



UCSC

ANNUAL REPORT

2016

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING



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SCHOOL OF COMPUTING**

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DIRECTOR'S REVIEW

It is with great pleasure and a sense of pride that I present the Annual Report 2016 of the University of Colombo School of Computing after being appointed as the Director of UCSC on 1st June 2016.

As a centre of excellence in teaching and learning in computing which is the main goal of UCSC, this report presents the accomplishments as well as challenges faced during both undergraduate and postgraduate programmes conducted in the year 2016. 761 students, who got the opportunity to be enrolled in undergraduate programmes through the UGC selection process, continued their education similar to the last few years and 236 students were able to complete and be graduated at the end of the year. This report describes the process of the undergraduate education with collected statistics of students for your information.

Since there is a huge demand for computing education, UCSC continues its most important national service of conducting BIT external degree programme for which 1602 students got the opportunity to be registered. During the year, UCSC conducted all its BIT exams as scheduled but there were some delays in releasing final results due to administration issues faced at the latter part of the year. However, the convocation and diploma awarding ceremonies were held according to the schedule.

Similar to previous years, the demand for the Masters Degree Programme for 2016 is very high. Out of 540 applicants only 184 students were selected for the programmes, and they started their Masters studies in the first quarter of 2016. Although we conducted the Masters programme on time, the academic staff found it very difficult to complete the paper marking due to the workload of their other programmes. The pass rate and the completion rate of the programme are not satisfactory compared to previous years.

The quality assurance cell of UCSC was established since the main university decided to carry out the institutional review. Based on the UGC Quality Assurance and Accreditation Council, new guidelines for the institutional review, all academic, administrative and non-academic activities were analysed with respect to large number of standards and the best practices were categorized into 10 criteria. The University of Colombo received the A grade for the institutional review and the UCSC also obtained A grade as described in the self-evaluation report which is annexed to this report. Although the A Grade developed the confidence for our practices, there are many areas to be addressed in order to maintain the status.

The Infrastructure development is the main focal point of the year of 2016. Both the government funds as well as the UCSC generated income were invested in building the multi-purpose auditorium and lecture halls. It was supposed to complete the construction before December 2016 but due to many construction issues, the contractors requested more than 6 months to complete the project. The phase II of the canteen building was also started in the year 2016. Simultaneously, many activities related to research and development were carried out during 2016 in order to maintain the prominent status of UCSC in the field of Computing. Research Symposium 2016 and ICTer2016 were the two main events and the showcases for gathering and sharing the knowledge in the domain. Many new projects were started in 2016 and the details about the aforesaid projects have been given in the report. The power of UCSC depends on its human-resources. Therefore, many activities were designed to develop as well as to motivate the staff with the aim of enhancing their productivity. The UCSC continued to provide its service to people, government and private section through its partnership with other parties as mentioned in this report.

Finally, I take this opportunity to express my gratitude to the Council, Senate, the Vice Chancellor, the Board of Management, Academic Syndicate, and Management Committee and all other staff of UCSC **for making 2016 – a land mark year of a new era.**

Director Professor K. P. Hewagamage

University of Colombo School of Computing (UCSC)

OUR VISION

*Be a Global Leader in
Computing Education,
Advancing the Frontiers of
Knowledge through
Teaching,
Learning and
Research*

OUR MISSION

*To advance and enhance computing studies,
Fostering global strategic alliances,
Promoting interdisciplinary research,
Producing socially responsible professionals
with entrepreneurial skills,
leadership qualities and integrity
Contributing to position the country as a
knowledge hub in the region.*

GOALS



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Overview of the UCSC

The University of Colombo School of Computing (UCSC) was established as a Centre of Higher Learning on 1st September, 2002 by merging the Institute of Computer Technology (ICT) and the Department of Computer Science (DCS) of the University of Colombo, by an Order made under Section 24 A(1) of the Universities Act No. 16 of 1978 as last amended by Universities (Amendment) Act No.1 of 1995, with the purpose of providing, promoting and developing higher education in Computer Science, Information and Communication Technology. It is a Higher Educational Institute within the University of Colombo established to develop and promote computing studies. The UCSC was granted the financial autonomy and its operations have been described in the Ordinance Gazetted on 15th Nov 2002 (GZT NO. 1262/32) and amended to include the Centre for Digital Forensics on 22 July 2011 (GZT NO. 1715/32).

According to the ordinance of UCSC, the University of Colombo School of Computing has 03 academic departments, namely

- Department of Computation & Intelligent Systems (CIS)
- Department of Communication & Media Technologies (CMT)
- Department of Information Systems Engineering (ISE)

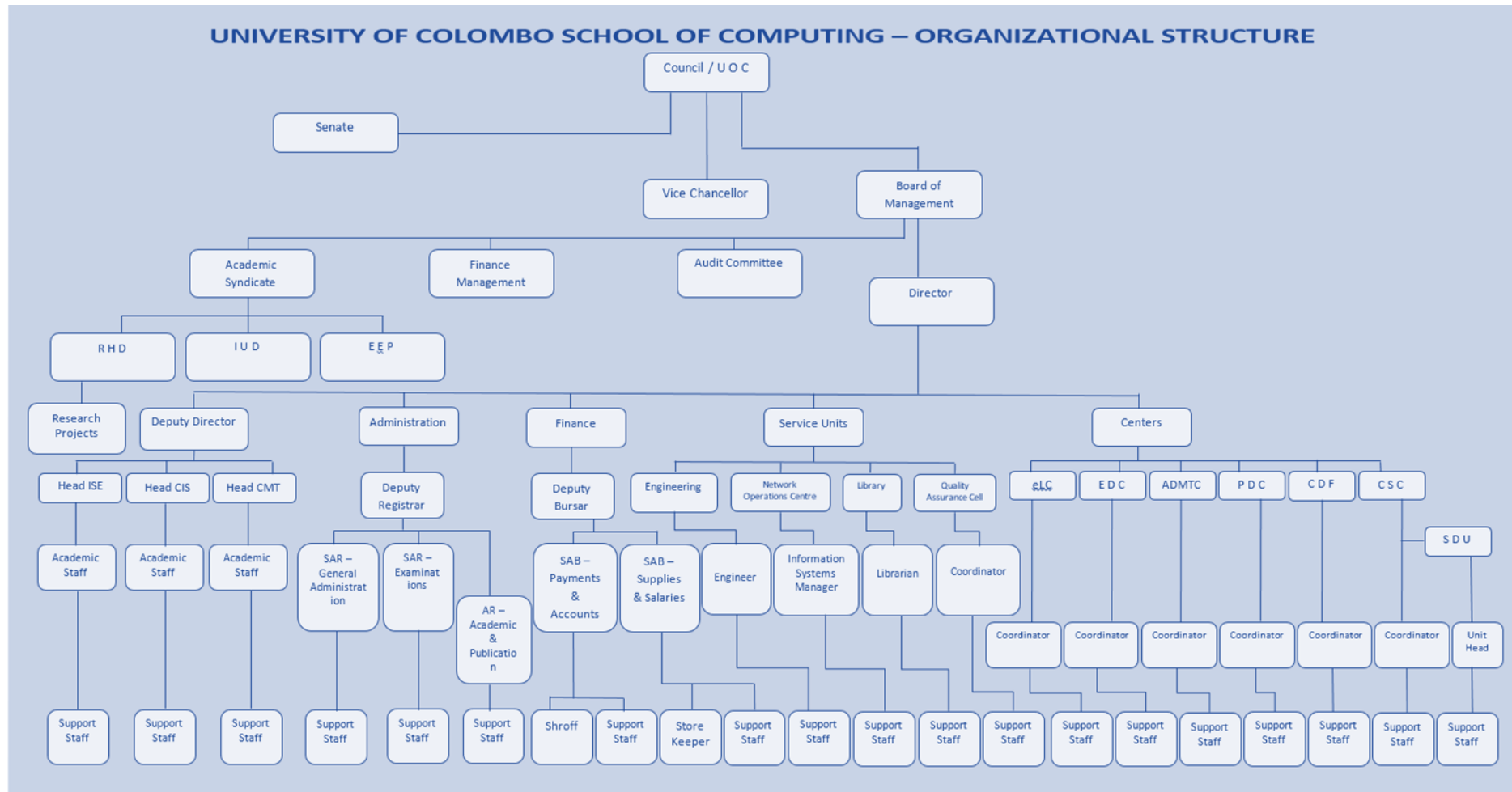
According to the ordinance of UCSC, the University of Colombo School of Computing has 06 centres:

- Advanced Digital Multimedia Centre (ADMTC);
- Computing Services Centre (CSC);
- External Degrees Centre (EDC);
- e-Learning Centre (e LC);
- Professional Development Centre (PDC);
- Centre for Digital Forensics (CDF).

ORGANIZATION STRUCTURE OF UCSC – 2016

Based on the structure declared in the ordinance, the UCSC organizational structure in the below diagram has been designed to carry out the management activities of UCSC. Both the staff allocation and reporting structure were coordinated according to this hierarchy.

UCSC Organizational Chart – 2016



AT A GLANCE – KEY PERFORMANCE INDICATORS (KPIs) OF UCSC (2013-2016)

		2013	2014	2015	2016
Education (Enrolled/Graduated)					
Internal Undergraduates	All	769	757	770	761
	In	254	212	256	250
	Out	212	215	247	236
Science Undergraduates*		1275	1119	997	1060
Diploma in Information Technology (DIT) (External)	All	4175	4535	4075	2188
	In	2034	2379	1890	1602
	Out	611	515	334	403
Higher Diploma in Information Technology (HDIT) (External)	All	2391	2583	2509	756
	In	714	721	690	490
	Out	305	339	226	149
Bachelor of Information Technology (BIT) (External)	All	1416	1537	1651	1177
	In	312	347	346	242
	Out	194	225	260	206
Postgraduates	All	303	370	452	454
	In	143	209	188	184
	Out	122	107	121	127
Extension Programmes		309	389	339	334
Research					
Research (MPhil/PhD)	All	39/07	41/09	42/09	36/06
	In	09	07/06	08/01	01/07
	Out	6	3/1	3/1	00/01
Research Projects	All	05	10	11	34
	New	1	6	3	19
Publications		70	67	71	64
Consultancy Projects					
	Local	10	10	23	24
	Foreign	-	-	1	2
Social Responsibility Programmes		10	10	10	12

		2013	2014	2015	2016
Governance					
Permanent Academic Staff	All	36	40	38	43
	Professors	02	03	03	03
	PhD	20	20	23	24
	Masters	10	11	09	09
Permanent Academic Support Staff		04	04	04	04
Temp Academic Staff (Instructors & Asst. Lect.)		15	30	27	21
Permanent Admin and Non-Ac Staff		40	40	37	46
Contract Staff (including casual & trainee)		49	42	42	25
Research/Project Staff		11	27	24	18
Finance					
		2013	2014	2015	2016
Annual Recurrent Expenditure (Millions SLR)		133	161	307	335
Treasury Grant (Recurrent) (Millions SLR)- Act.		90	94	122	160
Treasury Grant (Capital) (Millions SLR) – Actual		26	15	43	205
Generated Income		242	247	211	201
UCSC Contribution for UG (Millions SLR) (Generated %)		88 (37%)	185 (75%)	122 (58%)	147(48%)
UCSC Budget (Millions SLR)		363	479	577	622
Research/Project (Millions SLR)		9.3	9.7	14	11
Cost per Employee (SLR ‘000s) per annum		774	795	881	1,008
Cost per Student (SLR ‘000s) – Treasury Recurrent		152	190	195	269
Infrastructure					
Library Books		8,303	8,678	8,783	8931
Computers : staff		1:1			
Computers : students (General students) (Special students)		1:4 1:1			
Space Utilization (employee) (sq. m.)		10.42	11.70	11.70	11.70
Space Utilization (student) (sq. m.)		2.68	4.77	4.77	4.77

GOVERNANCE

1. GOVERNANCE

During the year 2016, the activities were carried out based on the corporate plan for 2015-2020. It essentially focuses on the 7 goals as identified at the beginning of this report. The corporate plan described the activities planned for the next five years together with the action plan for 2016. When the new Director, Prof. K. P. Hewagamage, was appointed in June 2016, it was decided to revise the corporate plan for 2017-2021 considering feedbacks and progress of current plan while maintaining the same seven goals identified in the year 2015-2020.

The Management of the UCSC is handled by the Director of the UCSC with the assistance of the Heads of the Departments, the Deputy Registrar, the Deputy Bursar, Centre Coordinators, and several administrative staff members of divisions. The Director chaired all UCSC Statutory and Selection Committees.

1.1 OFFICERS OF THE UCSC

Director	Prof. G.N. Wikramanayake (January-May 2016) & Prof. K.P. Hewagamage (June – December 2016)
Deputy Director	Prof. K.P. Hewagamage (January-May 2016) & Dr. D.A.S. Athukorala (June – December 2016)
Heads (CIS)	Department of Computation Intelligent Systems (CIS) - Dr. D.A.S. Athukorala Department of Communication and Media Technology (CMT) - Dr. G.D.S.P. Wimalaratne Department of Information and Systems Engineering (ISE) Prof. K.P. Hewagamage (January-May 2016) & Dr.M.D.J.S. Goonetillake (June – December 2016)
Deputy Registrar	Mr. K.K. Dharmathilaka
Deputy Bursar	Mr. E.M. Gunarathna
Coordinators	Advanced Digital Media Technology Centre (ADMTC) - Mr. S.T. Nandasara Computer Service Centre (CSC) – Mr. L.P. Jayasinghe (January – September 2016) & Dr. K.L. Jayaratne (October – December 2016) External Degree Centre (EDC) – Mr. L.P. Jayasinghe e-Learning Centre (eLC) – Dr. D.D. Karunaratna Professional Development Centre (PDC) – Dr. S.M.K.D. Arunathilake Centre for Digital Forensic (CDF) – Mr. K.S. Goonathilake

1.2 AUTHORITIES

The Authorities of the School are the Board of Management; Academic Syndicate; Boards of Study; Departments of Study and Centres as described in the ordinance of UCSC.

1.2.1 BOARD OF MANAGEMENT (BOM)

11 monthly meetings and 02 special meetings of the Board of Management were held during the year 2016. First Thursday is usually allocated for the BOM meetings. Minutes and memos are distributed before the meeting. The composition of the Board of Management is given below together with the statistics of the meeting participation.

Ex- Officio	
• Director	Prof. G.N. Wikramanayake (till May) &(P-5) Prof. K.P. Hewagamage (from June) (P-8)
• Deputy Director	Prof. K.P. Hewagamage (till May) & (P-5) Dr. D.A.S. Athukorala (from June) (P-8)
• Nominee Secretary of Higher Education	Mr. M. Dewasurendra (P-13)
• Nominee, Ministry of Finance	Mrs. D.M.A. Harasgama (P-9 & E-4)
• Dean, Faculty of Science	Prof. K.R.R. Mahanama (P-11 & E-2)
• Head of CIS	Dr. D.A.S. Athukorala (P-5)
• Head of CMT	Dr. G.D.S.P. Wimalaratne (P-8, E-2 & L-3)
• Head of ISE	Prof. K.P. Hewagamage(till May) & Dr. M.D.J.S Goonetillake (from July) (P-6 & E-1)
Other Members	
• Council Members (02)	Mr. J.M. Swaminathan (P-5, E-3 & A-5) Dr. Sanjeeva Weerawarna (absent for 2016)
• Senate Member (02)	Prof. Sumedha Jayanetti (P-10 & E-3) Dr. Pavithra Kailasapathy (P-10 & E-3)
• Nominees of UGC (02)	Mr. Ruwan Keragala (P-3, E-6 & A-4) Deshamanya Mr. M.D.D. Pieris (P-13)
• Representatives IT Industry (02)	Mr. Mano Sekeram (P-2, E-8 & A-3) Mr. Ranil Rajapakse (P-4 & E-9)
• Nominees, Academic Syndicate (03)	Mr. S.T. Nandasara, (P-11 & E-2) Dr. C.I. Keppetiyagama (P-13) Dr. T.N.K. De Zoysa (P-13)
• Invitees	Prof. G.N. Wikramanayake (Former Director- from June) (P-3, E-3)

P-Present, E-Excused, A-Absent & L-Leave

1.2.2 FINANCE AND MANAGEMENT COMMITTEE (FMC)

The Finance and Management Committee (FMC) is a sub-committee that assists the Board of Management to discuss financial activities in detail before taking relevant decisions at the Board of Management. The committee was able to meet 4 times during the year 2016 and the Director/UCSC chaired those meetings.

Chairman	Prof. G.N. Wikramanayake (till May) (P-2) & Prof. K.P. Hewagamage (from June) (P-2)
Deputy Director	Prof. K.P. Hewagamage (till May) (P-2) & Dr. D.A.S. Athukorala (from June) (P-2)
Board Nominees	Prof. K.R.R. Mahanama (P-4) Deshamanya Mr. MDD Pieris (P-4) Dr. Pavithra Kailasapathy (P-4) Mr. Mano Sekeram (E-4)
Deputy Bursar	Mr. E.M. Gunarathna (P-4)
Deputy Registrar	Mr. K.K.K. Dharmathilaka(P-4)
Chairman	Prof. G.N. Wikramanayake (till May) (P-2) & Prof. K.P. Hewagamage (from June) (P-2)

P-Present, E-Excused, A-Absent & L-Leave

1.2.3 AUDIT COMMITTEE

The Audit Committee (AC) is a Sub-Committee that assists the Board of Management to discuss matters related to internal audit reports and final audit reports before taking appropriate decisions at the Board of Management. It is usually chaired by a special nominee of the Board of Management and the Director and the Deputy Director are invitees of the committee. The representatives of the Departments of Government Audit, the Departments of Internal Audit of the University of Colombo, and Department of Internal Audit of the University Grants Commission are also invited for this meeting. Representatives of Earnest and Young, Internal Auditors appointed by the Board of Management are also invited for these meetings. The statistics of participation of the 04 meetings of the year 2016 are given with respect to each member.

Chairman	Mrs.D.M.A. Harasgama (P-4)
Director	Prof. G.N. Wikramanayake (till May) (P-1) & Prof. K.P. Hewagamage (from June) (P-3)
Deputy Director	Prof. K.P. Hewagamage (till May) (P-1) & Dr. D.A.S. Athukorala (from June) (P-3)
Board Nominees	Mr. M. Dewasurendra (P-4) Mr. Ruwan Keragala(P-1 & E-3)
Rep of Auditor General	Mr. R.M.P.A. Janaka (Jan. – Sep 2016) (P-2) Ms. R.P.S. Pathmini (Oct – Dec. 2016) (P-2)
Internal Auditor/UGC	Mr. Janaka Bogamuwa (P-4)
Internal Auditor/UOC	Mr. K.E.W. Jayasiri (P-2 & E-2)
Rep /E&Y Auditors	Ms. G.D.A. Weerasuriya (P-4)

P-Present, E-Excused

1.2.4 ACADEMIC SYNDICATE

11 meetings of the Academic Syndicate were held during the year. The composition of the Academic Syndicate has been defined in the ordinance of UCSC. The Academic Syndicate takes the decisions recommended by three Boards of Studies namely, the Board of Study (BOS) for Internal Undergraduate Degrees (IUD), the BOS for Research and Higher Degrees (RHD) and the BOS for External and Extension Programme (EEP). Important matters are recommended to get the approval and forwarded information is identified using minute number.

All important decisions taken at the Academic Syndicate are supposed to be confirmed at the Board of Management and the Senate of the University of Colombo. Minutes of all formal meetings held during 2016 are available for references. Formal members of the Academic Syndicate and their participation statistics are given below.

No	Name and Designation	Attendance of Academic Syndicate (Out of 11 Meeting)		
		Present	Absent	Excused
01	Prof. K.P. Hewagamage, Director	10		1
02	Dr. D.A.S. Atukorale, Senior Lecturer Gr. I Deputy Director, Head/CIS	10		1
03	Prof. G.N. Wikramanayake, Head of Quality Assurance Cell	10		1
04	Prof. N.D. Kodikara, Professor	8	1	2
05	Dr. A.R. Weerasinghe, Senior Lecturer Gr. I	Sab	--	--
06	Mr. G.P. Seneviratne, Senior Lecturer Gr. I	11		
07	Mr. G.K.A. Dias, Senior Lecturer Gr. I	11		
08	Dr. D.N. Ranasinghe, Senior Lecturer Gr. I	8	2	1
09	Dr. D.D. Karunaratne, Co-ordinator/e-LC, Senior Lecturer Gr. I	10		1
10	Dr. G.D.S.P. Wimalaratne, Head/ CMT, Senior Lecturer Gr. I	8		3
11	Dr. (Mrs.) M.D.J.S. Goonetillake, Head, /ISE, Head/ Undergraduate Programs, Senior Lecturer Gr. I	9	1	1
12	Dr. H.L. Premaratne, Senior Lecturer Gr. I	10		1
13	Dr. T.N.K. De Zoysa, Senior Lecturer Gr. I	11		
14	Dr. C.I. Keppetiyagama, Senior Lecturer Gr. I	11		
15	Dr. K.L. Jayaratna, Senior Lecturer Gr. I	7	1	3
16	Dr. T. Sritharan, Senior Lecturer Gr. I	9		2
17	Dr. (Mrs.) S.M.K.D. Arunathilake, Senior Lecturer Gr. II	9		2
18	Dr. (Ms.) Yamaya Ekanayaka, Senior Lecturer Gr. I	8	1	2
19	Dr. H.A. Caldera, Senior Lecturer Gr. I	10		1
20	Dr. M.G.N.A.S. Fernando, Senior Lecturer Gr. II	11		
21	Mr. S.T. Nandasara, Coordinator/ ADMTC & Lecturer	10		1
22	Mr. K.P.M.K. Silva, Lecturer	6	1	3

23	Dr. T.M.H.A. Usoof, Senior Lecturer Gr. II	10		1
24	Mrs. M.W.A.C.R. Wijesinghe, Senior, Lecturer Gr. II	10		1
25	Mr. W.V. Welgama, Senior Lecturer Gr. II	9		2
26	Dr. M.D.R.N. Dayaratne, Senior Lecturer Gr. II	10		1
27	Dr. H.E.M.H.B. Ekanayake, Senior Lecturer Gr. II	9		2
28	Dr. (Mrs.) T.A. Weerasinghe, Lecturer	10		1
29	Mr. L.P. Jayasinghe, Instructor Gr. I	10		1
30	Dr. (Mrs) F.H.A.M. Premachandra, Lecturer (Prob.)	8		3
31	Dr. M.I.E. Wickramasinghe, Lecturer(Prob.)	8	1	2

1.2.5 BOARDS OF STUDY

According to the ordinance of UCSC, there are three Boards of Studies for Internal Undergraduate Degrees (BOS/IUD), Research and Higher Degrees (BOS/RHD) and External and Extension Programmes (BOS/EEP). The Director, UCSC is supposed to chair these boards of studies and there is an academic staff member as the Secretary and administrative staff member to organize meetings and maintain meetings.

1.2.5.1 BOARD OF INTERNAL UNDERGRADUATE DEGREES (BOS/IUD)

During 2016, 10 BOS/IUD was formally held and minutes of all these meetings have been processed and maintained properly. All matters related to internal undergraduate degrees, such as teaching, learning, assessment and administrations are discussed in detail at BOS/IUD which is usually held on a monthly basis. Two student representatives also attend these meetings and only the first part of the meeting is held in their presence. The Composition of the Board of Internal Undergraduate Degrees (IUD) and the participation statistics of the meeting are given below.

No	Name and Designation	Attendance of IUD (Out of 10 Meeting)		
		Present	Absent	Excused
01	Prof. K.P. Hewagamage, Director	10		
02	Dr. D.A.S. Atukorale, Senior Lecturer Gr. I Deputy Director, Head/CIS	10		
03	Prof. G.N. Wikramanayake, Head of Quality Assurance Cell	9		1
04	Prof. N.D. Kodikara, Professor	9	1	
05	Dr. A.R. Weerasinghe, Senior Lecturer Gr. I	1		
06	Mr. G.P. Seneviratne, Senior Lecturer Gr. I	8		2
07	Mr. G.K.A. Dias, Senior Lecturer Gr. I	10		
08	Dr. (Ms.) C.D. Thilakarathna, Joint Special Degree Programme	4	4	2
09	Dr. D.N. Ranasinghe, Senior Lecturer Gr. I	3	7	
10	Dr. D.D. Karunaratne, Co-ordinator/e-LC, Senior Lecturer Gr. I	10		
11	Dr. G.D.S.P. Wimalaratne, Head/ CMT, Senior Lecturer Gr. I	4	1	5
12	Dr. (Mrs.) M.D.J.S. Goonetillake, Head, /ISE, Head/ Undergraduate Programs, Senior Lecturer Gr. I	8	1	1

13	Dr. H.L. Premaratne, Senior Lecturer Gr. I	8		2
14	Dr. T.N.K. De Zoysa, Senior Lecturer Gr. I	9		1
15	Dr. C.I. Keppetiyagama, Senior Lecturer Gr. I	10		
16	Dr. K.L. Jayaratna, Senior Lecturer Gr. I	10		
17	Dr. T. Sritharan, Senior Lecturer Gr. I	6	3	1
18	Dr. (Mrs.) S.M.K.D. Arunathilake, Senior Lecturer Gr. II	9		1
19	Dr. (Ms.) Yamaya Ekanayaka, Senior Lecturer Gr. I	7		3
20	Dr. H.A Caldera, Senior Lecturer Gr. I	10		
21	Dr. M.G.N.A.S. Fernando, Senior Lecturer Gr. II	9		1
22	Mr. S.T. Nandasara, Coordinator/ ADMTC & Lecturer	9		1
23	Mr. K.P.M.K. Silva, Lecturer	6	2	2
24	Dr. T.M.H.A. Usoof, Senior Lecturer Gr. II	10		
25	Mrs. M.W.A.C.R. Wijesinghe, Senior Lecturer Gr. II	9		1
26	Mr. W.V. Welgama, Senior Lecturer Gr. II	10		
27	Dr. M.D.R.N. Dayaratne, Senior Lecturer Gr. II	6	2	2
28	Dr. H.E.M.H.B. Ekanayake, Senior Lecturer Gr. II	10		
29	Mr. R.S. Madanayake, Lecturer (Prob.)	1	2	7
30	Mr. S.S.P. Matharaarachchi, Lecturer(Prob.)	9		1
31	Dr. (Mrs.) T.A. Weerasinghe, Lecturer	10		
32	Mr. L.P. Jayasinghe, Instructor Gr. I	9	1	
33	Mr. G.P.N. Boteju, Instructor Gr. II	9		1
34	Mrs. L.N.C. De Silva, Lecturer (Prob.)	10		
35	Dr. (Mrs) F.H.A.M. Premachandra, Lecturer (Prob.)	7	1	2
36	Dr. M.I.E. Wickramasinghe, Lecturer(Prob.)	10		
37	Mrs. K.P.U. Jayasinghe, Lecturer (Prob.)	7		3
38	Mr. H.K.T.C. Hallolluwa, Lecturer (Prob.)	2		8
40	Dr. P.V.K.G. Gunawardhana, Senior Lecturer Gr. II (Contract, by invitation)	6		4
41	Dr. K.H.E.L. W Hettiarachchi, Senior Lecturer Gr. II (Contract, by invitation)	8		2
42	Dr. K.D. Sandaruwan, Senior Lecturer Gr. II (Contract, by invitation)	8		2

1.2.5.2 BOARD OF RESEARCH AND HIGHER DEGREES (BOS-RHD)

The Board of Research and Higher Degrees (RHD) is a formal committee established under the ordinance of UCSC and there were 11 meetings held during 2016. All matters related to the research and postgraduate studies are monthly discussed in detail at this board and matters which require the approval are forwarded to the Academic Syndicate. All these matters are properly documented and meeting minutes are managed. During 2016, 11 RHD meetings have been held and the participation statistics of the members are given below.

