PROGRAMME REVIEW

Bachelor of Science
Faculty of Science
University of Peradeniya

Site Visit Dates: 8th- 9th September 2022



Review Panel: Professor (Mrs) GAS Ginigaddara (Chair)
Professor (Mrs) LD Amarasinghe
Professor Sisira Ediriweera

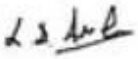
The Quality Assurance Council
University Grants Commission, Sri Lanka

University: University of Peradeniya

Faculty: Faculty of Science

Programme: Bachelor of Science Study Programme (BSSP)

Review Panel:

Name	Signature
Prof. (Mrs.) GAS Ginigaddara	
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Section 1: Introduction to the Programme

The Faculty of Science (FoS), University of Peradeniya (UoP), is one of the leading Science Faculties in the Sri Lankan University system. The faculty, established in 1942 as part of the University of Ceylon, shifted to its present site at Peradeniya in 1961. At its inception, the faculty consisted of five departments, namely, Botany, Chemistry, Mathematics, Physics, and Zoology, and the students were admitted into two streams: Biological Sciences with one subject combination and Physical Sciences with four subject combinations. In 1964, the Department of Geology was established.

The Science Education Unit (SEU) was begun in 1989 specifically to promote science education at the secondary level and disseminate scientific knowledge, particularly in underprivileged areas of the country. As a part of the SEU, the Science Education Resource Centre (SERC) was established in 2013 to impart hands-on practical experience to GCE (A/L) students. Computer Science as a subject was introduced in 1990. The Departments of Molecular Biology & Biotechnology and the Department of Statistics & Computer Science were established in 1997.

The semester-based course unit system was introduced in 2001. Course contents have been revised from time to time in different departments and updated relevant to the country's national needs. The Applied Science Study Programme (ASSP) was introduced in 2005, providing the option for BSc students to continue for an additional year and obtain industrial competency.

Table 1.1: Current Student Enrollment

Academic Year	Number of Students	Number of students selected for BSSP	Dropouts (BSSP students)	Incomplete (BSSP students)
2014/2015	446	123	0	20
2015/2016	466	127	3	35
2016/2017	412	78	6	19
2017/2018	498	120	5	23
2018/2019	482	165	Currently following the degree	

Table 1.1 depicts the number of students who enrolled in the Faculty of Science for the last five years, out of which many students are graduating as BSc (SLQF Level five) (BSSP) degree holders.

Table 1.2: Human Resources Profile

Staff Category	Post	Count	Highest Qualification
Academic	Senior Professor	13	Ph.D.
	Professor	23	Ph.D.
	Associate Professor	01	Ph.D.
	Senior Lecturer (Grade I/II)	50	Ph.D.
	Lecturer (Confirmed)	08	Ph.D.
	Lecturer (Probationary)	19	Ph.D.
Academic Supportive	Instructors/ Demonstrators	17	Ph.D.
Non-academic	Assistant Registrar	1	M.Sc.
	Assistant Bursar	1	ICASL
	Technical officer	40	Ph.D.
	Lab attendant	41	NCT
	Management Assistant	13	B.Sc.
	Work Aid	16	G.C.E. A/L
	Computer Application Assistant	4	B.Sc.
	Computer Operator	1	Diploma
	Computer Programmer	1	Following M.Sc.
	Carpenter	1	G.C.E. O/L
	Mechanic	1	G.C.E. A/L
	Machine Operator	1	G.C.E. A/L
	System Analyst	1	M.Sc.
	Driver	4	G.C.E. O/L
	Receptionist cum Telephone Operator	1	Following B.A.
	Book Keeper	1	B. Com
	Labourer	1	Sat for G.C.E. O/L

At present, there are 114 academic staff members, 17 academic support staff members, an Assistant Bursar, an Assistant Registrar, and 127 non-academic staff members in the faculty (Table 1.2).

An academic year consists of two semesters of 15 weeks each. First year (100 level), students have to follow a combination of three subjects from the principal 15 subject combinations and three foundation courses, securing a minimum of a “C” grade each. In the second year (200 level), students have to follow two subjects from the principal subject area and the third subject from the other principal subject areas or follow the same three subjects that they followed in the second year. In the third year (300 level), students should follow the same three subjects that they followed in the second year, securing a minimum of 90 credits.

Section 2: Review Team's Observation on the Self-Evaluation Report (SER)

The SER submitted by the faculty is a comprehensive document containing all the relevant information required for the review of the BSSP. It was noted that the Faculty of Science of the University of Peradeniya has made a significant effort to prepare the SER in line with the guidelines of the QAC (PR Manual 2015), in consultation with all stakeholders. The electronic version of the SER was made available through the QAC Management Information System (MIS) [https://www.eugc.ac.lk/qac/]. Electronic forms of the evidence have been made available by the Faculty of Science of the University of Peradeniya through the Document Management System.

The Faculty Board has nominated six members, including a Chairman to the FQAC for preparing the SER. The preparation process has been coordinated by the Chairman and supervised by the Dean. SER writing awareness workshops have been organized by the FQAC, and four SER teams based on the study programme have been formed. Regular meetings of the SER writing team have been conducted by the overall coordinators by inviting team members and the HODs from the eight departments. Each team member was assigned one criterion listed in Section 3. The coordinators had been responsible for identifying claims/addressing standards/collecting/filing/coding documentary evidence. The Assistant Registrar (AR), the Staff of the Dean's office, and technical officers of each department had been assigned to assist the writing team in collecting evidence. The claims of compliance under each criterion had been finalized in the presence of coordinators, criteria leaders of all four teams, and the Dean. Thereafter, the individual claims of each criterion had been compiled into one document, revised and edited by the SER writing team, and reviewed by the Dean. Once the draft SER was approved by the FQAC, it was edited by the three-member committee appointed by the Faculty Board. Coding and further revisions had been done by the overall coordinators. The draft SER had been extensively discussed at many meetings held for that purpose. After incorporating the feedback obtained through these meetings, the final SER has been completed and circulated among all the academic staff members of the Faculty of Science. It had then been approved at a special Faculty Board meeting held on June 18th, 2020. In general, the SER and evidence documents were acceptable and reasonable. It was noted that the evidence of contribution under each criterion was satisfactory.

