



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

Directorate of Higher Education Reviews Programme Review Report

**University of Bahrain
College of Science
Bachelor of Science in Physics
Kingdom of Bahrain**

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Acronyms

ASIIN	Accreditation Agency for Study Programmes in Engineering, Informatics, Natural Sciences and Mathematics
BQA	Education & Training Quality Authority
CERN	Conseil Européen pour la Recherche Nucléaire
CILO	Course Intended Learning Outcome
DHR	Directorate of Higher Education Reviews
HEC	Higher Education Council
IDEAS	University Quality Assurance Handbook
IT	Information Technology
LMS	Learning Management System
MIS	Management Information System
NQF	National Qualifications Framework
PAC	Programme Advisory Committee
PEO	Programme educational objective
PILO	Programme Intended Learning Outcome
QA	Quality Assurance
SAC	Student Advisory Committee
SER	Self-Evaluation report
UILO	University Intended Learning outcomes
UoB	University of Bahrain

I. Introduction

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

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

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

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

Standard 1: The Learning Programme

Standard 2: Efficiency of the Programme

Standard 3: Academic Standards of Students and Graduates

Standard 4: Effectiveness of Quality Management and Assurance

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

Table 1: Criteria for Judgements

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

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

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

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

II. The Programme's Profile

Institution Name*	University of Bahrain
College/ Department*	College of Science Department of Physics
Programme/ Qualification Title*	Bachelor of Science in Physics
Qualification Approval Number	University Council decision (323/1998, dated June 1998)
NQF Level	8
Validity Period on NQF	5 years from the placement date.
Number of Units*	42
NQF Credit	551
Programme Aims*	<ol style="list-style-type: none"> 1. Pursue a successful career in a Physics related field. 2. Qualify for graduate studies and be engaged in life-long learning. 3. Exhibit ethical and scientific conduct, and contribute positively to society
Programme Intended Learning Outcomes*	<ol style="list-style-type: none"> a) Apply knowledge of Science and Mathematics to related problems. b) Identify, formulate and solve problems in Physics. c) Design and implement computational models for physical systems. d) Conduct experiments working independently or in collaboration with others. e) Interpret and analyse data to reach sound conclusions. f) Use information technology to search and locate scientific information. g) Conduct basic scientific research. h) Communicate scientific information and conclusions effectively to a broad audience. i) Recognize recent developments in Physics. j) Understand professional, ethical and social issues and responsibilities. k) Acquire self-learning skills to ensure lifelong learning.

* Mandatory fields

III. Judgment Summary

The Programme's Judgment: Confidence

Standard/ Indicator	Title	Judgement
Standard 1	The Learning Programme	Satisfied
Indicator 1.1	The Academic Planning Framework	Addressed
Indicator 1.2	Graduate Attributes & Intended Learning Outcomes	Partially Addressed
Indicator 1.3	The Curriculum Content	Partially Addressed
Indicator 1.4	Teaching and Learning	Addressed
Indicator 1.5	Assessment Arrangements	Addressed
Standard 2	Efficiency of the Programme	Satisfied
Indicator 2.1	Admitted Students	Addressed
Indicator 2.2	Academic Staff	Partially Addressed
Indicator 2.3	Physical and Material Resources	Partially Addressed
Indicator 2.4	Management Information Systems	Addressed
Indicator 2.5	Student Support	Addressed
Standard 3	Academic Standards of Students and Graduates	Satisfied
Indicator 3.1	Efficiency of the Assessment	Addressed
Indicator 3.2	Academic Integrity	Addressed
Indicator 3.3	Internal and External Moderation of Assessment	Partially Addressed
Indicator 3.4	Work-based Learning	Partially Addressed
Indicator 3.5	Capstone Project or Thesis/Dissertation Component	Addressed

Indicator 3.6	Achievements of the Graduates	Partially Addressed
Standard 4	Effectiveness of Quality Management and Assurance	Satisfied
Indicator 4.1	Quality Assurance Management	Addressed
Indicator 4.2	Programme Management and Leadership	Addressed
Indicator 4.3	Annual and Periodic Review of the Programme	Partially Addressed
Indicator 4.4	Benchmarking and Surveys	Addressed
Indicator 4.5	Relevance to Labour Market and Societal Needs	Partially Addressed

IV. Standards and Indicators

Standard 1

The Learning Programme

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

Indicator 1.1: The Academic Planning Framework

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

Judgment: Addressed

- The Bachelor of Science in Physics was developed by the Department of Physics based on the university's academic regulations, which provide a comprehensive overview of the processes for new programme and course development, as well as rules and regulations for terminating or suspending academic programmes. The academic regulations also outline the processes in the University in terms of committee or council oversight and higher authority approval. The Department planning processes are guided by the University Quality Assurance (QA) Handbook, which is a very comprehensive and informative document and aims to ensure that offered programmes are relevant and fit for purpose.
- UoB has a risk management policy that guides academic units in implementing the risk management process, which encompasses risk identification, assessment, mitigation, and monitoring. A risk register that indicates six potential risks at the department level, was provided as evidence. The Panel finds that the register is incomplete in terms of responsibilities, timelines, and status. In addition, it does not consider some of the potential risks identified during the interviews, such as staffing, laboratories, teaching loads, etc. Also, no evidence was provided on any action planning to mitigate risks. Hence, the Panel recommends that the College should develop a complete risk register to cover all potential risks, including actions that need to be taken to mitigate the risks.
- The programme title is concise, reflects the nature of the discipline and the academic level, and is correctly referred to in the programme specification, graduation certificates and the university website. The programme's design and content are aligned with the National Qualifications Framework (NQF) requirements and the programme was validated by the NQF in December 2020 and placed on NQF Level 8 in 2020. The sample of course specifications examined by the Panel shows the correct NQF level and credits.