No	Name	Attendance of RHD (Out of 11 Meeting)		
		Present	Absent	Excused
01	Prof. K.P. Hewagamage, Director	11		
02	Dr. D.A.S. Atukorale, Senior Lecturer Gr. I Deputy Director, Head/CIS	9	1	
03	Prof. G.N. Wikramanayake, Head of Quality Assurance Cell	10		1
04	Prof. N.D. Kodikara, Professor	1		
05	Mr. G.P. Seneviratne, Senior Lecturer Gr. I	11		
06	Dr. D.D. Karunaratne, Co-ordinator/e-LC, Senior Lecturer Gr. I	9		
07	Dr. G.D.S.P. Wimalaratne, Head/ CMT, Senior Lecturer Gr. I	7	1	2
08	Dr. (Mrs.) M.D.J.S. Goonetillake, Head, /ISE, Head/ Undergraduate Programs, Senior Lecturer Gr. I	9	1	1
09	Dr. T.N.K. De Zoysa, Senior Lecturer Gr. I	10	1	
10	Dr. K.L. Jayaratna, Senior Lecturer Gr. I	10		1
11	Dr. (Ms.) Yamaya Ekanayaka, Senior Lecturer Gr. I	2		
12	Mr. S.T. Nandasara, Coordinator/ ADMTC & Lecturer	10	1	
13	Mr. K.P.M.K. Silva, Lecturer	7	1	2
14	Mrs. M.W.A.C.R. Wijesinghe, Senior Lecturer Gr. II	9	1	1

1.2.5.3 BOARD OF EXTERNAL AND EXTENSION PROGRAMMES (BOS - EEP)

The Board of External and Extension Programmes (BOS-EEP) is a formal committee defined in the ordinance of UCSC. Monthly meetings were held to discuss all the matters related to external and extension study programmes managed by the UCSC. It is chaired by the Director and there is a formal academic secretary and administrative staff officer to manage the meeting minutes and activities. During 2016, BOS-EEP has held 11 meetings and the participation statistics of the formal members are given below.

No	Name	Attendance of EEP (Out of 11 Meetings)		
		Present	Absent	Excused
01	Prof. K.P. Hewagamage, Director	10		1
02	Dr. D.A.S. Atukorale, Deputy Director, Head/EEP	11		
03	Prof. G.N. Wikramanayake, Head of Quality Assurance Cell, Former Director	10		1
04	Dr. H.A. Caldera, Academic Co-ordinator/BIT	9		2
05	Dr. D.D. Karunaratne, Co-ordinator/e-LC	7	2	2
06	Mr. S.T. Nandasara, Co-ordinator/ADMTC, Secretary/EEP	10	1	
07	Mr. K.S. Goonathilake, Co-ordinator/CDF	6	2	3
08	Mr. L.P. Jayasinghe, Co-ordinator/EDC & Co-ordinator/CSC (till Oct)	10	1	
09	Dr. K.L. Jayaratna, Co-ordinator/CSC (from Nov)	2		
10	Dr. S.M.K.D. Arunathilake, Co-ordinator/PDC	1	1	9
11	Dr. D.G.S.P. Wimalaratne, Nominee - CMT	5	2	4
12	Dr. (Mrs.) M.D.J.S. Goonetillake, Nominee - IUD (From Nov '16)	1	1	
13	Dr. M.G.N.A.S. Fernando, Nominee – CS (from Sep)	4		
14	Mr. W.V. Welgama, Project Co-ordinator/BIT	8		1

EDUCATION

2. EDUCATION

According to the corporate plan of UCSC, the major responsibility of the organization is to promote computing education at the University of Colombo. Hence, UCSC manages the computing education with respect to undergraduate programmes (internal), postgraduate programmes, and external or extension programmes. The three boards of studies (described in previous sections) are responsible for managing the processes of these education programmes.

2.1 UNDERGRADUATE EDUCATION

Computing studies at the undergraduate level were first introduced way back in 1967 as a part of the courses offered in the Faculty of Science, at the University of Colombo. UCSC, which is a computing faculty of the University of Colombo, still continues to offer courses in the Faculty of Science and 1060 students of the Faculty of Science followed courses conducted by the UCSC. Degree programmes in Computing were started in 1990 at the University of Colombo under the Faculty of Science but after establishing UCSC, undergraduate degrees in Computing became the main responsibility of UCSC. In 2016, 275 students selected by the UGC were given the opportunity to follow the courses in Computer Science (CS) degree, Information System (IS) degree and Software Engineering (SE) degree.

2.1.1 INTERNAL UNDERGRADUATE DEGREE PROGRAMMES

UCSC currently offers five undergraduate degree programmes in Computer Science (CS), Software Engineering (SE) and Information Systems (IS) considering both **SLQF Level 5** and **SLQF Level 6** declared by the University Grants Commission. The curriculum for these degree programmes were designed and developed based on the IEEE/ACM international guidelines for Computing Degrees. UCSC has also established an academia-industry advisory board to obtain the feedback of the local industry to improve the relevance of all its Computing Degrees in order to maintain the employability rate of UCSC graduates over 90%. Those five degrees are identified below with respect to enrolment.

Table: 2.1.1 - A: Distribution of UCSC Undergraduate Population

Degree Programme	Duration (Academic Years)	SLQF Level	Enrolment 2016
Bachelor of Science in Computer Science (BSc in CS)	1+2+3 Years	Level 5	158+158+96
Bachelor of Science Honours in Computer Science (BSc Hons. in CS)	4 Years+3 Years	Level 6	19+20
Bachelor of Science Honours in Software Engineering (BSc Hons. in SE)	4 Years+3 Years	Level 6	21 +20
Bachelor of Science in Information Systems (BSc in IS)	1+2+3 Years	Level 5	92+88+49
Bachelor of Science Honours in Information Systems (BSc Hons. in IS)	4 Years+3 Years	Level 6	20 +20

The selection for the four year degree programme is carried out based on the students' performances in the first two years. Students who earn more than 2.75 GPA are eligible to apply for honours degree but the current intake size for CS stream is 40 and IS stream is 20. CS students were given the opportunity to select BSc Hons in CS or BSc Hons in SE. Results of the first two year examination were released before the commencement of the first semester of the third year of studies. The revised curriculum is now active for all degree

programmes. A/L students who have got at least a Credit Pass (C) in Combined Mathematics or Physics or Higher Mathematics AND at least a Pass (S) in TWO other subjects from Combined Mathematics, Higher Mathematics, Physics, Chemistry, Information & Communication Technology or Mathematics are eligible to apply for CS stream at the UCSC. A selection test (aptitude test) was held for IS degree programme in June 2016 where 2003 applicants applied and 304 were qualified to apply for IS stream. Actual number of students registered for degree programmes are given below.

2.1.2 ACADEMIC YEAR – 2016 AND STUDENT ENROLMENT

Table 2.1.2 - A: Enrolment - Distribution of UCSC Intake - 2016

Stream of Study	Intake Size	Number enrolled	Male	Female
CS Stream	175	158 (90%)	114 (72%)	44 (28%)
IS Stream	100	92 (92%)	49 (53%)	43 (47%)
Total	275	250 (91%)	163 (65%)	87 (35%)

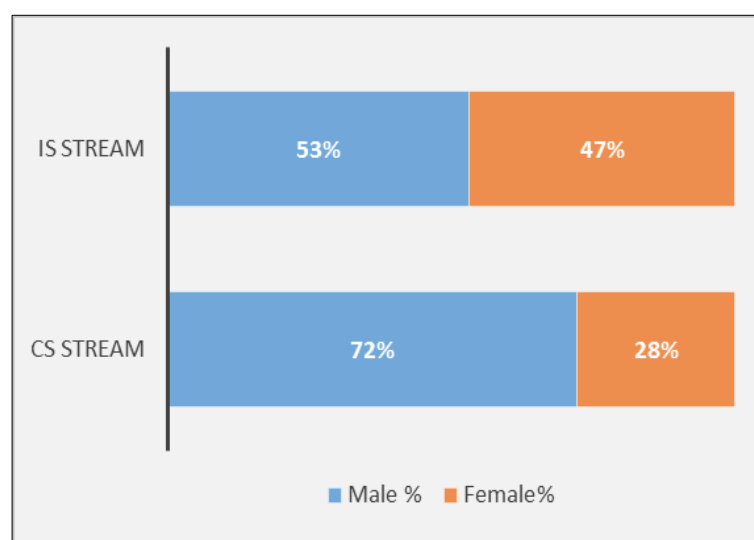


Figure 2.1.2 - A: Gender wise enrolment distribution of UCSC intake -2016

An academic year usually consists of two semesters where each semester comprises of 15 weeks. A mid semester break is one week and there will be one week study leave after the semester before commencing the examination. The calendar for the academic year 2016 is given below. The inauguration for the new undergraduate students selected for UCSC were held on 10th February 2016 and followed by the orientation programme from 12th to 26th February 2016 before the commencement of the academic year.

Academic Time table for 2016

			Year of Registration				
DURATION		WEEKS	10/11	11/12	12/13	13/14	14/15
From	To						
8/17/2015	10/11/2015	8	4S2	3S2	2S2	1S2	
10/12/2015	10/18/2015	1	Mid Semester Break				
10/19/2015	12/6/2015	7	4S2	3S2	2S2	1S2	
12/7/2015	12/13/2015	1	Study Leave				
12/14/2015	12/20/2015	1	2 nd Semester Exams				
12/21/2015	12/27/2015	1	Exams & Christmas Vacation				
12/28/2015	1/17/2016	3	2 nd Semester Exams				
1/18/2016	2/7/2016	3		Paper Marking & Student Evaluation			Orientation Programme
2/8/2016	3/6/2016	4			Student Vacation		Orientation Programme
3/7/2016	4/10/2016	5		4S1	3S1	2S1	1S1
4/11/2016	4/24/2016	2		New Year Vacation & Mid Semester Break			
4/25/2016	7/3/2016	10		4S1	3S1	2S1	1S1
7/4/2016	7/10/2016	1		Study Leave			
7/11/2016	8/7/2016	4		1 st Semester Exams			
8/8/2016	9/4/2016	4		Vacation			
9/5/2016	10/9/2016	5		4S2	3S2	2S2	1S2
10/10/2016	10/16/2016	1		Mid Semester Break			
10/17/2016	11/20/2016	5		4S2	3S2	2S2	1S2
11/21/2016	12/4/2016	2		Study Leave			
12/5/2016	1/1/2017	4		2 nd Semester Exams			
1/2/2017	2/12/2017	6		Project Viva & Orientation Programme			

UCSC faces several administrative problems when synchronizing teaching courses of both Faculty of Science and UCSC. Inadequate lecture halls also deeply affected managing teaching, practical and tutoring activities of undergraduate programmes. Hence some additional lectures were scheduled between 5pm – 7pm of week days and during weekends. At the same time, trade union actions of non-academic staff also badly affected conducting the programme according to the above schedule. The distribution of student population is given in the Table 2.

Table 2.1.2 - B: Enrolment of Internal Degree Programmes - 2016

Course	Intake 2014/15	1 st Year Students	2 nd Year Students	3 rd Year Students	4 th Year Students	Total
BSc in Computer Science	175	158	158	96	-	412
BSc in Information Systems	100	92	88	49	-	229
BSc Hons. in Computer Science	-	-	-	20	19	39
BSc Hons. in Software Engineering	-	-	-	20	21	41
BSc Hons. in Information Systems				20	20	40
UCSC Undergraduates	275	250	246	205	60	761
Faculty of Science - BSc (General)		456	329	238	37	1061
Total Student Population (Internal Undergraduates)		706	575	443	97	1822

All courses at UCSC are conducted only in English Medium.

2.1.3 STUDENT PERFORMANCES AT EXAMINATION

Study Programme: CS Stream

Table 2.1.3 - A: Student Performances at Examination 2016 - CS stream

Academic Year	Registered Students	No of Students Sat for Exam	No. of Students - GPA \geq 2.00	No. of Students 2.0>GPA \geq 1.5	GPA<1.5	Pass Rate % [No. students \geq 1.5 / No. of students Sat Exams]
2014/2015	158	158	133	20	5	97%
2013/2014	158	158	136	13	9	94%
2012/2013	143	143	103	24	16	89%
2011/2012	40	40	40	0	0	100%

Study Programme: IS

Table 2.1.3 - B: Student Performances at Examinations 2016 - IS stream

Academic Year	Registered Students	No of Students Sat for Exam	No. of Students - GPA \geq 2.00	No. of Students 2.0>GPA \geq 1.5	GPA<1.5	Pass Rate [No. students \geq 1.5/No. of students Sat Exams]
2014/2015	92	87	69	11	7	92%
2013/2014	88	88	79	6	3	97%
2012/2013	67	67	59	6	2	97%
2011/2012	20	20	20	0	0	100%

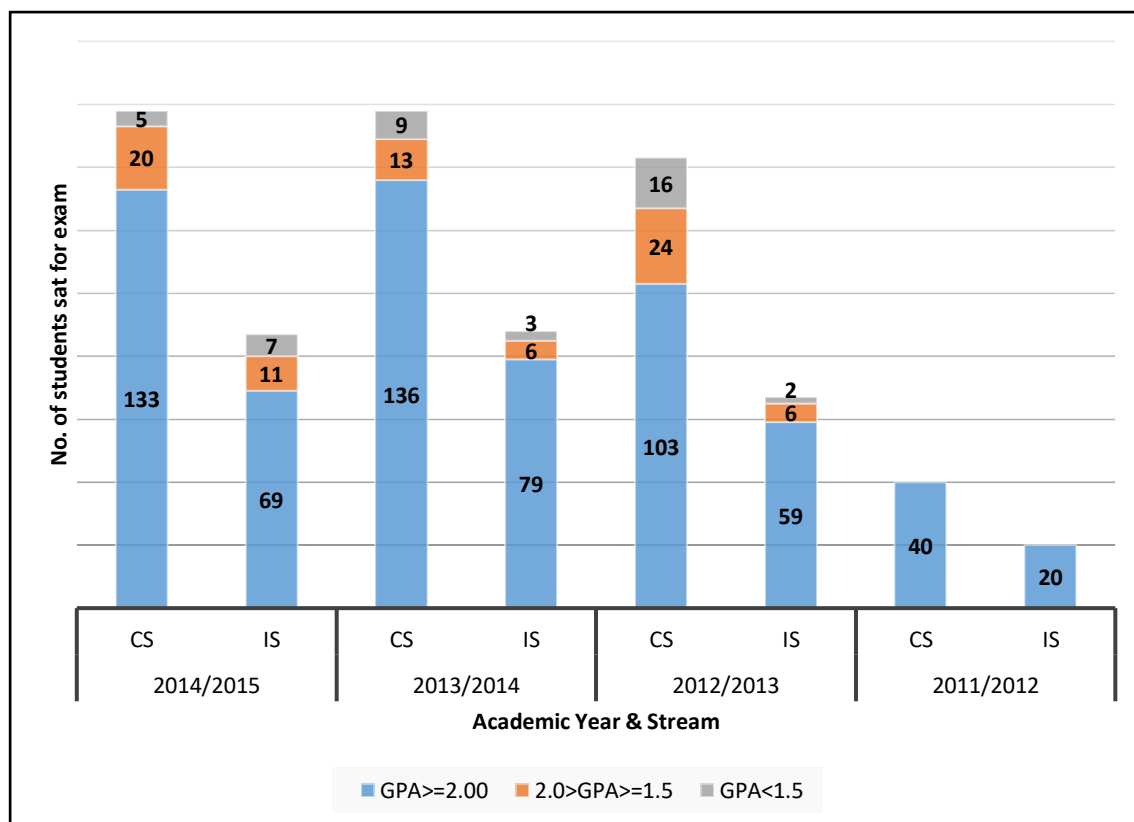


Figure 2.1.3 - A: Student Performances at the Examinations in 2016

Students are supposed to complete both continuous assessments and semester exams in order to get through respective academic courses based on the curriculum of degree programmes. The blended learning is practiced in all degree programmes and the Virtual Learning Environment (VLE) for the degree programme <http://ugvle.ucsc.cmb.ac.lk>

2.1.4 INDUSTRIAL PLACEMENT AND EMPLOYABILITY

In order to improve the relevance of the degree programme with respect to national and industrial requirements, the industrial placement has been introduced as a compulsory requirement for all the students of UCSC. The Professional Development Centre (PDC) was set to address these requirements and also to keep a close liaison with the IT industry and for the improvement of the academic programmes with the help of the industry. The second semester of the third year of studies is allocated for the industrial placements. The Statistics of 2016 placement is given below.

Table 2.1.4 - A: Distribution of Industrial Placement with respect to organizations

Type of Organizations – Placement	Number of Students Placed	Number of Organization
Major IT companies	76	15
Small IT companies	86	32
Government Institutes	23	07
Research and consultancy projects at UCSC	19	01
Total	204	55

PDC also organised a series of guest lectures for companies to take part voluntarily. Through those lectures, it was expected to make the undergraduates aware of the role that they have to play as professionals after being graduated. Apart from the industrial training, the PDC organised Tech-talk sessions, mock interviews, professional skills development, while providing employment opportunities for the passed out students.

2.1.5 UNDERGRADUATE STUDENT WELFARE

(a) Hostel Facilities

In the year, the UCSC provided residential facilities for the most needy 1st year as well as needy final year undergraduates in keeping with the policy defined by the University Grants Commission (UGC). Since there are no dedicated hostel facilities, UCSC has rented two private properties for Boys' Hostel in Battaramulla (which could accommodate around 35 students) and Girls' Hostel in Kohuwala (which could accommodate 32 students). The Warden and Sub-Wardens who are staff members of UCSC were appointed to monitor the management of hostels and Academic Publication and Student Welfare (APW) division under the supervision of the Assistant Registrar who manages both hostels. The detailed statistics of 2016 are given in the table below.

Boys Hostel:

Hostel Address: 474/B, Kaduwela road, Deniyawatta, Battaramulla

Academic Warden: Dr. K.L. Jayarathne

Academic Sub-Warden: Dr. M.I.E. Wickramasinghe

Capacity: 35

Girls Hostel:

Hostel Address: 76/16A, Sunethraadevi Mawatha, Kohuwala, Nugegoda

Academic Warden: <Not Appointed>

Academic Sub-Warden: Ms. M.G.A. Srimaalee

Capacity: 32

Table 2.1.5 - A: Hostel Facilities Requested and Granted

Hostel	Applied for hostel facilities	1 st Year students		Final year (3 rd and 4 th) Year students			Total
		CS Stream	IS Stream	CS Stream	IS Stream	SE Stream	
Boys Hostel	95	20	4	7	1	0	32
Girls Hostel	55	7	5	14	3	3	32
Total	150	27	9	21	4	3	64

Table 2.1.5 - B: Funds Spent on Hostel Facilities

Hostel	Capacity	Rent for 12 Months	Utility Cost	Management Cost	Registered Students	Cost per student
Boys Hostel	35	1,041,600.00	Other: 25,104.00 Water: 117,368.81 Electricity: 43,945.78 Telephone: - <hr/> <u>Rs. 186,418.59</u>	Warden Allowance – $500 \times 12 = 6000.00$ Sub Warden Allowance – $750 \times 12 = 9000.00$ Caretaker Salary: 386,140.70	32	50,911.23
Girls Hostel	32	720,000.00	Other: 60,945.75 Water: 139,908.72 Electricity: 108,869.20 Telephone: 5,067.25 <hr/> <u>Rs. 314,790.92</u>	Sub Warden Allowance – $750 \times 12 = 9000.00$ Caretaker Salary: 445,158.07	32	46,529.66
Total					64	Rs. 48,720

(b) Canteen facilities

UCSC has to provide canteen facilities for its students since the canteens of other faculties are congested during the lunch hours and not in the vicinity of UCSC premises. The new canteen which was opened in 2015 faced several operational problems due to the unavailability of a kitchen to prepare foods. Therefore, it was difficult to offer the tender for a party which could offer the service similar to other canteens in the university premises. Therefore, the kitchen of the old temporary canteen building was given to prepare meals as a short term solution for the issue. It was also discussed to set up a permanent kitchen for the canteen in the future.

UCSC student canteen is usually opened at 7.00 am and the service is available until 6.00 pm during the academic semesters. The management of the canteen is monitored through a canteen committee which comprises senior academics, administrative staff members and student representatives. The committee meets at regular intervals to discuss as well as take actions to improve the canteen service of UCSC. The members of the canteen committee of 2016 are listed below.

- Dr. D.A.S. Atukorale, Deputy Director
- Dr. (Mrs.) M.D.J.S. Goonetilleka, Head/Internal Undergraduate
- Mr. G.P. Senevirathne, Rep. Teachers Union
- Dr. D.D. Karunaratne, Coordinator/ e-Learning
- Dr. (Mrs.) S.M.K.D. Arunatilake, Student Counsellor
- Dr. (Mrs.) T.A. Weerasinghe, Student Counsellor
- Mr. L.P. Jayasinghe
- Mr. K.S. Goonathilake, Engineer
- Mr. K.K.K. Dharmathilaka, DR/UCSC

- Mr. E.M. Gunarathna, DB/UCSC
- Mrs. M.M.M. Wijayawardhana, AR/ Academic & Publication
- Mrs. S.F. Imam, Ref. of Non Academic Staff
- Mr. W.L.G.R. Roshan (2013/CS/104), Student Representative
- Mr. A.A.F.M. Fasly (2014/CS/035), Student Representative
- Mr. C.S. Samarage (2013/CS/107), Student Representative
- Mr. B.N. Dahanayake (2013/CS/018), Student Representative

Since the contract of the canteen came to an end, a new tender was called in October 2016 and based on the recommendation of the Technical Evaluation Committee, Mr. S. Amarasinghe was selected as the Canteen Contactor for the student canteen for a period of one year from 18th November 2016.

UCSC provides the electricity, water and utilities required to operate the kitchen free of charge. The owner of the canteen is supposed to follow the conditions agreed at the time of offering. During 2016, UCSC has spent around **Rs. 50,000.00** to purchase materials required for the student canteen.

Since the student canteen is congested during normal hours of operations, a small staff canteen is maintained at the roof top of the building by the welfare society of the UCSC staff. Only staff and visitors are allowed to use this cafeteria and the lunch area is also located at the roof top of the building complex.

(c) Counselling for Undergraduates

The student counseling is a service provided free of charge by the UCSC to all undergraduate students. Our experience over the past decade has shown that the level of *stress* resulting from various incidents of life such as family matters, relationships, learning and career decisions keep increasing. The UCSC Counseling service focuses on providing conducive environment for students who seek help at the *early stage* of their particular *psychosocial* problem. Our Counsellors are qualified to give a *listening ear* to the students and to assist them to *help themselves* in dealing with issues that they are facing. However, the Counsellors are also trained to make a decision whether a particular problem requires further help, and so to refer such a student to a Professional Counsellor who visits the UCSC on a weekly basis. A separate room is allocated for student counselling in the year 2016.

It is important to note that all information that students communicate with student counsellors will be kept *confidential* and will only be communicated to the Professional Counsellor if the student agrees. Similarly, the Professional Counsellor will only communicate back to the UCSC if there is any action required by the UCSC with respect to any impact on the issue of the *study program* that the student is engaged in. If the Professional Counsellor determines that further help is needed he/she will refer the student, with his/her consent, to a Clinical Psychologist or Psychiatrist.

The Services of five Student Counsellors, namely Dr (Mrs) SMKD Arunathilake, Dr (Mrs) TA Weerasinghe, Mr HEMHB Ekanayake, Mr GP Seneviratne, Dr. T Sriharan were provided to all students. Also, the service of a Professional Counsellor was obtained for duration of 3 hrs a week to facilitate the students who required counselling. UCSC paid for the service of Professional Student Counsellors on hourly basis. In general, around 20-30 students took regular consultations from these Counsellors and during certain period such as examination times, the number doubles.

(d) Financial Assistance to Undergraduate Students

A financial assistance was given to students in the form of Mahapola Scholarships, Bursaries, Industry Scholarships and student welfare and distress fund.

Mahapola Scholarships

The Mahapola scholarships sponsored by the Mahapola Trust Fund of the Ministry of Commerce & Consumer Affairs were awarded to 260 students during 2016. The value of Merit and Ordinary scholarships were Rs. 5,050 and 5,000 respectively.

