



## **PROGRAMME REVIEW REPORT**



**Bachelor of Science in Information Systems  
Bachelor of Science Honours in Information Systems  
University of Colombo School of Computing  
University of Colombo**

**Site visit Date: 9<sup>th</sup> August 2023**



**Review Panel: Prof. Asoka Karunananda (Chair)  
Prof. S Vasanthapriyan  
Prof. (Mrs) DK Yapa Abewardana  
Dr. WGS Kelum**

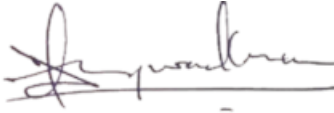
**The Quality Assurance Council  
University Grants Commission, Sri Lanka**

**University:** University of Colombo

**Institution:** University of Colombo School of Computing

**Programmes:** Bachelor of Science in Information Systems  
Bachelor of Science Honours in Information Systems

**Review Panel:**

| Name                                   | Signature                                                                            |
|----------------------------------------|--------------------------------------------------------------------------------------|
| Prof. Asoka Karunananda (Review Chair) |    |
| Prof. S Vasanthapriyan                 |  |
| Prof. (Mrs) DK Yapa Abewardana         |  |
| Dr. WGS Kelum                          |  |

**Date:** 9<sup>th</sup> August 2023

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## Section 1: Brief introduction to the Programme

The University of Colombo School of Computing (UCSC) is the Computing Faculty of the University of Colombo and was established in 2002 as the pioneering computing education institute in Sri Lanka. Since the 1980s, UCSC has recorded an evolutionary journey by offering the degree of BSc (Special) in Computer Science under the Faculty of Science and establishing the Institute of Computer Technology and the first Department of Computer Science in the Sri Lankan university system. Before founding UCSC by merging the Institute of Computer Technology and the Department of Computer Science, the first direct intake for the Computer Science degree was in 1998. In 2005, UCSC launched its BSc in ICT degree, which is the predecessor of the two Information Systems degrees being evaluated in this Program Review (Cluster 2). The first BSc in Information Systems degree was launched in 2013. In 2015, a BSc (Hons) in Software Engineering degree was also introduced by covering four computing degrees under one umbrella as per the ACM/IEEE international standards of computing degrees. In addition to offering a broader spectrum of computing degrees at the undergraduate and postgraduate levels, UCSC has made an outstanding contribution to developing computing education, research, and the software industry in Sri Lanka.

**Table 1.1: Commencement of Degree Programs**

| Degree Programs                    | Started in |
|------------------------------------|------------|
| BSc. in Computer Science           | 2002       |
| BSc. (Hons) in Computer Science    | 2002       |
| BSc (Hons) in Software Engineering | 2015       |
| BSc. in Information Systems        | 2013       |
| BSc. (Hons) in Information Systems | 2015       |

*Source: Senior assistant registrar/Examination & registration: as at 07.06.2023*

**Table 1.2: Number of Students in Faculty at present- breakdown in years**

| Year & Degree programs | Number of Students             |                          |                                    |                            |                                   |
|------------------------|--------------------------------|--------------------------|------------------------------------|----------------------------|-----------------------------------|
|                        | BSc (Hons) in Computer Science | BSc. in Computer Science | BSc (Hons) in Software Engineering | BSc in Information Systems | BSc (Hons) in Information Systems |
| Year I                 |                                | 228                      |                                    | 118                        |                                   |
| Year II                |                                | 220                      |                                    | 99                         |                                   |
| Year III               | 40                             | 164                      | 20                                 | 89                         | 30                                |
| Year IV                | 29                             |                          | 22                                 |                            | 25                                |

*Source: Senior assistant registrar/Examination & registration: as at 07.06.2023*

**Table 1.3: Maximum Capacity of Students allocated by the University Grants Commission in the last four years**

| Year & Degree program | Number of Students |                    |
|-----------------------|--------------------|--------------------|
|                       | Computer Science   | Information system |
| 2023                  | 228                | 118                |
| 2022                  | 227                | 108                |
| 2021                  | 224                | 123                |
| 2020                  | 196                | 97                 |
| 2019                  | 198                | 97                 |

*Source: Senior assistant registrar/Examination & registration: as at 07.06.2023*

**Table 1.4: Number of batches graduated through the programs since 2013**

| Degree program                      | Number of Batched Graduated |
|-------------------------------------|-----------------------------|
| BSc in Computer Science             | 7                           |
| BSc. (Hons) in Computer Science     | 6                           |
| BSc. (Hons) in Software Engineering | 6                           |
| BSc. in Information Systems         | 7                           |
| BSc. (Hons) in Information Systems  | 6                           |

*Source: Senior assistant registrar/Examination & registration: as at 19.06.2023*

Since its inception in 2002, the University of Colombo School of Computing has established three Departments: the Department of Computation and Intelligent Systems, the Department of Information Systems Engineering, and the Department of Communication and Media Technologies. UCSC offers all the degrees by soliciting subject matter expertise from the relevant departments. In addition to five main computing degrees (Table 1.1), UCSC also offers the BIT (External Degree), the first external degree program in computing in Sri Lanka.

At present, UCSC offers six taught master's degree programs: Master of Information Security (MIS), Master of Computer Science(MCS), Master of Science in Computer Science (MSc in CS), Master of Information Technology (MIT), Master of Business Analytics (MB.Analytics), Master of Cyber security (MC), MPhil and PhD research degree programmes in the broad areas of Computing and allied disciplines. UCSC offers short-term training programmes and certificate courses in response to emerging national needs.

At the time of preparing the SER for the programme review, the staff strength of UCSC includes one Senior Professor, two Professors, 27 Senior Lecturers, two Lecturers (unconfirmed), 15 Lecturers (probationary), and 40 Temporary Assistant Lecturers and Instructors. At that time, UCSC had the largest (29) number of doctoral-qualified computing experts in the country. The participatory approach adopted by UCSC for planning, designing, and revising degree programmes has been strengthened by academic staff, support staff, non-academic staff, students, and external stakeholders from alumni and industry. The school has adopted SLQF guidelines and ACM/IEEE international standards for computing degrees to assure the quality standards of the degrees offered by UCSC.

## **Section 2: Review Team's Observations on the Self Evaluation Report (SER)**

The review team noted that the SER for BSc in Information Systems and BSc (Hons) in Information Systems degrees had been prepared following the guidelines in the Programme Review Manual by a team of writers headed by the Coordinator, Prof. N.D. Kodikara and the Secretary Dr. Enosha Hettiarachchi of the QAC under the guidance and supervision of the Director Prof. K. P. Hewagamage, University of Colombo School of Computing. The process of preparing the SER report was initiated at the 218<sup>th</sup> meeting of the Board of Management held on 4<sup>th</sup> April 2019. The Board of Management appointed Domain coordinators and team members for all eight criteria. Since then, several meetings have been held among the committee members. The process of SER writing was done collaboratively in an online environment. Each team member was given access to the Google sheet for collaborative writing and collecting electronic evidence. This was later revised by the SER writing committee headed by the Director, the Coordinator of the QAC, the Secretary of the QAC, and the Domain Coordinators for each section. QAC staff members also attended the Programme Review Workshop conducted by the UGC on 16 August 2019 and 26 November 2019.

SER for the IS degrees has four sections covering 106 pages, including 4 Appendices. The report starts with the table of contents, the list of tables, and abbreviations. Section 01 has introduced the two-degree programs covering graduate profiles, learning outcomes of the two degree programmes, contributing departments for the degree programmes, number of students enrolled, profiles of academic, non-academic, and support staff, learning resources, student support system, and management. Section 1 also presents a SWOT analysis pertaining to strengths, weaknesses, opportunities, and threats for Information Systems degree programmes. Section 02 describes how UCSC prepares for writing the SER. Names of the writing team members are given in Appendix C of SER. Section 03 reports on compliance with the criteria and standards of the programme review. As specified in the programme review manual, this section is prepared in a table containing information on standards of all eight-criterion institution adherence to the individual standard, claims for the best practices, name of documentary evidence, and code numbers. When specific standards are applicable to two different degrees, they are presented separately. An informative summary is provided for each criterion at the end.

Section 04 provided a summary of the attempts made by UCSC to assure the quality of the two-degree programs under review. It includes internalization of best practices in QA and monitoring mechanisms adopted for continuous quality enhancement. The actions planned/taken to address the identified gaps/deficiencies in the QA process have also been discussed at length in section 04. UCSC has genuinely identified its weaknesses

with a view to addressing them in the future within the framework of QA. Appendixes are included to show Categories of learning outcomes, Staff profiles, Working teams & and SER Writing Committee, and the Organizational structure of the UCSC. The adoption of a participatory approach to preparing the SER was evident from Appendix C of the SER.

The review team noted that documentary evidence for certain standards is rather incomplete. For example, some evidence was not properly certified and dated; thus, the team had some difficulty during the evaluation. Overall, the participatory approach directed by the Director of UCSC and the Coordinator of the QAC to prepare the SER has been a great success. Further, the institutional-level commitment by the top management headed by the Vice-Chancellor to adopt QA practices is highly commendable.

### **Section 3: A Brief Description of the Review Process**

By considering the whole SER, the Review Team members individually completed their Desk Evaluation. They met virtually in May-July 2023 several times before the Stakeholder meeting and the Site visit in August. During these virtual meetings, email communication was heavily used, and the team discussed the matter pertaining to access to online documentary evidence, the evaluation process, and sharing the experiences and findings of individual members. Despite members of the team coming from diverse backgrounds, members were able to reach a consensus unanimously. Prior to the Stakeholder meeting, on the 31<sup>st</sup> of July 2023, the team had a virtual pre-stakeholder meeting to discuss the key points to be clarified at the Stakeholder meeting. Subsequently, the online Stakeholder meeting was held on the 3<sup>rd</sup> of August 2023 to prepare for the Site visit scheduled for the 9<sup>th</sup> of August 2023. Before the Site visit, the review team also had a meeting at the Hotel to discuss the plan for the following day regarding the clarifications of highlighted points in SER with documentary evidence.