The review team observed that both academic staff and non-academics are aware of the programme evaluation and PR manual and realized that the SER report writing team has been given adequate support from all categories of staff of each department. All the academic and non-academic members, alumni, and students were highly cooperative with the review team during the stakeholder meetings.

The SER was compiled as per the instructions given by the PR manual, and a comprehensive SWOT analysis was incorporated into the SER. Much of the evidence listed in the SER was relevant to the PR manual instructions.

Section 3: Description of the Review Process

The programme review process of the Bachelor of Science Study Programme (BSSP) of the Faculty of Science of the University of Peradeniya was started with the appointment of a three-member review team by the Quality Assurance Council (QAC) of the UGC.

According to the original schedule, the first site visit of the Programme Review (PR) of the Bachelor of Science Study Programme of the University of Peradeniya was scheduled in April 2020. Accordingly, the Center for Quality Assurance (CQA) of the University of Peradeniya has prepared the Self-Evaluation Report (SER) covering the period from 2015 to 2020. However, due to the COVID-19 pandemic situation, the next steps of the PR were postponed by the Quality Assurance Council (QAC) in consultation with the University authority. Finally, in the mid of the year 2021, all three parties (FQAC, Faculty of Science of the University of Peradeniya, and reviewers) agreed to conduct the review using an online platform. As a result, the Faculty of Science of the University of Peradeniya prepared all the required evidence documents in electronic form. These documents were made available to the reviewers according to the agreed time period.

The review team was made adequately aware by the QAC of the MIS of the QAC and the online document review process. Initially, a desk evaluation of the SER was carried out individually by each member of the team. Later, the team met online and planned for the rest of the process of the programme review. Evaluation proper (EP) was carried out by considering the documentary evidence uploaded onto the MIS of the QAC website. All the evidence collected by the faculty staff in line with the SER was checked by the review team by holding three Zoom meetings on the 10^{th,} 12th and 13th of April 2022.

Then, after discussing with the Coordinator/FQAC, a series of stakeholder meetings were conducted on 29th April 2022 (from 9.00h to 17.00h) (Annexure 01) with the following.

1. Heads of the Departments and Directors of the Units/Cells
2. Dean and Administrative Staff (AR and AB)
3. Academic Staff in the Permanent Cadre
4. Librarian/Senior Assistant Librarian/ Staff
5. Technical Officers
6. Academic Support Staff
7. Non-academic Staff
8. Directors of SDC, CGU, QAC, BLII-TTO, and Chairperson/SGBHSV

9. Chairperson/Students' Welfare and staff
10. Senior Student Counsellor/Student Counsellors
11. Undergraduate students
12. Postgraduate Students
13. Alumni Members
14. Mentors and Career Guidance Staff
15. English Language Teaching Department staff

During these meetings, the review team discussed various aspects relating to the quality of the academic programmes, workplace performance, employee satisfaction, performance recognition at the workplace of different employee categories, challenges faced by different employee categories, the contribution of each category of employees in the SER writing process, their contribution to the review process and academic programmes in general and suggestions for enhancement of the quality of the degree programme.

At the meeting with undergraduates, the review team collected and cross-checked the facts about their satisfaction with the academic programme, welfare facilities available in the university for them, teaching and assessment procedures in the academic programme, completing the academic programme on time, facilities, and possibilities available for extracurricular activities, mentoring and counseling facilities available to them and their suggestions for enhancing the quality of the degree programme. At the meeting with postgraduate students, different opportunities available to them for postgraduate studies, the recognition of the degree programme in foreign universities, and suggestions for further enhancing the degree programme, were discussed.

At the meeting held with the alumni, the extent to which alumni members get connected with academic programmes, curriculum revisions, and stakeholder discussions was discussed.

A site visit was conducted on 8-9th September 2022 with the mutual agreement of the members of the team and the Faculty of Sciences, PDN. The agenda for the visit has also been mutually agreed upon by the team and the coordinator of the faculty FQAC (Annexure 02). The team traveled to PDN a day before the site visit and stayed in a hotel. During the stay, the team discussed how to conduct the visit effectively to cover all the relevant entities and have the rest of the stakeholders' meetings.

On the 9th morning at 08:30 h, the team had a meeting with the Deputy Vice-Chancellor of PDN at the office of the Vice-Chancellor, with the Acting Registrar and Bursar of the university, and the Director/Quality Assurance. The Deputy Vice-Chancellor explained

alternative methodologies that the university has taken to provide better student welfare facilities and to clear the backlog in the academic programmes. The team met the Dean of the Faculty of Science, Heads of departments and the faculty coordinator of FQAC thereafter. The review team discussed the lack of key positions of the faculty organogram and some of the documents/policies/procedures and processes that were not approved before submitting the SER. Standard Operating Procedures (SOP) uploaded without authentication, staff profiles to be updated on the website, remedial measures taken for the stakeholder meetings during the curriculum revision period, faculty policy recently prepared and approved, Gender Equity and Equality policy, TOR for the FQAC, availability of credit transfer policy, adoption of peer evaluation and implementation of the Dean's List.