Table 2.1.5 - C: Mahapola Granted - 2016

Year of Intake	Year of Study	Number of students who received merit scholarship (Rs. 5050)	Number of students who received normal scholarship (Rs. 5000)	Total
2014/15	Year 1	1(1+0)	72(43+29)	73 (43+30)
2013/14	Year 2	1(1+0)	86(61+25)	87 (62+25)
2012/13	Year 3	0(0+0)	79(68+11)	79 (68+11)
2011/12	Year 4	2(2+0)	19(12+7)	21 (14+7)
All	Total	4	156	260 (34%)

Bursaries

Bursaries were awarded in accordance with UGC Circulars which governs the selection of students for Bursaries. 51 students were awarded Bursaries during 2016. The breakdown of the Bursary recipients for the year 2016 is shown in the following table.

Table 2.1.5 - D: Bursary Granted - 2016

Year of Intake	Year of Study	Number of students who received Full Bursary (Rs. 4000)	Number of students who received half Bursary (Rs. 3900)	Total
2014/15	Year 1	7(6+1)	9(7+2)	16 (13+3)
2013/14	Year 2	5(0+5)	9(2+7)	14 (2+12)
2012/13	Year 3	3(2+1)	12(7+5)	15 (9+6)
2011/12	Year 4	1(1+0)	5(2+3)	06 (3+3)
All	Total	16	35	51(7%)

Industry Scholarships

Private organizations are invited to sponsor the scholarships for the needy students in every year. IFS R&D Ltd. sponsored 8 scholarships at Rs. 2500 per month for a period of 12 months. The Student Counsellor and the Head of the Department directly involved in selecting these students after interviewing them.

Shorea Robusta Scholarship

A Special scholarship named “Shorea Robusta” scholarship was introduced by Alumni of the former CS Special degree programme in 2007 in respect of 4th year undergraduate students. Two scholarships were granted under this scheme and the value of the Scholarship was Rs. 2,500/= per month for 10 months of the Academic year. The selection was based on the academic performance and financial needs of the students.

UCSC Student Distress and Welfare Allocation

Few years ago, UCSC academic staff monitored the requirement in order to support students who were suffering due to financial difficulties and unexpected personal problems such as sudden loss of parents, health problems etc. Hence, the academic staff decided to allocate 2% of the income of master's and external degree programmes to utilize them for the student distress and welfare activities. In 2016, following activities were carried out utilizing funds available in this allocation.

In 2016, 24 students (3%) were offered scholarships from the Student Welfare and Distress Fund. Among them, there were 17 scholarships at Rs. 5,000/- and 7 scholarships at Rs. 3000/- for a period of 05 months.

Table 2.1.5 - E: Special Financial Supports

Utilization Category	Event	No. of students benefited in 2016	Paid Amount (Rs.)
Allowance for students representing UCSC at International Event	PES University International Sports Fiesta 201, Bangalore, India	03	15,000.00 per student
Death of the students' parents	-	01	15,000.00

2.1.6 UCSC STUDENT UNION

In terms of the Sub-Paras 25 and 26 of the University of Colombo School of Computing Ordinance No. 01 of 2002, the Student Union election was held for the year 2016 and following members were elected for the Student Union.

Senior Treasurer Advisor: Dr. MGNAS Fernando. (Senior Lecturer, UCSC)

President: W.A.R.R. Somaweera;

Vice-President: K.E. Jayathunga;

Secretary: L.S. Kulathunga;

Junior Treasurer: W.G.S. Mendis;

Editor: S.M.G.L.A. Senadheera;

Committee Members: M. Vishnusaran; M.H.A. Al Rushan; G.A.U.B.K. Wickramasinghe; H.G.D. Priyankara; T.T. Pathirage; S. Yasodharan; D.G.T.D. Doluweera; D.R.N. Perera

Many activities of students are coordinated by the Student Union although there are several student clubs and societies. There was an allocation in the annual budget for some of these activities and the students have utilized them. They have also collected funds from alumni members, industry and other sponsors and also carried out activities to generate funds. Depending on the recurrent expenditure allocation, UCSC also partially sponsors all these major activities of undergraduates using both government grants and generated income from master's and external degree programmes.

2.1.7 STUDENT ACTIVITIES

Student activities are carried out through the Student Union mainly to promote cultural and recreation activities.

Table 2.1.7 - A: Student Activities in year 2016

Events	Date
Sinhala and Tamil New Year Festival	24th April
Poson Bakthi Geetha	22nd June
Social Service Projects (Workshop for O/L Students)	23rd September
Paduru Sajje	13th May
Blood Donation Camp	22nd September
Cultural Events (Vaani Vizha 2016)	28th October 2016
Freshers' Welcome	15th October
Students /Staff Sports Day	01st October
Reminisce 2016 – Farewell of UCSC Batch of 2010/11	01st October 2016



UCSC IEEE Student Branch

Reid Cyber Wars 2.0 - 5/12/2016

https://www.facebook.com/1538766439671163/photos/?tab=album&album_id=1731595177054954

IEEE Day 2016 - 10/4/2016

https://www.facebook.com/1538766439671163/photos/?tab=album&album_id=1790158564531948

IEEEExtreme 10.0 - 10/22/2016

https://www.facebook.com/1538766439671163/photos/?tab=album&album_id=1797104467170691

UCSC ISACA Student Group

iFest 2k16 - 5/29/2016

https://www.facebook.com/1538766439671163/photos/?tab=album&album_id=1737207813160357

iHack 2.0 - 10/8/2016

https://www.facebook.com/1538766439671163/photos/?tab=album&album_id=1793208234226981

Exploration Club

Seminar in Puttalam Kandethoduwawa m.v. 10/8/2016, 10/8/2016

https://www.facebook.com/733452900082031/photos/?tab=album&album_id=1169729679787682

Seminar in Ottukulama Kanishta Vidyalaya and Halambe Kanishta Vidyalaya 9/23/2016 - 9/25/2016

https://www.facebook.com/733452900082031/photos/?tab=album&album_id=1125415350885782

UCSC Mozilla Club

Foxeprenuer 2016 - 4/5/2016

https://www.facebook.com/1538766439671163/photos/?tab=album&album_id=1717330505148088

Localization Sprint - 11/22/2016

https://www.facebook.com/1486981798224214/photos/?tab=album&album_id=1832921446963579

In addition, Pahasara (student media club of UCSC) covered the above events with photographs and provided the students with a platform to share their thoughts through the students' blog (<http://ucsc.cmb.ac.lk/students/blog/>, <https://www.facebook.com/PahasaraUCSC/>).

2.1.8 STUDENT ACHIEVEMENTS – EXTRA CURRICULAR

Students are encouraged to participate in many extracurricular activities to enhance their knowledge, skills, attitude and mind set. At the same time, such participation provides the UCSC and its students with a better external reputation. Following list provides the details of achievements in 2016.

Table 2.1.8 - A: Student Achievements in year 2016

No	Competition	Achievement	Members
1.	Competition - Janashakthi Full Option Appathon Challenge	<u>Winner</u> Champions Trophy with a cash prize of Rs. 1,000,000.00	Team – whileLOOP W.M.U.P. Jayasinghe (2014/CS/052) S.G.H. Liyanage (2014/CS/078) S.A. Kodituwakku (2014/CS/066) K.W.S. Shanilka (2014/CS/137)
2.	Netcom Competition Tertiary Category, SLIIT CodeFest	<u>2nd Runners Up</u> Silver Award with a cash prize of Rs. 50,000.00	Team name- Team Conf-T D.J.N. Costa (2014/CS/013) K.T. Baddage (2014/CS/009) D.L.N.K. Liyanage (2014/CS/076) R.P.N. Deemantha (2014/CS/020)
3.	SLIIT Codefest 2016 (Tertiary hackathon)	<u>2nd place</u>	Team Name – Void O.I. Mudannayake (2015/CS/089) D.M.S. Dissanayake (2015/CS/038) A. Pramodya (2015/CS/002) S.D. Senevirathna (2015/CS/127)
4.	Guru E-Learning Open Competition	<u>Winner</u> (1st Place)	Team #hos S.D. Senevirathna (2015/CS/127) W.N.D.D. Sanjaya (2015/CS/124) H.G.N.C. Somasiri (2015/CS/132) A.A.L.N. Adikari (2015/CS/005) L.G.H.T. Kumara (2015/IS/037)

2.1.9 STUDENT ACHIEVEMENTS - SPORTS

UCSC students are encouraged to participate in sports activities organized by the Department of Physical Education. Following are the key activities and achievements of 2016.

Following UCSC students were appointed as the Captain of the University of Colombo for respective sports:

Carrom (W) - TAK Lochana, Teakwondo (M) - WAMS Weerasooriya and Karate (M) – K D P Samaraweera.

Following UCSC students were appointed as the Vice-Captain of the University of Colombo for respective sports:

Carrom (W) – H M S P K Chandrasiri, Carrom (M) – P Y A Gunarathna, Baseball – T S Dahanayke, Elle (M) – G A Madushanka, Table Tennis (M) – E M K De Silva

Following have won trophies in 2016:

M.P. Jayasekara - Inter-University Track & Field Merit Award

Following 36 UCSC students were awarded University colours in 2016:

Badminton (Men); Y. Ranawaka, R.A.S.V. Ranathunga; **Basketball (Women);** J.M.S.K. Jayawardane, **Carrom (Women);** S.N. Wickramanayake, **Chess (Men);** P.K.U.M. Jayasundara, **Chess (Women);** S.S.P. Abeywickrama, **Cricket;** U.C. Sendanayake, D.P.W. Jayasuriya, **Elle (Women);** G.P.N. Galappaththi , **Football;** H.M.S. Anurudha, N. Angathan, O.T. Edirisinghe, **Hockey (Men);** K.S.S. Ranathunga, S. Yasodharan, **Hockey (Women);** M.M.N.D. Chamindi, R.A.S.S. Rupasinghe , M.S. Ratnadiwakara , S.A.D.Y.R. Dissanayake **Karate (Men);** S.G.N.D. Madhusankhe , **Karate (Women);** K.M.K.B. Ranasinghe, G.U. Liyanage, **Rugby** ; M.H.R.N.P. Madurapperuma , M.U. Kannangara, K.G.S. Madushanka , **Swimming (Men);** D.P.W. Jayasuriya, **Table Tennis (Men);** G.A.D.C. Galgamuwa , **Taekwondo (Men);** N.P.L.R. Pathirana, G.M. Gamage, **Tennis (Men);** M.H.M. Hisan, T. Susanth, **Track & Field (Men);** G.A.U.B.K. Wickramasinghe, J. Logeesan, T.M.D.I. Thennakoon, **Volleyball (Men);** M.M.P. Thalagahapitiya

2.1.10 GRADUATION 2016

The convocation or the graduation ceremony was held on 16th August 2016 for 236 students from 5 degree programmes in CS and IS streams. Students of the BSc in IS/BICT degree programme are analysed with respect to their A/L study stream (Tables 3a and 3b).

Table 2.1.10 - A: Final Academic Performance of UCSC Graduates - 2016

Intake	First	Upper	Lower	Pass	TOTAL	Registered (Current Batch)	Registered (Repeaters)	Total registered students	Rate %
Bachelor of Computer Science	0	01	0	04	05	00	05	05	100
BSc in Computer Science - 3 Year Academic Year 2011/2012	0	0	12	88	100	109	00	109	91.7
BSc in Computer Science - 4 Year Academic Year 2010/2011	23	14	02	00	39	40	00	40	97.5
BSc in Information Systems Academic Year 2011/2012	0	0	10	60	70	81	00	81	86.4
BSc in ICT	09	11	0	0	20	20	00	20	100
Bachelor of ICT Academic Year 2010/2011	0	0	0	02	02	00	02	02	100
TOTAL	32	26	24	154	236	250	07	257	91.8%

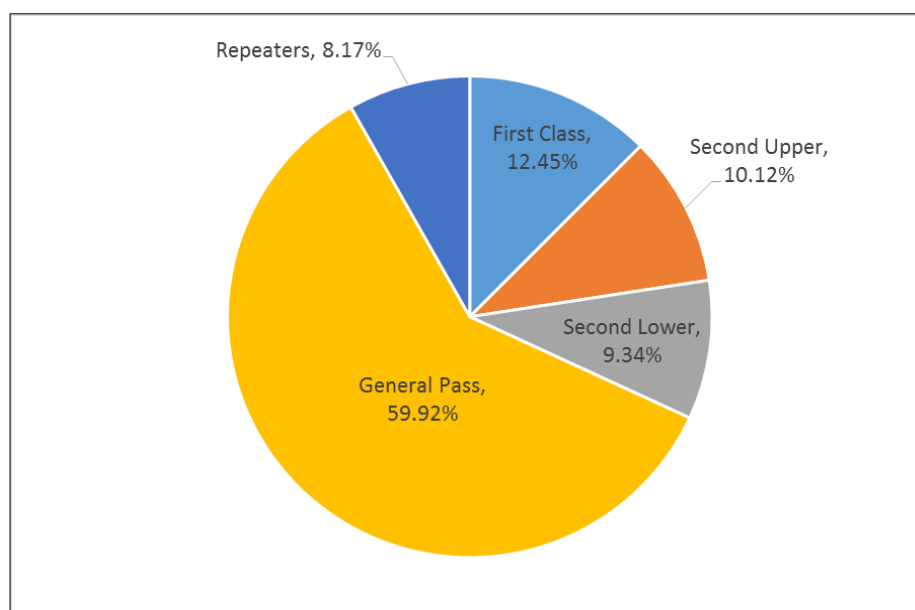


Figure 2.1.10 - A: Overall Final Academic Performance of UCSC Graduates - 2016

Table 2.1.10 - B: Performance of BSc in IS/BICT Graduates with A/L study streams

Intake	First	Upper	Lower	Pass	TOTAL
Mathematics	0	0	0	0	0
Biology	0	0	1	4	5
Commerce	0	0	3	22	25
Arts	0	0	6	34	40
BICT	0	0	10	60	70

Table2.1.10 - C: Performance of BSc Hons. in IS/BSc ICT Graduates with A/L study streams

Intake	First	Upper	Lower	Pass	TOTAL
Mathematics	5	8	0	0	13
Biology	2	2	0	0	04
Commerce	2	1	0	0	03
Arts	0	0	0	0	0
BSc ICT	9	11	0	0	20

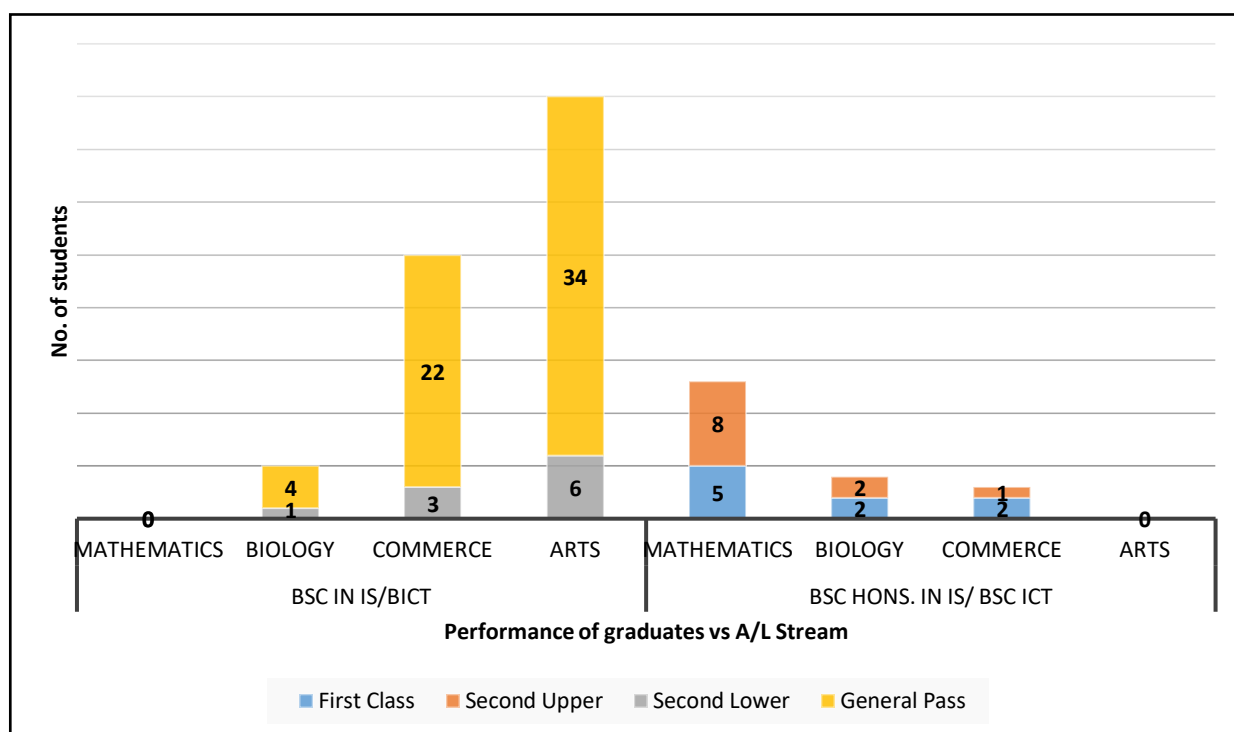


Figure 2.1.10 - B: Performance of BSc in IS/BICT and BSc Hons. in IS /BSc ICT Graduates with A/L study streams

2.1.11 UNDERGRADUATE AWARDS

Several convocation awards are declared for all degree programmes at UCSC. There is a pre-defined criteria for these awards and all selections are approved by the Senate of the University of Colombo. Following tables describe the awards given at the convocation held on 16th August 2016 at BMICH. Prof. V. K. Samaranayake Awards, which is open for all the study streams at UCSC was given to V.A. Isuru (Index No: 11020822). Following tables give details of awards in the stream of Computer Science and Information System awarded at the convocation held on August 2016.

Table 2.1.11 - A: Convocation Awards for Computer Science Degree Programme - 2016

Name of the Award	Name of the Awardee
Professor Mohan Munasinghe Award for Computer Science - 2015	Thilakaratne K.M.S. (Index No: 11000155)
ICTA Award for the Best Computer Science Final Year Project - 2015	Muthutantrige S.R. (Index No: 11000392) Amarasinghe R.A.(Index No: 11001925)
David Peiris Group Gold Medal for the Best Performance in Industrial Placement - 2014	Thilakaratne K.M.S. (Index No: 11000155) Nalinda L.G.H.C.(Index No: 11000058)
Virtusa Academic Excellence Award for the Best Performance in three year degree - 2015	Amarasinghe A.S. (Index No: 12000094)

Table 2.1.11 - B: Convocation Awards for Information and Communication Technology Degree Programme - 2016

Name of the Award	Name of the Awardee
IFS Academic Excellence Award for the Best Performance in four year degree - 2015	Dharmadasa M.A.I.M. (Index No: 11020156)
David Peiris Group Gold Medal for the Best Performance in Industrial Placement - 2014	Dharmadasa M.A.I.M. (Index No: 11020156)
Sampath Bank Award for the Best Final Year Project - 2015	Jayasinghe D.V.B.C.(Index No: 11020083) Dharmadasa M.A.I.M. (Index No: 11020156) Isuru V.A. (Index No: 11020822)

Table 2.1.11 - C: Table: Convocation Awards for Information Systems Degree Programme - 2016

Name of the Award	Name of the Awardee
Zebra Technologies Academic Excellence Award for the Best Performance in three year degree - 2015	Dias S.H. (Index No: 12020145)



2.1.12 EMPLOYABILITY

It was observed that most of the students were recruited by reputed firms in the IT industry on lucrative contracts, even before they completed their 3rd year industrial placements. The employability details of graduates were collected at the time of convocation using a small questionnaire. Following table describes the details of employability of UCSC graduates with respect to each study stream.

Table 2.1.12 - A: Employability of UCSC undergraduates - 2016

Programme	Number Graduated	Number Not Responded	Employed	Waiting for Jobs / Not interested	Rate of employability
BSc in Computer Science (3 Year)	100	7	90	3	90%
BSc Hons. In Computer Science (4 Year)	39	0	39	0	100%
BSc in Information Systems (3 Year)	70	3	53	14	76%
BSc in ICT (4Year)	20	0	20	0	100%
Total	229	10	202	17	88%

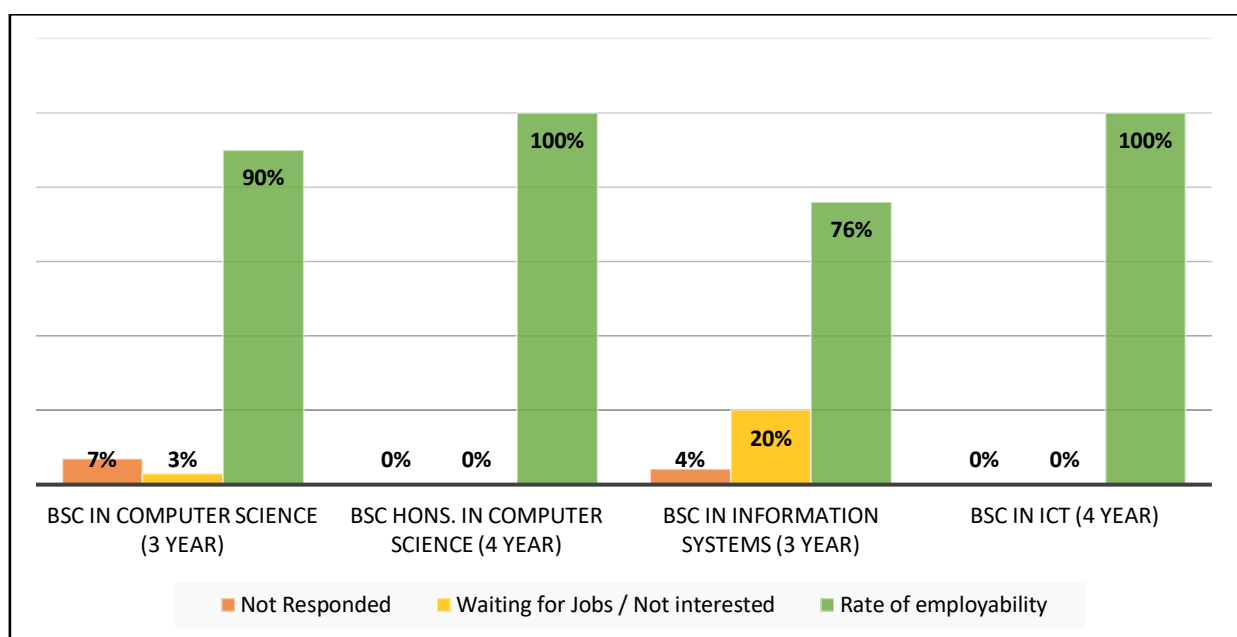


Figure 2.1.12 - A: Employability of UCSC undergraduates - 2016

2.2 POSTGRADUATE STUDIES

2.2.1 MASTERS DEGREE PROGRAMME

UCSC offered five Masters Degree programmes in 2016, namely

- **Master of Computer Science**

Those who have a Computing Degree or equivalent qualification are selected for this degree programme since the curriculum was designed considering basic courses in Computing Degree programmes. Intake size for the programme for the year 2016 was 83 students. The students were selected based on their first degree qualification, performance at the selection test and selection interviews.

- **Master of Information Technology**

Those, who are interested in changing their career path to Computing or obtaining a postgraduate qualification in Computing are offered this programme. Any graduate with a working experience in computing environment is encouraged to apply for this programme. The intake size of the programme for the year 2016 was 74 and a selection test and interviews were held to select suitable candidates for the programme.

- **Master of Information Technology (e-Learning)**

This is a specialized Masters Degree under the Master of Information Technology programme. Students could select this degree programme if they are interested in specializing in the field of e-Learning and ICT for education. In 2016, the programme was discontinued due to inadequate number of registration.

- **Master of Information Technology (Multimedia)**

This is a specialized Masters Degree under the Master of Information Technology programme. Students could select this degree programme if they are interested in specializing in the field of multimedia. In 2016, the programme was discontinued due to inadequate number of registration.

- **Master of Science in Information Security**

The Master of Information Security which has been designed for graduates who wish to acquire a postgraduate qualification in the area of Information Security. This programme offers mid-career opportunities for those who work in the areas of Information Technology, Information System Audit and Information Security.

All the Masters programmes consist of two years and four academic semesters, and lectures except the lectures for the Information Security programme are held only on weekends. According to the workload and the number of credits for the programme, they are equivalent full time programmes although the students enrolled are full time employees of private or public organizations. Since the programme starts annually, there are two batches of students at any time of the year. One batch of students is following the first year courses and the other batch is in the second year of study.

The courses commenced in February 2016 for the 2015/2016 intake but the recruitment of students was started in 2015. The academic time table for the programme was announced at the beginning of the course and blended learning culture was promoted through the virtual learning environment <http://pgyle.ucsc.cmb.ac.lk> for all courses in the programme. Therefore, it was possible to promote learning activities before and after f2f lectures in addition to communicate with students instantly although they were not in the UCSC premises on working days. Enrolment details for the Masters programme for 2016 are given below. The student handbook for Masters Degree programme was published in 2016 and its online version is available at the UCSC website <http://www.ucsc.cmb.ac.lk/pg>.