- The programme aims are articulated in broad terms in the form of Programme Educational Objectives (PEOs). In interviews with different stakeholders (employers, alumni, advisory board), the Panel confirmed their participation in the process of reviewing the programme aims. The programme aims as stated are clear and succinct. There is some useful mapping to show how the PEOs, University Intended Learning outcomes (UILOs) and Programme Intended Learning Outcomes (PILOs) relate to each other. The PEOs, as defined, contribute to the college and university missions and goals, and contribute to the mission and strategic goals related to research.

Indicator 1.2: Graduate Attributes & Intended Learning Outcomes

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

Judgment: *Partially Addressed*

- The programme has a number of graduate attributes, which are embedded in the PILOs and clearly stated at the institutional level in the UILOs. The PILOs are appropriate for the level and type of the B.Sc. in Physics qualification and are clearly articulated in the programme specification. The PILOs also adhere to the NQF requirements and link well to four outcome domains defined as (i) Knowledge and Understanding, (ii) Subject-specific skills, (iii) Thinking Skills and (iv) General and Transferable Skills.
- The PILOs adequately capture the knowledge, skills and understanding which a Physics graduate is expected to possess and apply at the latter stages of the programme to real world contexts and to support their lifelong learning. However, the Panel advises the Department to consider conducting internal benchmarking of the Physics programmes PILOs with other College of Science programmes, particularly in terms of PILO achievements. The Panel also recommends that the College should benchmark the PILOs and Course Intended Learning Outcomes (CILOs) with other similar Physics programmes in the region and internationally.
- The SER includes a sound mapping between the programme compulsory courses and the PILOs. Based on a sample of course specifications viewed in the evidence (e.g., PHYSC222, PHYSC300, PHYSC432), the Panel was able to confirm that the CILOs are appropriate for the level of the courses, and the content in each course is appropriate for the subjects viewed. The course NFQ levels and credits in the course specifications are also appropriate as well as the mapping of CILOs to PILOs in all of the course specifications provided to the Panel.

Indicator 1.3: The Curriculum Content

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

Judgment: Partially Addressed

- The study plan of the programme is well organized and includes an appropriate list of course pre-requisites. It shows appropriate course-by-course progression and suitable student workload. Over the programme's 128 credit hours (551 NQF credits), students study approximately 42 courses. The fundamental core subjects in Physics, which do not change very frequently are covered in the study plan, and the programme course content is compatible to other generic Physics courses offered internationally.
- There is evidence that at committee level, course and programme changes are being discussed to introduce new materials and reflect subject trends in the Physics field. There is also evidence of benchmarking of some of the Physics courses with three other similar courses in other high ranked international universities. In interviews with faculty members, it was apparent that the curriculum was recently reviewed, but there is little evidence to suggest that it is updated regularly. Therefore, the Panel recommends that the College should ensure that the curriculum is updated regularly in light of benchmarking and other expectations and requirements in the professional field.
- The programme core/compulsory and the elective courses are appropriate with respect to the depth and breadth of content and subject matter. There is also a good balance between theory and practice in most courses. However, in interviews with students and employers, both said that they would like to see more practical aspects to the programme and the employers in particular said, they would ideally like students to have more practical skills in the use of instrumentation in the laboratories. The Panel recommends that the College should consider offering students more laboratory hours to develop students' practical skills, particularly in areas such as the use of instrumentation.
- Course specifications include relatively old textbooks as reference materials. In interviews, some faculty members pointed out that they incorporate their research or scholarship in their teaching activities; however, in interviews with students it was apparent that not many course instructors used their research or scholarship to add to the student learning experience. Therefore, the Panel recommends that the College should update the Physics course specifications to ensure that all courses use current and contemporary reference materials and textbooks.

Indicator 1.4: Teaching and Learning

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

Judgment: Addressed

- The B.Sc. in Physics programme adheres to the UoB Teaching and Learning Policy, which is predicated on five main teaching and learning themes (curriculum design, effective teaching strategies, inclusive learning environment, effective assessment and continuous review and development of teaching). The policy is a relevant and appropriate framework that provides direction for staff and students in terms of delivering and engaging with an effective teaching and learning experience. The policy has links to other institutional policies, procedures and regulations and it alludes to the use of different teaching approaches/methods such as interactive learning, use of technology, student empowerment and research-led teaching.
- The teaching and learning methods used in the programme across all the courses are typically lectures and laboratory tutorials. In interviews with staff, there was evidence that e-learning is widely being used in teaching and learning, and an e-learning committee has been established for that purpose. The Panel notes that the range of teaching approaches employed in the programme are mainly in keeping with the institutional teaching philosophy. The Panel is of the view that there is a scope for more innovative teaching approaches to be integrated into the programme. The programme teaching team could consider more active learning approaches with more group work, and a much greater use of technology in teaching. In interviews with staff, it was apparent that there was no flipped classroom teaching as an example to support active learning. Overall, the Panel is satisfied that the teaching and learning methods used in the programme are sufficient and appropriate to enable the attainment of the learning outcomes. However, the Panel advises the Department to incorporate more innovative teaching approaches.
- The institutional teaching and learning policy refer to the strategic aim of enabling students to take responsibility of their own learning to develop their lifelong learning skills. The learning environment in the programme also promotes the concept of lifelong learning. The Panel notes that the programme content together with the teaching and learning approaches deployed by the staff encourages students to develop lifelong learning skills. Students also get ample opportunities to participate in learning scenarios in the courses which reinforce and consolidate fundamental Physics knowledge and allow them to develop as independent and lifelong learners. This was evident during interviews with students. Additionally, in the 'Internship' (PHYCS399) course and 'Senior Project' (PHYCS499) course, students have exposure to professional practice and are encouraged to be enquiring, creative, demonstrate some innovation and initiative and develop and hone their research skills. The senior project also enables students to develop other skills such as communication, writing, project management and project planning, data acquisition, handling, and analysis.
- Whilst there are good examples of formal and informal learning in the programme, there is a less evidence for non-formal learning. Student engagement in extracurricular activities supports non-formal learning, but the programme can do much more in this respect. More

student driven activities supported by staff such as visits, field trips to Physics related organisations, installations, etc., as well as student-led group discussions/activities, can be considered.