Then the review team visited the physical infrastructure with respect to the degree programme. The team visited lecture halls and observed the conduct of lectures by academics after randomly picking from the timetable. Then the team visited laboratory facilities and observed several practical sessions conducted for undergraduates. The team also observed the museums and other specimens available to students for their studies. Then the review team visited the common facilities available for students and staff and observed programmes conducted by common facilities such as the faculty library, student canteens, FQAC office, Staff Development Center, Career Guidance Unit, Health Center, Counselling Center, Science Education Unit, and sports facilities.

After all these meetings and observation of facilities, the review team held a final discussion between them in a confidential room. Finally, the wrap-up meeting was conducted with the Dean, academic staff, and administrative staff of the faculty about the main findings, strengths, and weaknesses of the degree programme. The Chairperson of the review team thanked them for their cooperation in carrying out the visit successfully. She appreciated the efforts of the young and enthusiastic staff of the faculty. At the same time, the team pointed out the areas that need more attention and improvement. The Dean also thanked the review team and said that the faculty is ready to implement suggestions to improve the quality of the programme.

Section 4: Faculty's Approach to Quality and Standards

The Faculty Quality Assurance Cell (FQAC), at the University of Peradeniya, was established in 2016 according to the guidelines given by the Quality Assurance Council of the University Grant Commission. The FQAC promotes measures necessary for faculty-level functioning towards quality enhancement through internalizing best practices in academic, academic-related, and administrative activities. It has a broad mandate of coordinating quality assurance-related activities within the faculty in liaison with the Center for Quality Assurance (CQA) of the University of Peradeniya. The activities of the FQAC have been monitored by the Faculty Board since 2016 and need further commitment for the implementation of the terms of reference and scorecard requirements of the FQAC as recommended by the UGC.

The FQAC is coordinated by a senior academic staff member of the faculty, and its membership and TOR are clearly defined. However, the student representation of the FQAC meetings and Quality Assurance activities is not evident. Therefore, the consideration of student representation for the FQAC committee is recommended for increasing student participation in QA activities.

The review team's study of the SER, online meetings with relevant stakeholders, observation of facilities, and evidence demonstrated that the faculty's approach to improving quality and meeting standards is constructive. It was noted that the non-academics were not active participants in the SER writing activities, as per discussions held with these groups, and they were unaware of the quality improvement processes.

It was evident that the FQAC has initiated many internal monitoring activities/required policies, manuals, and guidelines in the recent past to improve the quality standards of the academic programmes of the faculty. However, the evidence for proper recommendation and approval for such activities from statutory bodies was not observed. Even though student feedback was regularly taken by many departments, peer observation is not at a satisfactory level, and no mechanisms were observed that integrate feedback of peer evaluation for programme improvement. It was also noted that only certain departments actively participate in QA activities. Hence, taking necessary measures for quality enhancement by each department is highly recommended. Further, peer evaluation formats for laboratory and field practicals were not evident. Therefore, initiating peer evaluation and laboratory field practical evaluation procedures is recommended as their feedback is important for programme improvement. Moreover, certain departments have recently conducted curriculum revision. However, revision should be done at regular intervals for the entire degree programme. During the period of the programme review, the active involvement of all categories of staff of the Faculty in QA activities was evident. It was

a positive sign indicating the commitment of all Faculty staff towards improving the quality of programmes of the faculty.

Section 5: Judgment on Each of the 8 Criteria

Criterion 1:Programme Management

The following aspects directly related to the study programme management were assessed: organizational structure, governance and management procedures; strategic/action plan and implementation; management capacity and procedures; by-laws relating to examinations, disciplinary procedures, student unions; duty lists and Codes of Conduct for staff and Charter for students; curriculum development and internal quality assurance mechanism and procedures; curricula revision process, and adherence to national guidelines /reference points; teaching and learning and assessment procedures; adherence to Outcome-Based Education- Student-Centered Learning (OBE-SCL) approach in education provision; academic counselling, student counselling, welfare mechanisms and procedures; national and international partnerships and national and international visibility; provisions for accommodating and assisting students with special needs; measures to promote gender equity and equality, by-laws to deter any sexual and gender-based harassment; and measures and strategies to adopt the policy of zero-tolerance to ragging.

As key findings of the review process, the following strengths and weaknesses were identified as special points in Criterion 1 with respect to BSSP.

Strengths

- The faculty has a well-thought-out organizational structure that facilitates the effective management and implementation of its core functions, teaching and learning, programme design and development, a conducive environment and student support and mentoring, research and outreach activities, etc.
- The Action Plan of the Faculty is up to date, well implemented, and in alignment with the University's strategic plan.
- The faculty maintains a good rapport with its alumni, students, and other stakeholders.
- The standard management procedures that the faculty adopts in line with Standard Operating Procedures (SOPs) are satisfactory.
- The faculty ensures greater transparency, teamwork, participation, and a high level of commitment.
- The faculty has an annual academic calendar and the students at the faculty complete their degrees on schedule, without a delay.
- The faculty adheres to well-developed by-laws (matters pertinent to examinations, student discipline, grievance handling, union activities, etc.) and policies for effective programme management.