On the 3<sup>rd</sup> of August 2023, the stakeholder meeting was held online from 9:00 a.m. to 5:00 p.m. via Zoom with the participation of the following members of the UCSC. Annexure I shows the schedule for the Stakeholder meeting.

1. Director UCSC, Academic Heads of Department, and IQAC Coordinator
2. Technical officers and support staff are involved in assisting the study programs.
3. Directors of Strategic Planning; Career guidance; Staff Development Centre; Student Support Services; Centre for Gender Equity & Equality; Research & Innovation; Students Counsellors
4. The Administrative staff of UCSC and the programs
5. Non-academic staff
6. Alumni, including industry representatives.

Although the meeting with the student was to be held during the Stakeholder meeting, it was conducted during the Site visit since the 3<sup>rd</sup> of August 2023 coincides with the students' Midsemester Break, during which students were at home.

On the 9<sup>th</sup> of August 2023, the Site Visit started at 8:00 a.m. with a meeting from 8.00 a.m. to 10.00 a.m. with the following participants.

1. Vice-Chancellor
2. Deputy Coordinator QA

3. Director UCSC
4. Registrar
5. Deputy Registrar UCSC
6. Deputy Bursar UCSC
7. Academic Heads of Departments
8. Academic syndicate staff members, excluding the SER writing team

After the above meetings, the review team visited the following resources and practices at UCSC

1. Library with up-to-date textbooks and e-resources
2. Well maintained Canteen
3. Computer Labs for software/hardware practices
4. UCSC-wide Wi-Fi connectivity,
5. Fully equipped lecture halls
6. Prof. VK Samaranayake state-of-the-art Auditorium
7. Study areas with access to Computing and Internet facilities
8. High-performance computing environment (Cloud, GPU, Ant PC)
9. Administrative Branches (Establishment, Examination)
10. Computer Technology Museum showing the evolution of UCSC

Annexure II shows the schedule for the Site Visit. The review team was very much fascinated by the state-of-the-art computing facilities at UCSC to ensure a conducive teaching and learning environment for the fast-growing computing field. The Computing Technology Museum at UCSC is an exemplary resource not only for students but also for the public.

Having visited the resources, the review team met face-to-face with students for one hour until the lunch break. Most probably, since the degree of Information Systems is open for all streams from GCE (A/L), students have shown diverse enthusiasm, expectations, and curiosity in their career paths. Students also interacted very well and were motivated to ask questions from the review team. It was very encouraging.

After the meeting with students, the review team started inspecting documents arranged in the boardroom and checking uploaded documents to the QAC site of the UGC. In response to the clarifications, the young staff members of UCSC actively participated in promptly

locating documents and accelerating the inspection process. This session nicely exemplifies the participatory approach to the PR process at UCSC.

After the inspection of documentation, the review team had a private meeting to reconcile the findings from the whole review process. The debriefing wrap-up meeting of the Review Team and the Senior Management of the UCSC was conducted as the last item of the site visit. The meeting was cohesive and concluded at 4.00 p.m. on the 9<sup>th</sup> of August 2023.

## **Section 4: Overview of the Institute's Approach to Quality and Standards**

In 2016, the Quality Assurance Cell (QAC) of the UCSC was established to ensure the quality of four categories: Undergraduate, Postgraduate, External degrees, and Administrative procedures in the UCSC. The QAC of UCSC operates under the IQAC of the University of Colombo. UCSC executes a participatory approach to gradually build the documentary repository on a Google Sheet for the program review of five computing degrees. The SER writing committee was headed by the Director of the UCSC, where the Coordinator/QAC of UCSC works as the Secretary to the committee.

The force behind maintaining the academic standard and quality of UCSC degree programmes is the dedicated qualified academic staff comprising around 90, of which 29 have doctoral degrees at the time of SER writing in 2019. UCSC has adopted many QA practices in its program design, delivery, and administration. The curricula of the Information Systems Degree programmes have been designed and developed in compliance with ACM/IEEE International standards for computing degrees, which was adopted as the national standard for computing degrees by the UGC through circulars. ACM/IEEE international standards have also been used as the SBS of Computing degrees. In 2014, the Bylaws and regulations of degree programmes were fully revised to comply with the SLQF requirements. In module design, the matrix showing PLO and ILO is yet to be included for each degree programme. Despite UCSC has a very active curriculum development committee, there is no curriculum development policy at the institutional level. The requirement for timely revisions of the curricula of computing degrees is inevitable. The review team was quite impressed to notice that Information Systems graduates have also been able to secure technical job positions such as Software Engineer in the industry. Offering Industrial training for the 3-year degree programmes has been a great value addition to computing degrees offered by UCSC. This results in a very high level of employability for UCSC graduates, yet the Tracer survey is to be considered to gain insight for further improving the quality of graduates.

The Alumni of UCSC have secured lucrative positions locally and internationally in the Industry and Academia. Their readiness to uplift the quality standards of UCSC and mentoring to groom young graduates have been another strength of the school. It is also encouraging to notice that Alumni are within the participatory approach to curriculum design and revision at UCSC.

In ensuring the standards of examinations, UCSC adopts the concepts of moderation and second marking. However, the concept of the External Examiner is not practiced at UCSC. Further, computing degrees at UCSC are yet to be accredited by an internationally recognized professional body.

Peer review and Student Feedback are practiced at UCSC. However, there is no clear policy on how peer review and student feedback are used to improve the delivery of the programmes and a mechanism to monitor the enhancement of the overall quality due to peer review and feedback.

The quality of the Teaching and Learning environment of UCSC is exemplary with the state-of-the-art computing infrastructure, IT-enabled services, and online learning/examinations. Confidential divisions such as the Examination Branch and UCSC cloud/Ant PC are protected by modern security measures. Staff in those branches are provided with the necessary training to work in such environments.

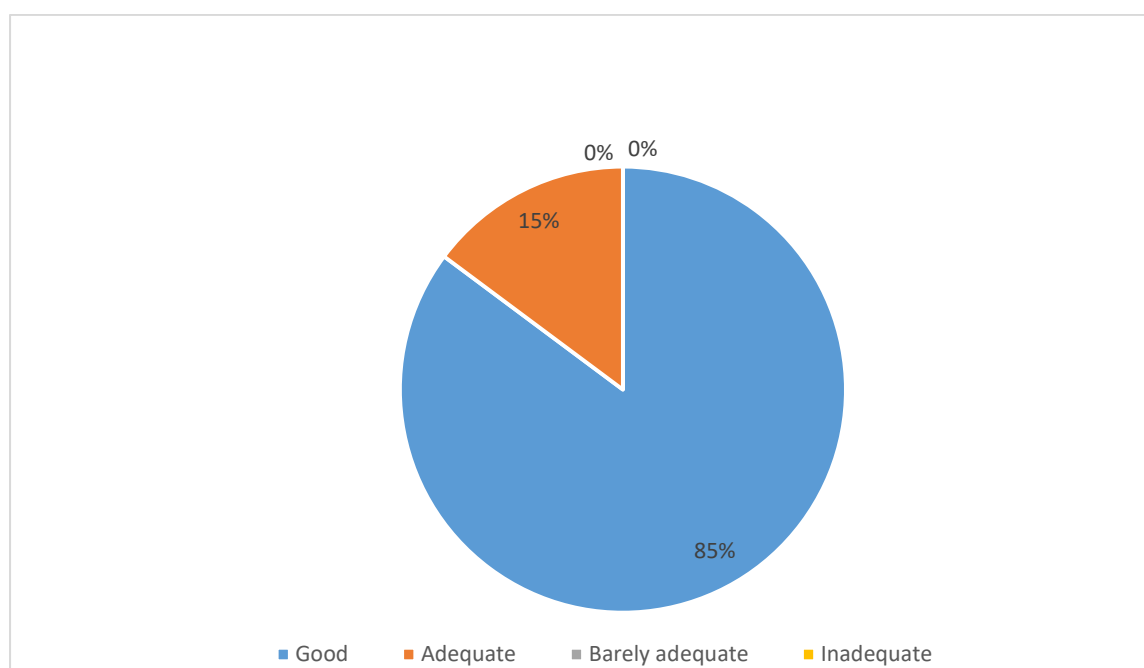
Certain quality standards, such as TORs and SOPs related to administrative procedures, have not been submitted. Some documents do not show evidence, such as signatures, dates, stamps, etc., for their approval. Further, although practices are in place, there are no approved policies on certain practices, including Gender Equity and Equality (GEE), Curriculum Development, Income-generating activities, Fallback options, Credit transfer, and Human Resource Development.

UCSC offers many financial and welfare facilities for staff and students. For instance, in addition to government-sponsored scholarships of Mahapola Bursary, UCSC also offers several scholarships and special support based on the distressed situation of students and staff. Hence, UCSC has set up a Student Distress and Welfare fund using 2% of the generated income.

## Section 5: Judgment on the Eight Criteria of Programme Review

### Criterion 1: Programme Management

In connection with Criterion 1: Programme Management, both degrees, BSc in Information Systems and BSc (Hons) in Information Systems degree programmes, have scored similarly. As such, out of 27 standards, 23 standards achieved a score of 3, and 4 standards achieved a score of 2 for both degrees. Fig 5.1 shows the percentages of scores earned by two IS degrees.