Indicator 1.5: Assessment Arrangements

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

Judgment: Addressed

- The 2022 Regulations of Study and Examinations at UoB outline the general provisions and definitions of the study systems and the examination system used in UoB for all levels of academic study. In addition, the UoB has developed a comprehensive handbook called IDEAS which provides a thorough guide to the assessment philosophy and institutional assessment framework adopted by the University and the linkages between UILO, PILO and CILO and assessment strategies. The handbook also provides advice to staff when developing an assessment model as part of an assessment and improvement process. An online central repository of the assessment data for all programmes at the University has been also developed called AIMS (Assessment Information Management System), which provides access to a wide range of information pertaining to the University, Colleges, Departments, programmes and courses.
- The B.Sc. in Physics programme makes use of both summative and formative assessments. Summative assessments used in courses include final and mid-term examinations, quizzes, laboratory assignments and case studies. From interviews with staff, it was evident that formative assessment is being used in many of the courses to monitor student learning and to provide students with some feedback on their understanding of the course content; however, it was also clear that not all faculty are using formative assessment. In addition, students in interviews concurred with this view. The Panel recommends that the College should incorporate formative assessment in all courses so that faculty can monitor student learning and provide students with feedback on their progress.
- Students interviewed were generally pleased with the assessment feedback they received, which they found to be prompt, informative and useful. The Panel was provided with evidence to demonstrate innovative assessments, but mostly these were comprised of multiple-choice questions and were not particularly innovative. The Panel advises the College to consider holding assessment workshop(s) for staff to explore different types of innovative (best practice) assessment methods that they could incorporate into their courses.
- The Panel notes that the evaluation students undertaking research during the senior project phase of the programme, does not take into account the ethics of scientific research. Also, there is no ethics policy for research found in the evidence. In addition, the

guidelines for the 'Senior Project' (PHYCS 499) course does not refer to ethics. The Panel recommends that the College should amend the Senior research project guidelines to include reference to research ethics.

- Each course specification shows the grading strategy for each method of assessment used, together with dates and times for assessments. In interviews with faculty, it was confirmed that they use a clear and consistent process when deciding students grades in assessments. The process described in SER outlines the steps followed by management and faculty to ensure that student assessment grading is transparent and fair. Following final examinations, student grades are uploaded to an online system, and these are reviewed and checked by both a designated coordinator, and course instructors. Final approval of grades is given by the Deanship. Students can ask for grades to be reviewed and changed if appropriate and the Department when reviewing the grading distribution can alter grades if the grade distribution indicates high failure rates. The Department also implements internal and external assessment moderation processes, to ensure consistent assessments and fairness of grading.
- As part of the university's bylaws, regulations and policies, there are provisions made for addressing and managing student academic misconduct and appeals. In addition, UoB has an anti-plagiarism policy and a student misconduct committee, which deals with any cases of academic violations. The Panel notes that there were no cases of academic misconduct reported in the last five years with respect to the B.Sc. in Physics programme and no awareness programmes on academic misconduct policies have been held during this time period. The Panel advises the College to consider holding some staff and student development sessions to raise awareness of the rules, regulations and procedures surrounding academic misconduct.

Standard 2

Efficiency of the Programme

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

Indicator 2.1: Admitted Students

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

Judgment: Addressed

- The University instituted general and college-specific admission requirements, which include a high school certificate, an acceptance test, and an interview, and these are published in the Study and Examination Regulations and on the university website. The statistics provided in the SER, show that admitted students come mainly from national secondary schools and are gender neutral, with about 60% of the admitted population are female students. The Panel notes that the University has fair and transparent admission criteria and procedure, which are implemented with equal opportunities given to male and female applicants.
- The University Council has recently raised the minimum high school science and mathematics subject grade acceptance criteria from 70% to 82%. Admitted students should also have appropriate speaking and writing levels of English before starting the programme courses, otherwise, an orientation programme of one semester is required to improve the language competencies of those with deficiencies. The Study and Examination Regulations have detailed information on transfer students; however, the Department did not accept any post first year students in the last five years.
- During interviews, the Panel learnt that students enrolled in physics courses lack the appropriate levels of mathematics skills and knowledge. The Panel was also informed that revision of the admission criteria is usually done at the level of the University Council. The Panel recommends that the University should ensure that the College and the Department are involved in the revision of the admission criteria, taking into consideration students' high school basic science and mathematics grades/knowledge and performance in introductory science courses at the University.