- The faculty has prepared a well-designed handbook (includes all necessary information such as curricula of the study programme(s) and courses offered, compulsory and optional courses, examination procedures and grading mechanisms, graduating requirements, etc.) and a charter for students that is distributed among the students at the time of enrolment.
- The staff and students use the LMS at a satisfactory level.
- The faculty conducts an orientation programme for all new students and passes on vital information about the University and the Faculty, facilities and resources available, support services, the study programme, etc.
- The required training for staff of the faculty has been identified and delivered by the Staff Development Center (SDC).
- Quality assurance is implemented and monitored by the well-established FQAC that operates in liaison with the QAC.
- The faculty maintains continuous monitoring on teaching and learning environments such as student feedback, graduate satisfaction survey, academic counseling and mentoring system, health care services, needs of differently-abled students, sports activities, etc.
- A well-functioning security system is available

Weaknesses

- Restructuring of the Faculty of Science (FoS) organogram is not properly constructed to include faculty coordination to the SDC and Career Guidance Unit (CGU)
- The faculty web page is not updated
- SOPs are not authenticated.
- Lack of a participatory approach in the faculty's governance and management and student welfare committees.
- The curriculum does not include a formalized in-plant/industrial training component.
- Although the Faculty ensures gender equity and equality (GEE), there is no permanent location/room to deliver the best services to all categories of staff and students.
- The faculty has well-written policies to prevent ragging; however, such policies should be thoroughly implemented.
- The BSSP did not have an academic coordinator to coordinate the programme smoothly.
- Student participation in quality assurance activities was unsatisfactory.
- BSc graduate employability records are not satisfactory.

Criterion 2: Human and Physical Resources

The following aspects are reviewed and assessed under this criterion - staff cadre and adequacy, human resources profile, competency profile of academic staff; staff capacity building programmes, staff appraisal, and reward mechanisms; adequacy of teaching and learning facilities; training and learning resource centers for learning English as a second language; ICT resources for academic pursuits, library resources, and career guidance services; and institutional mechanism and facilities for promotion of social harmony and ethnic cohesion.

As key findings of the review process, the following strengths and weaknesses were identified as special points in Criterion 2 with respect to BSSP.

Strengths:

- A well-resourced library is available within the faculty premises
- All students in the study programme are given an equal opportunity to gain access to health care services, sports activities, and cultural and aesthetic activities.
- Motivated and well-qualified academic staff are available for many subject areas for the design and development, and delivery of academic programme (s) and courses
- A significant number of national and international research grants have been obtained by the academics.
- A sufficient number of lecture halls and laboratories were available to cater to the current student population.
- A well-resourced Medical Centre, that has introduced several new innovative activities for the well-being of the university community, with a Chief Medical Officer.

Weaknesses:

- The programme has recruited a majority of the academic staff from the same university – a fact that might indicate that departments are less extroverted
- Though the physical facilities are available, they do not seem to be used efficiently
- Lack of adequate training on Student-Centered Learning, provided for the academic staff

Criterion 3: Programme Design and Development

A programme of study is defined as a stand-alone approved curriculum followed by a student, which contributes to a qualification of a degree awarding body. Where a programme is made up of more than one self-contained, formally structured unit, those are referred to as courses/modules.

The academic programme of study should reflect the University, Faculty, and Department mission, goals, and objectives. It should be offered according to needs analysis based on an audit of existing courses and programmes, market research, liaison with industry, national and regional priorities, and according to approved procedures. Subject Benchmark Statements (SBS) and requirements of professional bodies act as valuable guides/external reference points when formulating the structure and content of a new degree programme. The curriculum is outcome driven and equips students with knowledge, skills, and attitudes to succeed in the world of work and for lifelong learning.

Programme design is initiated by describing the graduate outcomes of the programme, followed by a clear mapping of course/module outcomes to the programme outcomes. Learning outcomes are developed and described with reference to a particular level of study based on (in compliance with) the Sri Lanka Qualification Framework (SLQF). All programme outcomes should be clearly aligned with course outcomes, content, teaching/learning, and assessment strategies (constructive alignment). Programmes should seek to engage students in a variety of learning activities that would encourage diversity, flexibility, accessibility, and autonomy of learning, and produce compatibility between curriculum, student-centered teaching methods, and assessment procedures. Essentially the final curriculum is an interaction between learning outcomes, methods of assessment, teaching methods, and content.

Good Practice is to consider not only the curriculum areas of study but also the intellectual, practical, and transferable skills that should be developed and assessed at each level using the level descriptors in the SLQF to establish a standard for each level of study. There should be an effective process for regular monitoring and review of the design, development, and approval of programmes.

As key findings of the review process, the following strengths and weaknesses were identified as special points in Criterion 3 with respect to BSSP

Strengths

- The curriculum design and revisions are approved by the Senate-approved Curriculum Development Committee.
- The programme builds strong theoretical, practical, and experiential knowledge and progressively increases the intellectual challenges on students in terms of skills, knowledge, conceptualization, and autonomy of learning.
- The curriculum of the programme promotes independent and lifelong learning, experiential and reflective learning, collaborative learning, and self-learning.

- Student progress and success rates, and student satisfaction/student feedback with the programme are high.
- The programme information documents (prospectus/handbook/code of practice/by-laws, etc. for course specifications, credit hours, course contents, and recommended readings, etc.) are available and accessible in print and/or electronic forms (webpage).
- The FQAC currently operates in alignment with the university CQA.

Weaknesses

- Even though the degree programme that the faculty offers matches the mission, goals, and objectives of the University, graduands lack industrial exposure with the required soft-skill development to meet the expectations of stakeholders.
- Inadequate evidence for stakeholder participation, especially the undergraduates, in programme planning, design, development, and review.
- Partially implemented Outcome-Based Education (OBE) is available, and there are no guidebooks on OBE and SCL.
- Supplementary courses in the existing curriculum are weak in enriching the generic skills of students (eg, entrepreneurial skills).
- Integration of cultural and social diversity, equity, social justice, ethical values, and sustainability into the curriculum is not evident.
- The existing curriculum was implemented before 2010, and there is a compelling need for a major revision of the whole curriculum at once to ensure programmes remain current and valid in the light of developing knowledge.
- Lack of a mechanism for monitoring the outcomes of the programme.
- Lack of a policy document for students with disabilities regarding the programme design and development, and teaching and learning environment, for instance, for the provision of learning resources for differently-abled students.
- The ILOs of the course units are realistic, deliverable, and feasible, and are in alignment with Outcome-Based Education (OBE), satisfying the requirements of the graduate profile. However, with respect to the review period, this strength was not there.