Table 2.2.1 - A: Postgraduate Enrolment in 2016

Degree Programme	Intake 2015/16	1st Year Students		2nd Year Students		Total
		New	Repeaters	New	Repeaters	
Master of Computer Science	83	83	34	79	21	217
Master of Information Technology	74	74	20	70	16	180
MSc in Information Security	27	27	04	26	00	57
Total	184	184	58	175	37	454

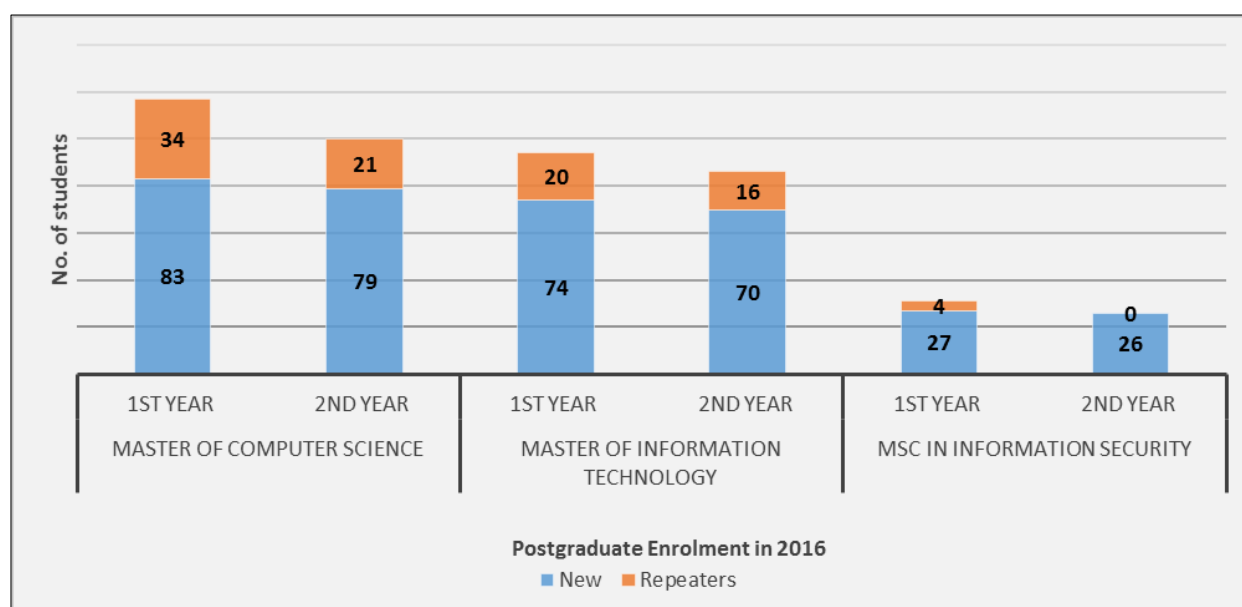


Figure 2.2.1 A: Postgraduate Enrolment in 2016

Student registration fees for the Masters degree programme is the main source of generated income of the UCSC. Therefore, it is very important to obtain active participation and contribution from the academic staff to conduct the programme on time and deliver a quality service. Several private organizations have started similar Masters programme. There is a threat to UCSC postgraduate programmes since those organizations are offering high rates of lecture fees for resource persons. Hence, the programme budget was developed to motivate the academic staff to get their contribution to the programme and UCSC activities by considering market rates for resource persons, support for the research and development, staff training and welfare and institutional development. It is important to note that the participation in postgraduate programmes is not compulsory for the academic staff according to the present work norms and regulation of the University System.

Table 2.2.1 - B: Direct Staff Participation in Masters Programme

Degree Programme	Academic			Supervision		Administration	Non-Academic
	UCSC	Visiting (Local)	Visiting (Foreign)	UCSC	Visiting		
MCS	33	04	-	11	1	02 (Exams/ Postgraduate)	04
MIT		04	-	16	1		
MSc in IS		04	03	05	-		
Total	33	12	03	32	02	02	04

It is very important to mention that almost all the staff participated in conducting and managing Masters programme indirectly although they are not paid directly for the Masters Degree programme. Therefore, 2% of income is allocated for the staff welfare and general training activities of the institute.

2.2.1.1 GRADUATION OF MASTERS PROGRAMME

Postgraduate programme for Masters Degree was held on 10th December 2016 at BMICH for the students who were registered for the programme 2012/13. Some repeated students (26%) were also graduated at this convocation. Details are given below.

Table 2.2.1.1 - A: Analysis of Graduation Data of 2016

Course	Intake 2012/13	Graduated				Total	% (First Time)
		2012/13	2011/12	2010/11	Previous		
Master of Computer Science	81	25	06	02	00	33	31%
Master of Information Technology	100	55	03	03	00	61	55%
MSc in Information Security	26	13	02	02	00	17	50%
PGD in Computer Science	00	01	02	02	01	06	--
PGD in Information Technology	00	00	01	05	01	07	--
PGD in Information Security	00	00	01	02	00	03	--
Total	207	94	15	16	2	127	45%

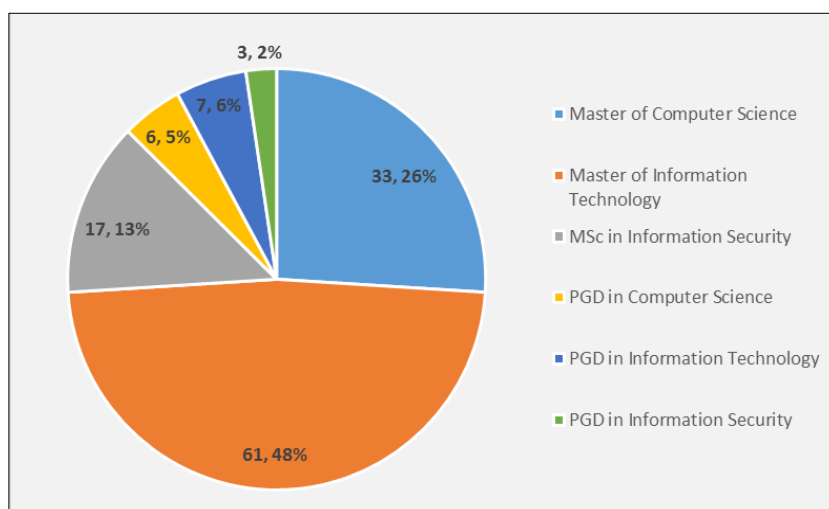


Figure 2.2.1.1 - A: Postgraduate graduation of 2016

At the postgraduate convocation held on 06th and 07th December 2016, several graduates received special awards based on their performances in the programme. Details are given below.

Table 2.2.1.1 - B: Convocation Awards for Postgraduate Degree Programme -2016

Name of Award/Medal	Name of Recipient
Kingslake award for the best student for Master of Computer Science Degree Programme	Mr. V. L. Gunawardena 2013/MCS/024 (13440242)
JICA award for the best student for Master of Information Technology	Mrs. P. H. G. Perera 2013/MIT/061 (13550619)
MIS Award	Mr. M. R. C. S. Muthuthanthrie 2013/MIS/017 (13770175)

2.2.1.2 MASTERS PROGRAMME DEVELOPMENT

By considering experience and requirement of aligning Masters Degree programme with Sri Lanka Qualification Framework (SLQF) of the last few years, it was decided to revise the structure, curriculum and syllabus of all Masters Degree programme to be commenced in 2017. Therefore, many workshops on curriculum development, restructuring and developing the syllabus were held during 2017 in addition to conducting the Masters Degree programme.

Details of Workshops on Programme Restructuring, Curriculum and Syllabus Development, by-laws Preparation

- 12th September 2016 - A full day workshop to develop By -laws/ Regulations for 2017 Masters Intake
- 22nd December 2016 - First Workshop on Developing syllabus of Masters Degree Programme

2.2.2 RESEARCH DEGREES – MPHIL AND PHD PROGRAMMES

UCSC offers two research degree programmes, namely PhD and MPhil research degrees in Computing. Registrations are open throughout the year and possible candidates are encouraged to identify a potential Supervisor by matching their research interests with research areas/groups/interests of the UCSC senior academic staff. Although UCSC has a pool of 30 senior lecturers with 25 of them having doctoral degrees in Computing, the pass rate of research degrees are very poor. This situation was taken seriously and it was decided to obtain the service of visiting Professor to analyse the problems associated research degrees as well as to address some of these problems within the year 2016/2017. Professor Saman Halgamuge from Australian National University who was appointed as the visiting Professor for 2016 was invited to carry out the situational analysis and make a suitable recommendation for the situation. In July 2016, he conducted a brainstorming session to identify challenges in the supervision of research degree.

Details of registration and graduating for research degrees are given in the table below. Several research students at UCSC joined the joint-degree programme between Queensland University of Technology (QUT) and the University of Colombo (UoC). They were partially funded to visit Australia in 2016.

Table 2.2.2 - A: Research Degree Registration and Completion

Research Degree	Year 1 (Registration 2016)	Year 2 (Registration 2015)	Year 3 (Registration 2014)	On Extension (Registered before 2014)	Total	No of Graduated in 2016
PhD						00
Full Time	01	01	02	00	04	
Part Time	00	00	00	02	02	
PhD – Total	01	01	02	02	06	
Inactive students*	01	01	01	02	05	
MPhil						01
Full Time	03	02	03	05	13	
Part Time	04	05	04	10	23	
MPhil – Total	07	07	07	15	36	
Inactive students *	07	05	03	11	26	
Total Research Degrees	08	08	09	17	42	01

* Inactive students are those who have not submitted progress reports and renewed their admission on or before 31st December 2016.

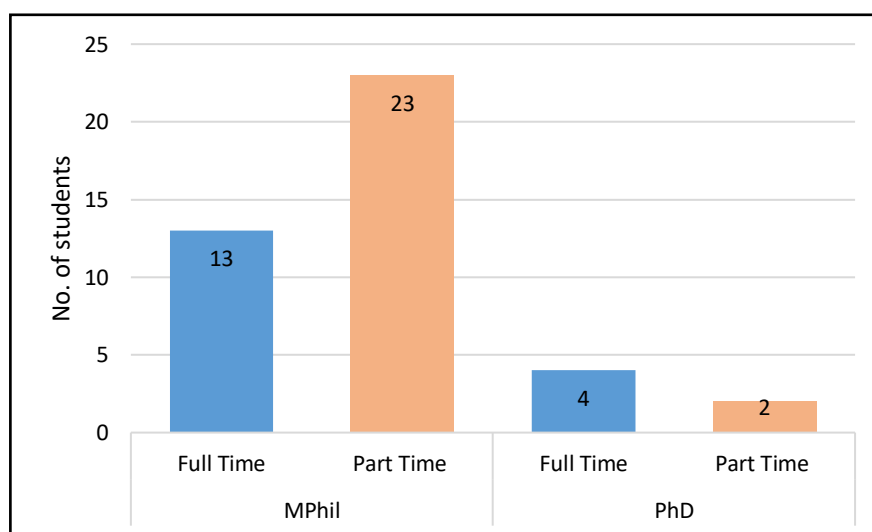


Figure 2.2.2 - A: Student registration and renewal of registration for Research Degrees in 2016

Postgraduate convocation for research degrees was held on 11th December 2016 at the BMICH. Only one student received the degree of MPhil for the year 2016.

2.3 EXTERNAL DEGREE & EXTENSION COURSES

2.3.1 BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL) DEGREE PROGRAMME

UCSC started its external degree programme, Bachelor of Information Technology (BIT) [www.bit.lk] in the year 2000 and the 16th batch of this programme was registered to follow it during 2016. Activities of external degree were carried out at the External Degrees Centre which was located at the Dharmaphala Mawatha, Townhall, Colombo 3. Since the lease of the location came to an end in December 2015, UCSC was asked by the owner to relocate the centre at a new location. Through an open advertisement, we were able to short list a suitable location in Kirulapana, but the owner refused to sign the contract at the last minute. UCSC faced much difficulty in managing the programme and all the staff and goods were moved temporarily into few rooms of the UCSC. Through a new advertisement for a location, UCSC relocated the External Degrees Centre at No.17, Swarna Road, Colombo 6 (opposite the Havelock city) on 28th March 2016. This administration issue badly affected the management of the programme activities.

In the past, BIT programme alone has attracted 35,639 students and has produced 1,923 graduates; 3,354 higher diploma holders and 6,952 diploma holders up to the end of 2015. In 2015/16 (2016th Batch) had 2,188 new enrolments and the process for new intake commenced in late 2015 and kept open until January/February 2016 to cater the advanced level students of 2015.

Following table shows the details of student registration for the year 2016.

Table 2.3.1 - A: BIT Student Registration - 2016

Course	Total Applicants	New Registration	Re-registration	Total	Total Registration 2016
First Year Registration	2,059	1,602	586	2,188	4,075
Second Year Registration	--	490	756	1,246	2,509
Third Year Registration	--	242	935	1,177	1,651
Total	2,059	2,334	2,277	4,611	8,235

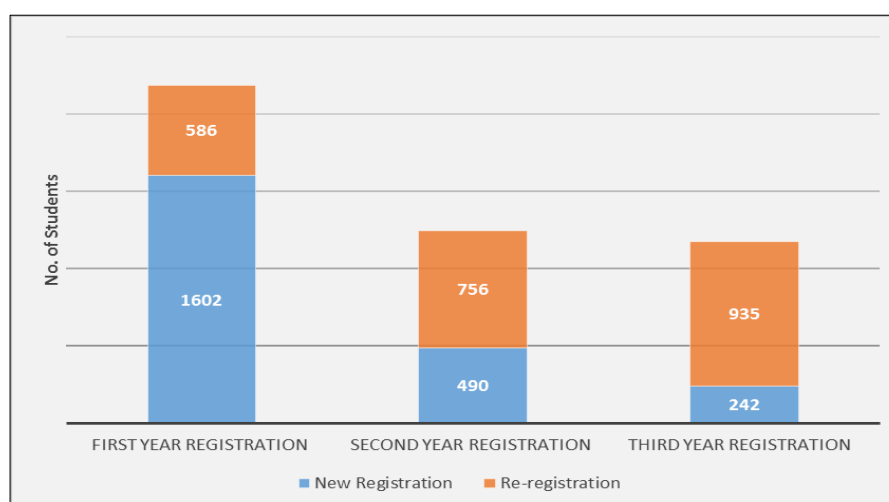


Figure 2.3.1 - A: BIT student registration in 2016

2.3.1.1 STUDENT PERFORMANCE – 2016

Table below highlights the performances of the BIT students over the last four years identifying number of registered and graduated students along with targets.

Table 2.3.1.1 - A: External Degree Performance over last Three Years

External Undergraduates	KPI	2012/13	2013/14	2014/15	2015/16
DIT - New Intake	2000	2034	2379	1890	1602
DIT – Registered	4000	4175	4535	4075	2188
DIT – Diplomas	600	611	515	379	403
[DIT/Registered]%	15%	15%	11%	9%	18%
HDIT - Higher Diploma Intake	600	714	721	690	490
HDIT - Higher Diploma Registered	2000	2391	2583	2509	756
HDIT - Higher Diplomas	300	305	339	227	149
[HDIT/Registered]%	15%	13%	13%	9%	20%
BIT - Degree Intake	300	312	347	346	242
BIT - Degree Registered	1500	1416	1537	1651	1177
BIT – Graduates	200	194	225	262	204
[BIT/Registered]%	13%	14%	15%	16%	17%

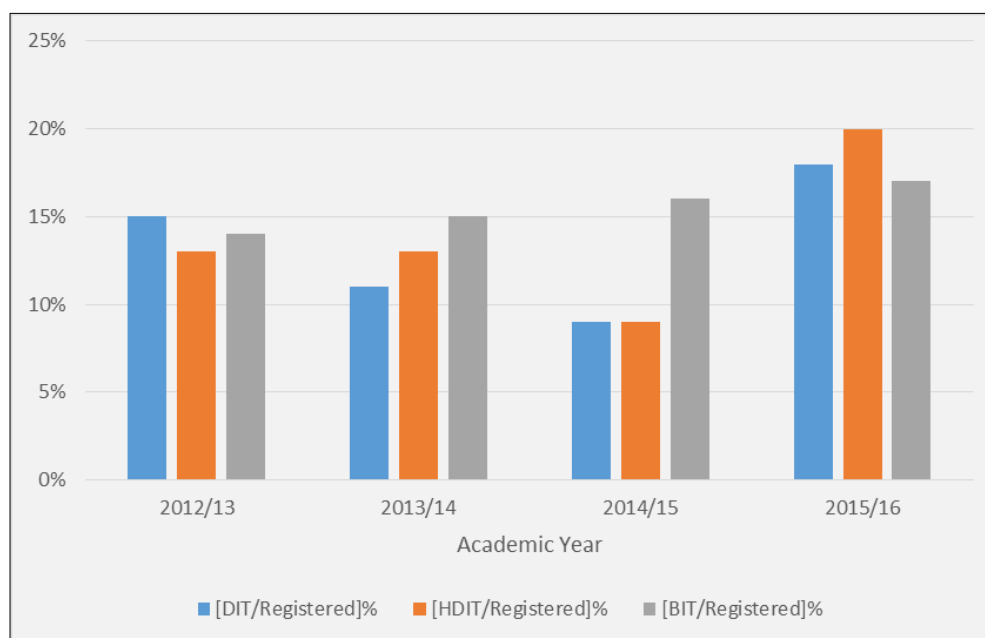


Figure 2.3.1.1 - A: External degree registration over last 3 years

2.3.1.2 BIT TEACHING INSTITUTES

BIT is conducted in the public-private-partnership mode since UCSC is not directly involved in the teaching process. Hence, a meeting with all BIT teaching institutes was held to brief the curriculum changes and obtain institute feedback on 20th May 2016. Many training institutes have offered face to face classes and learning support for the BIT candidates in 2016 too. UCSC does not accredit any of these institutions but have recognised their contribution to the success of the programme. Each year, UCSC publishes the summary of examination results of each institute so that the candidates can identify the available institutions and plan their learning mode. More than half of the candidates study on their own (self-study) with the help of the VLE and online/recommended material. In 2015/16, 31 institutions from 12 districts conducted training for five or more candidates. Among them 14 institutes were involved in all three years and details are available in the BIT website (www.bit.lk). BIT examinations were held at the centers in Colombo, Kandy, Galle and Jaffna.

2.3.1.3 BIT EXTERNAL DEGREE GRADUATION AND DIPLOMA AWARDS

BIT External degree graduation was held on 13th September 2016 at the BMICH for graduates of 2015 and Diploma award ceremony was held on 24th August at the New Arts Theatre of the University of Colombo for those who satisfied the relevant conditions in 2015. Detailed statistics are given in the table below. Record number of graduates, 262 were conferred the degree at this Convocation- Parents and representatives of BIT teaching institutes also participated in the event.

Table 2.3.1.3 - A: Performance of External Degree Programme - 2015/16

Course	New registration	Repeaters	Total	No of Graduated
Diploma in Information Technology	1602	586	2,188	379
Higher Diploma in IT	490	756	1,246	227
Bachelor of Information Technology	242	935	1,177	262
All	2,334	2,277	4,611	868

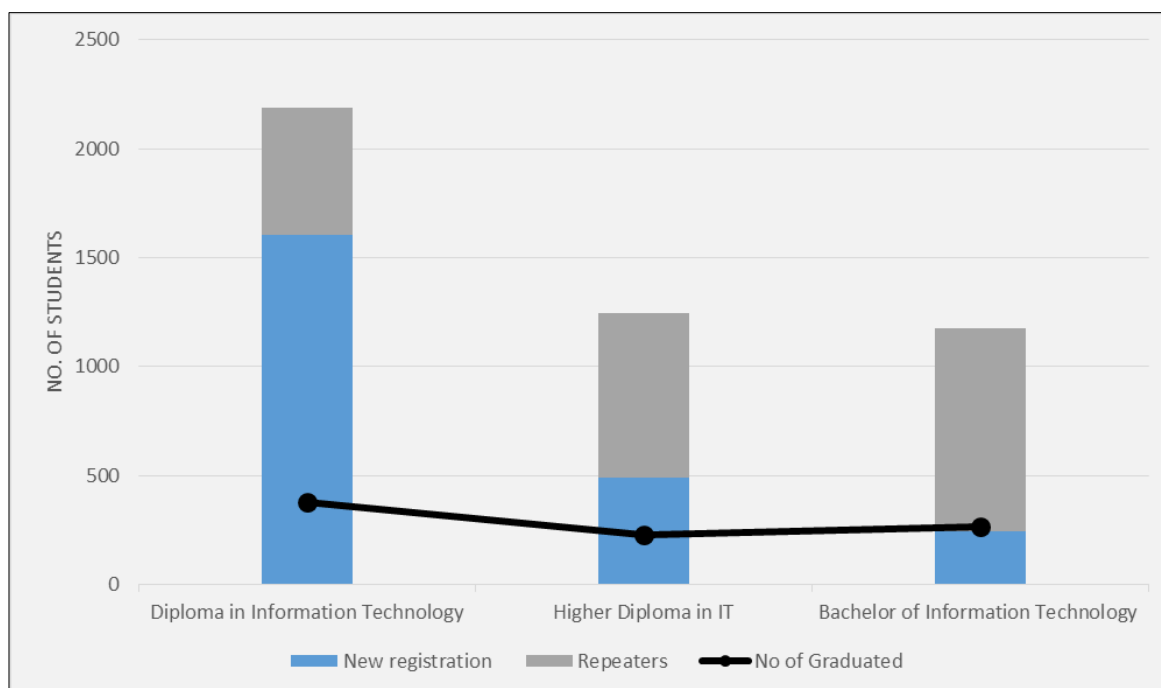


Figure 2.3.1.3 - A: Registration and performance of External Degree programme 2016

Table 2.3.1.3 - B: Analysis of Results – BIT at the Convocation held in 2016

Intake	First	Upper	Lower	Pass	TOTAL
BIT	01	11	15	235	262

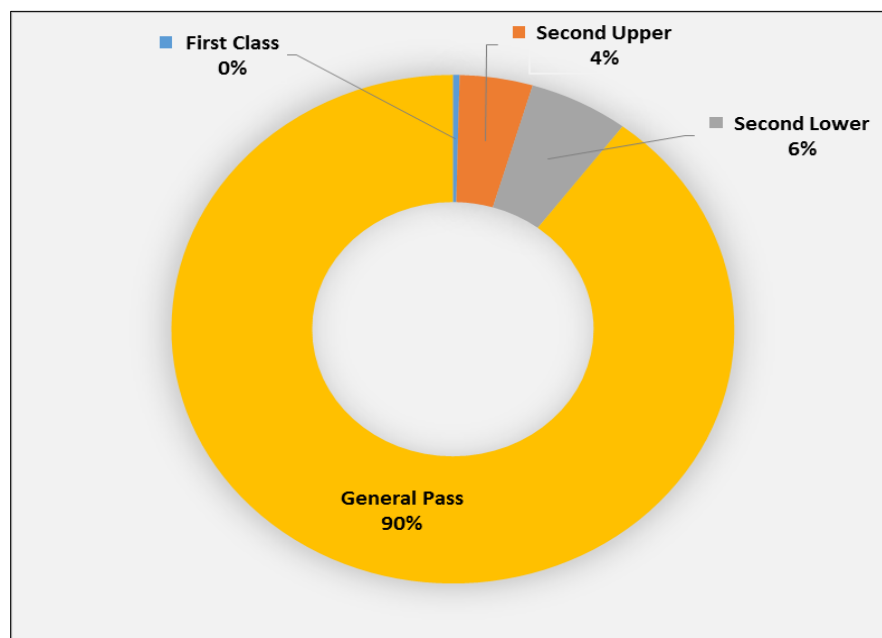


Figure 2.3.1.3 - B: Analysis of results at BIT convocation 2016

2.3.1.4 CONVOCATION AWARDS

Prof. VK Samaranayake Medal for the Best Performance of the Bachelor of Information Technology (External) Degree was awarded to Ms. S.D.B. Indeewari. The best individual project was awarded to Ms. S.D.B. Indeewari and Mr. M.D.L. Fernando. Mr. MJPU Samanthilake Memorial Award was awarded to Ms. S.D.B. Indeewari. The Best e-Learner awards for the 4 semesters were awarded to Mr. A.B. Ameerdeen (semester iv) respectively.



2.3.2 EXTENSION COURSES

The Computer Service Centre (CSC) was established to coordinate and manage extension courses which could be used to provide short term training in selected areas of specialization. In 2016, UCSC offered eight extension certificate courses and attracted over 300 students.

Below Table shows the details of those CSC courses which are normally conducted on weekends (D – Duration in days; B – No of Batches; P – Total Participants). Certificates were offered based on the active participation in the courses.

Table 2.3.2 - A: CSC Training Programmes - 2016

Course	D	B	P
Java Application Development Using JavaSE	8	3	89
Advanced Java Application Development using JavaEE	8	1	21
Linux Systems & Network Administration	5	2	50
Training course for South Asia Co-operative Environment Programme (SACEP)	6	1	17
Advanced Multimedia Web Design & Development Techniques	8	1	21
Programming Using Python	4	1	15
Software Quality Assurance Using Test Automation Frameworks	5	2	50
Computing for Career Development	12	2	71
Total		13	334



2.3.3 ONLINE EXTENSION PROGRAMMES

e-Learning Centre of UCSC was established to promote online learning for existing programmes as well as to start new online programmes based on the national requirements. The Foundation of Information Technology (FIT), <http://fit.bit.lk> was established as an online foundation programme for ICT and also as an alternative certification path to be registered for the BIT degree programme if a student does not have adequate A/L marks. Following table provides the details of FIT programme in 2016.

Table 2.3.3 - A: Statistics of Foundation of Information Technology Programme

Programme	New Registration	Repeat Registration	Applied for e-Testing	Passed e-Testing	Passed Practical Tests
FIT	597	37	628	144	0(not conducting exam)
e-Selection Test			11	8	
BIT Practical Test			3093		1896

2.4 FOREIGN STUDENTS

UCSC believes as a centre of excellence in the region, it is important to provide opportunities for foreign students to follow programmes at the UCSC. Although foreign student category to enrol students (2%) had been there for a while, there was no significant demand from such students. Few years ago, some expatriates students who have done their A/L elsewhere but with local connections had applied. In 2011, the first student under the foreign student category enrolled in the CS degree programme. In 2013, we had the first two foreign students from Bhutan and Nigeria for the Master of Information Technology programme and subsequently from Pakistan for Master of Science in Information Security. Unfortunately, UCSC did not have any foreign student in 2016.

2.5 NEW COURSES STARTED

It was decided to revise all programmes considering the requirements of Sri Lanka Qualification Frameworks (SLQF). In the Masters Programme, a significant review was carried out revising all courses in the programmes. The graduate profiles for the undergraduate degree programmes were developed as a part of quality assurance process. 4th year courses of new software engineering degree were carried out in 2016.

Several new certificate courses were started by the CSC to meet the requirements of the industry.