**Fig 5.1: Percentage of Scores for Criterion 1 earned by two IS Degrees: Programme Management (Good-Score 3, Adequate Score 2, Barely adequate - Score 1, and Inadequate- Score 0)**

Both degrees scoring the highest marks for 23 standards out of 27 shows that UCSC has an outstanding QA practice for Programme Management. Due to the incompleteness of some documentary evidence, the other four standards have scored only two marks for each. The organizational structure of UCSC enables its effective management and governance to offer a wide spectrum of Computing degrees promptly by meeting international standards. The UCSC adopts management procedures that comply with national Standard Operational Procedures and uses internal audit reports for financial management. The adoption of SLQF guidelines and ACM/IEEE international standards has been the key reason for the quality of computing degrees at UCSC. For both degrees, BSc in Information Systems (Table 6.1) and BSc (Hons) in Information Systems (Table 6.2), Criterion 1: Programme Management achieved a raw criterion-wise score of 77 and hence achieved an actual criterion-wise score of 141 out of 150.

The review team has identified the following strengths and weaknesses of BSc in Information Systems and BSc (Hons) in Information Systems degree programs pertaining to Criterion 1: Programme Management.

**Strengths:**

- Degree programmes are governed through a well-organized framework in accordance with the university's Corporate Plan and the Action Plan of UCSC.
- Their organisational structure supports the effective management of UCSC and the offering of computing degree programs.
- UCSC follows established operational standards for the delivery of degree programmes, which are audited internally and externally on an annual basis.
- Well-prepared Strategic Plan and Action plans are in place.
- During the enrolment to the degree programmes, students are provided with the prospectus of the programme that includes detailed curricula, student charter, Examination procedures, etc. and made available on UCSC/VLE.
- Well-maintained Website with up-to-date information.
- The high-end computing infrastructure for program delivery and management
- Adoption of ACM/IEEE and SLQF guidelines in curriculum design
- UCSC maintains collaborative partnerships with the industry.
- All the students of the UCSC have access to health care services, cultural and aesthetic activities, and recreational and sports facilities.
- UCSC maintains the confidentiality of all records by using a high-security ICT infrastructure.
- Well-established CQA with well-established policies, procedures, and guidelines

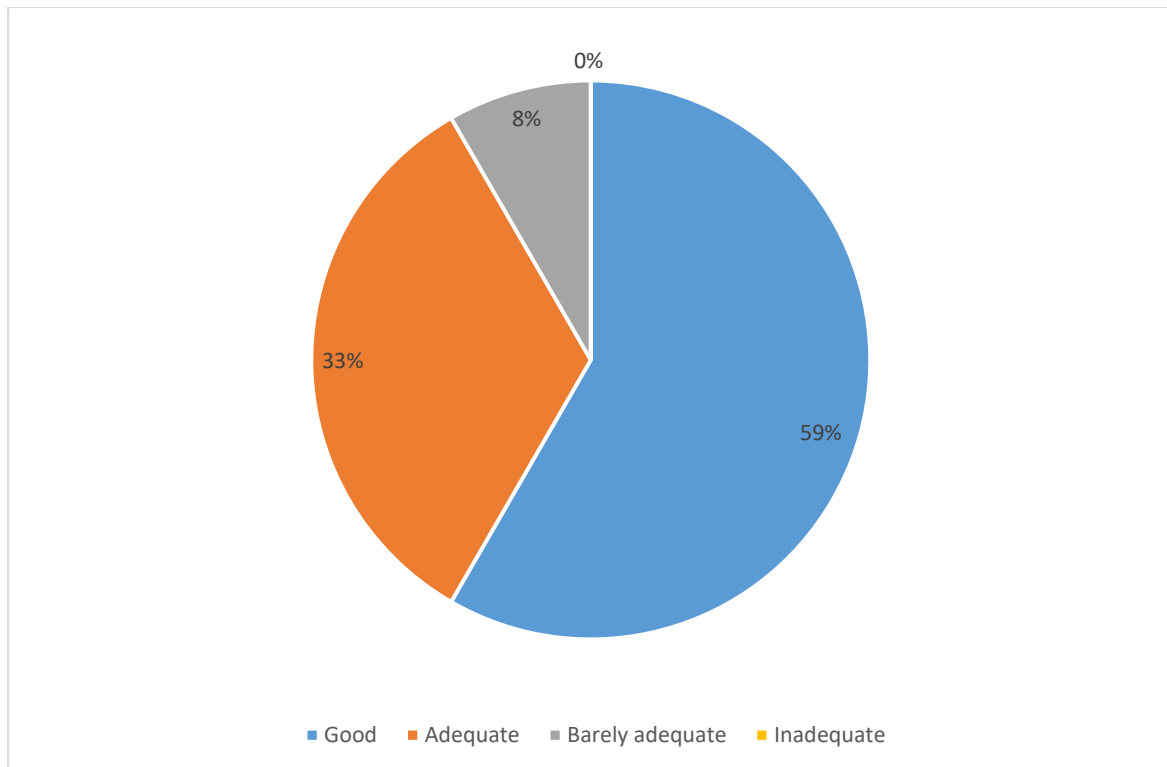
- Participation of Students in decision-making bodies such as the Faculty Board, Canteen Committees, etc.

### **Weaknesses:**

- ToRs of some committees and SoPs were not available.
- There is no evidence of adopting a participatory approach in its governance and management except for SER writing.
- The Institute does not adopt the policy and procedures for facilitating outcome-based education and student-centered learning.
- Regular data collection, analysis, and use of students' feedback on program management, orientation, and support services are inadequate.
- Evidence of students' feedback being considered in the decision-making process and implementation of internal quality enhancement systems is lacking.
- Staff appraisal systems for academic and non-academic staff are not in place.

### **Criterion 2: Human and Physical Resources**

Regarding Criterion 2: Human and Physical Resources, both degrees, BSc in Information Systems and BSc (Hons) in Information Systems, have scored similarly. As such, out of 12 standards, 7 standards achieved a score of 3, 4 standards achieved a score of 2, and 1 standard achieved a score of 1 for both degrees. Fig 5.2 shows the percentages of scores earned by 3-year and 4-year IS degrees.



**Fig 5.2: Percentage of Scores for Criterion 2 earned by 3 year and 4 year IS Degrees: Human and Physical Resources (Good-Score 3, Adequate Score 2, Barely adequate - Score 1, and Inadequate- Score 0)**

Since both degrees have scored the highest marks for 7 standards out of 12, the review team is of the view that UCSC has ample human and physical resources for the conduct of two IS degree programmes. Undisputedly, UCSC has the best human and physical infrastructure for computing education in Sri Lanka. Some standards scored less due to insufficient documentary evidence, although some practices are in place. For both degrees, BSc in Information Systems (Table 6.1) and BSc (Hons) in Information Systems (Table 6.2), Criterion 2 achieved a raw criterion-wise score of 30. They hence achieved an actual criterion-wise score of 83 out of 100.

The review team has identified the following strengths and weaknesses of BSc in Information Systems and BSc (Hons) in Information Systems degree programs pertaining to Criterion 2: Human and Physical Resources.

#### **Strengths:**

- UCSC has the largest pool of well-experienced and high-profile computing academics in the Sri Lankan university system.
- UCSC solicits industry and alumni support to develop industry exposure for the students.

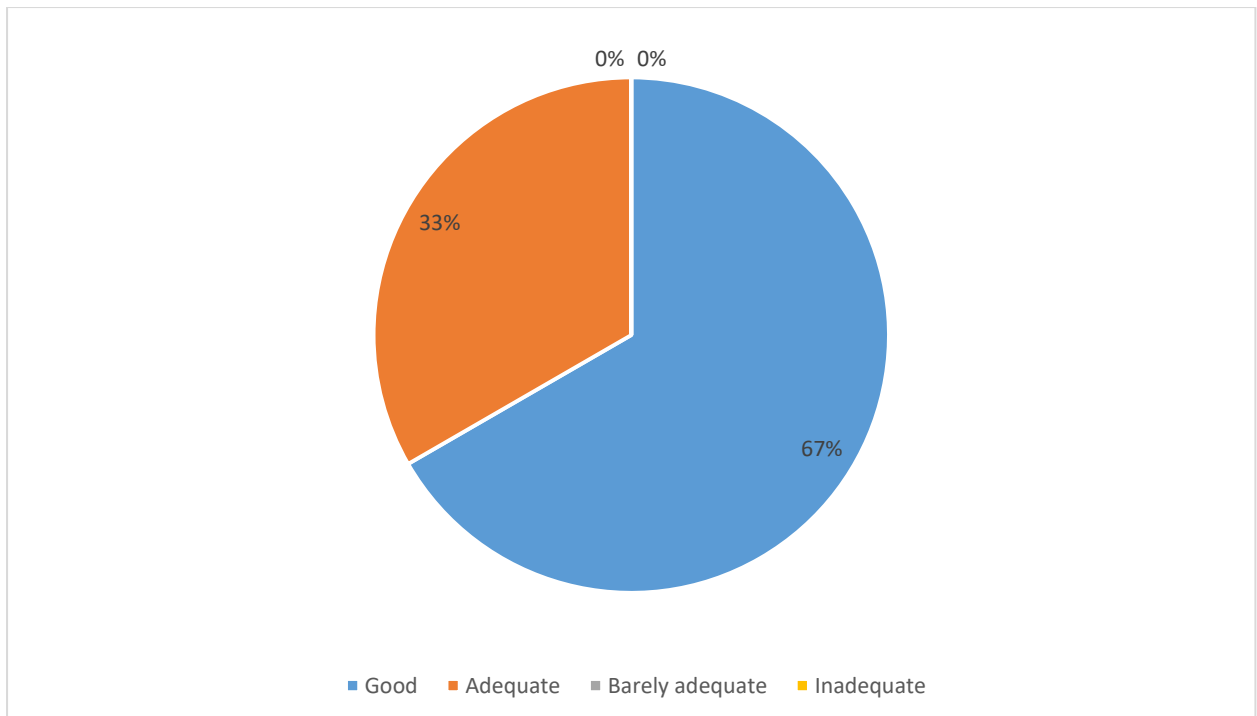
- Access to an extensive collection of the latest books, periodicals, e-resources, and electronic databases is ensured.
- The high-end computing infrastructure to access the facilities, such as high-speed Wi-Fi, Cloud, GPU servers, and Ant PC, is in place.
- Motivated and committed support staff to assist in effectively delivering the programmes.
- Well-maintained premises and infrastructure for blended learning
- Well-organized career guidance unit
- UCSC offers excellent common facilities such as lecture halls, study areas, a library, and a canteen to conduct degree programmes

