the same time. The Panel recommends that the Faculty investigate the reasons for high staff turnover in order to address this challenge.
- 3.7 There was evidence that staff orientation takes place, but that there is no clear formal means to assess its effectiveness. During interviews, the Panel learned that not all new part-time academic staff members receive proper induction. The Panel recommends that RUW review and evaluate the staff orientation policies that includes part-time academic staff.
- 3.8 Faculty members and students use Power Campus and the self-register module of that system. Students use the self-service online registration facility. Power Campus is also used to generate reports and statistical data to inform decision making related to student registration. The Panel noted the embedded reporting capabilities of the library system. Document Management System (DMS) contains all existing university policies, procedures, handbooks, manuals, and administrative templates.

However, this system could be used to greater effect in informing institutional decision making. The Panel recommends that RUW integrate and use the reporting capabilities of its systems to enable more informed decision making.

- 3.9 RUW implements the HEC regulations with respect to student records that are maintained by the Registrar. Learners' records are maintained in archive rooms and are accessed through a formal procedure. The Panel was told that every paper (or physical) document is scanned. The Panel was, however, unable to obtain evidence to support this during the visit. The Panel recommends the introduction of off-site backup arrangements. Moreover, the Panel found that there is no formal disaster recovery plan in place. The Panel recommends that RUW develop and implement such a plan.
- 3.10 The Faculty of IT is well equipped with classrooms, teaching halls, and laboratories. The library is well furnished and provides access to both physical and electronic collections. The library collection includes all required textbooks on reserve. Reference books are also available for students to borrow. While the hard-copy collection is quite limited there are electronic books and research databases. These are available to students and faculty members both on campus and at home. The Panel appreciates the facilities available for students on campus and at home.
- 3.11 Dedicated study rooms in the library are available for student use. Computer laboratories are used for teaching and are also available for students to use outside class time. The Panel found that there was sufficient computer laboratory space for students both for teaching and student practical work. The establishment of specialized laboratories, for example for the study of Computer Networks, could be considered as student numbers grow. In some areas there is a lack of specialist software. For example, programme ILO B3 states *'The ability to use high-level tools for systems analysis, design and application ...'*, yet RUW provides no software tools in its laboratories of this kind.
- 3.12 The library is staffed with a qualified and experienced librarian and assistant. New students receive a comprehensive overview of the library services at the start of each academic year. A full-time laboratory assistant is employed by the Faculty of IT who provides support to students in laboratories, for final year projects, and tutorials for different courses and theoretical / practical work. The Office of Student Affairs (OSA) takes care of the pastoral care of students. The OSA is also staffed with a Student Activities Officer and a Student Affairs Officer. The OSA offers first aid and counselling services through its Clinic and Social worker. During both site tour and student interviews, the Panel notes with appreciation the level of student support in terms of guidance and support care.

- 3.13 A student orientation programme takes place at the start of each academic year. During an orientation programme, the students receive a copy of the Student Handbook which is helpful and thorough. All students are assigned academic advisors who meet with them regularly. There are policies for transfer students explained in the University Handbook. During interviews, students were very satisfied with the orientation arrangements that are in place for newly admitted students. The Panel appreciates the current arrangements to orient new students.
- 3.14 The Panel notes RUW's policy on academic advising amended in academic year 2011-2012 which helps in having early intervention of at-risk students. Processes are in place to identify at-risk students and to provide remedial support when needed. Each student is assigned an academic advisor at the beginning of her study. Students reported positively on the quality of advising they receive and said that help is always given when needed. Staff members operate an open door policy for which the students expressed great appreciation. Student progress is monitored and whenever a student is at risk of failure, she receives appropriate help and advice. In this regard, the Panel appreciates the academic support for students established for tracking their progress and intervening when they are at-risk of failure.
- 3.15 The RUW mission focuses on building a well-rounded student personality in a rewarding learning environment. During student interviews, the Panel found that the learning environment at RUW is conducive and supportive of the learning experience. The Faculty of IT provides several opportunities for informal learning. These include seminars, workshops and extra-curricular activities. Students interviewed by the Panel expressed satisfaction with these opportunities and indicated that such activities contribute to the enhancement of their learning experience. The Panel appreciates the opportunities that students have for informal learning. During interviews, the Panel received positive feedback from employers regarding soft-skills and leadership.
- 3.16 In coming to its conclusion regarding the Efficiency of the Programme, the Panel notes, *with appreciation*, the following:
- There is an English Orientation Programme which improves language skills.
 - The FIT has a defined research theme.
 - The elearning resources are accessible for students and staff members both on campus and at home.
 - The induction of new students is well developed and implemented.
 - There is a well-operating system for academic advising and monitoring student progress.
 - Academic support for students is well established for tracking their progress and intervening when they are at-risk of failure.
 - There is a positive learning environment for students.