Table 2.5 - A: New courses/programmes started in 2016

Course/Programme	Certificate	Degree	Postgraduate Diploma	Master	MPhil	PhD
Software Engineering (Final Year Courses)	-	X	-	-	-	-
Training course for South Asia Co-operative Environment Programme (SACEP)	X	-	-	-	-	-
Programming Using Python	X	-	-	-	-	-
Software Quality Assurance Using Test Automation Frameworks	X	-	-	-	-	-
Total	3	1	-	-	-	-

RESEARCH

3. RESEARCH

3.1 RESEARCH, INNOVATION AND PUBLICATIONS

Research culture is the most important and distinguished area to showcase the achievements of UCSC. In 2016, several activities were carried out to enhance the research programmes at the UCSC. Some of these research activities are linked with research degree programmes and others are related to external organizations which have directly funded research projects at UCSC. The importance of collaborative research was promoted among the academic staff to expand the research activities by allowing them to form research groups at UCSC. Since external funding varies due to competition, internal research fund was established to sponsor research activities. A significant percentage of masters and external degree programme is allocated to establish the research fund. At the beginning of 2016, research fund policy document was updated based on the previous year (2015) experience to increase the utilization. At the same time, UGC also allocated 5 million from its capital grant to fund research projects and research related activities at UCSC. More details are explained later in this section.

3.1.1 UNDERGRADUATE LEVEL RESEARCH PROJECTS

All students of honours degree programme are supposed to carry out a project with research component in their final year. The duration of the project is one year and it is usually supervised by one or more senior academic staff members of UCSC. In the Computer Science Degree Programme, final year project is an individual project but it was a group project in other two degree programmes (Information System and Software Engineering). These projects are evaluated independently considering three milestones, namely proposal defence, interim evaluation, and final evaluation, all of which contain a presentation and viva by the staff members who were not involved in the supervision of the project. There are three academic Coordinators with respect to degree programmes and there are guidelines to manage the process.

Table 3.1.1 - A: Undergraduate Level Research projects conducted in 2016

Degree Programme	Project Coordinator	Number of Students	No. of Projects	No. of Successful Projects	Number of Supervisors	Number of Examiners
BSc Honours in Computer Science	Dr. H.E.M.H.B. Ekanayake	19	19	18	14	23
BSc Honours in Information Systems	Dr. T.A. Weerasinghe	20	7	7	11	14
BSc Honours in Software Engineering	Dr. M.I.E. Wickramasinghe	21	7	7	9	14

3.1.1.1 RESEARCH SYMPOSIUM – 2016

Based on the success of these projects, at the beginning of the year, an undergraduate research symposium was held to showcase the outcome to outsiders as well as junior students. Projects completed in the academic year 2015 were presented at the research symposium of 2016 held on February 2016 at the auditorium of the Faculty of Graduate Studies (FGS). A book of abstracts based on selected projects was published and the best

project with respect to the degree programme was selected by an independent panel consisted of external members. Project Coordinators and final year students organized this event.



3.1.2 MASTERS LEVEL PROJECTS

In all Masters programme, students are supposed to carry out an individual project as a primary requirement to complete the degree programme. It is a two semester (one calendar year) course and there is a supervisor who is usually a senior academic staff member of the UCSC. Project Coordinators are appointed at the beginning of the academic year to manage this programme. In MCS programme, some projects are research type and others are implementation type. In all other programmes, projects are implementation types but some projects also have research component. Details of Masters Projects in 2016 are given below.

Table 3.1.2 - A: Evaluation of Masters Level Projects

Degree Programme	Academic Year	Registered Students (First Time + Repeaters)	Completed Successfully	Pass Rate
MCS	2014/2015	81	33	40.74%
MIT		64	47	73.43%
MIS		27	17	62.9%
MIT (e-Learning)		18	9	50%
MIT (Multimedia)		18	6	33.33%

3.1.3 PROJECTS OF RESEARCH DEGREES

In the MPhil and PhD programme, research project is the main component and students are supposed to defend them to an independent examination panel which consists of local and foreign examiners depending

on the degree programme. In 2016, several evaluations for research degree projects were held and details are presented below.

Table 3.1.3 - A: Projects of research Degrees

Degree Programme	Number of Applicants	Registered	Completed Proposal Defence Successfully
MPhil	11	07	04
PhD	06	02 (Upgraded from MPhil)	02
Total	17	09	06

3.1.4 FUNDED RESEARCH PROJECTS

3.1.4.1 RESEARCH PROJECTS FUNDED BY UGC

In 2016, UGC allocated 5 million to UCSC under its capital grant to promote research activities at UCSC considering undergraduate research activities. All staff members were invited to submit proposals based on their planned research activities during 2016. 10 proposals were selected to finance them. Following table shows those projects, their utilization and outcome with respect to publication.

Table 3.1.4.1 - A: Allocation, Utilization and Outcome of funded Research Projects

Research Project/Activity	Principal Investigator/ Research Group	Utilization	Number of Publications (conferences or Journals)
Comprehensive study of Oncogenic Signatures	Dr. A.R. Weerasinghe	Rs 35,000.00	-
	Dr. A.M. Premachandra	Rs 210,000.00	
Drone to Detect Difficult to access Dengue breeding sites (D4)	Dr. T.N.K. Zoysa	Rs 299,691.49	-
High Performance Computing	Dr. D.N. Ranasinghe	Rs 40,000.00	-
SIYARA- 2 Harbour Vessel Traffic Management System (New Dimensions in Port Traffic Management)	Prof. N.D. Kodikara	Rs 595,000.00	
Graphical and Haptic Simulation of Gallbladder for Laparoscopic Cholecystectomy Training	Mr. G.K.A. Dias	Rs 611,935.49	01
Music Therapy for Differently Abled Children	Dr. Shiromi Arunathileka	Rs. 497,593.00	01
Digital Library Service for Local Universities	Prof. K.P. Hewagamage		-
A Longitudinal Population Based Investigation to Improve the Student's Performances in Theoretical Computer Science Courses of the Degree Program in Computer Science at the	Dr. T. Sitharan	-	-

University of Colombo School of Computing (UCSC)			
Coevolution of Dengue Virus and host	Ms. C.R. Wijesinghe	Rs 245,000.00	-

Permanent academic staff of UCSC comprising both senior and junior staff, were supported to attend both local and foreign conferences to present their research papers. Details are given below.

Table 3.1.4.1 - B: Participation of Conferences/Symposium and Workshops

Staff Level and Type of Conference	Participated Only	Published/Presented Only	Total
Senior Academics – Conferences held in Sri Lanka	02	27	29
Senior Academics – Conferences held outside Sri Lanka	06	15	21
Junior Academics – Conferences held in Sri Lanka	00	01	01
Junior Academics – Conferences held outside Sri Lanka	02	04	06
Total	10	47	57

3.1.4.2 RESEARCH PROJECTS FUNDED BY EXTERNAL PARTIES

UCSC staff directly submitted proposals to local and foreign authorities to obtain funds for research and development activities of the UCSC. Following table shows those projects initiated or carried out in the year 2016 together with their outcome.

Table 3.1.4.2 - A: Utilization and outcome of research projects funded by external parties

Project Name	Principal Investigator / Research Group	Donor Agency or Sponsoring Organization	Type of Grant (Local or Foreign)	Granted Amount	Outcome (Progress Report/ Publications)
Development of Field Artillery Simulator System Project	Prof. N.D. Kodikara	FASS-Centre for Research and Development of Ministry of Defence	Local	Rs. 2,625,000.00	
An Adaptive Sensor Actuator System for Elephant tracking	Dr. Kasun De Zoysa	Asset-Uppsala University research collaboration	Foreign	SEK 415,000	01 Presented at the RealWSN 2015, Korea
Automated Content Based Auto Monitoring System -NCAS/D/IM/2014	Dr. Lakshman Jayaratne	NCAS-National centre for Advanced Studies in Humanities & Social Sciences	Local	Rs. 800,000.00	
Enhance English language learning through m-learning	Prof. K.P. Hewagamage	NSF D/02-National Science Foundation	Local	Rs. 2,510,000.00	02 (at the

in different learning communities - NSF (TG/2013/Tech-D/02)					ICTer 2015 and Australasian Conference on Information Systems 2015)
Language Technology Research Laboratory (Sinhala Encyclopaedia Project & TTS & ASR Project)	Dr. A.R. Weerasinghe	LTRL	Local	Rs. 2,378,080.00	
The Development of a Training Simulator for K-8 Aircraft	Mr. G.K.A. Dias	K-Sim-Ministry of Defense	Local	Rs. 1,333,400.00	
Interaction design for tablet based edutainment systems for primary mathematical education - UGC/DRIC/QUT2 015/CMB/02	Mr. H.K.T.C. Halloluwa	QUT Scholarships 2015- University Grants Commission	Foreign	Rs. 1,863,000.00	
Design and Development of Prototype of the Electronic Logbook and Electronic Data Verification Module for Fishery Management Support System	Prof. N.D. Kodikara	DFAR-Department of Fisheries and Aquatic Resources	Local	Rs. 2,960,000.00	
Exploring the student Interaction through 3- D virtual worlds - UGC/VC/DRIC/PG 2015(III) / UCSC/ 01	Ms. R.M.P.N. Somartne	Higher Studies 2015- University Grants Commission	Local	Rs. 1,100,000.00	
	Prof. G.N. Wikramanayake	Govi Nana	Local	Rs. 625,000.00	

Development of a Training Simulator for Air Traffic Control	Prof. N.D. Kodikara	ATC -Centre for Research and Development of Ministry of Defence	Local	Rs. 720,900.00	
Electronic National Identity Card Project	Dr. Lakshman Jayaratne	eNIC-Department of Registration of Persons (DRP)	Local	Rs. 1,125,000.00	
Design and Development of Prototype of a Web Based Video Streaming System	Dr. C.I. Kappitiyagama	WBVSS - thinkCube Systems (Pvt) Ltd	Local	Rs. 245,952.00	
Entity Resolution in Multimedia Databases	Mr. Saminda Chandika Premaratne , Dr. K.L. Jayarathne	NSF-National Science Foundation	Local	Rs. 570,000.00	

3.1.4.3 UCSC RESEARCH FUND – PROJECTS AND UTILIZATION

The research fund of the UCSC is managed considering two types of allocation known as “Individual Quota” (IQ) and “Open Quota” (OQ). At the beginning of the year, all permanent academic staff was given a fixed allocation to promote publishing in International conferences, journals and book chapters. At the same time, they were supported to attend both local and foreign conferences within the allocated limit of each staff member.

Staff members are also supported to utilize the fund to cover their research expenses such as acquiring goods and services directly related to their research work, subscription of professional organizations, a fixed quota of internet charges, and partial support for externally funded projects. Following table shows the utilization of Research Fund during 2016.

Table 3.1.4.3 - A:Utilization of Research Funds during 2016

Staff Members	Utilization	Average Utilization
Senior Staff (24)	3,516,617.13	146,525.71
Junior Staff (14)	562,402.39	40,171.59
Total Staff – (38)	4,079,019.52	107,342.62

It is important to note that the UCSC Research Fund has been built using generated income and donation of external parties during the last 15 years. Due to undergraduate workload, many staff members failed to fully utilize their allocation.

3.1.5 RESEARCH GROUPS AT UCSC

In order to promote the collaborative research culture, UCSC staff is invited to carry out research and development activities as small teams comprising one or more senior staff member, junior staff members, full or part time research assistants and students. Some groups also invite external parties to collaborate to carry out activities of research groups by funding fully or partially as well as contributing to their expertise in the respective area. Following table presents the details of active research groups in 2016.

Table 3.1.5 - A: Research Groups in 2016

Group Name	Goal of Research Group	Members of Research Group	URL of Research Group
Social Life Networks (SLN)	Providing real-time information to support the activities related to livelihood delivered using mobile phone applications targeted to meet the needs of people in developing countries	Prof. Gihan Wikramanayake, Dr. Jeevani Goonatillake, Ms. Lasanthi De Silva, Ms. Anusha Walisadeera, Prof. Athula Ginige, University of Western Sydney, Australia Prof. Ramesh Jain, University of California, Irvine, USA Prof. Genny Tortora, University of Salerno, Italy Ms. Tamara Ginige, Australian Catholic University North Sydney, Australia	http://ucsc.cmb.ac.lk/social-life-networks/
Networking And Systems Research Group	Designing network protocols to analysis of social networks	Dr. Ajantha S. Atukorale, Dr. Chamath Keppitiyagama, Wathsala W. Vithanage, Deependra Ariyadeva,	http://ucsc.cmb.ac.lk/networking-and-systems-research-group/
Wireless Ad Hoc Sensor Networks	Setup a R&D centre for WASN Conduct applied research specially in the environmental monitoring and health care Develop WASN applications to solve real-life problems in Sri Lanka Enhance the WASN education in Sri Lanka	Dr. T.N.K. De Zoysa, Dr. C.I. Keppitiyagama, Dr. Leif Axelsson, Product Area Manager Transportation Security, Volvo Technology Dr. Martin G.H. Gustavsson, Senior Advisor, Ericsson A.B. Mr. Henrik Riomar, Ericsson A.B. Mr. N. M. Laxaman Mr. G.P.N. Boteju Mr. P.K.M. Thilakarathna	http://ucsc.cmb.ac.lk/research-groups/wireless-ad-hoc-sensor-networks/
Sustainable Computing Research Group (SCoRe)	To generate computing solutions through identifying low cost methodologies and strategies that lead to sustainability.	Dr. Kasun de Zoysa Dr. Chamath Keppitiyagama Manjusri Wickramasinghe Kasun Gunawardana Chathura Suduwella Charith Elvitigala Asanka Sayakkara Namal Jayasuriya	http://ucsc.cmb.ac.lk/research-groups/sustainable-computing-research/

		Primal Wijesekara	
The modeling and simulation group	To work on a Ship Handling Simulator (ViduSayura) for the Sri Lankan Navy	Prof. N.D. Kodikara Rear Admiral Ranjith Senadheera (Sri Lanka Navy) Mr. R.P. Abeyakone (National Institute of Fisheries and Nautical Engineering) Prof. Remy Rosa Mr. Kapila Dias Dr. Chamath Keppitiyagama Mr. Damitha Sandaruwan Mr. Randika Ariyaratna Mr. Poshitha Ravinath Mr. Chandana Perera Mr. Kanchana Manamperi Mr. Pubudu Ranatunga Mr. Chatheka Uduwarage Mr. Chaturra Gunasekara	http://ucsc.cmb.ac.lk/research-groups/modelling-simulation-group/
Language Technology Research Laboratory (LTRL)	To address the growing need of local language computing in Sri Lanka by doing Localization and Language Processing research and development	Dr. A.R. Weerasinghe Mr. Viraj Welgama Mr. Chamila Liyanage Mr. Namal Udalamatta Mr. Randil Pushpananda Mrs. Thilini Nadungodage Mrs. Dilhani Samaranyake Ms. Arunja Sivapathasuntharam Miss. Amathri Perera Miss. Lakshika Nanayakkara Miss. Kavindi Gimhanika Wedasinghe	http://ucsc.cmb.ac.lk/research-groups/language-technology-research-laboratory/
Information Systems Security Research Group	IT security and information assurance research areas	Dr. T.N.K. De Zoysa – Mr. Rasika Dayaratne Mr. H.E.M.H.B. Ekanayake,	http://ucsc.cmb.ac.lk/research-groups/information-systems-security-group/
The Geographic Information System (GIS)	On contemporary geospatial technologies with the aim of enhancing existing GIS solutions and developing new geospatial solutions	Dr. Damitha Karunarathne	http://ucsc.cmb.ac.lk/research-groups/geographic-information-system-gis-research-group/
Game Based Learning	To provide a virtual learning environment to the students	Prof. K.P. Hewagamage Dr. Yamaya Ekanayake Mr. Isuru Dharmadasa Mr. Upul Anuradha Ms. Fazeena Jamaldeen Ms. Udeni Jayasinghe	http://ucsc.cmb.ac.lk/research-groups/game-based-learning-group/

E-Learning Research	To consider how ICT infrastructure and facilities can be enhanced and integrated to provide e-Enabled learning environment	Prof. K.P. Hewagamage Dr. Damitha Karunayake Prof. G.N. Wikramanayake Dr. Hakim Usoof Dr. Thushani Weerasinghe Dr. Enosha Hettiarachchi Ms. Nishakumari Kariyawasam Mr. Geeth Hettiarachchi Mr. Fauzaan Abdurrahman	http://ucsc.cmb.ac.lk/research-groups/e-learning-research-group/
E-Health Group		Dr. Shiromi Arunathilaka	http://ucsc.cmb.ac.lk/research-groups/e-health-group/
Distributed and Parallel Computing Group	Programming models for multicore architectures	Dr. D.N. Ranasinghe Mr. K.P.M.K. Silva	http://ucsc.cmb.ac.lk/research-groups/distributed-and-parallel-computing-group/
Distributed Computing	The development of novel middleware architectures and parallel algorithms based on shared persistent space and the emergent behaviour of large scale distributed systems	Dr. D.N. Ranasinghe Mr. K.P.M.K. Silva, Mr. W.R.M.U.K. Wickramasinghe K. Ganeshamoorthy	http://ucsc.cmb.ac.lk/research-groups/distributed-computing-group/
The Bioinformatics and Computational Biology (BCB)	Involves conducting quantitative studies, such as pattern recognition and network analysis, to discover biological knowledge; and developing computational techniques, algorithms, tools and statistical models to analyze various biological data and make predictions.	Dr. Ruwan Weerasinghe, Ms. Rupika Wijesinghe, Dr. Mindika Premachandra, Prof. Mahesan Niranjana, University of Southampton, UK Dr. Vinod N. Rajapakse, National Institute of Health, USA Dr. Yawwani Poornima, University of Southampton, UK Mr. Luke Nitish, University of Alberta, Canada Ms. Warunika Ranaweera, Simon Fraser University, Canada Mr. Shazan Jabbar, University of Alberta, Canada Mr. Bhagya Senadeera,	http://ucsc.cmb.ac.lk/research-groups/bioinformatics-and-computational-biology-bcb-research-group/

3.1.6 RESEARCH PUBLICATIONS AND AWARDS

Following table shows the summary of research publications in 2016 and details of all the publications are given at the end of this section.

Table 3.1.6 - A: Publication Summary - 2016

Type of publication	Held/Published in Sri Lanka	Held/Published outside Sri Lanka	Total
Conferences	21	23	44
Journals	16	2	18
Book Chapters	0	2	2
Total	37	27	64

Academic staff plays the role of facilitating publishing research articles by guiding students and research assistants. They hardly find enough time to be the first author due to teaching and administrative workloads. Following table (3.6.B) shows the profile of publications with respect to each staff member in 2016:

Table 3.1.6 - B: Detail Analysis of Publications - 2016

Name of Staff Member	First Author (Conferences)	Co-author (Conferences)	First Author (Journals)	Co-author (Journals)	Total
Prof. K.P. Hewagamage		4		1	5
Prof. G.N. Wickramanayake		7		2	9
Prof. N.D. Kodikara		6		3	9
Dr. A.R. Weerasinghe		9			9
Dr. A.S. Atukorale		3			3
Mr. Gihan Senaviratne		0			0
Mr. D.K.A. Dias		3		4	7
Mr. S.T. Nanadasara				1	1
Dr. D.N. Ranasinghe		2			2
Dr. G.D.S.P. Wimalaratne		1		3	4
Dr. T. Sritharan		1			
Dr. D.D. Karunaratne				1	1
Dr. M.D.J.S. Goonatilake	1	4	0		5
Dr. K.L. Jayaratne		4		4	8
Dr. S.M.K.D. Arunathilake		1			1
Dr. Chamath Kaepetiyagama		4		1	5
Dr. Y. Ekanayake		2			2
Dr. H.A. Caldera		1			1
Dr. M.G.N.A.S. Fernando		1		1	2
Dr. T.M.H.A. Usoof		3			3
Mrs. C.R. Wijesinghe		2			2

Dr. H.E.M.H.B. Ekanayake		1			1
Mr. Viraj Welgama		1			1
Mr. S.S.P. Matharaarachchi			2		2
Mr.R.S. Madanayake				2	2
Mr. D.D.A.C. Jayalath			2		2
Dr. Damitha Sadaruwan		4		1	5
Dr. T.A. Weerasinghe		1			1
Mr. G.P.N. Boteju	1				1
Ms. L.N.C. de Silva	1	2			3
Mr. H. Perera		1			1
Mr. Upul Anuradha		1			1
Mr. Yohani S Ranasinghe	1				1

3.1.6.1 AWARDS FOR RESEARCH IN 2016

UCSC continued to encourage students and staff in submitting their research and development work for external evaluation to obtain the national and international recognition. In 2016, two awards are received for research work from two different organizations. Details are given below.

Table 3.1.6.1 - A: Awards for Research and Development Projects - 2016

Name of the awards	Awarding Agency	Publication or Project	Team members
e-Swarbhimani 2016	ICTA (Government of Sri Lanka)	Mobile Learning Project	Prof. K.P. Hewagamage Dr. Yamaya Ekanayake Mr. Upul Anuradha Mrs. Fazeena
NSF Technology Award of Excellence	NSF	COPY Sayura : The three dimensional coastal surveillance system	Prof. N.D. Kodikara Prof. S.R.D. Rosa Dr. Chamath Keppetiyagama Dr. K.D. Sandaruwan Rear Admiral K.R. Senadeera (Rtd).



3.1.7 PROFILE OF RESEARCH AREAS IN THE UCSC

Research areas are identified with respect to sub-domains of Computing. By analysing research projects, publications, and award received, following table shows the active research areas in 2016.

Table 3.1.7 - A: Sub-domain Analysis of Research Profile

Research Area	Staff Members	RAs and Students	No. of Conference Publications	No. of Journal Publications
Artificial Intelligence	0	2	0	0
Assistive Technology	1	1	0	1
Computer Graphics	9	1	2	0
Computer Science	0	5	0	0
Computer Vision	0	1	0	0
Data Mining	1	0	1	0
Data Semantics	0	1	0	0
Digital Forensic	0	0	0	0
e-Learning	3	7	1	1
Game-based Learning	2	1	1	0
Geographical IS	0	0	0	0
Green IT	0	0	0	0
Heuristics Optimization	0	0	0	0
High Performance	0	1	0	0
Image Processing	2	3	2	0
Information Systems	0	1	0	0
Knowledge Engineering	0	0	0	0
Machine Learning	1	1	1	0
Mobile Learning	4	1	1	0
Multimedia	0	2	0	0
Natural Language Processing	4	2	3	0
Neural Networks	0	2	0	0
Sensor Networks	1	0	1	0
Social Science and IT	0	1	0	0
Software Engineering	7	3	4	0
Health Informatics	2	0	1	0
Mobile Application	7	1	1	0
Computational Biology	2	0	1	0
Computational Complexity	2	0	1	0
E – Health	2	0	1	0
Musical IT	1	0	1	0
Mobile Gamming	2	0	0	0
Mobile Computing	1	0	1	0
Modelling and simulation	18	0	3	1
Total	115	40	52	12

3.1.8 INVITED GUEST TALKS AND WORKSHOPS

In order to promote the research and development as well as to address the lack of awareness, knowledge and skills, invited talks and workshops were conducted from time to time. Those activities are listed with relevant details.

Table 3.1.8 - A: Invited Guest Talks and Workshops conducted in 2016

Date	Title	Type (Seminar or Workshop)	Resource Person	Key Areas
3 rd September 2016	"Innovative ways to represent and process language"	Workshop	Dr. A.R. Weerasinghe, University of Colombo School of Computing	Natural Language Processing (NLP)
3 rd September 2016	Towards the Vehicular Cloud: From Connected Cars to Smart Cities	Tutorial	Prof. Falko Dressler, ACM Distinguished Speaker, Dept. of Computer Science, University of Paderborn, Germany	Embedded Systems
3 rd September 2016	Overview of Big Data - Promises and Pitfalls, Tools and Techniques	Tutorial	Prof. Jenifer Widom, School of Engineering Stanford University, United States	Databases and data mining
3 rd September 2016	"Cyber-Attacks: Detection and Recovery"	Workshop	Dr. Kasun de Zoysa, University of Colombo School of Computing	Information Security
22 nd November 2016	A highly efficient, low-cost backscatter reader	Seminar	Prof. Thiemo Voigt, Sweden	Backscatter platforms

3.1.9 VISITING RESEARCHERS

In order to promote the competency of the staff, visiting researchers were invited for short term or long term assignments at UCSC.

Prof. Saman Halgamuge was invited as the Visiting Professor for the year 2016 and he started his assignment in June 2016 and continued until March 2017. During this period, Prof. Halgamuge conducted the Prof. V. K. Samanaranayake oration, several workshops for the staff and students, and mentored staff and students with respect to conducting effective research degree. In addition, there are few other visiting researchers contributed in the year 2016.

Table 3.1.9 - A: Visiting Researchers at UCSC - 2016

Visiting Researcher	Duration	Activity
Prof. Saman Halgamuge	June 2016- March 2017	Visiting Professor
Prof. Abey Induruwa	July 2016	Chief Editor – ICTer Journal
Dr. D.P. Liyanage	June 2016	To deliver Lecture series for MIS students
Dr. George R.S. Weir	October 2016	

3.1.10 PROFESSOR VK SAMARANAYAKE ORATION – 2016

Prof. V.K. Samaranayake Memorial Oration 2016 was conducted on 5th July 2016 at the Auditorium of the Department of National Archives, Colombo by Prof. Saman Halgamuge who was a full Professor of the University of Melbourne. The topic of the oration was “Big Myths and Big Opportunities in Big Data Analytics: A Data Engineering Perspective”. The details of this event are available at <http://ucsc.cmb.ac.lk/vks-oration/vks-oration-2016/>.

3.1.11 INTERNATIONAL CONFERENCE - ICTER2016

Setting up mechanisms for identifying and carrying out relevant research is another strategy of the UCSC to promote its research profile. Hence, the UCSC Research Symposium and ICTer Conference are considered as two important calendar events of the organization.

16th International Conference on Advances in ICT for emerging regions held from **1st to 3rd September 2016** brought together local and international researchers and practitioners in Computing. The main conference was held at the Hotel Jetwing Blue, Negombo on 1st and 2nd of September with the special participation of Prof. P. S. M. Gunarathna, the Vice Chairman of the University Grants Commission as the chief guest and Prof. Mohan Munasinghe as the guest of honour. Since 1998, ICTer has been playing a leading role in creating a unique platform to those who are interested and skilled in the domain of Computing to present their achievements and ideas. Creating an international forum to the local participants is another significant aspect of this conference.