Indicator 2.2: Academic Staff

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

Judgment: *Partially Addressed*

- The University implements consistently elaborate staff recruitment and renewal procedures. An induction workshop is organised for newly recruited academics, in which presentations are delivered on university policies and procedures. The University applies promotion criteria, which are based on the point system in a consistent and transparent manner. The University approved in 2006 an appraisal system in which Departments and faculty members submit performance reports. Faculty members discuss their past year report in a meeting with the Head of the Department and agree on areas that require improvement. The Panel is satisfied with the procedures of academic staff recruitment, renewal, promotion and appraisal, and the induction programme offered to newly recruited staff.
- The Panel notes that the profiles of faculty members cover diverse specializations appropriate to teach the undergraduate programme. The teaching load of academic staff is 12 credits, and the Panel was informed during interviews that the actual teaching load is higher and impacts performing other academic activities including research. In addition, a number of faculty members had opted for early retirement. The Panel was also informed that the increased teaching load has led the Department to employ part-time assistants to help with the laboratory sessions. The Panel was not shown any evidence of a process to examine staff turnover. Hence, the Panel recommends that the University should develop measures to monitor and evaluate staff turnover and adopt attractive packages to retain and increase national and expatriate academic staff.
- There is no mention in the SER about research policies and procedures or research activities of academic staff, nor anything about a research plan. This raises issues related to research in the Department and is reflected in only four out of 12 faculty members with senior ranks, although the minimum research requirement for promotion to associate professor is modest - only four journal publications and some supporting research activities. The Panel recommends that the University should create an environment conducive to research culture by reducing the teaching load, providing resources, and developing university/college/department research plan with clear focus.
- Most staff participate in supervising students' projects. The Unit for Teaching Excellence and Leadership surveys faculty needs on professional development programmes and organises many workshops including one on how to manage research projects. The Panel is satisfied that professional development opportunities are available to develop faculty capacity to supervise research projects. However, no evidence was submitted on effective arrangements to monitor and evaluate professional development programmes. The Panel recommends that the College should establish measures to identify, and support

continued professional development programmes, which are consistently monitored and evaluated.

Indicator 2.3: Physical and Material Resources

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

Judgment: *Partially Addressed*

- The Panel was provided with a list of classrooms, teaching and research laboratories, and official and social rooms. The classrooms have capacities of about 40 students and the laboratories have space for up to 26 students. The classrooms' capacity is adequate for the number of students in Physics cohorts, but the Department faces difficulties when teaching service courses with registrations of about 1000 students per course. The Department shares College of Science and Information Technology (IT) Auditoriums with capacities of up to 120 students which necessitated creating multi-sections for service courses that impacts the teaching load.
- Faculty offices and classrooms are equipped appropriately with computers, projectors, white and electronic boards, and students and faculty have access to Wi-Fi and emails. Laboratories are reasonably equipped; however, teaching the experimental component of courses with registrations of more than 26 students creates issues with adequacy of space. The Campus Tour also revealed that the equipment in the laboratories is old. This was verified in the discussions with students, who added that some equipment do not function properly. Furthermore, during interviews with employers, it was mentioned that some graduates could not operate simple equipment, let alone advanced modern ones. Also, the Department does not have a formal system to monitor adequacy and maintenance of equipment. The Panel recommends that the College should regularly monitor the adequacy and functioning of various facilities and resources and make rectifications wherever needed. As a matter of urgency, the Panel also recommends that the College should update the laboratory equipment and introduce modern instrumentation for advanced courses.
- Faculty and students have access to the Central Library and the Science and IT Library. The Campus Tour demonstrated that the Science and IT Library contains Physics books, and e-journals, but no printed Physics related periodicals or journals. This library has adequate informal study spaces including four large study rooms with desks and computers but is manned by two staff members, which is not sufficient for the number of students who need the service. Therefore, the Panel advises the College to increase the number of librarians in the Science and IT Library.

- Although there is no mention in the SER about campus health and safety, the Campus Tour revealed visible safety and health signs and instructions, fire extinguishers and fire exit signs mounted on various places. The Panel is satisfied with the health and safety signs and instructions

Indicator 2.4: Management Information Systems

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

Judgment: Addressed

- The Management Information System (MIS), which is under the responsibility of the IT Centre, supports the university administration activities and is accessible to academic staff and students for educational purposes. The Centre provides various student data and reports such as course registration, advising records, transcripts and examination grades. The MIS is utilized by the University to conduct the course evaluation surveys to measure students' learning experience and the senior student exit surveys to provide the Departments with feedback about their programmes. Despite provision of plenty of data including survey results, no evidence was shown if they have been utilized for regular review of the programme. The Panel recommends that the College should regularly utilize data provided by the MIS in informed decision-making.
- The MIS was successful and effective during the pandemic in supporting the educational process, which was smoothly conducted using Blackboard as the main Learning Management System (LMS), *via* which all courses were moved online to live lecturing, assessment, and other teaching-related issues. The E-Learning Centre, which administers Blackboard, organises training courses and necessary assistance to faculty and students. The Centre provides data that helps track the LMS usage and conducts surveys on students and faculty e-learning experience, whereas the Library benefits from using the MIS to track its various services. The Panel is satisfied with the various services tracked by the MIS and LMS, which helps in assessing the efficient usage of these services.
- The University instituted a suite of IT Cyber Policies and Procedures to organise and ensure security of the MIS and its subscribers. These cover all computer security, acceptable usage, access control and physical security, password security, wireless security, and operation security policies. The Centre has also developed several layers of access which ensure security of students' records and results. The Panel notes with appreciation the institution of various policies and procedures and layers of access to secure students' records and their accuracy. The Deanship of Admission and Registration informed the Panel that the awarded certificates and transcripts are accurate in describing the achieved learning by students, and are issued in a timely manner, which was confirmed by the alumni.