#### **Weaknesses:**

- Despite in-house opportunities such as the BIT External degree program, non-academics are not adequately motivated to earn a degree qualification.
- Inadequate attention has been given to offering existing computing or specially designed degrees for differently abled students.
- No evidence to show that the Impact of CPD programmes is monitored and the outcome is used for the improvement of the IS degree programmes.
- No evidence of implementing a staff performance appraisal system

### **Criterion 3: Program Design and Development**

Regarding Criterion 3: Program Design and Development, both degrees, BSc in Information Systems and BSc (Hons) in Information Systems, have scored similarly. As such, out of 24 standards, 16 standards achieved a score of 3, and 8 standards achieved a score of 2 for both degrees. Fig 5.3 shows the percentages of scores earned by two IS degrees.



**Fig 5.3: Percentage of Scores for Criterion 3 earned by two IS Degrees: Programme Design and Development (Good- Score 3, Adequate Score 2, Barely adequate - Score 1, and Inadequate- Score 0)**

Scoring the highest marks for 16 standards out of 24 shows that UCSC computing degrees are of high standard by adopting ACM/IEEE international standards of computing curricula and SLQF guidelines. Further, UCSC's participatory approach to curriculum design with support from industry and alumni is commendable. Some standards could score only 2 marks for each due to the lack of a tracer survey, written curriculum development policy, and some incomplete documentary evidence. For both degrees, BSc in Information Systems (Table 6.1) and BSc (Hons) in Information Systems (Table 6.2), Criterion 3 achieved a raw criterion-wise score of 64, hence achieving an actual criterion-wise score of 133 out of 150.

The strengths and weaknesses of BSc in Information Systems and BSc (Hons) in Information Systems degree programmes pertaining to Criterion 3: Programme Design and Development are given below.

#### **Strengths:**

- Adoption of ACM/IEEE international standards of computing degrees to design and development of programs at UCSC
- Adhering to SLQF guidelines in the design and development of degree programs
- Industry and alumni participation in the Curriculum Development Committee
- Offering Industrial Training for the three-year IS degree programs as well.

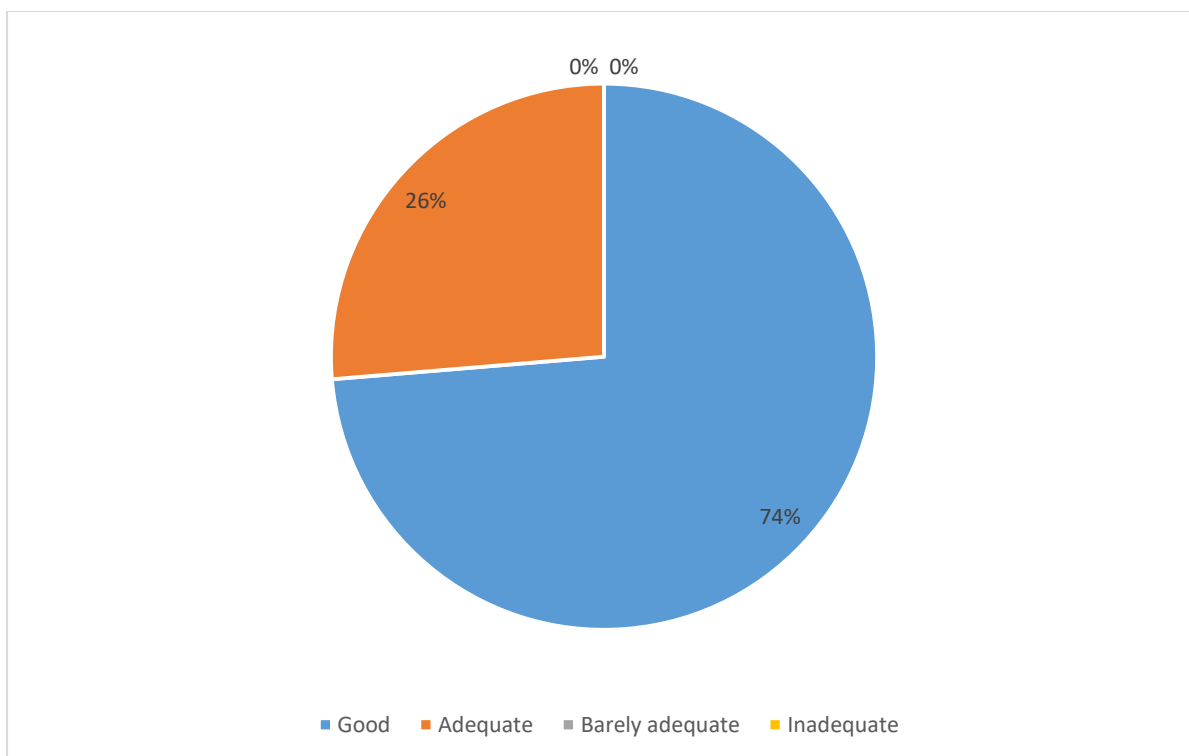
- Modules in the IS curricula have been logically lined up over the years.
- Concerns of gender, cultural and social diversity, ethical values, and diversity are integrated into the curriculum.
- UCSC adopts the participatory approach with key stakeholders in the process of designing and approving the programmes and courses

### **Weaknesses:**

- Lack of regular mechanism to timely identify modules for forthcoming curriculum revisions.
- Unavailability of written Curriculum Development Policy at the Senate level
- Absence of systematic tracer studies
- UCSC Alumni have not been legally constituted.
- A comprehensive fallback option scheme for all the degrees is not available.
- Design and development procedures of all degrees did not include exit pathways, including fallback options for the students.
- No evidence of a curriculum matrix showing courses at different levels/years.
- Lack of clearly defined indicators and outcome-based performance indicators for monitoring the implementation and evaluation of the programme.

### **Criterion 4: Course / Module Design and Development**

Regarding Criterion 4: Course/Module Design and Development, both degrees, BSc in Information Systems and BSc (Hons) in Information Systems have scored in a similar manner. As such, out of 19 standards in Criterion 4, 14 standards achieved a score of 3, and 5 standards achieved a score of 2 for both degrees. Fig 5.4 shows the percentages of scores earned by two IS degree programmes.



**Fig 5.4: Percentage of Scores for Criterion 4 earned by two IS Degrees: Course/Module Design and Development (Good-Score 3, Adequate Score 2, Barely adequate - Score 1, Inadequate-Score 0)**

Module design and development at UCSC are in compliance with ACM/IEEE international standards of Information Systems degree and SLQF guidelines; thus, scoring the highest marks for 14 standards out of 19 is highly commendable. The Review team noted that UCSC has long experience in blended learning, student-centered learning, and the use of VLE for programme delivery, assessments, and conduct of examinations. However, the lack of PLO-ILO matrices in module/curriculum design and not meeting the curriculum development committee on a regular basis have been some concerns for the review team. For both degrees, BSc in Information Systems (Table 6.1) and BSc (Hons) in Information Systems (Table 6.2), Criterion 4 achieved a raw criterion-wise score of 52, thus achieving an actual criterion-wise score of 137 out of 150.

Furthermore, the review team has identified the following strengths and weaknesses of BSc in Information Systems and BSc (Hons) in Information Systems degree programs pertaining to Criterion 4: Course/Module Design and Development.

#### **Strengths:**

- ACM/IEEE international recommendations for computing curricula are used to identify up-to-date course modules for the degree programs.
- The syllabus template has been used to structure the modules with credits, Objectives, Contents, ILOs, mapping of ILO-PLO, and Recommended Text.