ICTer is a concept of late Prof. V. K. Samaranayake who was the founding Director of UCSC. Gradually it was linked with the Institute of Electrical and Electronic Engineers (IEEE) with the intention of grabbing an international recognition and its name was changed in order to emphasize its regional importance. UCSC believes this conference as one of its most significant events considering its service in disseminating the knowledge in collaboration with other Universities, public and private organizations. A significant number of academics and practitioners on the industry take part in this conference by submitting and reviewing research papers as well as by contributing to organize the conference.

This year ICTer had **received 118 submissions from 6 countries** which were double blind reviewed **by 84 international and local reviewers**. Based on the reviewers’ feedbacks, **43 full papers and 05 posters** had been selected for the main conference with **the acceptance rate of 42%**. The industry track which was carried out for the first time in the ICTer records was another outstanding event of the 16th conference. The main purpose of the industry track was to allocate a space for the leaders and visionaries in the Computing Industry in Sri Lanka to share their achievements and experience in Computing.

All the accepted publications were presented in two parallel sessions under the themes of Distributed Computing, Natural Language Processing, e-Learning and ICT4D, Image Processing and Computer Vision, Algorithms, Computational Biology, Database and Data Mining, Simulation and Virtual Reality, Sensor

Networks, Software Engineering and Knowledge Based Systems. UCSC decided to divide the conference into two sessions in order to give more opportunity to the participants to select the subject areas according to their preferences.

It was a great honour for us to have **four prominent international academic personalities as our keynote speakers** on that special day. They were *Prof Falko Dressler from the Department of Computer Science, University of Paderborn, Germany, Prof. Laurie Buys from the School of Design, Queensland University of Technology, Australia, Prof. Jennifer Widom from the School of Engineering, Stanford University, United States, and Prof. Alex Aiken from the Department of Computer Science also from Stanford University.* The invited talks were delivered by Code Gen and the Millennium IT. After the main conference on 1st and 2nd of September, we could successfully conduct a work shop of the keynote speakers and well-known practitioners of the field on 3rd of September at the University of Colombo school of Computing.

Conference Chair

Dr. Hakim Usoof, University of Colombo School of Computing, Sri Lanka

Co-Chairs

Prof. Gihan Wikramanayake, University of Colombo School of Computing, Sri Lanka

Prof. Priyantha Hewagamage, University of Colombo School of Computing, Sri Lanka

Programme Co-Chair

Prof. Nihal Kodikara, University of Colombo School of Computing, Sri Lanka , Member IEEE Computer Society Sri Lanka Chapter

Dr. Yamaya Ekanayake, University of Colombo School of Computing, Sri Lanka

Dr. Roshan Ragel, Nominee from IEEE Sri Lanka Section

Steering Committee:

Dr. Ruwan Weerasinghe, University of Colombo School of Computing, Sri Lanka

Dr. Nalin Ranasinghe, University of Colombo School of Computing, Sri Lanka

Dr. Damitha Karunarathne, University of Colombo School of Computing, Sri Lanka

Prof. Athula Ginige, University of Western Sydney, Australia

Prof. Saman K. Halgamuge, Melbourne School of Engineering, University of Melbourne, Australia

Mr. S.T. Nandasara, University of Colombo School of Computing, Sri Lanka

Ms. Dilrukshi Gamage, University of Moratuwa, Sri Lanka

Dr. Ruwan Ranweera, University of Peradeniya, Sri Lanka, Immediate Past Chair, IEEE Sri Lanka Section

Dr. Sanjeeva Witharana, University of Peradeniya, Sri Lanka, Chair, IEEE Sri Lanka Section

Publication Co-chair:

Dr.Damith Sandaruwan, University of Colombo School of Computing, Sri Lanka

Mr. Viraj Welgama, University of Colombo School of Computing, Sri Lanka

Industry liaison:

Dr. Shiromi Arunathilake, University of Colombo School of Computing, Sri Lanka

Publicity & Public relations co-chairs:

Dr. Mindika Premachandra, University of Colombo School of Computing, Sri Lanka

Mr. Harsha Perera, University of Colombo School of Computing, Sri Lanka

Registration co-chairs

Ms. Lasanthi De Silva, University of Colombo School of Computing, Sri Lanka

Mr. Upul Anuradha, University of Colombo School of Computing, Sri Lanka

Web Master:

Mr. Tarindu Rajakaruna, University of Colombo School of Computing, Sri Lanka

Mrs. Rupika Wijesinghe, University of Colombo School of Computing, Sri Lanka

Finance chair & treasurer:

Mr. E.M. Gunarathne, Deputy Bursar, University of Colombo School of Computing, Sri Lanka

Conference Secretariat:

Ms. Jinadi Dahanayake, University of Colombo School of Computing, Sri Lanka

More details including pictures of the event is available at <http://ucsc.cmb.ac.lk/events/16th-international-conference-advances-ict-emerging-regions-icter-2016/>. The conference website is <http://www.icter.org/conference>

3.1.12 INTERNATIONAL JOURNAL – ICTER

The International Journal on Advances in ICT for Emerging Regions (ICTer) aims to promote journal level publications through peer review process while mentoring those who find difficulties in publishing their articles. This journal was initiated as a project by the University of Colombo School of Computing in order to promote computing publications in 2008. The journal welcomes researchers in ICT related fields, particularly from emerging regions, to disseminate knowledge through an international network to an international audience by way of an internationally acclaimed journal. ICTer will expose its writers to prominent research institutions and funding organizations like SIDA, SPIDER, JAICA, KOICA, World Bank, etc. Its ISBN No. is ISSN 2550-2794 and available at the <http://www.icter.org/Journal>. **In 2016, the impact factor of ICTer Publication is 0.70 according to Research Gate and it also has h-index 8.** Following members were appointed as the staff of ICTer Journal.

Editor in Chief

Prof. Abhaya Induruwa, Canterbury Christ Church University, United Kingdom

Associate Editors

Prof. Athula Ginige, Australia

Prof. Gihan Wikramanayake, University of Colombo School of Computing, Sri Lanka

Dr. Ana Hol, Western Sydney University, Australia

Prof. Giuliana Vitiello, Italy

Prof. Kamalnath Priyantha Hewagamage, University of Colombo School of Computing

Prof. Love Ekenberg, Sweden

Prof. Mahesan Niranjan, United Kingdom

Prof. Maria R. Lee, Taiwan, Province of China

Dr. Nalin Ranasinghe, Sri Lanka

Prof. San Murugesan, Australia

Chair of ICTer Steering Committee

Dr. Mindika Premachandra, Sri Lanka

ICTer Steering Committee Members

Prof. Kamalnath Priyantha Hewagamage, University of Colombo School of Computing

Prof. Gihan Wikramanayake, University of Colombo School of Computing, Sri Lanka

Dr. Nalin Ranasinghe, Sri Lanka

Dr. Hakim Ali Usoof, UCSC

Journal Manager

Ms. Buddhika Dissanayake, University of Colombo School of Computing, Sri Lanka, Sri Lanka

Web Master

Tharindra Galahena, University of Colombo School of Computing, Sri Lanka

The statistics of ICTer Journal as follows:

1. Number of submissions 2016 = 10
2. Number accepted = 5
3. Number published = 5
4. Number of issues = 2
5. Major activities of ICTer Journal during 2016.

Publishing 2016 Special Issue

- Appointed Prof. Abhaya Induruwa as the new Editor-in-Chief - (Prof. Abhaya Induruwa has accepted to work as the Editor-in-Chief 7th of September, 2016)
- Applied for Journal Indexing in Elsevier Scopus, Google Scholar, DOAJ (Directory of Open Access Journals), Web of Science (Thomson Reuters)



3.1.13 RESEARCH PUBLICATIONS – 2016

3.1.13.1 CONFERENCE PUBLICATIONS

1. Rangana Jayashanka Amaraweera, Ruwan Weerasinghe and C. R. Wijesinghe (2016). “*An Approach to Predict the Survival Time of Childhood Acute Lymphoblastic Leukemia Patients*”. International Conference on Advances in ICT for Emerging Regions, 1st – 3rd September 2016, Negombo, Sri Lanka.
2. Dakshila Kamalsooriya, R. D. T. Wasana Ranasinghe, Ruwan Weerasinghe, and C. R. Wijesinghe (2016). “*Identification & Verification of Mutations in Human Genome*”. International Conference on Advances in ICT for Emerging Regions, 1st – 3rd September 2016, Negombo, Sri Lanka.
3. Thilanka L.G.A., Ekanayake, Y., Weerasinghe A.R (2016). “*Personalized eye fatigue detection for Mobile Users*”. International Conference on Advances in ICT for Emerging, Negombo, Sri Lanka: 1-3rd September.
4. Fazeena.J.F, Hewagamage K.P, Ekanayaka, Y. (2016). “*Designing an M-Learning Application for Mobile Assisted Language Learning*”. The 9th International Conference on Ubi-Media Computing, Moscow, Russia, August 15-17 2016
5. D. N. Ranasinghe, T. Sritharan, R. G. L. H. Samarawickrama (2016), “*Vemaque: An Approximate Verifiable Remote Computation Mechanism for K- Clique and Maximum Clique Problem*”, International Conference on Advances in ICT for Emerging Regions (ICTer), 2016, Sri Lanka.
6. M G N A S Fernando (2016), “*Biostatic approach to diagnose diseases using computational ‘Nadi’ pattern*”, International Conference on Environmental Chemistry and Biology (ICECB), 2016, Australia. <http://www.icecb.org>
7. G.D.S.P. Wimalaratne (2016), “*Sensor Fusion in Visually Impaired Navigation Persons in Constrained Spaces*”, IEEE International Conference on Information and Automation for Sustainability, ICIAFS, 2016, December, Sri Lanka. <http://www.iciafs.org>
8. K.P. Hewagamage, Dinuka Rukshani Wijendra (2016), “*Automated Tool for the Calculation of Cognitive Complexity of a Software*”, 2nd International Conference on Science in Information Technology, (ICSITech), October, 2016, Indonesia. Paper ID.1570294442, P.No.163 – 168.
9. S M K D Arunatileka (2016), “*The Possibilities of Music Therapy for Healing and Positive Psychology among Sri Lankans*”, Humanities, Social Sciences and Environment (HSSEC) – 2016, November. Indonesia. <http://www.baliconference.usm.my/index.php/hssec/home> Paper ID. HSSEC1046,
10. Leif Marklund and Hakim Usoof (2016). “*Educational context’s influence on how learners perceive the private good of developing digital literacies in a developed and a developing country*”. NERA 2016, 44th Congress of the Nordic Educational Research Association, Helsinki.
11. Thilina Halloluwa, Dhaval Vyas, Hakim Usoof, Tony Sahama and Priyantha Hewagamage (2016). “*Gamifying Mathematics for Primary Students in Rural Sri Lanka*”. The 9th Nordic Conference on Human-Computer Interaction (NordiCHI’16), Gothenburg, Sweden, Oct 23-27, 2016.
12. Maheshya Weerasinghe, Aruni Nisansala, Damitha Sandaruwan, Nihal Kodikara, Chamath Keppitiyagama, G.K.A Dias: “*Virtual Eye: A smarter mode of interaction to virtual tours*”. 14th ACM International Conference on Mobile Systems, Applications, and Services (MobiSys) 2016, Singapore; 06/2016.
13. Aruni Nisansala, G.K.A. Dias, Nihal Kodikara, Maheshya Weerasinghe, Damitha Sandaruwan, Chamath Keppitiyagama, Nuwan Dammika, “*Stiffness Parameter Evaluation for Graphical and Haptic Gallbladder Model*”, 2nd International Conference on Communication and Information Processing (ICCIP 2016), Nov

26-29, 2016 | Singapore.

14. Maheshya Weerasinghe, G.K.A. Dias, Anuja Dharmarathne, Aruni Nisansala, Damitha Sandaruwan, Chamath Keppitiyagama, Nihal Kodikara, “*Computer Aid Assessment of Muscular Imbalance for Preventing Overuse Injuries in Athletes*”, 2nd International Conference on Communication and Information Processing (ICCIP 2016), Nov 26-29, 2016 | Singapore. <http://www.iccip.org/>
15. P. Somaratne, T. A. Weerasinghe, (2016), "Exploring student interaction through classroom and computer supported collaborative learning", EDULEARN16, Spain. July, 2016
16. C V Nanayakkara, H A Caldera, (2016), "*Identification of Musically induced Emotion: A Machine Learning based approach*", 3rd International Conference on Data Mining, Internet Computing, and Big Data, Turkey .July 2016.
17. A. I. Walisadeera, J S Gonathilaka, S.W.A.D.M. Samarasinghe, (2016), "*User-Friendly Ontology Structure Maintenance Targeting Sri Lankan Agriculture Domain* ", 16th International Conference on Computational Science and It's Applications, July, 2016. China.
18. N D Kodikara, W.O.K.A.S. Wijesinghe, K.D. Sandaruwan. (2016), "*Autogenous Diabetic Retinopathy Sensor for Ophthalmologists - AKSHI*", IEEE International Conference on Control and Robotic Engineering, Singapore.
19. G P N Boteju. (2016), "*A survey on wireless sensor network environment, attacks and security requirements*", Technoarete Conference, India.
20. D N Ranasinghe, Y.S. Horawalawithana. (2016), "*An Efficient Incremental Indexing Mechanism for Extracting Top-k Representative Queries over Continuous Data-Streams*", Virtual Presentation at the Workshop: ARM 15, Canada. 7- 11th December
21. Nishan Nilanka Gunawardena, Roshan N Rajapakse, Nihal D Kodikara, Indika U Mudalige, (2016). "*Moving from Detection to Pre-detection of Alzheimer's Disease from MRI Data*", Proceedings of the International Conference on Advances in ICT for emerging regions (ICTer 2016), Negombo.
22. Lakshika Nanayakkara, Nihal D Kodikara, Asoka S. Karunananda, Maduwanthi Dissanayake, (2016). "*Classification of Stages of Diabetic Retinopathy in Human Retina*", Proceedings of the International Conference on Advances in ICT for emerging regions (ICTer 2016), Negombo.
23. Santhakumar Titus Rakkesh, A.R. Weerasinghe and R.A.C. Ranasinghe (2016). "*A Decentralized Vehicle Re-routing Approach using Vehicular Ad-hoc Networks*". International Conference on Advances in ICT for Emerging Regions, 1st – 3rd September 2016, Negombo, Sri Lanka.
24. Supun Rasitha Muthantrige and A.R. Weerasinghe (2016). "*Sentiment Analysis in Twitter Messages using Constrained and Unconstrained data categories*". International Conference on Advances in ICT for Emerging Regions, 1st – 3rd September 2016, Negombo, Sri Lanka.
25. Buddhima Dilmi Gunasekara, A.R. Weerasinghe and W.V. Welgama (2016). "*Hybrid Part of Speech Tagger for Sinhala Language*". International Conference on Advances in ICT for Emerging Regions, 1st – 3rd September 2016, Negombo, Sri Lanka.
26. K.M.P.N. Jayathilaka, A.R Weerasinghe and W.M.L.K.N. Wijesekara (2016). "*Making Sense of Large Volumes of Unstructured Email Responses*". International Conference on Advances in ICT for Emerging Regions, 1st – 3rd September 2016, Negombo, Sri Lanka.
27. S. T. Rakkesh, R. Weerasinghe and C. Ranasinghe (2016). "*Simulation of Real-time Vehicle Speed Violation Detection Using Complex Event Processing*". Proceedings of the International Conference on

28. Menasha Thilakaratne, Ruwan Weerasinghe, Sujana Perera (2016). “*A Knowledge-Driven Approach to Predict Personality Traits by Leveraging Social Media Data*”. The 2016 IEEE/WIC/ACM International Conference on Web Intelligence, 13-16 October 2016, Nebraska, USA.
29. M. G. Viraj Lakshitha and K. L. Jayaratne (2016): “*Melody Analysis for Prediction of the Emotion Conveyed by Sinhala Songs*”, Proceedings of IEEE International Conference on Information and Automation for Sustainability (ICIAfS 2016), Sri Lanka.
30. W. G. Dulakshi Vihanga, K. L. Jayaratne and Andrea Barraza-Urbina (2016): “*Enhancing Diversity of Recommendations by Experience-Based Personalization*”, Proceedings of eleventh IEEE International Conference on Information Technology and Applications (ICITA 2016), Australia.
31. Rajitha Peiris and Lakshman Jayaratne (2016): “*Supervised Learning Approach for Classification of Sri Lankan Music based on Music Structure Similarity*”, Proceedings of ninth Annual International Conference on Computer Games, Multimedia and Allied Technology (CGAT 2016), Singapore, 84-90.
32. W. G. Dulakshi Vihanga, K. L. Jayaratne and Andrea Barraza-Urbina (2016): “*Personalization of Recommendation Diversification*”, Proceedings of ninth Annual International Conference on Computer Games, Multimedia and Allied Technology (CGAT 2016), Singapore, 78-83.
33. Ge, T., Di Giovanni, P., Mathai, M., Goonetillake, J. S., Wikramanayake, G. N., Ebillo, M., Vitiello, G., Tortora, G., Tucci, M. & Ginige, A. (2016), “*Interplay of Requirements Engineering and Human Computer Interaction Approaches in the Evolution of a Mobile Agriculture Information System*”. In: Ebert, A., Humayoun, S. R., Seyff, N., Perini, A. & Barbosa, S. D. J. (eds.) Usability- and Accessibility-Focused Requirements Engineering: First International Workshop, UsARE 2012, Held in Conjunction with ICSE 2012, Zurich, Switzerland, June 4, 2012 and Second International Workshop, UsARE 2014, Held in Conjunction with RE 2014, Karlskrona, Sweden, August 25, 2014, Revised Selected Papers. Cham: Springer International Publishing.
34. A. Ginige, A. I. Walisadeera, T. Ginige, L. N. C. De Silva, P. Di Giovanni, M. Mathai, J. S. Goonetillake, G. N. Wikramanayake, G. Vitiello, M. Sebillio, G. Tortora, D. Richards & R. Jain. 2016. “*Digital Knowledge Ecosystem for achieving Sustainable Agriculture Production: A Case Study from Sri Lanka*”. IEEE DSAA 2016, 3rd IEEE International Conference on Data Science and Advanced Analytics (DASS 2016), Montreal, Canada.
35. Sugathadasa, L., Ginige, A., Wikramanayake, G. N., Goonetillake, J. S., De Silva, L. N. C., Walisadeera, A. I; “*Digital Knowledge Ecosystem to Reduce Uncertainty and Coordination Failure in Agricultural Markets - Study of “Govi Nena” Mobile-Based Information System;*” WCCA.AFITA2016, June 2016 Korea
36. Bhagyadith G D S D, Wikramanayake Gihan N, (3 Mar 2016), “*Querying Federated Ontologies using ontology inter-operations in agriculture domain*”, in 8th Annual Symposium, Colombo, Sri Lanka
37. Hettiarachchi Achini Sandeepani, Goonatillake Jeevani, Wikramanayake Gihan, (3 Mar 2016), “*Hybrid Approach for Optimal Management and Querying of Data and Knowledge*”, 8th Annual Symposium, Colombo, Sri Lanka.
38. Anusha Indika Walisadeera, Athula Ginige, Gihan Nilendra Wikramanayake, (4-7 July 2016), “*Ontology Evaluation Approaches: A Case Study from Agriculture Domain*”, in 16th International Conference, Beijing, China, Proceedings, Part IV978-3-319-42088-2.
39. HHLK Fernando, HHLK, Wikramanayake, GN, Sahama, T and Edirisingha, K, (Sept 2016), “*Situational*

Analysis Implementation of Hospital Information System HIS in University Hospital KDU", Colombo, Sri Lanka.

40. M. Fernando, T. Sahama, C. Fidge and K. P. Hewagamage, "*Personal health records as sources of productivity evidence*," 2016 IEEE International Conference on Communications (ICC), Kuala Lumpur, 2016, pp. 1-6. (doi: 10.1109/ICC.2016.7510830)
41. Perera, J.A.P.H., Perera, P.M.C., Rathnarajah, L.M., & Ekanayake, H.B. (2016). "*Biofeedback Based Computational Approach for Working Stress Reduction Through Meditation Technique*". Proceedings of the International Conference on Advances in ICT for Emerging Regions (ICTer), Negombo, Sri Lanka.
42. Thomas Westin , Sirkku Männikkö-Barbutiu , Harsha Perera , Upul Anuradha "*Game Based Learning of Programming for Underprivileged Communities in Sri Lanka*" 10th European Conference on Games Based Learning(EGBL) - 6 – 7th October 2016, Paisley, Scotland
43. Yohani S. Ranasinghe, Malaka J. Walpola (2016). "*Integrating Context Awareness with Reminder Tools*". International Conference on Advances in ICT for Emerging Regions, 1st – 3rd September 2016, Negombo, Sri Lanka.
44. V.A. Isuru, M.A.I.M Dharmadasa, D.V.B.C Jayasinghe, C.I. Keppitiyagama (2016). "*Reusing Discarded-Smartphone Capabilities on Quadcopters: Rationale, Benefits and Issues*". International Conference on Advances in ICT for Emerging Regions, 1st – 3rd September 2016, Negombo, Sri Lanka.
45. Prashan Madumal, Ajantha S. Atukorale and Hakim Usoof (2016). "*Adaptive Event Tree-Based Hybrid CEP Computational Model for Fog Computing Architecture*". International Conference on Advances in ICT for Emerging Regions (ICTer 2016), Negombo, Sri Lanka, Sep 1 - 3, 2016.
46. A.T. Rupasinghe, N.L. Gunawardana, S. Shujan, Ajantha S. Atukorale, (2016), "*Scaling Personality Traits of Interviewees in an Online Job Interview by Vocal Spectrum and Facial Cue Analysis*" , International Conference on Advances in ICT for Emerging Regions (ICTer 2016), Negombo, Sri Lanka, Sep 1 - 3, 2016.
47. Lahiru A.N. Yapa, Ajantha S Atukorale, (2016), "*Real time road sign detection using hybrid colour segmentation and invariant shape detection*" , in 34th National Information Technology Conference (NITC) , Colombo, Sri Lanka, August 2016.

3.1.13.2 JOURNAL PUBLICATIONS

1. G.D.S.P. Wimalaratne, Akarshani Amarasinghe (2016), "*An Assistive Technology Framework for Communication with Hearing Impaired Persons*", Global Science and Technology Forum – Journal on Computing, JoC. Singapore, Vol.05, No.01, (GSJ) <http://globalstf.org/journal/gstf-jurnal-on-computing-joc/>
2. G D S P Wimalaratne, Jayalath D D A C J, Karunanada A S (2016), "*Modelling Goal Selection of Characters in Primary Groups in Crowd Simulation*", International Journal of Simulation Modelling. Vol.15, NO.04, December 2016, PP.581-770
3. G D S P Wimalaratne, Pumudu Fernando, (2016), "*Sign Language Translation Approach to Sinhalese Language*", Global Science and Technology Forum - JOC, Singapore. Vol.05, No.01, <http://globalstf.org/journal/gstf-journal-on-computing-joc/>
4. P. B. Jayasekara¹, L. Sivaneasharajah¹, M. A. S. Perera¹, J. Perera, D. D. Karunaratne, K. D. Sandaruwan, R. N. Rajapakse, (2016), "*Facial Index Based 2D Facial Composite Process for Forensic Investigation in Sri Lanka*", Forensic Medicine and Anatomy Research (FMAR). China. Vol.4 No.1, January 2016, PP. 7-16.
5. M G N A S Fernando, Tharushika Silva. (2016), "*Knowledge Based Approach for Concept level Sentimental Analysis for on line Review*", International Journal of Emerging Trends and Technology in Computer Science. India. Vol.05, Issue 01, January – February, www.ijettcs.org
6. S S P Mathara Arachchi, Siong Choy Chung, Kennedy .D. Gunawardhana. (2016), "*Comprehensive Marketplace and factors affecting the budget of ERP in Sri Lanka*", European Journal of Computer Science and Information Technology, European Centre for Research, Training and Development., UK, www.ea-journals.org , www.eajournals.com Vol.03, No.01, PP.1-19 , September 2015
7. S S P Mathara Arachchi, Siong Choy Chung, A.G.I. Madushani. (2016), "*Quality Assurance and Quality Control in ERP System Implementation. A survey on wireless sensor network environment, attacks and security requirements*", American Scientific Research Journal for Engineering, Technology and Sciences. (ASRJETS). <http://asrjetsjournal.org/> , Vol.11, No.1, PP.70-83
8. R S Madanayake, G K A Dias, N D Kodikara. (2016), "*A discovery of the Relevance of Eastern Four Valued (Catuskoti) Logic to Define Modular Transformations when there are multiple ways of Representing the same Modular Transformation*", Horizon Research Publishing Corporation. USA. PP.247-255, 2015. <http://www.hrpub.org>
9. D.A.S. Ruwanmini, K.V. Liyanage, K.G.N.D. Karunarathne, G.K.A. Dias, S.T. Nandasara, "*An Architecture for an Inscription Recognition System for Sinhala Epigraphy*", International Journal of Research – Granthalayah, Vol 4 Issue 12, pp 48-64 (Dec 2016)
10. Madanayake R S, G.K.A. Dias, N.D. Kodikara, "*User Stories, Epics in Agile Methods Vs Use Case Models in UML*", Proceedings of the 72nd Annual Sessions, Sri Lanka Association for the Advancement of Science (SLASS), ISSN: 1391-023X, 5 – 9 December, 2016.
11. Poshitha Dabare, G.K.A Dias, Maheshya Weerasinghe, Aruni Nisansala, Damitha Sandaruwan, Nihal Kodikara, Chamath Keppitiyagama, Nuwan Dhammika, Chamal Lakshika, Ishan Buddhika, "*Foss Based Air Traffic Control Simulator*", ", International Journal of Research – Granthalayah, Vol 4 Issue 12 pp 170-177, ISSN(P)- 2394-3629, Dec 2016.
12. G D S P Wimalaratne, Chathurajayalath, Ashoka Karunananda. (2016), "*Modelling of Tactical Decision Making within Primary Groups*", International Journal of Simulation Modelling. Code Of Paper: IJSIMM 323-2015, Version 01, <http://www.ijsimm.com>

13. G N Wikramanayake, M.A. Kalarahuman, K.P. Hewagamage(2016), "*Impact of Technology Enhanced Informal Learning on Formal Learning in Primary Education in Sri Lanka*", Association for the Advancement of Computing in Education. Washington, DC. <http://www.aace.org/conf/elearn/>
14. Rajitha Amarasinghe and Lakshman Jayaratne (2016): "*Supervised Learning Approach for Singer Identification in Sri Lankan Music*". European Journal of Computer Science and Information Technology (EJCSIT) by European Centre for Research Training and Development UK, 4(6):1-14
15. Rajitha Peiris and Lakshman Jayaratne (2016): "*Musical Genre Classification of Recorded Songs Based on Music Structure Similarity*". European Journal of Computer Science and Information Technology (EJCSIT) by European Centre for Research Training and Development UK, 4(5):70-88
16. Kaneeka Vidanage and Lakshman Jayaratne (2016): "*Ontology and Expert System Based Intervention for Psychological Consultation*". European Journal of Computer Science and Information Technology (EJCSIT) by European Centre for Research Training and Development UK, 4(4):1-12
17. Kavindu Ranasinghe and Lakshman Jayaratne (2016): "*Analysis on Using Synthesized Singing Techniques in Assistive Interfaces for Visually Impaired to Study Music*". International Journal of Computing (JOC) by Global Science and Technology Forum (GSTF), 4(4):37-45
18. Thilini Thushari Cooray, Gihan Wikramanayake, (2016), "*Path Index Based Keywords to SPARQL Query Transformation for Semantic Data Federations*", in ICTer Journal.