Criterion 4: Course / Module Design and Development

Courses are components of a programme of study that are consistent with the programme objectives to culminate in student attainment of ILOs of the respective courses. Courses are designed according to the approved policies and procedures of the Senate. The course curriculum is an interaction between aims and objectives, learning outcomes, content,

teaching methods, and methods of assessment. Course design also takes into account the needs of differently-abled students, wherever applicable. Courses have clear course specifications that are accessible to students. Course credits conform to the guidelines prescribed in the SLQF. The Department strives to improve courses to enhance the learning outcomes and achievements of students through regular monitoring and review processes.

As key findings of the review process, the following strengths and weaknesses were identified as special points in Criterion 4 with respect to BSSP.

Strengths:

- Examination bylaws are included in the Student Handbook
- English courses have been incorporated into the degree programme
- Student feedback has been obtained, and evaluation reports are provided
- An experienced team of academics has been involved in curriculum development in certain departments

Weaknesses:

- Established Internal Quality Assurance (QA) policies, plans, and mechanisms for FQAC are not within the review period.
- The curriculum is not aligned with SLQF during the review period, even though an alignment is seen at present (2022).
- Faculty Board and Senate approval for course design templates is not evident.
- No evidence of policies and regulations in the faculty governing the appointment of external examiners with clear TORs, relevant to the review period.
- Bylaws of the programme are not in the proper structure to include all elements.
- A peer observation obtaining mechanism is not present
- Course ILOs are not mapped with programme ILOs during the review period
- A TOR for the Faculty Quality Assurance Cell is not available for the review period

Criterion 5: Teaching and Learning

Teaching and learning are inherently intertwined, necessitating a holistic approach. The goal of quality teaching-learning is to improve the quality of the learning experience of students that would enable them to achieve the intended learning outcomes. The teaching and learning process should be student-centered in keeping with outcome-based education (OBE). The choice of different teaching methods may even be of greater significance to what students learn than the content that is being taught. The faculty should match students' needs with multiple learning opportunities using teaching techniques to engage students actively in the learning process. This would ensure that students are successfully equipped

with the knowledge, skills, attitudes, and values required after they exit. Teaching learning strategies, assessments, and learning outcomes are closely aligned so that they reinforce one another. Quality teaching is informed by feedback loops that provide measures of success and proactive measures to overcome difficulties that are identified.

As the key findings of the review process, the following strengths and weaknesses were identified as special points in Criterion 5 with respect to BSSP.

Strengths:

- Teaching and learning strategies of the degree programme are based on the mission of the faculty and are planned to achieve the PLOs of the degree programme.
- The faculty encourages a blended learning strategy through the LMS.
- Action Plans (2016, 2018) are available and programme objectives are in line with the faculty mission and vision.
- Course specifications are available for the majority of courses, while the standard course specifications are available after 2020.
- Teaching and learning support for disabled students are based on their learning requirements, and by giving extra time for examinations.
- Religion and culture-related separate cultural events are available.

Weaknesses:

- There are inadequate elective courses providing flexibility in the selection of the subject lists.
- No curriculum matrix for a bird's-eye view of the curriculum to show the sequence and connectivity relevant to the review period.
- There is no blueprinting matrix to align learning outcomes with assessments relevant to the review period.
- Regular peer evaluation of academic staff is not carried out.
- Students do not use the relevant and current research developments in the subjects.
- Self-directed learning opportunities provided to students are not adequate, considering the programme outcomes
- There are no external examiner reports on evaluations.
- There are no course evaluation and appraisal reports by academic staff based on assessment results.
- Very few group activities that promote collaborative learning
- Student-led research or academic staff research that includes students as investigators or co-authors is lacking
- Although teachers are evaluated, the evaluation feedback is not incorporated into rectifications.

- There is no real-time data on adherence by staff to work norms and workload.
- There is no scheme for recognition of excellence in teaching
- Lack of evidence on tracer studies and the admission rates to advanced degree programmes and scholarship /fellowship awards for BSc graduands.

A CGU is available, but facilitation for BSc general students is not adequate

Criterion 6: Learning environment, Student Support, and Progression

Learner support services address the identified needs of students and enhance a supportive learning environment aimed at student success in higher education. The learner journey from pre-entry to alumnus is characterized by a concern for student access, learning, progress, and success in achieving the programme outcomes. Policies and strategies are in place relating to a range of services that help all students to develop, reflect on, and articulate the skills and attributes they gain through their co-curricular experience. Student support services are systematically assessed using student learning outcomes, faculty and staff input, and other appropriate measures in order to improve the effectiveness of these services. The faculty facilitates the use of technological innovations in the educational transaction to enrich the learning experiences it provides to students and staff. Students are supported adequately by the provision of a range of opportunities for tutoring, mentoring, counseling, and stimulation of peer support structures to facilitate their holistic progression. The Department provides adequate support for SCL and OBE.As the key findings of the review process, the following strengths and weaknesses were identified as special points in Criterion 6 with respect to BSSP.