Indicator 2.5: Student Support

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

Judgment: *Addressed*

- The University provides various student support facilities and services. The library holds workshops for academic staff and students about availability and usage of. Each Physics laboratory is manned by a resident technician to give support and guidance to students. The E-learning Centre has assigned trained IT technicians to the Department of Physics to help resolve any technical problems. The Centre holds training courses on the use of the Blackboard platform. The Career Guidance Centre at the University holds seminars to prepare students for job interviews and CV writing and organizes an annual career fair. The Panel notes with appreciation the facilities provided to the students, the supporting technical staff to maintain them, and the support available to benefit from them.
- A one-day induction programme is organised by the College of Science at the beginning of the academic year in which students are introduced to the activities of various departments. The programme includes overviews of various university policies, procedures, academic programmes, the facilities, and resources. Some department representatives answer questions students may raise and the Chair of the Students Advisory Council informs new students about the council's activities. During interviews, the students confirmed to the Panel their satisfaction with the induction programme.
- The Department assigns an academic advisor for each student who uses the MIS to access student academic records. Academic advisors provide support and help to resolve matters related to the academic performance of students, and students conveyed to the Panel their satisfaction with academic advising. Nonetheless, no sufficient evidence was presented to show the effectiveness of advising. The Panel recommends that the College should assess the impact of the advising services on the performance of students generally, and those at-risk specifically.
- In reference to special needs students, the Campus Tour confirmed the information provided in the SER about the size of elevators in the College of Science building being large enough to accommodate wheelchairs; with ramps constructed in the facility for students with mobility difficulties. UoB also assigns separate places in the car parks for students with disabilities and Student Affairs arranges for transport of disabled students. Although the number of students with special needs is small in the College, instructors are provided with lists of such students who are registered in their courses to allow them extra time for quizzes and examinations, and the Deanship of Admission and Registration provides any physical assistance needed. The Panel is satisfied with the services provided to students with special needs.

Standard 3

Academic Standards of Students and Graduates

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

Indicator 3.1: Efficiency of the Assessment

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

Judgment: Addressed

- The Regulations of the Study and Examination document contains a detailed chapter on assessment regulations and procedures. The Department of Physics utilizes various assessment methods that include tests, quizzes, laboratory reports, projects, and a final examination with weight not exceeding 40%. Based on a review of the evidence, the Panel is of the view that questions of examinations are clear, assess CILOs and support course objectives. The Panel is also satisfied that a variety of valid and reliable assessment methods are in place.
- The Department uses an Excel sheet template to examine the alignment of the assessment components with the CILOs and consequently with the PILOs, to ensure attainment of the UILOs as a mechanism of maintaining academic standards. Excel generates a CILO assessment report which assesses each CILO's attainment according to average students' achievements in various course assessment methods, to show if the target is met. If the target is not achieved, the course instructor prepares an improvement plan. Excel also generates a PILO Assessment Report that shows how the course contributed to achieving the PILO and consequently the UILO.
- The QA Committee reviews the course portfolios to assure consistency, level and quality of assessment and alignment with CILOs and PILOs. Then, the Examination and Course Portfolio Committee uses the achievement levels of the PILOs and the discussions in the Department Council, to prepare a PILOs' assessment report annually that contains improvement actions raised that are followed up by the Committee. Achievement of the PILOs, which is directly mapped onto PEOs, would show whether or not graduate attributes are achieved, and that committees are enacted to monitor the implementation and improvement of the assessment process. The Panel is satisfied with the mechanism to

ensure that graduates meet the PILOs and with the fact that there is a mechanism to monitor the implementation and improvement of the assessment process.

Indicator 3.2: Academic Integrity

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

Judgment: Addressed

- UoB has several documents on academic integrity and misconduct, including Regulations of Study and Examinations, Anti-Plagiarism Policy, Professional Conduct Violations for University of Bahrain Students. These deal with consequences, and penalties of misconduct, and are distributed to academic staff and students. The material educates the students about plagiarism and importance of adhering to honesty and deter them from misconduct. The Panel is satisfied that awareness tools on policies and procedures related to academic integrity for faculty and students are in place.
- The University subscribes to the plagiarism detection software Turnitin and SafeAssign, embedded in Blackboard, to monitor similarity scores in assignments and projects' reports. For written assignments, the Department of Physics considers documents with similarity scores above 25% as plagiarised work and that with scores less than 10% as authentic. Senior projects and theses are tested by the anti-plagiarism tools to ensure students' work is their own. However, no evidence was submitted to show consistent implementation of these tools. During interviews, the Panel was told that academic misconduct, including plagiarism cases, of students are rare and there was only one case last year. Nonetheless, in another interview session it was mentioned that, during the pandemic, the University decided to hold all tests and final examination on campus because invigilation online was difficult to follow. The fact that nothing was presented for the last few years raises questions about effectiveness of monitoring of students' academic misconduct cases. The Panel recommends that the College should review its monitoring of academic misconduct processes and establish a system for recording academic misconduct cases of students and actions taken by the Department to penalize them.

Indicator 3.3: Internal and External Moderation of Assessment

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

Judgment: Partially Addressed

- Procedures for internal moderation and external moderation are described in the UoB Moderation of Assessment Regulation of 2015. The Department specifies courses to be

moderated each semester in a course rolling plan. Internal moderation of assessment consists of pre-internal moderation and post-internal moderation processes, which are performed by the same faculty member. The Department Moderation Committee selects internal moderators from academic staff who had taught the course before, or in their field of expertise, and the selected list is approved by the Department Chair. Moderation of multi-section courses is performed by all instructors of the course. For pre-internal moderation, the moderator receives the assessment task, model answers with marking scheme before the date of assessment who then submits the report to the instructor and the Department Moderation Committee. For post-internal moderation, which is done after examination, the moderator receives model answers with marking scheme and samples of assessed work and submits a report to the Department Moderation Committee and the Head of the Department. The Panel is satisfied that appropriate internal moderation and selection of internal moderators' procedures are in place.

- Pre-internal moderation reviews appropriateness, fairness, clarity, accuracy and standard of the assessment tool while post-internal moderation examines if the pre-moderation comments were taken into consideration and ensures fairness of grading. The Department Moderation Committee then reports to the Examination and Course Portfolio Committee, which documents any recommendations for improvement and submits them to the Department Council for members to improve their courses.. The Panel acknowledges that internal moderation ensures consistent assessment and fairness of grading as well as contributes to the review and improvement of courses and thus the programme. However, no evidence was presented to demonstrate that the effectiveness of internal moderation is assessed. The Panel recommends that the College should establish a mechanism to evaluate the effectiveness of internal moderation.
- According to the regulations, external moderators are selected by the Department Moderation Committee from experienced academic staff in recognised institutions. During interviews with both the current external moderator for the 'Applied Optics' (PHYCS433) course and with faculty, a conflicting account of the state of the moderation emerged. It is clearly stated in the SER that the external moderator should see a sample of marked work and faculty repeated the same in interview, but this does not yet appear to have happened. Faculty confirmed, during interviews, that external moderation is relatively new and that they were hoping to rollout much more external moderation in the near future. Overall, it was clear that only one course 'Applied Optics' (PHYCS433) and a few Senior research projects were moderated at present. Therefore, the Panel recommends that the College should implement the external moderation process as specified in the university regulations and ensure that it covers a wider range of courses and includes revision of marked scripts from senior students.