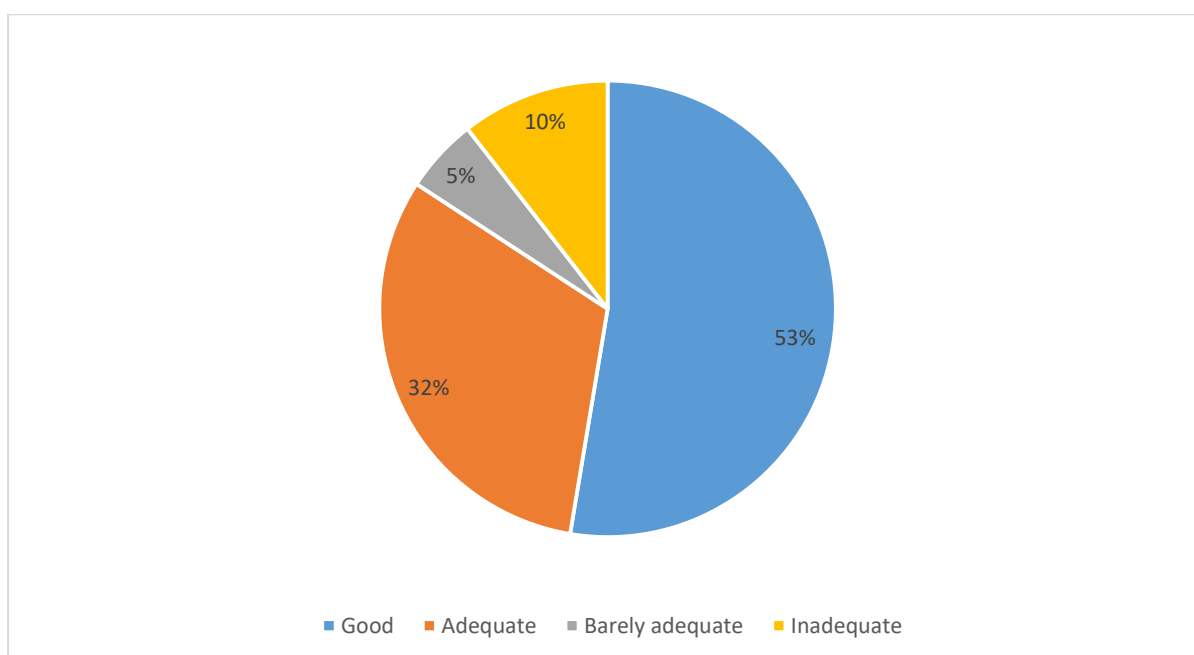
- Credit rating, assessment methods, teaching-learning strategies, etc., of modules are designed in compliance with SLQF guidelines.
- Module design in UCSC reflects its long experience in Blended learning, the use of LMS(VLE), student-centred learning, teamwork, etc.

**Weaknesses:**

- The mapping between ILO of Modules and PLOs of each programme has not been developed.
- The Curriculum Development Committee does not meet on a regular basis to identify the need for revisions in advance.
- Industry/alumni interaction with UCSC does not happen regularly.
- Course outlines do not indicate notional hours.

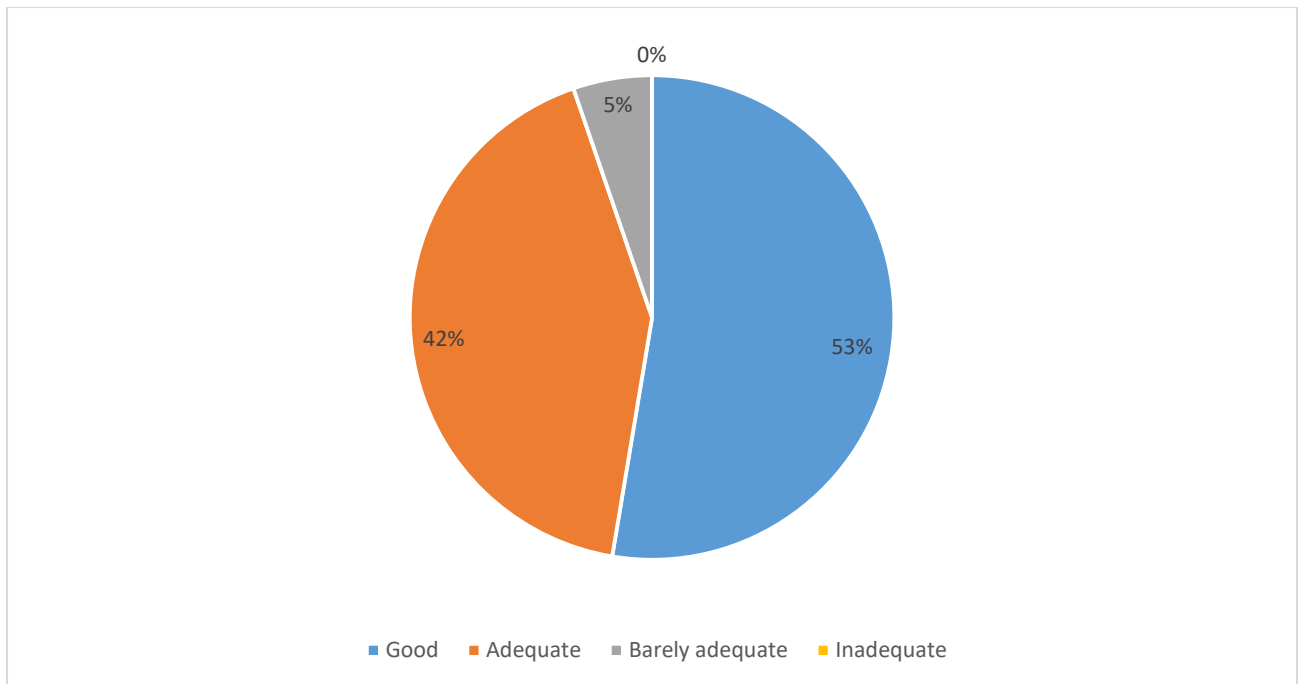
## Criterion 5: Teaching and Learning

In connection with Criterion 5: Teaching and Learning, BSc in Information Systems and BSc (Hons) in Information Systems scored with a minor variation. Out of 19 standards in Criterion 5, the BSc in Information Systems degree has achieved a score of 3 for 10 standards, a score of 2 for 6 standards, a score of 1 for 1 standard, and a score of 0 for 2 standards. Fig 5.5.1 shows the percentages of scores earned by the 3-year IS degree. On the other hand, the BSc (Hons) in Information Systems degree score of 3 for 10 standards, a score of 2 for 8 standards, and a score of 1 for 1 standard out of 19 standards. Fig 5.5.2 shows the percentages of scores earned by the 4-year IS degree.



**Fig 5.5.1: Percentage of Scores for Criterion 5 earned by the 3-year IS degree: Teaching and Learning (Good-Score 3, Adequate Score 2, Barely adequate - Score 1, and Inadequate- Score 0)**

As a three-year degree, a BSc in Information Systems could not get marks for standards 5.6 and 5.10. SER has also categorically stated that these two standards are applicable only to the Hons degree. This has been the reason for the difference in scores of two degrees. However, both degrees achieving a score of 3 for each of 10 standards out of 19 shows the UCSC's practice of many modern teaching and learning strategies, including the use of VLE, teacher-centred learning, student-centred learning, self-directed learning, teamwork, and participation in global competitions. Regardless of the area of the computing degree, the Computing Technology Museum has been a unique learning-learning resource at UCSC. However, the review team notices that it is a pity that a Teaching Excellence award is not in place to encourage the staff to excel in teaching. Further, not giving feedback to students regarding the assignments on time has been a concern for the review team.



**Fig 5.5.2: Percentage of Scores for Criterion 5 earned by the 4-year IS degree: Teaching and Learning (Good-Score 3, Adequate Score 2, Barely adequate - Score 1 Inadequate-Score 0)**

As such, for the BSc in Information Systems (Table 6.1), Criterion 5 achieved a raw criterion-wise score of 43 and hence achieved an actual criterion-wise score of 113 out of 150. In contrast, for the BSc (Hons) in Information Systems degree (Table 6.2), Criterion 5 achieved a raw criterion-wise score of 47 and hence achieved an actual criterion-wise score of 124 out of 150.

The review team has identified the following strengths and weaknesses of BSc in Information Systems and BSc (Hons) in Information Systems degree programs pertaining to Criterion 5: Teaching and Learning.

#### **Strengths:**

- VLE Infrastructure has been set out for Blended Learning for over a decade.
- Student projects meet the standards for securing publications in international conferences.
- Both the teacher-centred and the student-centred strategies are practiced.
- Self-directed learning, group assignments, and online resources (MOOC) are enabled in VLE.
- QAC collects and analyses student feedback/peer-review comments and reports at the end of the semester.

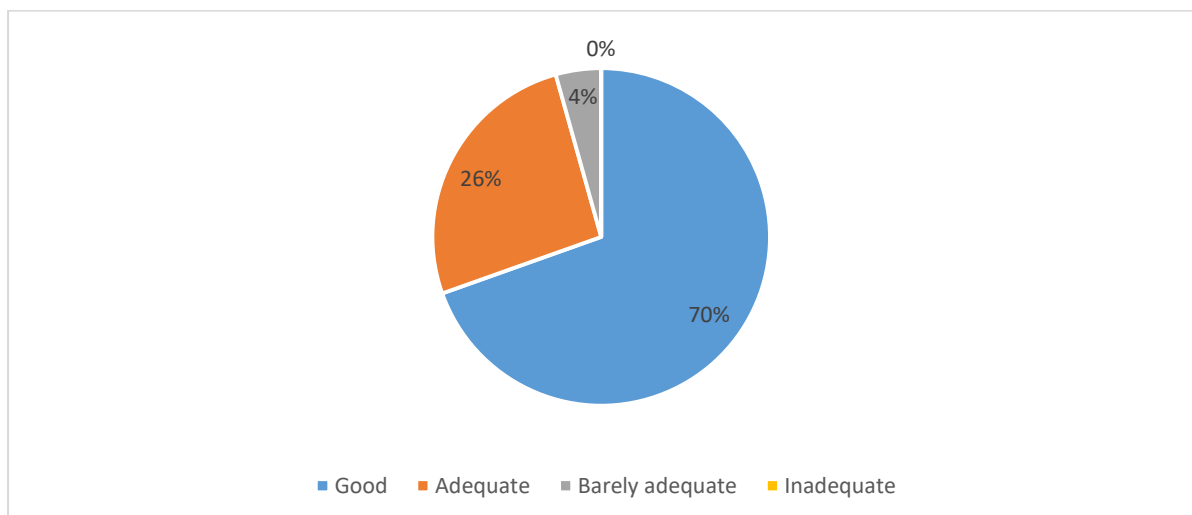
- Activities in some relevant modules enable students to compete in hackathons, Google Summer of Code, etc.
- UCSC has a unique Computing Technology Museum with a rare collection of items with great historical value.