3.1.13.3 BOOK CHAPTER

1. E. Hettiarachchi, I. Balasooriya, E. Mor, and M.A. Huertas, (2016), "e-Assessment for Skill Acquisition in Online Engineering Education: Challenges and Opportunities", Formative Assessment, Learning Data Analytics and Gamification in ICT Education, A volume in Intelligent Data-Centric Systems, Edited by Santi Caballé and Robert Clarisó, 1st Edition, chapter 3, pp. 49-64, ISBN: 978-0-12-803637-2, Academic Press, Elsevier, UK.
2. De Silva, L. N. C., Ginige, T., Di Giovanni, P., Mathai, M., Goonetillake, J. S., Wikramanayake, G. N., Sebillio, M., Vitiello, G., Tortora, G., Tucci, M. & Ginige, A. 2016. "Interplay of Requirements Engineering and Human Computer Interaction Approaches in the Evolution of a Mobile Agriculture Information System". In: EBERT, A., HUMAYOUN, S. R., SEYFF, N., PERINI, A. & BARBOSA, S. D. J. (eds.) *Usability- and Accessibility-Focused Requirements Engineering: First International Workshop, UsARE 2012, Held in Conjunction with ICSE 2012, Zurich, Switzerland, June 4, 2012 and Second International Workshop, UsARE 2014, Held in Conjunction with RE 2014, Karlskrona, Sweden, August 25, 2014, Revised Selected Papers*. Cham: Springer International Publishing.

HUMAN RESOURCES – ACADEMIC AND NON-ACADEMIC

4. HUMAN RESOURCES – ACADEMIC AND NON-ACADEMIC

Human resources of an organization are the key foundation as well as the most important asset for its development. The University Grants Commission and the Department of Management Services wanted to conduct a zero cadre review to identify the actual human resource requirement considering the workload of both academic and non-academic staff. In the past, this was determined based on the number of students.

4.1 UCSC CADRE

In 2016, zero cadre review was carried out and the cadre review manual of the organization was developed for the first time in the history of the organization. The UCSC annually admits 275 undergraduate students based on UGC Z-Score cutoff marks for two degree programs of 3 years duration. The intake consists of 175 students for the Computer Science degree and 100 students for the Information Systems degree. Out of the 175 Computer Science students, at the end of the second year, the best 40 academically performing students are given the opportunity to specialize in Computer Science or Software Engineering in the 4th year of study. At the end of second year, the best 20 academically performing students are provided with an opportunity to specialize in Information Systems in the 4th year of study.

Simultaneously, UCSC annually admits 230 postgraduate students for three Masters Degree programs as 100 students for Master of Computer Science degree, 100 students for Master of Information Technology degree and 30 students for Master of Information Security degree. UCSC has over 50 MPhil and Ph.D. Computing Research students under the supervision of the UCSC academic staff members.

Bachelor of Information Technology (BIT) External Degree Program annually attracts around 2000 new students while another 3000 re-sit for the examinations. UCSC conducts short term extension courses and provide expertise in Computing for the organizations of government and private sectors to develop software solutions and solve their problems related to the requirements of Information Technology.

The University of Colombo School of Computing (UCSC) currently has 195 cadre positions attached to 19 units/centers/departments. 118 positions have been filled on the permanent basis and another 68 positions are filled on temporary basis such as contract, assignment, and daily paid basis. In the zero cadre review process, we also have suppressed some unwanted positions. In our review, we have observed the fact that the UCSC requires several nominal positions such as Deputy Director, Department Heads and Center Coordinators which have been defined in the ordinance of UCSC. However, those nominal positions do not require fulltime staff members since the permanent academic staff members are covering the services of such posts.

We have also considered the immediate cadre requirements since we are planning to increase our undergraduate intake by 10% in coming years. We have provided the details of the cadre requirements summary in the following table. A detailed explanation of cadre requirements with respect to each division will be given later in this report. Since UCSC generates income from different programs and activities, the UCSC pays the salary of some positions using its generated income. Around 40% of recurrent expenditure is currently covered using the generated income of these programs.

Table 4.1 - A: Summary of UCSC Cadre Requirement

Designation	Approved Cadre (a)	Existing Cadre (b)	Vacancy	Additional No of Posts Required (c - a)	No of Posts Required (C)
(1) Director's Office	2	3	0	4	6
(2) Establishment Division	7	4	3	2	9
(3) General Administration Division	16	8	8	1	14
(4) Academic & Publication (Undergraduate) Division	6	6	0	5	15
(5) ISE Department (Academic)	27	23	4	30	57
ISE – Non-academic staff	0	0	0	1	1
(6) CIS Department (Academic)	28	24	4	15	43
CIS-Non-academic staff	0	0	0	1	1
(7) CMT Department (Academic)	26	17	9	30	60
CMT –Non-academic staff	0	0	0	1	1
(8) Finance Division	12	11	1	4	16
(9) Examination Division	6	6	0	4	11
(10) Advanced Digital Media and Technology Centre (ADMTC)	15	0	15	2	16
(11) Centre for Digital Forensic (CDF)	3	0	3	1	5
(12) E-Learning Centre (eLC)	0	0	0	11	13
(13) Library	6	3	3	0	6
(14) Postgraduate Division	0	0	0	3	3
(15) Engineering & Maintenance	7	4	3	5	11
(16) Network Operating Centre (NOC)	7	4	3	3	23
(17) External Degree Centre (EDC)	12	5	7	1	8
(18) Professional Development Centre (PDC)	0	0	0	0	3
(19) Computer Service Centre (CSC)	15	0	15	1	3
Total	195	118	78 *	125	325

* 68 of 78 vacancies are currently filled using contract, assignment and daily paid basis employments. Actual details have been given in the cadre review manual of 2016.

Table 4.1 - B: The distribution of cadre positions against the salary scale– 31st December 2016

Staff category	Salary Scale	Approved Cadre	Permanent			Temporary			Contract			Visiting			Assignment			Permanent Cadre Vacancies	Actual Cadre Vacancies
			Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total		
		(1)			(2)			(3)			(4)			(5)			(6)	(1)-(2)	(1)-(2)-(3)-(4)-(5)-(6)
Academic Staff	U-AC 2 to U-AC 5	59	33	9	43		5	5	2	1	3				0	0	0	16	8
	U-AC 1	18				8	12	20	0	1	1								(3)
Library (professional staff)	U-AC 5																		
	U-AC 4																		
	U-AC 3	1																1	1
Administrative Staff	U-EX 3																		
	U-EX 2	5	3	2	5													0	0
	U-EX 1	3	1	1	2													1	1
Other Executive Staff*1	U-EX 3																		
	U-EX 2	1																1	1
	U-EX 1																		
	U-MO 2																		
	U-MO 1																		
Academic Support Staff	U-AS 2	15	4	0	4				3	2	5							11	6
	U-AS 1	5	0	0	0				5	2	7							5	0

Technical Staff *1	U-EX 2																		
	U-EX 1																		
	U-MN 4																		
	U-MN 3																		
	U-MN 2																		
	U-MN 1																		
	U-MT 1	7	2		2												5	5	
Clerical & Allied	U-MN 4	4	0	3	3												1	1	
	U-MN 3																		
	U-MN 2																		
	U-MN 1	43	8	14	22				1	2	3				3	5	8	21	10
Primary Staff	U-PL 3	7	3	0	3												4	4	
	U-PL 2	2															2	2	
	U-PL 1	7	6	3	*9					2	2				2		2	0	0
Total		177	60	32	84	8	17	25	11	10	21				5	5	10	66	28

In 2016, few vacancies for the Academic staff are used to appoint Temporary Instructors due to inadequate cadre positions. One staff member obtained the sabbatical leave in 2016. Seven (7) Labourers were given permanent appointments as UGC PA Circular 25/2014, works relevant for vacant positions are covered by them. According to the table given above there were 149 staff members who were working in the organization and there were 28 vacancies based on the cadre manual.

Following table shows actual status of Cadre and vacancies with respect to different positions.

Staff	Approved Cadre	Permanent			Temporary			Contract			Visiting			Assignment			Permanen t Cadre Vacancies	Actual Cadre Vacancies
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total		
	(1)			(2)			(3)			(4)			(5)			(6)	(1)-(2)	(1)-(2)-(3)- (4)-(5)-(6)
Senior Professor	59	0	0	0													16	8
Professor		3	0	3														
Associate Professor		0	0	0														
Senior Lecturer		18	4	22				2	1	3								
Lecturer		2	2	4														
Prob. Lecturer		10	4	14														
Temporary Lecturer/ Asst. Lecturer					0	5	5											
Temporary Research Assistant																		
Temporary Demonstrator																		
Temporary Instructor	18				8	12	20	0	1	1							18	0
Temporary Tutor																		
Total	77	33	10	43	8	17	25	2	2	4							34	5

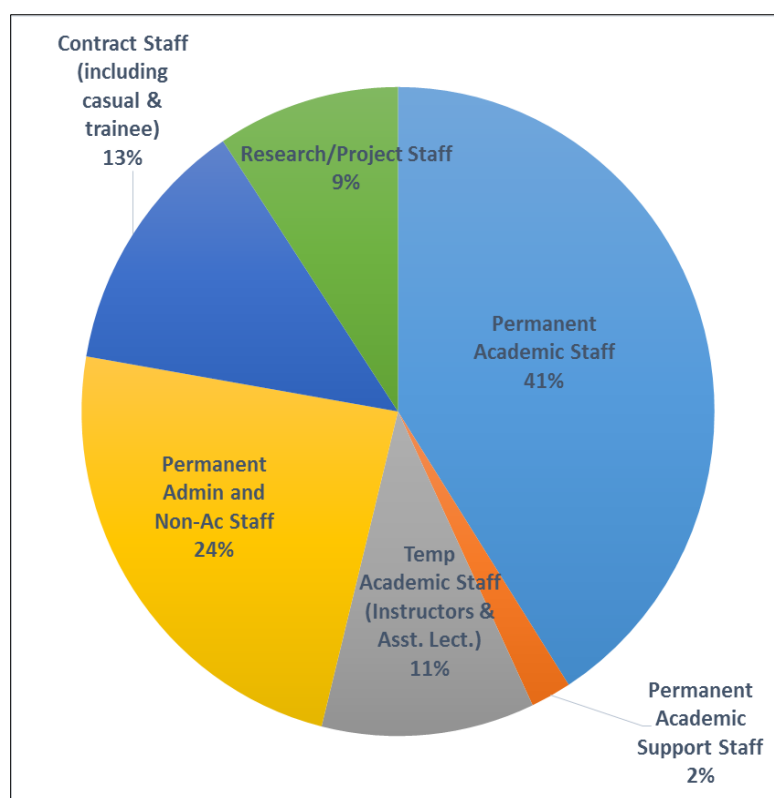


Figure 4.1 - B: Distribution of filled cadre positions in 2016

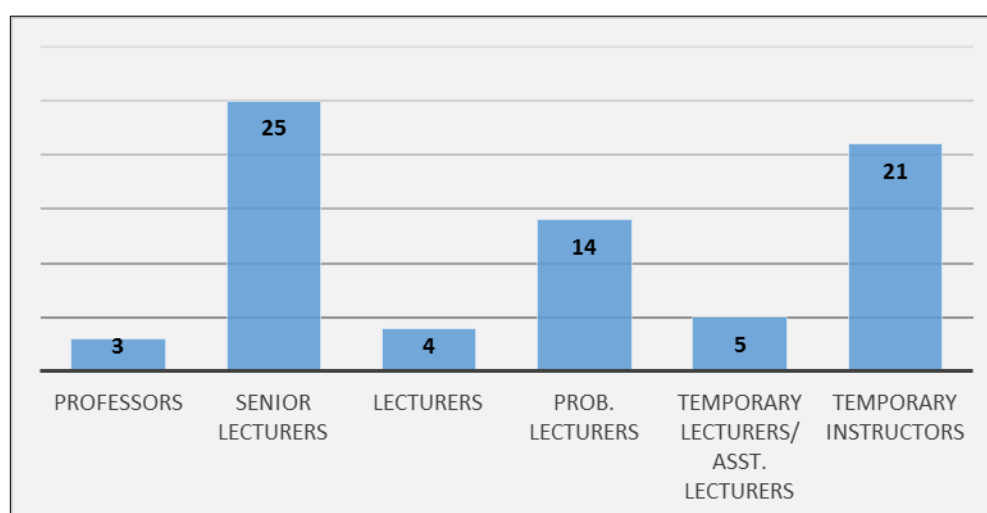


Figure 4.1 - C: Filled Academic and Academic Support cadre positions in 2016

4.1.1 OVERALL PROFILE OF UCSC STAFF

4.1.1.1 HIGHEST COMPUTING QUALIFICATION OF ACADEMIC STAFF

No. of Staff	PhD	MPhil	MSc	BSc (Hons)
42	24	4	5	8

4.1.1.2 HIGHEST ACADEMIC QUALIFICATIONS OF ADMINISTRATIVE STAFF

No. of Staff	PhD	MPhil	MSc	Bachelor	Diploma
7	--	--	4	1	2

In 2016, two academic staff members completed their doctoral degrees and one administrative staff member completed the masters degree. Two permanent staff members obtained study leave to read doctoral degree in foreign Universities and one more member continued to obtain the study leave to complete his postgraduate degree. One academic staff member who was on sabbatical leave completed his leave period and assumed duties.

Since all permanent non-academic cadre positions are not filled, UCSC uses temporary staff on contract basis or assignment basis to cover the duties of different divisions. This situation considered in the zero cadre review and details are recorded in the UCSC Cadre Manual 2016. Details of all these appointments are mentioned in the cadre table given earlier.

4.1.2 RECOGNITION OF UCSC STAFF

On 16th February 2016, the Long Service Award was conducted to recognize the staff who have completed more than 25 years of service in the University System. Following staff members received the long service award in 2016.

Table 4.1.2 - A: Long Service Awards of UCSC Staff in 2016

Staff Member	Designation	Service start date at UCSC (Date of First Appointment)	Date of Completion of 25 years/ 30 years	Total Service @ University System as at 31.12.2016
Mrs. R.L.A. Rajapakse	Senior Staff Assistant/ Library Services	03.10 1985	03.10.2015	31 Years
Dr. D.N. Ranasinghe	Senior Lecturer Gr. I	08.09.1986	07.09.2016	30 Years
Dr. H.A. Caldera	Senior Lecturer Gr. I	02.12.1991	01.12.2016	25 Years
Mrs. S.F. Imam	Senior Staff Assistant	05.02 1991	05.02.1991	25 Years
Mrs. D.K.M Rathnayake	Senior Assistant Registrar/ Examinations	01.09.1986	01.10.2013	30 Years

4.1.3 STAFF DEVELOPMENT AND TRAINING

The staff development and training are treated as an important policy towards the human resource development of the organization. Depending on the grade of staff and job requirements, suitable staff is supported using both funds of generated income as well as from government grants.

Academic staff is given the freedom to participate in presenting their research papers subject to a limit as given in the Research Fund policy of 2016. Within the individual quota, the staff could also attend conferences depending on their interest subject to some additional conditions. Details of such participation have been given in the Research section of this report.

Research fund is available only for the permanent staff of the UCSC. Therefore, all academic, academic support and administrative staff irrespective of the staff grade are supported to attend two locally held conferences, ICTer2016 and NICT2016 as an opportunity to enhance their professional standard.

If a staff member requests to participate in local workshop/training programme which is directly related to his/her job of the UCSC, through the Head of respective division, such requests would be accommodated through the funds available for the financial year. All such training opportunities are tabled below.



Table 4.1.3 - A: Staff who participated short term training/workshop/seminar sessions

	Participants Name	Institute	Course	Cost
1	Mrs. J.K.D.I.K.Thilakaratne	University of Colombo	Training programme in office procedures and Clerical Skills for Computer Application Assistants(CAA)	12,500.00
2	Mr. E.M.Gunaratne	The Association of Public Finance Accountants of Sri Lanka	Training programme on Assets Management	8,000.00
3	Mr. R.M..Weerasiri, Mr. H.M.S.P..Herath and Mr. K.T.M.D.Madhushanka	Prag Service(Pvt)Ltd	Training programme on Contract Administration, Preparation of Bidding Documents & Bid Evaluation	30,000.00
4	Mr. E.M.Gunaratne and Mrs. D.S.R.De Silva	The National Chamber of Commerce of Sri Lanka	"Online Submission of Tax Returns"(VAT,SVAT,NBT & PAYE)	6,000.00
5	Mr. D.D.A.C.J.Jayalath	University of Colombo	Certificate in Teaching in Higher Education(CTHE 20),2017	25,000.00
6	Mr. E.M.Gunaratne and Mr. S.P.G.Nihal	University of Colombo	Workshop regarding "Ensuring proper utilization of University Funds in Universities	4,000.00
7	Mr. A.P.Sayakkara	University of Kelaniya	Staff Development Course.(CTHE)	40,000.00
8	Prof.K.P.Hewagamage	University of Colombo	Workshop regarding "Ensuring proper utilization of University Funds in Universities	2,000.00
9	Ms. S.D.Gunawardhana	National Centre for Advanced Studies in Humanities and Social in Sciences	Short Course in Academic Writing	9,000.00
10	Mr. D.M.U.A.Prabath	National Institute of Library & Information Sciences	The Certificate in Library and Information Management - Preliminary	12,000.00
11	Mr. K.S. Goonathilake and 3 others	Sri Lanka CERT (Pvt) Ltd	Cyber Security Conference Fee	66,000.00
Total				214,500.00

4.1.4 MEDICAL SUPPORT SCHEME

The Medical Support Scheme was introduced to the UCSC as a part of the organizational policy of health and safety of the organization. In this Medical Support Scheme, the staff has been given an opportunity to subscribe to one of three schemes which have different supporting limits when medical expenses are incurred. The objective is to support the staff to maintain a good profile of their health conditions by conducting a medical camps and partially supporting their medical expenses. The UCSC hopes this will motivate its employees to increase their productivity at the workplace and provide full cooperation to generate additional income for the organization. Only less than 2% of annual generated income is used for the Medical Support Scheme in order to recognize all staff members equally irrespective of grade their service.

In 2016, the Board of Management approved the proposal to conduct a medical camp for all staff members under the medical support scheme. Irrespective of staff grade, all employees were able to obtain common medical reports to identify whether they are suffering from non-communicable diseases and to consult a doctor personally for health and wellbeing.

4.1.5 WELFARE SOCIETY OF UCSC

The welfare society of UCSC has been a volunteer society for all staff members irrespective of type and grade of employees. Its main mandate is to support the management when carrying out staff welfare related activities. When an immediate family member of an employee passed away, the welfare society organizes transport facilities to other staff members to attend it as well as represent the institute in order to support him/her. It also supports the staff member financially or some other ways in such situations. The membership of the welfare society is open for all staff members who have completed at least one year of service at the UCSC and they have to pay a membership fee in order to be a member.

In 2016, the management wanted to carry out an out bound training programme for all staff members and requested the welfare society to organize it in the month of September 2016. The welfare society successfully carried out this training programme linking it with their annual trip of 2016. Several activities were carried during this outbound training programme.



INSTITUTIONAL DEVELOPMENT

The latest technologies

5.1 INSTITUTIONAL REVIEW – 2016

The University of Colombo decided to carry out the institutional review in the latter part of 2015. Hence, all the faculties and institutes were instructed by the Vice Chancellor to establish a Quality Assurance Cell (QAC) and prepare the self-evaluation report of each faculty/institute. The UCSC started the quality assurance cell and started the institutional review process by cooperating with all academic and non-academic staff of the UCSC. The institutional review was carried out considering 10 criteria and the best practices. The UCSC carried out the self-evaluation and the full report is available for reference. Following table shows the score with respect to each criteria as described in the self-evaluation report of institutional review of the UCSC.

Table 5.1 - A: Score for each criteria described in self-evaluation report of Institutional Review of UCSC

Criteria	Number of Best practices	Expected Max. Score (3*Criteria)	UCSC Raw Score based on Evidence	Weight	Actual Score	Grade
1. Governance and Management	29	87	71	180	146.90	82%
2. Curriculum Design and Development	15	45	43	120	114.67	96%
3. Teaching and Learning	10	30	26	100	86.67	87%
4. Learning Resources, Student Support and Progression	14	42	38	80	72.38	90%
5. Student Assessment and Awards	15	45	34	100	75.56	76%
6. Strength and Quality of Staff	11	33	19	100	57.58	58%
7. Postgraduate studies, Research, Innovation and Commercialization	25	75	62	100	82.67	83%
8. Community Engagement, Consultancy and Outreach	6	18	16	60	53.33	89%
9. Distance Education	13	39	32	40	32.82	82%
10. Quality Assurance	7	21	15	120	85.71	71%
Total	145	435	356	1000	81%	

In the institutional review, the University of Colombo got “A” grade. According to the self-evaluation of UCSC, the UCSC is also in the level of grade “A”. However, we identified many issues to be addressed in order to maintain the “A” grade standard of the Institute further.

5.2 DEVELOPMENT OF INFRASTRUCTURE

In 2016, the volume of the development of infrastructure has significantly increased compared to previous years. The multi-purpose auditorium building was supposed to be completed by 2016 but it was postponed to the first quarter of 2017 due to several operational issues. However, around 92% of the construction was completed at the end of 2016. 60% of contract sum was received directly from the government and the UCSC spent the balance 40% from its generated income.

The UCSC received the cabinet approval for the second phase of canteen, library and administration building block which was required to commence before November 2016. The same party who developed the phase 1 of the project was able to qualify the project based on the open tender procedure. The project which was around 80 million, commenced its activities in November 2016.

In addition to main building constructions, there were several mini-projects to address infrastructure activities of the auditorium building, namely auditorium chairs, auditorium light and sound system, new elevator and the interior development of staff area of the new building. All these activities were started but it was not possible to complete them before 31st December 2016.

In addition to the main project, there were several capital projects as identified in the procurement plan of 2016. However, it was not possible to complete some of these activities due to some practical difficulties as well as due to inadequate staff in the school to carry out activities in parallel. Details are given the following table.

Table 5.2 - A: Infrastructure Development on 31st December 2016

Infrastructure Details	Expected Expenditure – Rs. ‘000	Physical Progress	Financial Progress – Rs. ‘000
Canteen & Admin Building Block Phase II	20,000	15%	20,000
UCSC Multi Purposes Auditorium and Lecture Halls	235,000	92%	235,000

FINANCE

6. FINANCE

The draft finance report was prepared and submitted to auditors on time and based on their feedback and comments, the revised final accounts of the UCSC was submitted to the Auditor General with the approval of the Board of Management. In this section, we describe and analyze the financial status of the document.

6.1 RECURRENT EXPENDITURE

Since the treasury funds are not adequate to meet the requirements of day to day operations of the organizations, the generated income has become a vital source of income to carry out the operations of the institute. The main business of the institute is to manage the internal undergraduate programmes, for which 5 days out of 7 days of a week are allocated. Hence, the bulk of recurrent expenditure is directly related to activities linked to undergraduate programme. In 2016, the recurrent expenditure of Rs. 269,490/= has been spent per student basis.

In general, the recurrent expenditure is 353 million out of which 147 million was the generated income of UCSC. In other words, 48% of the total recurrent expenditure is from UCSC generated income. The major classification of recurrent expenditure is given below in the table (Recurrent Expenditure).

Table 6.1 - A: Recurrent Expenditure

Subject	2015	2016
Personal emoluments	148,642	163,513
Travelling	1,060	535
Supplies	6,489	5,818
Maintenance	5,400	5,186
Contractual Services	35,810	38,103
Other	109,831	122,219
Total	307,052	335,374
Government Allocation	122,300	160,000

Due to government decision on increasing the salary, the personal emoluments (salaries of staff) were increased significantly in 2016. Since the government allocation for recurrent expenditure was not enough to cover the personal emoluments, the management was very careful and controlled all the other expenses as you see when you compare figures of 2016 with 2015 in the table of Recurrent Expenditure.