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

- develop and implement a comprehensive faculty plan that ensures a sufficient number of academic staff are employed
- expedite the implementation of the recruitment, appraisal and promotion policies that includes a retention policy resulting from the investigation as to the reasons for high staff turnover
- review the staff orientation policies to include part-time staff
- integrate and use the reporting capabilities of its systems to enable more informed decision making
- develop and implement a disaster recovery plan and off-site backup policy for mission-critical data.

3.17 **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 Faculty of IT has specified Graduate Attributes, which are listed in the Student Handbook. It also has clearly stated aims; programme ILOs; and Teaching, Learning, and Assessment Methods for the programme. This demonstrates an understanding of the importance of these aspects in the planning and design of modern higher education curricula. However, some of the Graduate Attributes are not related to any of the Programme Aims or Learning Outcomes. This is the case for instance for the Graduate Attributes: 'Good Citizenship' and 'Preparedness to work in a culturally diverse society'. These attributes have not been clearly related to specific programme ILOs or to teaching, and learning methods. There is no evidence for the coverage of these attributes in assessment. This needs to be addressed.
- 4.2 The IT programme was originally designed by Middlesex University. The aim was to comply with international academic standards. However since then the programme has undergone a number of revisions. During AY 2012-2013, the Faculty of IT requested an external benchmarking of the RUW IT programme from West Virginia University (WVU). However, from the available documents and the various interviews during the site visit, the Panel found no evidence of a process of systematic benchmarking against national, regional, or international programmes. The Panel found no evidence of a policy on formal, periodic processes for benchmarking. The Panel recommends that external benchmarking be undertaken in order to align the IT programme with regional and international standards. A formal policy on external benchmarking should be developed and implemented.
- 4.3 The grade distribution is approved by the Teaching and Learning Committee and Senate each semester. The assessment schedule is also reflected in the course specification. The Panel noted that the grading system that assigns a letter grade of 'A' for marks between 85 and 100 (inclusive) has now been changed to one that assigns an 'A' for marks between 95 and 100 (inclusive). Most of the changes to the assessment policies and grading system occurred during this academic year 2012-13. The Panel recommends that RUW expedite the application of changes to the assessment policies and grading system, and effectively monitor them.
- 4.4 The Panel was informed during the interview sessions that the HoD is responsible for the appropriateness of assessments and their alignment with the ILOs. The assessment policy provides the mechanism to align the ILOs to the assessments within the IT programme. However, the Panel did not find evidence of any review of assessments to ensure their alignment with the ILOs, whether by the HoD or through

any other mechanism. The Panel is concerned that the HoD is the only person involved in ensuring the quality of assessment and its alignment with the ILOs. A greater range of subject expertise is required than one person could possess. The Panel recommends that RUW revise its policies and procedures to assure the appropriateness of course assessment and its alignment with the course ILOs.

- 4.5 There is no evidence of the formative function of assessment, though this matter is now included in the Assessment Policy. There is evidence of a misalignment between the assessment tools adopted and the course ILOs. For example, COS275 involves group activities and their assessment; however, there is no ILO covering teamwork. In COS350, students do presentations that are assessed; however, there is no ILO covering any form of communication skill. Implementation of the Assessment Policy and the proposed redesign of the programme offer an opportunity to address these weaknesses. The Panel recommends the revision of course specifications according to the Assessment Policy, ensuring alignment between assessment instruments and ILOs.
- 4.6 There is a small section within the Assessment Policy that addresses the mechanism of internal moderation. However, it does not provide for a formal, recurrent internal moderation for setting assessment instruments and grading student achievement. During interviews it was reported that the Teaching & Learning Committee plans to introduce internal moderations every two years. The Panel recommends that these plans for internal moderation of assessment and grading be expedited.
- 4.7 RUW has appointed two external examiners to moderate assessments. External scrutiny was undertaken only once, and evidence was provided for the work of one of the two external moderators. Final examinations of various courses were selected and re-graded by the external examiner. The Faculty of IT considered the findings of the external examiner and concluded that there were *'marginal differences between the reviewer's marks and the instructors' marks...'*. The Panel has concerns about this process of external moderation. The examiner the Panel met was a part-time faculty member of the Faculty of IT just a year prior to serving as an external moderator. Moreover, the differences in grades were sometimes very high (11 points out of a total of 84 in COS 245, 6 points out of 30 in COS 465, 11 points out of 60 in COS 290). This is surprising but is explained by the Faculty Council by the *'reviewer's perception of the student's answer and reviewer's knowledge of the subject'*. This raises concerns regarding the suitability of the process and the selection of the external examiners. The Panel doubts that one faculty member could moderate 16 very different courses in so short a time and with limited expertise. The form used for re-grading did not provide room for a detailed reporting of problems. The process was strictly about assessment re-grading; no room was provided for checking the alignment of the assessment with programme ILOs. No evidence was found of any formal policies