#### **Weaknesses:**

- A Teaching Excellence Award has not been introduced.
- UCSC has not implemented a reward system to encourage teaching by the academic staff regularly for the years concerned.
- Written feedback for the assignments is not given to students.
- Insufficient evidence of the practice of the student feedback system.

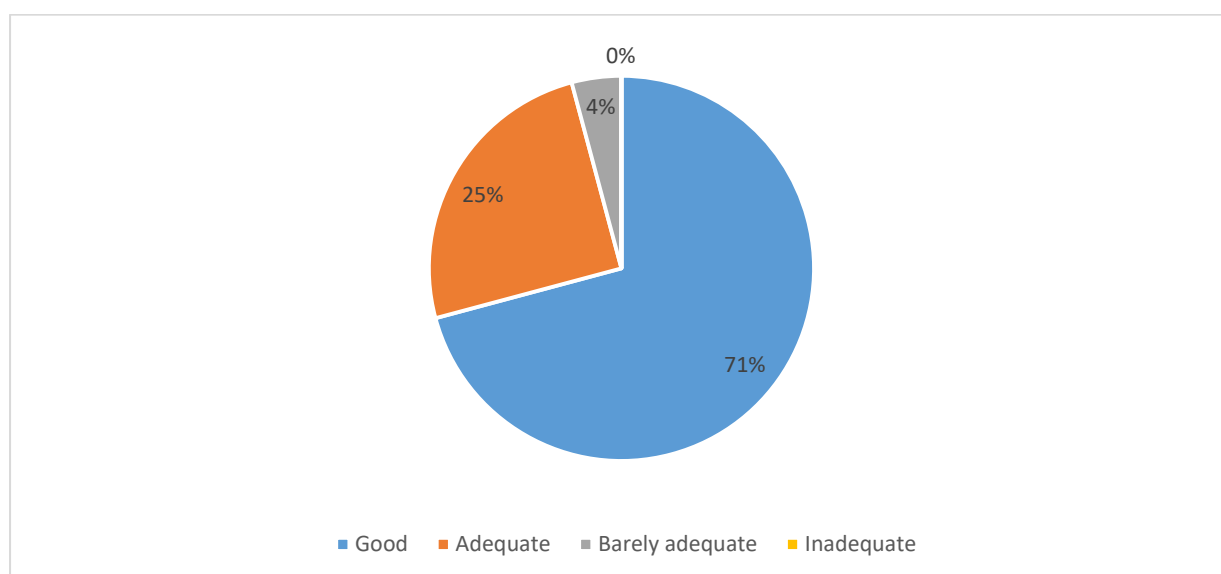
### **Criterion 6: Learning Environment, Student Support, and Progression**

In terms of Criterion 6: Learning Environment, Student Support, and Progression, BSc in Information Systems and BSc (Hons) in Information Systems scored with a minor variation. Out of 24 standards, the BSc in Information Systems degree has achieved a score of 3 for 16 standards, a score of 2 for 6 standards, and a score of 1 for 1 standard. Fig 5.6.1 shows the percentages of scores earned by the 3-year IS degree. On the other hand, the BSc (Hons) in Information Systems degree score of 3 for 17 standards, a score of 2 for 6 standards, and a score of 1 for 1 standard out of 24 standards. Fig 5.6.2 shows the percentages of scores earned by the 4-year IS degrees.



**Fig 5.6.1: Percentage of Scores for Criterion 6 earned by the 3-year IS degree: Learning Environment, Student Support, and Progression (Good-Score 3, Adequate Score 2, Barely adequate - Score 1, and Inadequate- Score 0)**

Due to the lack of fallback options (standard 6.21), the 3-year degree scored 3 marks less than the four-year degree. UCSC has a state-of-the-art computing infrastructure to enable a pleasant, blended learning environment. Student support services are also in place to expose the students to interact with industry. UCSC Alumni have also been very influential in the industry/academia and have shown lots of enthusiasm to support students to improve their soft skills. Nevertheless, the review team noted limited interaction between alumni and students; thus the standard 6.24 achieved a score of 1 for both degrees.



**Fig 5.6.2: Percentage of Scores for Criterion 6 earned by the 4-year IS degrees: Learning Environment, Student Support, and Progression (Good-Score 3, Adequate Score 2, Barely adequate - Score 1, and Inadequate- Score 0)**

As such, for the BSc in Information Systems degree (Table 6.1), Criterion 6 achieved a raw criterion-wise score of 61 and hence achieved an actual criterion-wise score of 85 out of 100. In contrast, for the BSc (Hons) in Information Systems degree (Table 6.2), Criterion 5 achieved a raw criterion-wise score of 64 and hence achieved an actual criterion-wise score of 89 out of 100.

The following strengths and weaknesses of BSc in Information Systems and BSc (Hons) in Information Systems degree programs pertaining to Criterion 6: Learning Environment, Student Support, and Progression have also been identified by the review team.

#### **Strengths:**

- Friendly and supportive interaction among students, lecturers, administrators, technical and non-academic staff

- UCSC has a high-tech teaching and learning environment with state-of-the-art facilities.
- Well-maintained library, canteen, lecturer halls, laboratories, and study areas
- Fallback option for those who could not complete the four-year IS degree.
- Many centres, including eLe, PDC, and NOC, are established to support learning and teaching.

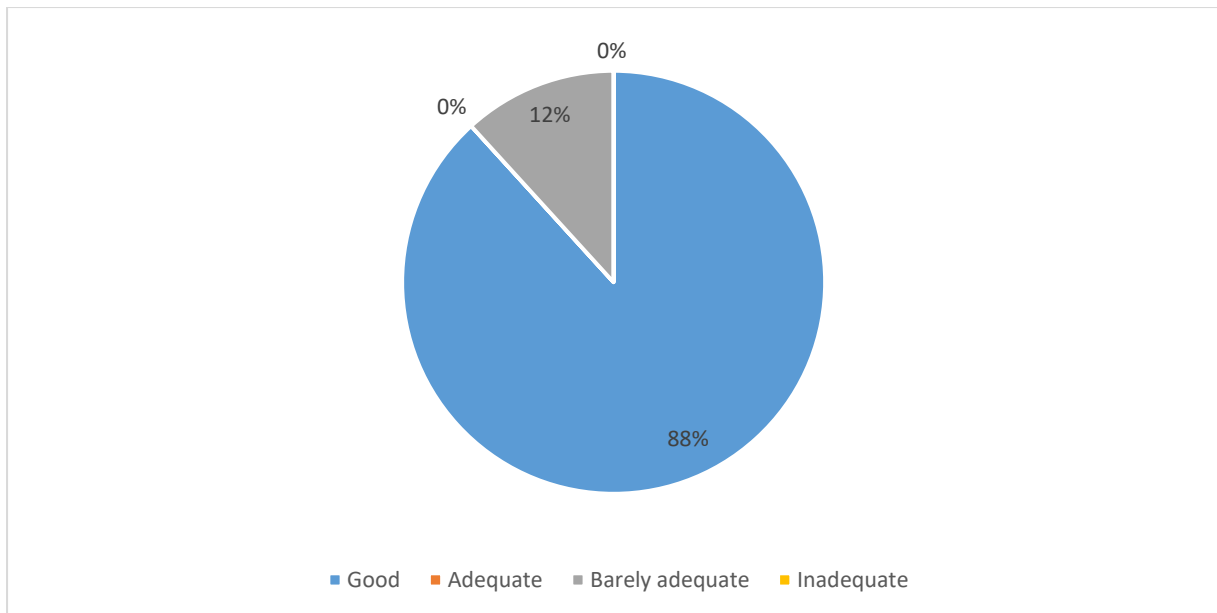
#### **Weaknesses:**

- The potential of the BIT External degree has not been explored to revisit the fallback options in compliance with the UGC guidelines.
- No evidence to show that UCSC promptly deals with students' complaints and grievances and delivers timely responses.

#### **Criterion 7: Student Assessment and Awards**

Regarding Criterion 7: Student Assessment and Awards, both degrees, BSc in Information Systems and BSc (Hons) in Information Systems, have scored similarly. As such, out of 17 standards, 15 standards achieved a score of 3, and 2 standards achieved a score of 1. Fig 5.7 shows the percentages of scores earned by two IS degrees.

Scoring 3 marks for each 15 standards shows high-quality practices in assessments and awards. Among others, second-making, re-scrutinization, pioneering online examinations, and introducing many awards for students are commendable. However, not practicing the concept of the external examiner and not giving feedback on assignments on time are some concerns to be addressed. Two standards related to those concerns scored only 1 mark for each. For both degrees, BSc in Information Systems (Table 6.1), and BSc (Hons) in Information Systems (Table 6.2), Criterion 7 achieved a raw criterion-wise score of 47, thus achieving an actual criterion-wise score of 138 out of 150.



**Fig 5.7: Percentage of Scores for Criterion 7 earned by two IS Degrees: Student Assessment and Awards (Good - Score 3, Adequate Score 2, Barely adequate – Score 1, and Inadequate- Score 0)**

Scoring 3 marks for each 15 standards shows high-quality practices in assessments and awards. Among others, second-making, re-scrutinization, pioneering online examinations, and introducing many awards for students are commendable. However, not practicing the concept of the external examiner and not giving feedback on assignments on time are some concerns to be addressed. Two standards related to those concerns scored only 1 mark for each. For both degrees, BSc in Information Systems (Table 6.1), and BSc (Hons) in Information Systems (Table 6.2), Criterion 7 achieved a raw criterion-wise score of 47, thus achieving an actual criterion-wise score of 138 out of 150.