Strengths

- Strong interaction between students and staff in a conducive environment.
- Induction and orientation are regularly offered by SDC, conveying regulations about student charter and facilities of career guidance.
- Student support services are properly utilized.
- LMS is efficiently functioning.
- Social interaction among stakeholders is heavily facilitated.
- Intra and inter-faculty and aesthetic activities prevail.
- Many training programmes are conducted by SDC for both internal staff and external clients.
- Grievance Committee addresses students' issues promptly.
- The faculty has an alumni association that supports the FoS in many different ways.
- Alumni interactions are strong. E.g., Alumni members financially contribute to needy students by sponsoring temporary employment in the university itself.

Weaknesses

- Evidence on the monitoring mechanism of support services is passive.
- Wi-Fi reception and utilization should be improved.
- Obtaining evidence of follow-up and student feedback must be made more regular.
- Meetings with student bodies should be increased.
- Fallback options should be introduced.
- Graduands' employment rates have not been recorded.
- Feedback surveys were found mainly in the form of minutes.
- Outcome surveys conveying benefits to society should be introduced.

Criterion 7: Student Assessment and Awards

Assessment of student learning has a central role in both programme design and in the learning environment of the student. Good assessment practices involve policies and procedures relating to standards of performance as prescribed in the SLQF. Rigorous assessment procedures are a principal resource for the maintenance of standards.

Assessment is used as a tool to promote learning and support the academic development of students. The faculty involved in assessment needs to ensure that assessment strategies are linked to the ILOs and that their assessment practices are fair, valid, reliable, and feasible, with provision for regular and prompt feedback on student progress.

Information about assessment, including ILOs, assessment strategies, processes, methods and schedule of assessment tasks, and criteria for assessment is published in print and online and communicated to all students. The Department ensures that University's Regulations, Rules, By-laws and guidance on assessment procedures are explicit, and consistent while ensuring confidentiality and integrity. Mechanisms are operated to monitor and review Faculty's academic provision in relation to assessment.

As the key findings of the review process, the following strengths and weaknesses were identified as special points in Criterion 7 with respect to BSSP.

Strengths

- Marking schemes are prepared for the evaluation process and are used for assessments.
- All information relating to the results is entered so they can be retrieved easily for decision-making.

- Infrastructure facilities are available to a certain extent to entertain the differently-abled students in the faculty, though such students have not been enrolled so far in the degree programme.
- Adequately descriptive transcripts were made available for the students after graduation.
- Policy for a pre-determined mechanism for weightage relating to different components of assessment was available in each course unit

Weaknesses

- Detailed assessment strategies are not stated in the course contents, so students are not made aware of the types of assessments used in each course unit.
- Feedback on the results of the assessment, particularly on continuous assessment, is not conducted regularly.
- The feedback on course evaluation and teaching and learning activities is not regularly used for teaching improvement.
- There wasn't a confidential result processing and maintenance system at the examination unit of the faculty.

Criterion 8: Innovative and Healthy Practices

The faculty's policy and strategy for promoting and fostering innovative and healthy practices and the extent of use of such practices are assessed. Innovative and healthy practices are considered as practices that would lead to the enhancement of the quality of training and learning experience and the students' outlook.

Examples of such practices are stated here: use of ICT-platform to facilitate multi-mode delivery and student-centered learning; use of Open Educational Resources (OER) to complement undergraduate teaching; institutional mechanism to promote faculty engagement in research, innovation and postgraduate research, and its contribution to enhance quality of undergraduate training; performance appraisal system and reward mechanisms for staff, international collaborations and exchange of students and staff; student participation in co-curricular activities and institutional national level competition in sports, aesthetic activities and innovations; faculty-industry linkages and use of work-based and industry placement as a part of learning for undergraduates; adoption of policy and practice of credit transfer mechanism; strategies adopted for maintaining academic standards of the study programme; organizational arrangement to promote community and industry engagement/social mobilization programmes, and income generation initiatives to diversify sources of funds.

As the key findings of the review process, the following strengths and weaknesses were identified as special points in Criterion 8 with respect to BSSP.

Strengths:

- There is a Science Industry Interaction Cell (SIIC) for coordinating and facilitating mechanisms for fostering research and innovation and industry engagement
- There are students and staff engaged in a wide variety of co-curricular activities through student societies

Weaknesses:

- Facilities are available for the use of Open Educational Resources (OERs) in the teaching and learning process. But not a single piece of evidence was available for using these resources, either by academic staff or students
- No credit transfer policy is recognized
- The mechanism for the use of generated funds was not available
- No evidence of regular curriculum revision, close monitoring, implementation, and use of external examiners for moderation and second marking during the review period

Section 6: Grading of overall performance

Table 6.1 Assessment Criteria and Score

No.	Criteria	Weighted Minimum Score*	Actual Criterion Wise Score
01	Programme Management	75	120
02	Human and Physical Resources	50	81
03	Programme Design and Development	75	108
04	Course/Module Design and Development	75	126
05	Teaching and Learning	75	116
06	Learning Environment, Student Support, and Progression	50	49
07	Student Assessment and Awards	75	144
08	Innovative and Healthy Practices	25	36
	Total on a thousand scale		**780**
	%		**78.0**
	Grade		**B**
	Performance descriptor		**Good**
	Interpretation of descriptor	***Satisfactory level of accomplishment of quality expected of a programme of study; requires improvement in a few aspects***	

* Represents 50% of the maximum achievable standardized criterion-wise score.

i) Study programme score is **78.0**

ii) Number of criteria that received equal to or more than the weighted minimum score is 08.