defined for triggering improvements upon receiving the external moderators' reports. No evidence was found that feedback was given to the external examiners. The Panel recommends that RUW develop and implement a rigorous approach to external moderation and include it in its relevant internal processes which tackle the quality review of all its academic programmes.

- 4.8 The Panel was provided with a number of Course Folders. Additional course folders were provided during the visit, which enabled the Panel to compare different presentations of the same course. After scrutinizing the course folders, the Panel found the assessments sometimes do not cover all the material or the course ILOs (e.g. COS 380). Some course assessments are overly descriptive (e.g. COS 380) and are given at a level much lower than would be expected for a course of this level within a BSc programme (e.g. COS 270, COS 380). Some examinations contained no challenging questions at all (e.g. COS 480); the assignments checked are classic 'text' book type responses and offer no room for synthesis, and are poorly referenced (e.g. COS 270).
- 4.9 There is a lack of (or no) design and problem solving questions in most of the courses nor any questions requiring critical thinking. In some courses, (e.g. COS 290), questions emphasize the application of various algorithms learned in class. In others, (e.g. COS 480), many of the assessment questions require only memorisation or very straightforward exercises to solve (on Knowledge Representation, Rule-Based systems). It was noted that in some courses, (e.g. COS 290 and COS 480), there was considerable reuse of the same questions from assignments to quizzes and then also in mid-term and final exams. A comparison of the COS 480 examinations for 2010-2011 and 2011-2012 showed a substantial recycling of the same questions. In COS 290, there were almost no exercises on designing algorithms or on solving problems using appropriate data structures and algorithms, and almost no exercises were given on analysis of algorithms. Scrutiny of the course folders and students' assessed work leads the Panel to conclude that the academic standards of student work in the programme is not appropriate for a qualification of this level, nationally, regionally, or internationally. The Panel recommends that the Faculty review and revise its approach to the setting of assessments, quality assurance of such assessments, ensuring that the assessments in practice align with the assessments as specified, align with the intended learning outcomes, comprise appropriate instruments, and are of the appropriate level to meet international standards.
- 4.10 The Panel reviewed the graduation project (COS 490) and some advanced courses (selected from the third and fourth years course list). The Panel noted that, whereas it is expected that the graduation projects tackle a variety of problems from different areas of computing, the six projects seen during the site visit were all about web development; none were about other IT areas. The projects were weaker than what is

usually given as graduation projects within programmes meeting appropriate international standards. The Panel noted that three projects were very simple exercises for work at this level of study. One project (grade 94) consisted of a simple database application, providing authentication for four levels of access, creating surveys for targeted groups and showing them results of surveys. One project (grade 86) was a little more challenging, but suffered from implementation problems. One project (grade of 'B') was way below standards, both in terms of the written report and the work undertaken. The Panel recommends that the Faculty revise its approach to the setting and supervision of graduation projects, ensuring that students are able to meet international standards appropriate for a qualification at the Bachelor's level.