The review team has identified the following strengths and weaknesses of BSc in Information Systems and BSc (Hons) in Information Systems degree programs pertaining to Criterion 7: Student Assessment and Awards.

#### **Strengths:**

- Continuous assessments are aligned with ILOs.
- Regulations framed under By-Laws cover the Assessment methods.
- Moderation and second marking of answer scripts are in place.
- The re-scrutinization mechanism has been practiced.
- Pioneers in Blended learning and Online examinations

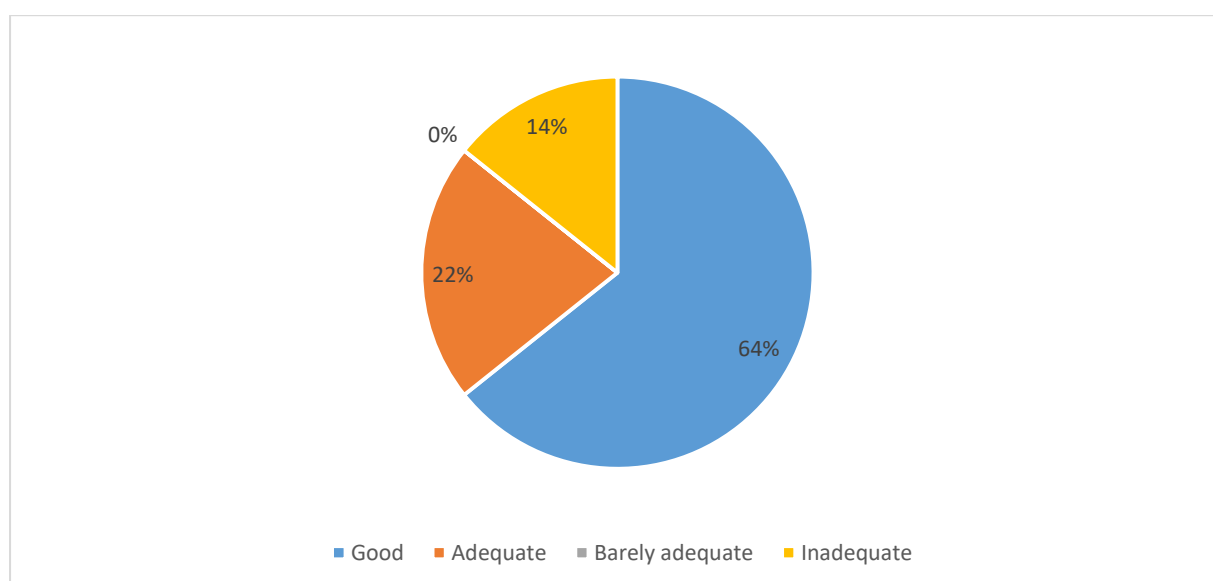
- Many awards, including the prestigious Prof. VK Samaranayake award, have been introduced for outstanding students.

### Weaknesses:

- Not releasing CA marks in time in some modules
- The concept of the External examiner is not practiced.
- No evidence was provided for issuing degree certificates to graduates at the graduation ceremony.
- Teaching, learning, and assessment have not been improved with the comments/recommendation of an External Examiner.
- There was no evidence for a periodical review of the assessment strategies and renewal where applicable

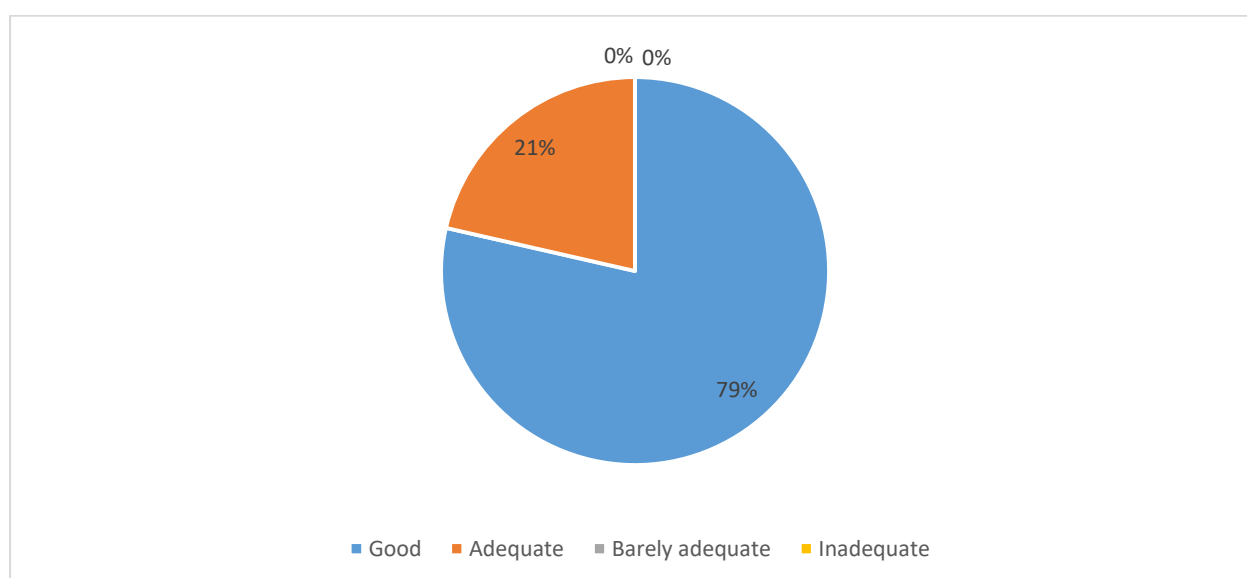
### Criterion 8: Innovative and Healthy Practices

Criterion 8: Innovative and Healthy Practices has 14 standards, and for BSc in Information Systems, 9 standards achieved a score of 3, 3 standards achieved a score of 2, no standard achieved a score of 1, and 2 standards achieved a score of 0. Fig 5.8.1 shows the percentages of scores earned by the 3-year IS degree. In contrast, regarding BSc (Hons) in Information Systems, 11 standards achieved a score of 3, 3 standards achieved a score of 2, and no standard achieved 1 or 0. Fig 5.8.2 shows the percentages of scores earned by the 4-year IS degree.



**Fig 5.8.1: Percentage of Scores for Criterion 8 earned by the 3-year IS degree : Innovative and Healthy Practices (Good-Score 3, Adequate Score 2, Barely adequate - Score 1, and Inadequate- Score 0)**

No evidence is provided to show both degrees have the same capacity to link with local/international organizations. Thus, the 3-year degree scored only 2 marks for the standard 8.8. On the other hand, the 3-year degree scored 0 for the standard 8.14 since this degree does not offer fallback options such as a diploma or a certificate. Despite SER talking of the BIT degree as a way out for this matter, no evidence of any practice or policy in this regard has been provided. SER says that standard 8.6 is not applicable for a 3-year degree; hence 0 mark is given. UCSC has many innovative practices, such as the Policy on Consultancy, Research Excellence Award, Credit transfer with the Faculty of Science, and a medical support system for all categories of staff.



**Fig 5.8.2: Percentage of Scores for Criterion 8 earned by the 4-year IS degree: Innovative and Healthy Practices (Good- Score 3, Adequate Score 2, Barely adequate - Score 1, and Inadequate- Score 0)**

Hence, for the BSc in Information Systems (Table 6.1), Criterion 8: Innovative and Healthy Practices achieved a raw criterion-wise score of 33 and achieved an actual criterion-wise score of 39 out of 50. In contrast, a BSc (Hons) in Information Systems degree (Table 6.2) has achieved a raw criterion-wise score of 39 and hence achieved an actual criterion-wise score of 46 out of 50.

The review team has identified the following strengths and weaknesses of BSc in Information Systems and BSc (Hons) in Information Systems degree programs pertaining to Criterion 8: Innovative and Healthy Practices.

**Strengths:**

- Financial Autonomy of UCSC
- A consultancy Policy to support the industry is in place.
- Vice-Chancellor Award for Research Excellence has been practiced.
- Arrangements have been made for local and foreign Industrial placements.
- Credit transfer between the Faculty of Science and UCSC is in place.
- UCSC organizes IEEE Sponsored ICTer International Conference
- A medical support system for all staff members at UCSC is in place.
- Properly constituted Bursary scheme for needy students at UCSC

**Weaknesses:**

- The Senate-level Credit Transfer Policy is not in place.
- The Institute has no policy or strategy about multiple exit points in degree programmes.