Accordingly, the quality of the study programme BSSP of the Faculty of Science of the University of Peradeniya is given a **Grade 'B'** with the performance descriptor of **'Good'.**

Section 7: Commendations and Recommendations

Commendations/ Good Practices

- The faculty holds an appropriate organizational structure and adopts a participatory approach for effective governance and management of its core functions.
- Required information is readily available for new students through the Student Guide at the beginning of the programme.
- The faculty runs programmes on the annual academic calendar without delay.
- The University offers an induction programme for all new students to facilitate students' transition from school to university.
- The faculty has established a Faculty Quality Assurance Cell (FQAC) recently (not within the review period) with well-defined functions and operational procedures.
- The faculty adopts a clear policy and procedure for programme approval and implementation so that students can complete their education without any disruption.
- Required facilities for health care, sports, and cultural and aesthetic activities are ensured within the university premises.
- The Action Plan of the Faculty is up to date, designed, and developed in alignment with the university's Corporate Plan.
- The faculty had initiated an MIS system to provide relevant information to students and staff regularly.
- There are appointed mentors and adequate student counselors for the study programme.
- A well-resourced library is available within the faculty premises.
- All the students in the study programme are given an equal opportunity to gain access to health care services, sports activities, and cultural and aesthetic activities.
- Motivated and well-qualified academic staff are available for many subject areas for the design and development and delivery of academic programme (s) and courses.
- A significant number of national and international research grants have been obtained by the academics.
- A sufficient number of lecture halls and laboratories were available to cater to the current student population.
- A well-resourced Medical Centre, with a Chief Medical Officer, that has introduced several new innovative activities for the well-being of the university community.
- The faculty conducts an annual graduation survey to gather information.
- Alumni and employers have contributed to curriculum development in certain departments.

- Examination bylaws are included in the Student Handbook.
- English courses have been incorporated into the degree programme.
- Student feedback has been obtained, and evaluation reports are provided.
- Even though there is an experienced team of academics available for curriculum revision, it has happened only in some departments.
- Teaching and learning strategies of the degree programme are based on the mission of the faculty and are planned to achieve the PLOs of the degree programme.
- The faculty encourages a blended learning strategy through the LMS.
- Action Plans (2016, 2018) are available and programme objectives are in line with the Faculty Mission and Vision.
- Course specifications are available for the majority of courses, while the standard course specifications are available after 2020.
- Teaching and learning support for disabled students are based on their learning requirements, and by giving extra time for examinations.
- Religion and culture-related separate events are available.
- A CGU is available, but facilitation for BSc general students is not adequate.
- The Student Charter by UGC is distributed to students at enrollment
- Regular training programmes on ICT and library services are available to staff and students through the SDC and CGU.
- The library has multiple databases that are useful for self-directed learning.
- Student grievances are addressed to some degree.
- Policy for a pre-determined mechanism for weightage relating to different components of assessment is available.
- A competent staff group was witnessed in conducting the degree programme.
- Complete and adequately descriptive transcripts are made available for the students after graduation.
- There is a Science Industry Interaction Cell (SIIC) for coordinating and facilitating mechanisms for fostering research and innovation and industry engagement.
- There are students and staff engaged in a wide variety of co-curricular activities through student societies.

Recommendations

- It is suggested to appoint a coordinator for the BSc study programme.
- Consider introducing a 120-credit four-year programme (i.e., BSc in Applied Sciences) incorporating an industrial training course unit instead of the BSc Study Programme.
- The faculty has not conducted curriculum revision at regular intervals for the complete degree programme. Hence, necessary action should be taken to address this issue.

- It is required to implement the guidelines on work norms and Codes of Conduct for all categories of staff.
- Evidence to encourage the SDC to conduct adequate training programmes on SLQF, OBE, and SCL.
- It is required to give comprehensive feedback to the students on the results of assessments, particularly continuous assessment, so that the respective students will know his/her weaker areas.
- Consider the development of facilities to cater to differently-abled students to support their learning and assessment environments.
- Confidentiality and credibility of examination-related work and services were not observed. Hence, taking appropriate actions is recommended.
- Developing a mechanism to effectively utilize unutilized and underutilized physical facilities is encouraged.
- Periodic revision or amendment of the assessment strategies is recommended.
- The faculty website does not provide up-to-date information about staff details, department activities, etc. Hence, ensuring that required updates are done.
- There is no policy for differently-abled students. Therefore, it is recommended to develop one.
- Suggest introducing fall-back options for lower levels (e.g., higher diploma, etc.) and initiating a credit transfer facility.
- Consider introducing more elective/optional courses to improve the ability of students to describe their accomplishments and sell their ideas in situations like professional networking, company meetings, response to proposals for services, and interviews.
- It is recommended to develop a monitoring mechanism for student dropouts.
- Suggest developing policies and regulations in the faculty governing the appointment of external examiners with clear TORs.
- It is recommended to implement a formal and regular mechanism to obtain peer observation.
- Mapping Course ILOs with programme ILOs is recommended
- Development of TOR for the FQAC is recommended.
- Inadequate workshops and programmes for BSc Study Programme students were evident. Therefore, more specific activities and events for professional development/ Intellectual Property Rights/ Product development and commercialization/ establishment of startups etc. are recommended through the CGU.
- Incorporating a scientific writing course unit and a small research training component into the curriculum is suggested.
- It is recommended to introduce a mechanism to take external examiner reports on assessments.