- 4.11 As indicated under Indicator one, all the courses had specific course ILOs that were intended to meet the programme ILOs. It was noted that a number of courses more or less met their ILOs, but that the definition of ILOs and linkage to assessment tools was not always done rigorously. For some of the advanced courses reviewed, some ILOs were not covered (e.g. COS 380 and COS 480) though these are important courses in terms of building the graduates' software development and problem solving skills. For the former, for instance, it was noted that a number of skills (B1, B2, C1, C3, D1 and D4) overlapped considerably, were vaguely stated, and should be met through skills other than requirements specification - e.g. agile software development, testing methods, embedded systems. It turned out that no skills in these areas were assessed. COS 480, in the course folder of 2010-2011, in contrast with the course specification, the assignments did not cover ILOs A2, C3, and A4. The Panel also noted that, in terms of grade distribution, the tendency was for a large proportion of 'A' grades. This could be explained by the easy examinations and sometimes lax marking.
- 4.12 During the academic years 2012-2013, 2011-2012, 2010-2011, and 2009-2010, six, six, one, and two students were accepted respectively to join the IT programme. The Panel noted that, despite the fact that most of the students registered into RUW's FIT programmes with scholarships, a large number of alumni do not get jobs. Indeed, it was reported that, out of eight alumnae for academic year 2011-2012, six were unemployed, one was employed, and one provided no feedback. This contrasts with the group of seven alumnae from previous academic years, among which six were employed and one chose not work. There may be social reasons to explain this large ratio of unemployment, but the matter needs to be examined carefully.
- 4.13 Work-based learning is available through the internship programme, and through some graduation projects. An Internship Policy exists at RUW. This has undergone periodic reviews and has been amended leading to a 'draft internship procedure'. The Faculty of IT implements the Internship procedure and communication between

the faculty and employers is documented. An internship coordinator is appointed to follow up the students' progress; he is also responsible for communication, coordination and documentation of all the internship activities. The Panel found evidence of feedback from companies that hosted three students on internship programmes. Monitoring is undertaken through reports that are returned by the students and assessed by the supervisor, in addition to regular follow-up meetings and final presentation of the project. The Panel is concerned about the availability of the internship coordinator, internship instructors, and graduation project supervisors, especially given the high teaching load of faculty members in the Faculty of IT. All these matters need to be considered in addressing weaknesses in faculty numbers.

- 4.14 The Panel was pleased to note that a Faculty Advisory Committee (FAC) was created during the academic year 2012-2013 comprising three RUW faculty members, an academic from a university and three other members who are senior managers in companies. The Panel noted with satisfaction that the external FAC members are experienced professionals and should enrich the Faculty of IT programmes with a different perspective. The Panel appreciates the establishment of a Faculty Advisory Committee with wide representation. The Panel found evidence that the FAC has terms of reference. Since it is relatively new, the FAC has only met twice. Nevertheless, it has helped in the preparation of the new curriculum, with the aim of better distinguishing the CS and IT programmes. Notwithstanding the above, the Panel noted that there is no formal mechanism in place that ensures advice from the FAC can improve decision making. The Panel suggests that RUW consider developing and implementing a policy for integrating feedback from the FAC in order to improve decision making.
- 4.15 During the site visit, the Panel met seven graduates and three employers. The graduates, six of whom are employed, were satisfied with their experience at RUW and would recommend the programme to other students. During their studies they learned to manage their own learning and this helped them to be more self-reliant. They hope the programmes could be developed in a manner that provides hands-on experience to the students. They were also concerned that the faculty turnover was high. There is a Graduate Exit Survey in use but it is too general and does not address the academic programme. The Panel recommends that RUW revise its Graduate Exit Survey, addressing programme content, delivery and management. The three employers were generally satisfied with the RUW graduates that they have employed.
- 4.16 In coming to its conclusion regarding the Academic Standards of the Graduates, the Panel note, *with appreciation*, the following:
- A Faculty Advisory Committee with wide representation has been established.

- Graduates and employers are satisfied with the programme.

4.17 In terms of improvement, the Panel **recommends** that the RUW should:

- align the aims and ILOs to the graduate attributes
- revise the programme ILOs so that they are aligned with the teaching and learning methods, and assessment methods
- undertake formal external benchmarking in order to align the IT programme with regional and international standards
- develop and implement a formal policy on external benchmarking
- expedite application of changes to the assessment policies and grading system and effectively monitor them
- expedite the plan to develop and implement a well-defined mechanism for internal moderation of assessment and grading
- review and revise its approach to the setting of assessments, quality assurance of such assessments ensuring that the assessments in practice are of the appropriate level to meet international standards
- revise its approach to the setting and supervision of graduation projects, ensuring that students are able to meet international standards appropriate to a qualification at the Bachelor's level
- revise its Graduate Exit Survey, addressing programme content, delivery and management.