Indicator 3.4: Work-based Learning

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

Judgment: *Partially Addressed*

- The Internship Guidelines set out the aims and objectives of the internship as well as the expectations from the students, the internship supervisors at the companies and the academic supervisors. In interviews, both students and alumni expressed their appreciation of the internship and specifically mentioned its role as an introduction to the market and preparation for future work. In interviews with the internship supervisors, appreciation of the students' theoretical ability was specifically mentioned. In the same interview, however, concern was expressed that Physics students are not as well prepared as students from other disciplines, such as Chemistry, for the internship.
- The Panel was unable to ascertain from either the SER or interviews the extent to which students practice skills related to laboratory work. The concern centred around three main areas: presentational skills, writing skills and knowledge of advanced instrumentation. The first two relate directly to the achievement of outcome (h) of the PILOs. For example, it was reported, in interviews, that students do not write a full laboratory report, yet they are expected to write such a report at the conclusion of the internship. Therefore, the Panel recommends that the College should consider ways to enhance the development of communication skills, both report writing and presentation, by a process of introduction, development, and consolidation.
- Knowledge of advanced instrumentation, such as different forms of spectroscopy, prior to the internship will help with training the students in the specific techniques to be used during the internship. It is not realistic to expect the Department to implement an experimental programme to develop these skills, given both the limitations on laboratory space mentioned during interviews and the highly specific nature of the advanced instruments students will be required to use, but it is possible to acquaint students with an appreciation of different analysis techniques and the kinds of instruments that are likely to be encountered during the internship. Therefore, the Panel advises the Department to introduce an advanced materials analysis course to prepare students for their internship.
- It became apparent during interviews that internship supervisors are not given access to internship guidelines and are given no guidance on marking. The freedom given to internship supervisors to allocate marks as they see fit is a potential source of inconsistency and, therefore, the Panel recommends that the College should develop clearer guidance in the form of criteria for internship supervisors regarding the allocation of marks and the internship guidance document be made available to internship supervisors. The Panel also advises the Department to meet with internship supervisors at least once per year to discuss any relevant issues.

Indicator 3.5: Capstone Project or Thesis/Dissertation Component

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

Judgment: Addressed

- The 'Senior Project' (PHYCS 499) course specification outlines its CILOs, which are mapped to PILOs. Students undertake the 'Senior Project' (PHYCS 499) course in their final year, which is an opportunity for them to conduct research of an advanced experimental or theoretical nature. It also requires from them to plan execute and report the results of a significant piece of investigative work. As such, it provides students with an opportunity to meet all the programme learning outcomes to some extent.
- The list of students' projects shows a wide variety of topics spanning experimental and computational physics, which give the students the opportunity both to apply and further develop their skills. There is a comprehensive guide for the students that sets out their responsibilities and offers substantial guidance on the style of the final written report. Interviews with students and alumni demonstrated an appreciation of the project as a method for developing academic skills, and a clear distinction between the different roles played by the internship and the project in their development was expressed. Students work closely with their supervisors, who are therefore able to monitor progress and advise accordingly.
- There are clear procedures set down in the project guidelines for marking the project by both the supervisor and additional markers, with clear proforma to be completed. The final written report is judged on its style and the clarity and quality of the results. Students also make a presentation, and this is marked appropriately. The conduct of the student in performing the project is also evaluated by the supervisor against five attributes and behaviours, with 10 marks available for each. However, there is no guidance as to what might constitute 10/10 as opposed to 8/10 or 6/10, for example. Similar considerations apply to the marking of both the written report and the presentation, but there are more attributes which are better defined and the range of marks available for each are not as extensive. The Panel is of the view that faculty should have, as far as is possible, an agreed set of expectations regarding what constitutes full marks, half marks and marks in between to reduce inconsistency in grading. Therefore, the Panel recommends that the College should develop a grading rubric that assist supervisors in assigning marks in the five categories on the marking proforma.
- As with all courses, procedures are in place to review the performance of the students on the course and if necessary, review the course itself. Surveys are also used to assess the student satisfaction and monitor the supervision process. In interviews with students,

they confirmed that the supervision and help they received was good and that their learning needs were supported on a regular basis.

Indicator 3.6: Achievements of the Graduates

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

Judgment: Partially Addressed

- The Panel was provided with access to course portfolios, which consists of course specification forms, course assessments, mapping of CILOs to PILOs, CILO assessment forms, PILO assessment forms, assessment results, samples of student work, examination model answers and grade distributions. These portfolios show clear and appropriate assessments and marking for each level of study. It is also evident from the curriculum that students take a variety of different courses and are assessed in a variety of ways, including conventional timed examinations, reports and presentations. The range and depth of courses is comparable to similar programmes.
- The SER includes some statistics and information in relation to the number of admitted students in the last five years, their accumulative grade point averages, gender and nationality, and the average length of a degree in Physics, which is close to 5 years and not comparable with similar programmes in the region and internationally. The Panel was not provided with a detailed cohort analysis to confirm the progress of graduates. The Panel was not also provided with statistics and information in relation to the first destination of graduates, which are required in the DHR/BQA SER Template. Therefore, the Panel recommends that the College should keep statistics about the ratios of admitted students to successful graduates including year-on-year progression, retention and graduate destinations to ensure that these are consonant with those on equivalent programmes. The Panel also recommends that College should investigate the reasons behind the average long length of study period and take the necessary remedial actions where applicable.
- Direct international comparisons are difficult to make without extensive data, but the provided evidence and interviews revealed that students from UoB have performed well in international contexts, such as the Planck's competition, where, it was reported in interview, the UoB came 26th, and in placements at Conseil Européen pour la Recherche Nucléaire (CERN). Feedback from both organisations was reported in interviews as positive and is an indication of the academic quality of those participating. Interviews with employers and internship supervisors reveal a high degree of satisfaction with students' knowledge of physics and the ability to use mathematics to describe physics principles. The Panel appreciates the performance of the students within an international context (Planck's competition and CERN placements) as a reflection on the quality of education as well as the application and attitude of the students concerned.