- Course evaluation and appraisal reports by academic staff based on assessment results are suggested.
- Very few group activities that promote collaborative learning were evident. Hence, promoting such skills through problem-based learning projects and collaborative learning activities is suggested
- There is little student-led research or academic staff research that includes BSc General students as investigators or co-authors. Hence introducing more opportunities for students to publish their findings is recommended.
- Development of a scheme for recognition of excellence in teaching is encouraged.
- Though the student help desk is available, there is no proper coordination for students' academic queries. Therefore, it is recommended to establish a formal and proper mechanism to address students' academic queries and other grievances.
- There are no Frequently Asked Questions on the website. The development of such a component is suggested.
- Semester-wise or annual literary training workshops are suggested through the SDC.
- An annual student needs analysis about the learning environment, satisfaction and employability survey is recommended through the Statistical Division of the University
- It is recommended to align assessment strategies with course ILOs and teaching strategies through a thorough evaluation of assessment criteria.
- Availability of course specifications and assessment strategy for students at the beginning of the programme is suggested.
- Facilities are available for the use of Open Educational Resources (OERs) in the teaching and learning process. But not a single piece of evidence was available for the use of these resources, either by academic staff or students. Hence, necessary action is recommended.
- The mechanism for disbursement of generated funds (i.e., Faculty/Department Development Funds) was not available. It is recommended to develop a fair policy for fund disbursement/s.

Section 8: Summary

The programme reviews of the Bachelor of Science Study Programme of the Faculty of Science, University of Peradeniya, was successfully completed with the site visit on 9th September 2022. The desk evaluation, followed by online document reviewing sessions, online stakeholder meetings, and the final site visit to the University, completed the whole review process. The review team held all necessary stakeholder meetings online while observing all academic programme-bound infrastructure physically. The review team had physical meetings with the Deputy Vice-Chancellor, Director CQA, Dean of the Faculty, Heads of Departments, and Faculty Coordinator FQAC. The review panel noted that the SER was well-prepared and organized and provided the relevant data in accordance with the standards outlined in the UGC PR Manual. It was noted that both academics and non-academics had participated in the SER preparation process. The review team also noted the degree programmes related to different innovative aspects, in addition to their regular academic activities. University-industry linkages, commercialization activities, staff and students counseling services, staff health care activities, diverse staff development programmes, and technology-based library facilities are some of them. However, some of the aspects to be improved were also noted by the review team, such as the facilitation of a well-organized industrial training programme in the academic programme, the need for curriculum revision with the involvement of all academic departments, incorporation of strong skill development course units into the curriculum and strengthening the confidentiality and credibility of examination related works.

The final assessment is based on the guidelines given on pages 80-81 of the Manual for Review of Study Programmes. The review team's assessment of the level of accomplishment of quality expected of an academic programme based on the grading of overall performance is indicated in the table in Section 6, which provides detailed information on the calculation of the grade.

According to the table in Section 6, each of the 8 criteria did score more than the minimum weighted score. The overall percentage value scored was 78.0%. Therefore, a grade of B (Good) is assigned to this programme.

The panel members of the Programme Review team expressed their appreciation to the Deputy Vice-Chancellor, Acting Registrar and Bursar of the University, Dean of the Faculty, Heads of Departments, Director CQA, academics, and everyone else for their assistance during the visit on behalf of the Quality Assurance Council of the University Grants Commission. The review panelists would like to congratulate them and wish the Bachelor of Science Study Programme good luck.

Annexure: Site visit Schedule

08.09.2022			**Responsibility**
1	Reaching the Hotel	4.00 pm	Transport arrangement-QAC/UGC Accommodation arrangement-Uni. Of Peradeniya
2	Meeting with Director/CQA and Coordinator/IQAC	4.30-5.30 pm	Prof. Nanda Balasooriya, Coordinator/IQAC/FoS
3	Planning for the site visit (with dinner)	8.00 pm to 11.00pm	
09.09.2022			
SN	**Stakeholder meeting/Visits**	**Time**	
1	Departing the Hotel	8.00 am	Travel arrangement- Faculty of Science
2	Reaching the Vice Chancellor Office	8.30 am	Dr. Hemalika Abeysundara
3	Meeting with Vice Chancellor, Registrar and Bursar	8.30-9.00 am	Prof. Ranjith Pallegama, Director/CQA
4	Meeting with the Dean (with Tea)	9.00 to 10.00 am	Ms. Jeewanthi Dissanayake, AR/FoS
5	**Visiting Teaching/Learning Facilities**	10.00 to 12.30 pm	**Coordinating by: Prof. Malkanthi, Dr. Susanthi & Dr. Lakshika**
	IQAC		Prof. Nanda Balasooriya, Coordinator/IQAC/FoS
	Academic Departments, Lecture halls. Laboratories		Heads of the Departments
	Course Unit		Ms. Jeewanthi Dissanayake, AR/FoS
	Library/Science		Senior Assistant Librarian
	CGU and SDC-UOP		Dr. Ashwini Amarasooriya and Prof. Rupika Rajakaruna
	BLII-TTO		Prof. Dharshana Yapa
	Industry interaction Cell (SIIC)		Dr. Udayana Ranathunga/Dr.Rajitha Ranasinghe

	ELTU		Ms. Apasara Vidanapathirana, Coordinator/ELTU
	Science Education Unit		Prof. Kalinga Bandara, Director/SEU
6	Lunch	12.30- 1.30 pm	Ms. Jeewanthi Dissanayake, AR/FoS
7	**Visiting staff - student welfare and other facilities** (Canteens, Sports Facility, Counselling facilities, Gender Cell, Hostels, Day care facilities and etc)	1.30 -3.30 pm	**Coordinating by:** Dr. Ashmini Amarasooriya and Dr.T. Dewasurendra,
8	Discussion among three reviewers (Facilities such as a computer, printer and confidential room provided)	3.30-4.30 pm	Prof. Nanda Balasooriya, Coordinator/IQAC/FoS
9	Debriefing session (with evening tea)	4.30-5.15 pm	Ms. Jeewanthi Dissanayake, AR/FoS
10	Leaving the university	5.30 pm	