## Section 6: Grading of Overall Performance of the Programme

Degree programme: Bachelor of Science in Information Systems

**Table 6.1: Criteria-wise scores earned – Bachelor of Science in Information Systems**

| No. | Criteria                                              | Weighted minimum score* | Actual criteria-wise score |
|-----|-------------------------------------------------------|-------------------------|----------------------------|
| 01  | Programme Management                                  | 75                      | 143                        |
| 02  | Human and Physical Resources                          | 50                      | 83                         |
| 03  | Programme Design and Development                      | 75                      | 133                        |
| 04  | Course / Module Design and Development                | 75                      | 137                        |
| 05  | Teaching and Learning                                 | 75                      | 113                        |
| 06  | Learning Environment, Student Support and Progression | 50                      | 85                         |
| 07  | Student Assessment and Awards                         | 75                      | 138                        |
| 08  | Innovative and Healthy Practices                      | 25                      | 39                         |
|     | Total on a thousand scale                             |                         | <b>872</b>                 |
|     | %                                                     |                         | <b>87.15</b>               |

**Grade: A**

### Summary Results

|                                     |                                                                                                             |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Grade</b>                        | A                                                                                                           |
| <b>Performance Descriptor</b>       | Very Good                                                                                                   |
| <b>Interpretation of Descriptor</b> | High level of accomplishment of quality expected of an academic institution; should move towards excellence |

## Degree programme: Bachelor of Science Honours in Information Systems

**Table 6.2:Criteria-wise scores earned – Bachelor of Science Honours in Information Systems**

| No. | Criteria                                              | Weighted minimum score* | Actual criteria-wise score |
|-----|-------------------------------------------------------|-------------------------|----------------------------|
| 01  | Programme Management                                  | 75                      | 143                        |
| 02  | Human and Physical Resources                          | 50                      | 83                         |
| 03  | Programme Design and Development                      | 75                      | 133                        |
| 04  | Course / Module Design and Development                | 75                      | 137                        |
| 05  | Teaching and Learning                                 | 75                      | 124                        |
| 06  | Learning Environment, Student Support and Progression | 50                      | 89                         |
| 07  | Student Assessment and Awards                         | 75                      | 138                        |
| 08  | Innovative and Healthy Practices                      | 25                      | 46                         |
|     | Total on a thousand scale                             |                         | <b>893</b>                 |
|     | %                                                     |                         | <b>89.33</b>               |

**Grade: A**

### Summary Results

|                                     |                                                                                                             |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Grade</b>                        | A                                                                                                           |
| <b>Performance Descriptor</b>       | Very Good                                                                                                   |
| <b>Interpretation of Descriptor</b> | High level of accomplishment of quality expected of an academic institution; should move towards excellence |

## **Section 7: Commendations and Recommendations**

### **Commendations**

- Vice Chancellor, Director/UCSC, Head of Departments, and all categories of staff demonstrated an unprecedented commitment to the QA process.
- The stakeholder meeting and the Site visit were well organized by enabling interaction with staff members and observation of resources/facilities.
- UCSC was properly constituted to offer a broad spectrum of computing degrees.
- SER is well written in compliance with UGC QA guidelines.
- Well-composed strategic plan and action plan covering strategic goals, objectives, strategies, and strategic actions.
- UCSC has a well-maintained Website with up-to-date information on programmes
- Adhering to ACM/IEEE international standards of computing degrees to design and develop all computing degrees at UCSC.
- Adoption of SLQF guidelines for designing and developing degree programmes, and modules/courses.
- Strong research culture with research grants, organizer of ICTer conference and journal, many MPhil/PhD candidates, and undergraduates securing conference/journal publications.
- The best and largest panel of high-profile computing academics in the country.
- University-level recognition for excellence in Research
- Modern state-of-the-art teaching and learning environment enabling blended learning, online examination, high-end computing facilities, and library access.
- UCSC has a Computer Museum, a unique learning resource for students and the public.

- A fallback option exists for those who could not complete a 4-year degree.
- Offering industrial training for 3-year degree students increases their employability.
- In all computing areas, UCSC graduates have recorded the highest employability.
- UCSC has ensured a friendly working environment among academic staff, academic support staff, non-academic staff, technical staff, and students.
- UCSC has used the earned money for numerous welfare facilities, scholarships, training programs, and assisting needy staff for all categories of staff.
- The concept of foreign industrial placements is introduced to increase students' exposure to the industry.
- Adoption of a participatory approach in many activities, including curriculum development, programme review, etc.

## **Recommendations**

- Continuing with the adoption of ACM/IEEE international standards and SLQF guidelines for programme design and development.
- A comprehensive staff appraisal system needs to be introduced.
- A fallback option needs to be introduced for 3-year degree programmes at UCSC.
- Develop Metrics for mapping ILOs and PLOs for each programme
- Mechanism needs to be developed to ensure feedback and peer review comments are included to improve the delivery of programmes
- Students should receive written feedback for the assignment in time.
- The Curriculum Development Committee needs to meet regularly to identify future directions for revisions.
- Develop missing policy documents for all practices, such as curriculum revision and credit transfer.

- Documentary evidence needs to be compiled with information such as approving body, date, stamp, signatures, etc.
- Develop the TORs and SOP for all administrative practices.
- The concept of External Examiner needs to be introduced as a matter of quality enhancement.
- Two Information Systems degrees need to be accredited by an internationally recognized professional body.
- Introduce an Award to recognize the Teaching Excellence of academic staff.

## **Section 8: Summary**

The University of Colombo School of Computing invited the QAC of the UGC to review the BSc. in Information Systems and BSc (Hons) in Information Systems degree programmes. The Quality Assurance Council of the UGC, in agreement with the UCSC, University of Colombo, entrusted the review task to a team of four members.

The review team executed a review process comprising individual desk review, an online stakeholder meeting, and onsite evaluation. Claims made in the SER by the UCSC under eight criteria were verified through perusal of documentary evidence, meetings/discussions conducted with relevant authorities and various groups, and observation of facilities/infrastructure and classroom teaching. The review team was very much impressed by the 20 years of achievements of UCSC as the pioneering institute and trendsetter in computing education in Sri Lanka. UCSC is exemplary in the adoption of ACM/IEEE international standards of computing degrees and SLQF guidelines of UGC. As witnessed during the review process, UCSC has the largest panel of high-profile computing academics in the country. Undoubtedly, this is the key strength of UCSC.

UCSC has adopted the participatory approach to execute many activities, including curriculum design/development, industrial placements, and the programme review processes for various degree programmes. The review team was also impressed by the financial autonomy of UCSC as a unique characteristic, which in turn has contributed to the development of the school and numerous welfare opportunities for all staff, bursaries for students, medical support schemes, etc. UCSC has a very cordial working environment, enabling friendly interaction among students and all categories of staff.

The site visit was successfully conducted on 09<sup>th</sup> August 2023 and concluded with a wrap-up meeting held with the Director of the UCSC, Heads of the departments, and the senior staff of the school. The purpose of the meeting was to provide feedback on the key strengths and areas for improvement. A key finding of the review team is that although UCSC has been adopting many best practices in QA, but some are not properly documented. Further, not practicing the concept of the external examiner, and not being accredited the IS degrees by a reputed professional body have also been concerns for the review team. The meeting was very cohesive and fruitful.

In conclusion, BSc in Information Systems and BSc (Hons) in Information Systems degree programmes teamed up with the UCSC under the flagship of the University of Colombo to accomplish the high level of quality expected of programmes of study in delivering its degree. As such, the review team has allocated overall performance scores of 87% and 89% for BSc in Information Systems and BSc (Hons) in Information Systems degree programmes,

respectively. Thus, the review team recommended awarding a Grade of “A” for both study programmes, which is interpreted as “high level of performance of quality expected of a programme of study should move towards excellence”. Further, the review team hopes that UCSC will take the necessary steps to implement the recommendations made in this report and to bring about changes and innovations necessary to achieve in the two study programmes.

## Annexure

**Site Visit Schedule:** Programme Review- 2020

**Site Visit Date:** 9<sup>th</sup> August, 2023

**University:** University of Colombo

**Faculty/Institute:** University of Colombo School of Computing

**Degree Programme (Cluster-2):** Bachelor of Science in Information Systems  
Bachelor of Science Honours in Information Systems

| 8 <sup>th</sup> August, 2023: Arriving in Colombo and Residing in a Hotel |                                                                                                                                                                                                                     |                                                                               |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <b>Site Visit Day:</b> 9 <sup>th</sup> August 2023                        |                                                                                                                                                                                                                     |                                                                               |
|                                                                           |                                                                                                                                                                                                                     |                                                                               |
| Time                                                                      | Schedule                                                                                                                                                                                                            | Venue/ Facilitator                                                            |
| 8.00–8.30 a.m.                                                            | Meeting with VC, CQA Director, Registrar, Bursar                                                                                                                                                                    | VC's office                                                                   |
| 8.30–09.00 a.m.                                                           | Meeting with Dean, Academic Heads of Department (Please provide a faculty prospectus/Student Hand Book for each member of the review team)                                                                          | Dean's Office or Faculty Board Room                                           |
| 09.00–10.00 a.m.                                                          | Meeting with the academic members of Departments (members involved in the teaching/learning process of the study programme must be present. These members should preferably not be members of the SER writing team) | Faculty Board Room                                                            |
| 10.00–10.30 a.m.                                                          | Observing teaching/learning sessions relevant to the programmes                                                                                                                                                     | Please provide scheduled lectures to enable the team to select a few lectures |

|                   |                                                                                                                                                                                                                                            |                                                         |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| 10.30 –11.00 a.m. | Meeting/observing Library, ELTU, and ICT facilities relevant to the study programmes                                                                                                                                                       | Please assign someone to escort you to these facilities |
|                   | Observing other facilities and visiting to Centre and units; Lecturer's cabin; Examination unit; Student welfare unit; Sports; hostels; career guidance center; GEE Centre; Staff development Centre; Canteen; Health Centre; IQAC; Hostel | Please assign someone to escort you to these facilities |
| 11.00–12.00 p.m.  | Meeting with students (Students from all years, ethnic groups and gender, few physically challenged students should be represented-if available)                                                                                           |                                                         |
| 12.00–1.00 p.m.   | Lunch                                                                                                                                                                                                                                      |                                                         |
| 1.00 – 2.00 p.m.  | Observing documentation of evidence-If necessary (A neat filing system for all documents would be helpful and appreciated)                                                                                                                 |                                                         |
| 02.00–03.30 p.m.  | Team discussion & Report writing on key findings                                                                                                                                                                                           | Private area provided by you                            |
| 03.30–4.00 p.m.   | Wrap-up meeting (Debriefing) with the senior management of the programme                                                                                                                                                                   |                                                         |