Standard 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.

Indicator 4.1: Quality Assurance Management

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

Judgment: *Addressed*

- The University bylaws, regulations and policies are accessible on the UoB website to all relevant stakeholders. The Panel learnt during interviews that these regulations and policies are supported with clear processes to ensure that they are consistently implemented across the College and its Departments. There is also a clear QA system operating at the level of the University, the College, and the Department. At the department level, the QA committee works with the Director of the College QA Office to implement the related QA policies and procedures to improve the programme. Representation from the Department at the college level occurs *via* the Head of the Departmental QA Committee, who is a member of the College QA Committee. There is also representation from the College at the institutional level that occurs *via* the Director of the College QA Office, who is a member of the University QA and Accreditation Executive Committee.
- There are clear QA guidelines as set out in the SER and the supporting evidence, but during the review interviews with faculty, a number of inconsistent answers were provided by the faculty members, which implies that not all staff fully understand the QA processes. Therefore, the Panel recommends that the College should consider organizing regular professional development activities aimed at improving awareness of, and compliance with, QA processes.
- QA processes at departmental level are driven by the requirements of the processes operating at the institutional level, which are monitored, evaluated and improved. However, it is not clear to what extent the processes could be reviewed and altered independently by the Department. During the interviews, faculty pointed out that the QA processes are complex and time consuming. Therefore, the Panel suggests that consideration be given to a revision of the QA processes that will make it more effective and that this be fed upward to the College and, if necessary, the University.

Indicator 4.2: Programme Management and Leadership

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

Judgment: Addressed

- The organizational chart sets out a clear line of management from the Head of the Department to the faculty, through the Departmental Council and then the various committees. The head of each committee at the departmental level reports to the Head of the Department who reports to the Dean of the College. The standing committees at the department and college levels cover every aspect of the operation of the Department, including recruitment, promotion, teaching, assessment, and moderation. All faculty are involved in these committees and as such are aware of the organizational structure and existing reporting lines. There are also ad hoc committees formed for specific purposes, such as the committee formed in 2022 to review and develop the B.Sc. in Physics.
- The Panel confirmed during interviews and from the SER that the custodianship of the academic standards of the programme rest mainly on the Dean of the College, College Council, Head of the Department, Department Council, and QA Office. The Panel saw no evidence that leadership was in any way ineffective. Students are satisfied with the teaching and supervision and know whom to approach for help and guidance. Staff are also aware of their roles and responsibilities and, aside from some uncertainty over awareness of QA processes mentioned in 4.1, appear to be operating effectively.

Indicator 4.3: Annual and Periodic Review of the Programme

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

Judgment: Partially Addressed

- The University has detailed policies and procedures for the annual and periodic reviews of its academic programmes explained in the Quality Manual and the Regulations for Offering and Developing Academic Programs. However, the provided evidence is not sufficient to demonstrate that the annual review is conducted regularly. The Panel examined the 2020-2021 annual SER, which is prepared by the Departmental QA Committee. The Panel notes that the scope of the annual review for 2020-2021 was limited by the switch to online teaching owing to the Covid-19 pandemic. The Panel also notes that a number of recommendations were included in this report under section 7, Feedback, but no opportunities were identified in section 8 for improvement, this suggests that the process for reviewing and evaluating the programme annually is not as effective as it could be. Therefore, the Panel recommends that the College should ensure that an annual

review of the programme is conducted regularly, with comprehensive data and analysis; rigorous recommendations elicited from the process; and proper actions implemented.

- The Panel was not provided with evidence to demonstrate that the Department conducts regular periodic reviews for the programme. Periodic review normally means an institution-led periodic review occurring every five years or so. In interviews with staff, there did not seem to be any awareness of this kind of review, but a number of other reviews were mentioned instead. These include reviews conducted by the BQA and a recent accreditation review of the Accreditation Agency for Study Programmes in Engineering, Informatics, Natural Sciences and Mathematics (ASIIN). These other reviews combined are externally led and perform a different function. Therefore, the Panel recommends that the College should ensure that regular periodic reviews of the programme are conducted, based on various inputs, and that the results are utilized to improve the programme. The Panel also advises the College to monitor and evaluate the effectiveness of both annual and periodic review processes and explore different options for implementing annual and periodic reviews that will not substantially add to the faculty workload.

Indicator 4.4: Benchmarking and Surveys

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

Judgment: Addressed

- The Panel notes that there is evidence of benchmarking for the course descriptions in relation to course content utilizing the University Benchmarking Policy. The Department conducted a benchmarking study against three similar programmes offered by highly ranked universities in United States of America. However, the exercise implemented was not comprehensive and did not cover essential aspects of the programme such as PILOs, CILOs and teaching/learning and assessment methods. This is inconsistent with the University Policy. Moreover, the date of the study was not provided in the evidence and the SER. Thus, the Panel recommends that the College should ensure that the implementation of the benchmarking study is regular, comprehensive and covers the main aspects of the programme to comport more with the University Benchmarking Policy.
- The Panel notes that the Department collects data from internal and external stakeholders through alumni, employers, faculty and students' surveys. Aside from the surveys, other mechanisms exist to collect external stakeholder feedback, such as the Programme Advisory Committee (PAC) meetings and the meetings of the Student Advisory Committee (SAC). Some changes, such as the introduction of metrology course, have clearly arisen from external stakeholder input *via* the PAC. The Department Council and

the College QA Office follow up and monitor the implementation of these improvements. The Panel also learnt during the interviews that the implemented changes are communicated to stakeholders through the meetings conducted with PAC and SAC.