4.18 **Judgment**

On balance, the Panel concludes that the programme **does not satisfy** 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 RUW has a governance structure that is responsible for the implementation of policies, procedures and regulations. This comprises a Board of Trustees, the Senate, the Deans' Council, and the Faculty Council. The Senate has six standing committees. Matters that relate to teaching and learning are dealt with by a Teaching and Learning Committee with decisions taken communicated to the Faculty Council and disseminated through to the Quality Assurance and Accreditation Unit (QAAU). The remainder of the governance structure is made up of committees and functional units that operate with clear terms of reference that set their internal policies, mandates and guidelines. Faculty are aware of the procedures and policies that govern course and programme changes. The Panel acknowledges the governance structure that has been implemented.
- 5.2 There is no evidence of effective leadership within the Faculty of IT at professorial level. The Faculty of IT operates with a flat-level structure, consisting of a Dean, Head of Department and a lecturer. In addition, there are part-time teaching staff that support the delivery of courses. The Panel recommends that RUW ensure effective leadership of the College and the programme by the appointment of well-experienced senior academic staff.
- 5.3 RUW operates with an administrative infrastructure responsible for Quality Assurance and Accreditation and with academics charged with the responsibility to oversee the implementation of quality through content and process. Within the quality assurance management system in operation, there is evidence within course files that the registry does compliance checks at course and programme levels. However, there was no evidence during interviews that faculty members reflected and then took action on such reflection to ensure a positive impact on next year's content and student experience. The Panel recommends that RUW develop and implement a policy that sets out the roles and responsibilities for all academic staff in the area of quality assurance
- 5.4 The lack of leadership at professorial level reduces clarity of purpose amongst the academic community. Such leadership would help enforce quality assurance processes. The Panel found no evidence (e.g. from minutes of Faculty Council meetings) to suggest that part-time faculty members are engaged with the academic community within RUW and play an active role in quality assurance. This was further evidenced during interviews with part-time staff. The Panel recommends

that the role of part-time faculty in the area of quality assurance is included in the policy requested in Section 5.3 above.

- 5.5 There is no formal policy for the development and approval of new programmes. The Panel recommends that a suitable policy is developed and implemented for the design, development and implementation of a new programme of study.
- 5.6 There is some evidence that the results of external benchmarking were being embraced to support content enhancements, with examples including the increase of credit hours from 120 hours to 132 hours. Material associated with course delivery is routinely collected within a course folder structure. This provides an opportunity to drive improvements through the Faculty Council and Senate. However, there was only marginal evidence of informal and external moderation taking place with no evidence of how this informed a programme review cycle. There was also no evidence of any analysis of how past student performance supported improvements in process and content of courses and the programme. There are no procedures within the Faculty of IT that govern annual monitoring of academic programmes. This would have allowed programme effectiveness to be monitored and evaluated. The Panel recommends that RUW establish formal quality processes addressing programme improvement, which are based on a range of assessment instruments.
- 5.7 Feedback is obtained through student satisfaction survey instruments, student exit surveys, undergraduate analysis reports, graduate questionnaires, intern employer feedback and employability reports. Evidence from these can be used to enhance the student experience and the curriculum. However, the results of these assessment instruments do not, in their current form, show course or programme level changes. There is no evidence that feedback is being collected, analysed and used to enhance academic practice. Nevertheless, the Panel acknowledges the wide range of feedback instruments that are used.
- 5.8 Professional development reports are undertaken as part of the academic staff personal development policy. Full-time staff members have to complete an annual self-appraisal form. The Panel noted that staff needs are assessed at faculty level and then used to inform budget setting.
- 5.9 There is some evidence of employer (intern) feedback and employability reports but no evidence of a completed labour market study, although some preliminary work was noted. The Panel recommends completing this study to enhance courses and develop the content of the new programme development
- 5.10 In coming to its conclusion regarding the Effectiveness of Quality Management and Assurance, the Panel note, *with appreciation*, the following:

- There is an implemented governance structure that is transparent.
- There are a wide range of feedback instruments used to inform enhancement.

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

- ensure effective leadership of the Faculty of IT by the appointment of well-experienced senior academic staff
- develop and implement a policy that assists in the establishment of a quality culture so that academic staff, including part-time staff, are aware of their role and responsibilities
- develop and implement a policy for the design, development and implementation of a new programme of study
- establish formal quality processes addressing programme improvement, based on a range of assessment instruments, including course folders
- continue the work on scoping the labour market which will inform course and new programme development.

5.12 **Judgment**

On balance, the Panel concludes that the programme **does not satisfy** 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 no confidence in the Bachelor of Science in Information Technology of the Faculty of Information Technology offered by the Royal University for Women.