Indicator 4.5: Relevance to Labour Market and Societal Needs

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

Judgment: Partially Addressed

- There is a functioning PAC which meets at least once per year. The PAC comprises members from government ministries, institutes and directorates who are not employers of the programme's graduates. Such representatives are well placed to advise on broad issues related to the labour market, but there is a level of employer input that does not appear to be so well represented. These are the immediate employers of graduates and interns, and such people are better placed to comment on whether graduates are equipped with the requisite skills and knowledge to compete in the marketplace and to contribute effectively to societal needs. Therefore, the Panel recommends that the College should extend the membership of the PAC to include immediate employers of graduates and internship supervisors.
- The Panel was not provided with sufficient evidence of regular targeted studies scoping the labour market and the national and societal needs, nor evidence that the mechanisms are monitored and reviewed. The evidence provided was limited to an analysis of alumni and employer surveys that were conducted in 2018 to examine the employment of graduates and the extent the programme provides its graduates with different skills. The results of the 2018 alumni survey indicates that about 70% of the graduates find a career in the education sector, and the other 30% are distributed among the industry, ministry of interior and some found jobs outside the Kingdom of Bahrain. The employer survey indicates over 65% of the employers believe that the programme graduates are successful in physics related fields. The SER refers only to the last alumni survey that conducted in March 2022. The results of the 2022 alumni survey show that 50% of them felt that their studies did not prepare them adequately for their subsequent career. Hence, the Panel recommends that the College should regularly conduct a formal study with targeted data to scope the labour market and ensure that the applied mechanisms are monitored and reviewed.

V. Conclusion

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

There is "Confidence" in the Bachelor of Science in Physics of College of Science offered by the University of Bahrain.

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

1. The various policies and procedures and layers of access to secure students' records and their accuracy.
2. The facilities provided to the students, the supporting technical staff to maintain them and the support available to benefit from them.
3. The performance of the students within an international context (Planck's competition and CERN placements) as a reflection on the quality of education as well as the application and attitude of the students concerned.

In terms of improvement, the Panel recommends that the University of Bahrain and/ or the College of Science should:

1. Develop a complete risk register to cover all potential risks, including actions that need to be taken to mitigate the risks.
2. Benchmark the programme and course intended learning outcomes with other similar Physics programmes in the region and internationally.
3. Ensure that the curriculum is updated regularly in light of benchmarking and other expectations and requirements in the professional field.
4. Consider offering students more laboratory hours to develop students' practical skills, particularly in areas such as the use of instrumentation.
5. Update the physics course specifications to ensure that all courses use current and contemporary reference materials and textbooks.
6. Incorporate formative assessment in all courses so that faculty can monitor student learning and provide students with feedback on their progress.
7. Amend the Senior research project guidelines to include reference to research ethics.

8. Ensure that the College and the Department are involved in the revision of the admission criteria taking into consideration students' high school basic science and mathematics grades/knowledge and performance in introductory science courses at the University.
9. Develop measures to monitor and evaluate staff turnover and adopt attractive package to retain and increase national and expatriate academic staff.
10. Create an environment conducive to research culture by reducing the teaching load, providing resources, and developing university/college/department research plan with clear focus.
11. Establish measures to identify and support continued professional development programmes which is consistently monitored and evaluated.
12. Monitor regularly the adequacy and functioning of facilities and resources and rectify wherever needed.
13. Update laboratory equipment and introduce modern instrumentation for advanced courses.
14. Regularly utilise data provided by the Management Information System in informed decision-making.
15. Assess the impact of the advising services on the performance of students generally, and those at-risk specifically.
16. Review its monitoring of academic misconduct processes and establish a system for recording academic misconduct cases of students and actions taken by the Department to penalize them.
17. Establish a mechanism to evaluate the effectiveness of internal moderation.
18. Implement the external moderation process as specified in the university regulations and ensure that it covers a wider range of courses and includes revision of marked scripts from senior students.
19. Consider ways to enhance the development of communication skills, both report writing and presentation, by a process of introduction, development and consolidation.
20. Develop clearer guidance in the form of criteria for internship supervisors regarding the allocation of marks and the internship guidance document be made available to internship supervisors.
21. Develop a grading rubric that assist supervisors in assigning marks in the five categories on the marking proforma.
22. keep statistics about the ratios of admitted students to successful graduates including year-on-year progression, retention and graduate destinations to ensure that these are consonant with those on equivalent programmes.

23. Investigate the reasons behind the average long length of study period and take the necessary remedial actions where applicable.
24. Consider organizing regular professional development activities aimed at improving awareness of, and compliance with, quality assurance processes.
25. Ensure that an annual review of the programme is conducted regularly, with comprehensive data and analysis; rigorous recommendations elicited from the process; and proper actions implemented.
26. Ensure that regular periodic reviews of the programme are conducted, based on various inputs, and that the results are utilized to improve the programme.
27. Ensure that the implementation of the benchmarking study is regular, comprehensive and covers the main aspects of the programme to comport more with the University Benchmarking Policy.
28. Extend the membership of the Programme Advisory Committee to include immediate employers of graduates and internship supervisors.
29. Regularly conduct a formal study with targeted data to scope the labour market and ensure that the applied mechanisms are monitored and reviewed.