6.2 CAPITAL EXPENDITURE

There is a significant improvement of capital expenditure in 2016 due to the construction of two buildings of the UCSC. At the same time, other capital expenditure also has been increased significantly according to the requirements of utilizing new spaces. Although the government agreed to finance two building construction projects in both 2015 and 2016, the agreed funds for 2015 were not issued from the government. Therefore UCSC generated funds were used to carry out planned activities. However, the government released adequate funds for the capital requirement in 2016. Due to unexpected construction issues, we did not pay around Rs. 50.0 million committed payments before 31st December 2016. However, all these committed payments will

be settled in the first half of the next year. In general, the capital expenditure per student is Rs. 262,390/=. Details of capital expenditure are given in the table below (Capital Expenditure).

Subject	2015	2016
Acquisition of furniture & Office Equipment	16,875	28,741
Acquisition of Machineries	-	8,782
Acquisition of Building & Structures	81,906	146,406
Other	4268	15,759
Total	103,049	199,680
Government Allocation	43,042	245,000

6.3 CONSULTANCY AND RESEARCH PROJECTS (EXTERNALLY FUNDED)

All projects are classified as consultancy projects or research projects of the UCSC. Consultancy projects were carried out to provide a service to an outside party. 30% of consultancy projects are contributed to the UCSC development fund in addition to 5% was allocated to cover utilities and other recurrent expenditure of project.

Research projects funded by external parties, are carried out based on the agreed objectives. The outcome is usually shared by both institutes and they are published in joint papers. 10% of research projects are charged as the administration charges and the balance is utilized according to the budget prepared by the Principal Investigator. All budgets were submitted to finance and management committee for the approval.

All software development projects are considered to be consultancy type projects. They were managed in the unit called Software Development Unit under the Computer Service Centre. Since the staff was not enough to carry out those software development projects, the service of Theekshana Company was obtained to complete them. Based on the budgets, the payment was done for those projects. During the past few years (2014 and 2015), Theekshana company was considered as an internal entity of UCSC based on the interpretation of government auditors. However, this decision was revised since UCSC does not have any legal authority to establish any company. Therefore, the accounts of Theekshana Company were not combined with the UCSC.

Table 6.3 - A: Financial Progress of Projects

Rs. 000'

Type of Project	Budgeted	Invoiced	Received	Expenditures
Research Projects (locally funded)	3,554	3,554	3,554	3,554
Research Projects (foreign funded)	1,490	1,490	1,490	1,490
Consultancy & Software Dev. Type of Projects	6,229	6,229	2,609	3,729
Total	11,273	11,273	7,653	8,773

Service Assignments Given by the Government Authorities

According to different parliament acts and government requirements, UCSC was asked to offer services from time to time. The Centre for Digital Forensic (CDF) was supposed to carry out investigations based on the court orders or directives received from other parties. A nominal fee is paid for some assignments but the actual cost incurred by the UCSC is higher than the income of service assignments.

6.4 ANALYSIS OF FINANCIAL SUPPORT AND THE GENERATED INCOME

The support of the Government is given only for undergraduate studies but this support is not enough to meet all the requirements of the undergraduate programme. Funds are directly collected from the students of postgraduate and external degree programmes to carry out respective academic activities. Consultancies, projects and service type of assignments given by external parties are charged by issuing invoices. Following table describes the budgeted and received income from different activities of UCSC.

Major Income Sources	Budgeted	Invoiced	Received	Deficit / Surplus
Undergraduate Studies	7,120	7,120	7,095	(25)
Postgraduate Studies	74,300	76,740	76,740	2,440
Consultancies	7,500	6,354	6,354	(1,146)
External Degree	63,300	60,041	60,041	(3,259)
Other	52,000	51,454	51,454	(546)
Total	204,220	201,709	201,684	(2,536)

6.4.1 FINANCIAL PERFORMANCE ANALYSIS

Subject	Formula	Exp. per Student
Recurrent Expenditure per Student (RE)	RE / Total No of Student strength	269,490
Capital Expenditure per Student (CE)	CE Total / No of Student strength	262,390
Total		531,880

6.4.2 COMBINED STATEMENT OF FINANCIAL POSITION AS AT 31ST DECEMBER 2016

Assets	2016 (Rs.)	2015 (Rs.)
Non-current assets, property, plant & equipment	250,747,519	214,703,225
Rehabilitation and Improvement of Capital Assets	39,853,100	33,533,975
Construction Work in Progress	254,813,273	108,407,695
Investments	584,632,268	275,241,890
Current Assets		
Inventories	2,653,091	2,800,203
Receivables and Prepayments	71,621,433	53,661,595
Cash and Cash Equivalent	143,335,794	362,521,344
Total Current Assets	217,610,318	418,983,142
Total Assets	1,347,656,481	1,050,869,937

6.4.3 COMBINED FINANCIAL POSITION AS AT 31ST DECEMBER 2016 (CONTD.)

Equity & Liabilities	2016 (Rs.)	2015 (Rs.)
Capital & Reserves Capital		
Govt. Capital Grant Unspent	53,419,312	7,155,617
Govt. Capital Grant Spent	503,143,703	326,335,778
Total Project Grants Unspent	10,747,840	3,083,213
Total Project Grants Spent	8,902,702	6,567,467
Contribution from UoC	8,155,714	8,155,714
Total	584,369,271	351,297,789
Reserves	374,368,611	356,860,322
Revaluation Reserve	35,505,498	3,000,000
Restricted Funds	210,335,449	168,062,283
Non-Current Liabilities		
Retirement Benefit	39,298,573	33,371,958
Current Liabilities		
Other Accruals & Payables	103,779,079	138,277,485
Total	103,779,079	138,277,485
Total Equity & Liabilities	1,347,656,481	1,050,869,837

6.4.4 COMBINED STATEMENT OF FINANCIAL PERFORMANCE FOR THE YEAR ENDED 31ST DECEMBER 2016

Undergraduate Programme	2016 (Rs.)	2015 (Rs.)
Income		
Government Grant	160,000,000	122,300,000
Deferred Income - Grants	17,726,173	17,264,973
Mahapola & bursary	18,987,100	-
Other	13,269,563	5,015,342
	209,982,836	144,580,315
Expenditure		
Personnel Emoluments	137,344,361	116,837,727
Traveling expenses	191,021	392,231
Supplies	4,983,832	5,724,199
Contractual services	32,882,531	34,312,251
Retirement Benefits	26,168,977	15,627,462
Subscription, Contri. and Membership Fee	208,522	224,673
Staff Development	231,000	413,500
Other Recurrent Expenses	13,241,546	10,798,354
Mahapola & bursary	18,987,100	-
Depreciation	34,614,049	30,017,067
Total	268,852,940	214,347,464
<i>Deficit from Undergraduate Programme</i>	<i>(58,870,105)</i>	<i>(69,767,147)</i>
Extension Programme		
Master Programme-(MSc)	52,523,059	45,703,965
External Degrees Centre -(BIT)	11,620,576	10,837,541
Computing Services Centre-(CSC)	5,675,910	799,107
eLearning Centre-(eLC)	9,052,713	12,458,408
Professional Development Centre-(PDC)	(91,964)	(658,271)
Advanced Digital Media Technology Centre-(ADMTC)	303,871	(106,754)
<i>Surplus from Extension Programmes</i>	<i>79,084,165</i>	<i>69,033,996</i>
Projects		
Foreign Funded Projects	3,688,360	6,365,898
ICTer Conference -2015	303,437	1,994,948
<i>Surplus from Projects</i>	<i>3,991,797</i>	<i>8,360,846</i>
Net Surpluses/(Deficit)	24,205,857	7,627,695

6.4.5 STATEMENT OF CHANGES IN EQUITY FOR THE YEAR ENDED 31ST DECEMBER 2016

	Accumulated Equity	Total Equity
Balance as at 31st December 2013	452,782,559	452,782,559
Excess of Income over Expenditure for the Year	30,988,223	30,988,223
Prior Year Adjustments	(1,630,961)	(1,630,961)
Utilization for Infrastructure Developments	(89,812,274)	(89,812,274)
Balance as at 31st December 2014	392,327,547	392,327,545
Excess of Income over Expenditure for the Year	7,627,692	7,627,692
Prior Year Adjustments	981,019	981,019
Utilization for Infrastructure Developments	(44,075,933)	(44,075,933)
Balance as at 31st December 2015	356,860,322	356,860,322
Excess of Income over Expenditure for the Year	24,212,136	24,212,136
Prior Year Adjustments	(6,703,846)	(6,703,846)
Utilization for Infrastructure Developments		0
Balance as at 31st December 2016	374,368,611	374,368,611

6.4.6 COMBINED CASH FLOW STATEMENT FOR THE YEAR ENDED 31ST DECEMBER 2016

			2016 (Rs.)	2015 (Rs.)
Cash flow from operating activities				
	Deficit/Surplus for the year	24,205,857	24,212,136	7,627,695
Adjustment for				
	Depreciation -	43,423,898		41,484,743
	Provision for Gratuity	9,840,684		2,187,055
	Differed Income	(18,782,142)		(21,388,101)
	Transfer from Previous Grant Received	(15,927,292)		(9,657,353)
	Transfer of research grant to income	(3,214,547)		-
	Prior year adjustment for loan	0		-
	Profit from sales of PPP	(149,700)		(17,550)
	Exchange Gain	(1,701,804)	13,489,097	(6,321,986)
Operating surplus before working capital changes			37,701,233	13,914,503
	Working capital changes		(52,311,123)	(19,406,939)
Net cash generated from operating activities			(14,609,890)	(5,492,436)
Cash flows from investing activities				
	Acquisition of property plant & equipment	(44,500,127)		(22,425,594)
	Acquisition of property plant & equipment-Construction	(146,405,578)		
	Infrastructure Development Activities	0		(63,131,487)
	Proceeds from sales of property plant & equipment	0		-
	Rehabili. and maintenance of property plant and equip	(8,781,681)	(199,687,386)	(1,917,943)
			(214,297,276)	(92,967,460)
Cash flows from financing activities				
	Capital grants received-Govt.	245,000,000		45,000,000
	Capital grants received-Generated Funds(net)	-		58,477,820
	Transfers to infrastructure develop. Fund	20,560,978.00		(87,467,258)

	Sales of PPP	149,700.00		17,550
	Project Grants Received	14,735,251		15,348,964
	Prior year adjustment	(6,908,581)		929,269
	Transfer of Project Balances	-		-
	Gratuity paid	(3,709,335)		(2,797,809)
	Receipts from Restricted Funds	32,972,289	302,800,302	50,719,890
			88,503,026	(12,739,034)
Net Increase/decrease in cash and cash equivalent				
	Exchange Gain/(Loss)		1,701,804	6,321,986
Cash and cash equivalent at the beginning of the year			637,763,234	644,180,281
Cash and cash equivalent at the end of the year			727,968,062	637,763,234

UCSC HIGHLIGHTS

2016

VISIBILITY, EVENTS AND ACTIVITIES

7.UCSC HIGHLIGHTS 2016 – VISIBILITY, EVENTS AND ACTIVITIES

UCSC Web site is the main portal to communicate the key highlights of the institute. In 2016, UCSC web site is completely restructured considering the main theme of the University of Colombo. It has a dual domain URLs, namely <http://www.ucsc.cmb.ac.lk> and <http://www.ucsc.lk>. All major activities and events occurred monthly are informed to the Board of Management and the Senate of the University of Colombo to maintain the visibility of progress and issues of institutes. UCSC website is also linked with major social network to update activities of the organization. Following table shows the key highlights of 2016 with respect to each month.

7.1 MONTHLY HIGHLIGHTS

7.1.1 ACTIVITIES, EVENTS AND PROGRAMMES

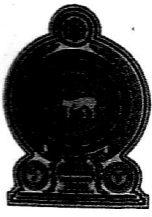
Month	Activities
January, 2016	<ul style="list-style-type: none"> • End of Undergraduate examinations mid-January 2016 • Industry placement presentation end –January 2016 • Discussion with the UGC Vice Chairman about UCSC administration and External Degree Centre • Discussion with the Secretary, Ministry of Higher Education and Highways to obtain the cabinet approval for the canteen building and a possible land for the BIT office • Registration of new undergraduates students started • The Visit of the Professor Athula Ginige to initiate the next phase of the Govi Nena Agriculture project
February	<ul style="list-style-type: none"> • Undergraduate inauguration of the new batch held on 10th February followed by orientation programme for two weeks. • Masters welcome held on 13th February 2016 • Orientation of the Masters programme on 13th February 2016 • 25th February - Felicitation programme for the teachers by passed out students of 2015.
March	<ul style="list-style-type: none"> • Institutional Review of the University of Colombo was completed and it was announced A grade for the University of Colombo. • External Degree Centre - BIT office was opened at the No. 6, Swarna Road, Colombo 6 • Annual Medical Camp – UCSC Staff
April	<ul style="list-style-type: none"> • Freshers' Tournament - 2016 was held on 29th March and the UCSC won the 2nd place. • Inaugurated a new training programme funded by KOICA to train government

	<p>analyst and CID officials on 6th April</p> <ul style="list-style-type: none"> Aluth Avurudu – Bakmaha Ullela organized by new students on 29th April.
May	<ul style="list-style-type: none"> IEEE Students organized SLT Reid Cyber Wars Gaming Event inviting other state University students on 12th May. 3rd Year Students organized a Padura event on 13th May. Staff contributed well to the donations of the University of Colombo for the flood victims organized by the Vice Chancellor on 20th May. Students organized an event called “UCSC Shana Yathra” to donate to the people in a village in Chilaw who were affected by floods on 26th May. They have distributed around 2.5 million worth goods among those people while carrying out other community assistance activities. ISACA student chapter organized a conference named “ifest2k16” inviting other University students on 29th May. A special ceremony was held at UCSC for Professor GN Wikramanayake, former Director for the appreciation of his service as the Director for the last six years on 30-05-2016. The Vice Chancellor, Dean Science, Senior Academics and all other staff members of UCSC participated in the event to thank Prof. Wikramanayake. Revised website of the UCSC based on the University of Colombo template was launched by the Vice-Chancellor/UOC on 30-05-2016.
June	<ul style="list-style-type: none"> 1st June, the new Director, Prof. K. P. Hewagamage assumed duties New Deputy Director, Dr. D. A. S. Athukokarale assumed duties New Head of Department for Information Systems Engineering, Dr. M. D. J. S. Goonatillake assumed duties. 8th June, Memorial Bana for the late Prof Samaranayake On 22nd June, Poson Bakthi Geetha programme with students and staff On 24th June, 5 staff members received Staff Development Centre awards On 28th June, Selection Test for the Bachelor of Information Systems was held On 30th June, Prof Saman Halgamuge started his activities as the visiting professor by conducting a workshop for the staff.
July	<ul style="list-style-type: none"> Interviews for permanent academic positions were carried out on 1st July and 4th July. Batch photo of passed out students was taken on 1st July Semester 1 – Academic year 2016 undergraduate programmes were completed. Examination for the semester 1 was started but it was postponed due to non-academic staff trade union action Applications for Masters in Computer Science and Master of Information Technology were called from prospective students
August	<ul style="list-style-type: none"> It was decided to postpone all statutory meetings due to trade union actions Undergraduate Convocation was held on 14th August at BMICH Calling applications for Masters programme for 2017 started on 19th August

	<p>2016</p> <ul style="list-style-type: none"> • KOICA Training Programme was held on 22nd August at the UCSC Board Room • BIT Diploma Award Ceremony was held on 24th August at NAT • All undergraduate examinations which were postponed due to trade union actions were completed on 31st August 2016 UCSC.
September	<ul style="list-style-type: none"> • ICTer2016 conference was held on 1st and 2nd September at the hotel Jetwing Blues, Negombo • ICTer2016 Workshops were held on 3rd September at UCSC • BIT Convocation was held on 13th September at BMICH, where 262 students were graduated • UCSC Annual Staff get together and training sessions were held on 15th-17th September 2016 • “Paaramitha 2016” – Annual Blood Donation Campaign was held on 22nd September 2016 • Pre-IEEE Xtreme Programming Competition 1.0 was held on 24th September 2016
October	<ul style="list-style-type: none"> • UCSC Sports Day (organized by 1st and 2nd Years students) was held on 1st October. • Going down Party (Final Year students and the Graduated batch) was taken place on 1st October. • 1, 2, 8, 9, 22, 23 Oct. BIT Semester. 4, 6 and 2 Examinations were held on 1st, 2nd, 8th, 9th, 22nd and 23rd October in Galle, Kandy and Jaffna • IEEE Day (IEEE Student Branch of UCSC celebrated IEEE day under the theme “Innovations and Emerging Tech” parallel to the global celebrations) was held on 4th October. • iHack 2.0 - a 24 hour software development competition organized by the UCSC ISACA Student Group in partnership with Direct FN and Mubasher was held on 8th and 9th October. • Young Computer Scientist (YCS) Jointly organized a competition with FITIS and Ministry of Education on 12th and 13th October and the evaluation was carried out by the UCSC staff • – "Romenthem" - Freshers' Welcome was held on 15th October at New Arts Theater • Selection Test for Masters Degrees was held on 16th October -at UCSC and Technical College, Maradana • UCSC Career Fair where 25 companies interviewed final year students was held on 17th October http://careers.ucsc.lk/ • -Workshop on Developing UCSC Strategic Plan for 2017-21 was conducted on 18th and 19th October. • IEEE Xtreme Programming Competition was held on 22nd and 23rd October. • Vaani Vizha (Tamil Students Annual Celebration) was held on 28th October. • The Janashakthi Full Option Appathon Challenge 2016 – Youth competition based on the Next Gen Smart Tech Challenge - <u>UCSC team “WhileLoop” champions</u> was held on 29th October. • Online test for the National School Software Competition (NSSC) organized by the CSSL and Ministry of Education was conducted on 30th October at the UCSC with the help of UCSC staff and students. (20 school students from various parts

	<p>of the country took part in this competition to showcase their programming talents).</p> <ul style="list-style-type: none"> • <u>UCSC Won three awards</u> in three categories “m-Content”, “Inclusion & Empowerment”, and “ Culture & Tourism” at the “e-Swabhimani Awards 2016” organized by the ICTA on 31st October with the aim of recognizing excellence in digital content creation
November	<ul style="list-style-type: none"> • ACM Colombo Chapter was formally established on 19th November. • –The Ministry of Education organized award ceremony for YCS and NSSC competition on 25th November and was carried out by the UCSC. • Masters Selection interviews were held on 20th and 27th November. • Optitex Company visited UCSC on 29th November to demonstrate their 2D/3D • Delegation from Malaysia - (Royal Highness Prince of Perlis, Malaysia Tuanku Syed Faizuddin Putra Ibni Tuanku Syed Sirajuddin Jamalullail, who is also the Chancellor of the University of Malaysia Perlis (UNIMAP), accompanied by the His Excellency Wan Zaidi Wan Abdullah, High Commissioner of Malaysia, Mr. Azhar Mat, Head of Chancery of the High Commission of Malaysia, Dato’ Professor Dr. ZulAzhar Bin Zahid Jamal, Vice Chancellor of the University Malaysia Perlis (UNIMAP)) visited UCSC on 30th November.
December	<ul style="list-style-type: none"> • BIT final project viva and dissertation evaluation (Continued on 10th, 11th, 17th & 18th December) were held on 3rd December. • Postgraduate Convocation, University of Colombo was held on 6th December. • Guest Lecture on "Protecting Data-in-use" by Dr. Wee Keong Ng who is the Associate Chair (Research) of the School of Computer Science and Engineering, Nanyang Technological University, Singapore was held on 6th December –. • The presentation Dr. Dhammika Amaratunga (Princeton University) on "Analysis of high-dimensional data: Issues and methods" in relation to Bioinformatics was held on 8th December. • Announce - Call for applications – Bachelor of Information Technology Academic Year 2017 was started on 9th December. • The registration of new intake of the Computer Science and Information Systems Degree Programmes –for the year 2015/2016 was started on 16th December. • Undergraduate Examinations for the second semester of academic year 2016 was commenced on 19th December. • Published Eligible candidates for Masters Degree were published on 19th December. • The first workshop on developing syllabus of Masters Degree Programme was held on 22nd December. • Annual carol services organized by Catholic students of UCSC took place on 23rd December.





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கணக்காய்வாளர் தலைமை அபிபதி திணைக்களம்

AUDITOR GENERAL'S DEPARTMENT



මගේ අංකය
எனது இல.
My No.

එවර්ඩ්/ඩී/යූසීඑස්සී/6/16/02

ඔබේ අංකය
உமது இல.
Your No.

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2017 කොළඹ 13 දින

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කොළඹ විශ්වවිද්‍යාලීය පරිගණක අධ්‍යයන ආයතනය.

කොළඹ විශ්වවිද්‍යාලීය පරිගණක අධ්‍යයන ආයතනයේ 2016 දෙසැම්බර් 31 දිනෙන් අවසන් වර්ෂය සඳහා වූ මූල්‍ය ප්‍රකාශන පිළිබඳව 2002 අංක 01 දරන කොළඹ විශ්වවිද්‍යාලීය පරිගණක අධ්‍යයන ආයතන නියමාවලියේ 23 වගන්තිය හා 1978 අංක 16 දරන විශ්වවිද්‍යාල පනතේ 108(1) වගන්තිය ප්‍රකාරව විගණකාධිපති වාර්තාව

මාගේ සමාංක හා 2017 සැප්තැම්බර් 30 දිනැති ලිපියට යොමුවේ.

02. ඉහත සඳහන් ලිපිය සමඟ එවන ලද මාගේ වාර්තාවේ ඉංග්‍රීසි හා දෙමළ අනුවාද මේ සමඟ එවා ඇත.


ඩබ්ලිව්. ප්‍රේමනන්ද

අතිරේක විගණකාධිපති
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1. ලේකම්, උසස් අධ්‍යාපන හා මහාමාර්ග අමාත්‍යාංශය
 2. ලේකම්, මුදල් හා ජනමාධ්‍ය අමාත්‍යාංශය
 3. උපකුලපති, කොළඹ විශ්වවිද්‍යාලය





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கணக்காய்வாளர் தலைமை அபிபதி திணைக்களம்
AUDITOR GENERAL'S DEPARTMENT



මගේ අංකය
எனது இல. }
My No. }

HED/B/UCSC/6/16/02

ඔබේ අංකය
உமது இல. }
Your No. }

දිනය
திகதி }
Date }

30 September 2017

The Director,
University of Colombo School of Computing

Report of the Auditor General on the Financial Statements of the University of Colombo School of Computing for the year ended 31 December 2016 in terms of Section 23 of the University of Colombo School of Computing Ordinance, No. 01 of 2002, and Section 108 (1) of the Universities Act, No. 16 of 1978.

The audit of financial statements of the University of Colombo School of Computing for the year ended 31 December 2016 comprising the statement of financial position as at 31 December 2016 and the statement of financial performance, statement of changes in equity and cash flow statement for the year then ended and a summary of significant accounting policies and other explanatory information was carried out under my direction in pursuance of provisions in Article 154(1) of the Constitution of the Democratic Socialist Republic of Sri Lanka read in conjunction with Section 23 of the University of Colombo School of Computing Ordinance No. 01 of 2002 enacted in terms of Sub-section 107(5) and Section 18 of the Universities Act, No. 16 of 1978. My comments and observations which I consider should be published with the Annual Report of the Institute in terms of Section 108(1) of the Universities Act appear in this report.

1.2 Management's Responsibility for the Financial Statements

The management is responsible for the preparation and fair presentation of these financial statements in accordance with Sri Lanka Public Sector Accounting Standards and for such internal control as the management determines is necessary to enable the preparation of financial statements that are free from material misstatements whether due to fraud or error.



1.3 Auditor's Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Sri Lanka Auditing Standards consistent with International Auditing Standards of Supreme Audit Institutions (ISSAI 1000-1810). Those Standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgements, including the assessment of the risks of material misstatements of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Institute's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of financial statements. Section 111 of the Universities Act, No. 16 of 1978 gives discretionary powers to the Auditor General to determine the scope and extent of the audit.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion

1.4 Basis for Qualified Opinion

My opinion is qualified based on the matters described in paragraph 2:2 of this report.



2. Financial Statements

2.1 Qualified Opinion

In my opinion, except for the effects of the matters described in paragraph 2.2 of this report, the financial statements give a true and fair view of the financial position of the University of Colombo School of Computing as at 31 December 2016 and its financial performance and cash flows for the year then ended in accordance with Sri Lanka Public Sector Accounting Standards.

2.2 Comments on Financial Statements.

2.2.1 Consolidated Financial Statements

Contrary to the Universities Act, No. 16 of 1978, the Company, named "Theekshana" had been formed in the School of Computing on 29 December 2006 as a limited by guarantee company, and registered in accordance with the Companies Act, No. 17 of 1982 under the recommendations of the University Grants Commission and the Minister of Higher Education without the approval of the Cabinet. The Company had again been registered on 02 March 2009 under the Companies Act, No. 7 of 2007.

Although the Theekshana Company Limited had been formed as a separate legal entity, the Company is maintained at the premises of the School by making use of the resources belonging to the School of Computing. According to Section 32 of the Articles of Association of the Company, it is stated that officers of the University of Colombo School of Computing should be appointed *ex officio* to the Board of Management of the Company. Accordingly, it is clear that the Theekshana Company Limited is a subsidiary company functioning under 100 per cent authority of administration of the School of Computing. Hence, the financial statements of the School of Computing should have been presented to the Auditor General in consolidation with that of the Theekshana Company Limited. However, consolidated financial statements had not been presented for the year ended 31 December 2016. Nevertheless, the financial statements of the School of Computing, had been presented by consolidating with that of the Theekshana Company as at 31 December 2015.



2.2.2 Sri Lanka Public Sector Accounting Standards

The statement of changes in equity presented with the set of financial statements in terms of Sri Lanka Public Sector Accounting Standard 01, had not included variations relating to the revaluation reserve, specific funds, and Government and project grants.

2.2.3 Unexplained Differences

The difference of the working capital shown in the cash flow statement amounted to the minus value of Rs. 52,311,123, but according to the accounts classified sector-wise, the difference of the working capital totalled to a minus value of Rs. 52,328,438, thus observing a difference of Rs. 17,315.

2.2.4 Lack of Evidence for Audit

A Register of Fixed Assets prepared in a manner that the balance of the fixed assets amounting to Rs. 250,747,519 as at 31 December 2016 could be verified, had not been made available to audit.

2.3 Accounts Receivable and Payable

The following observations are made.

- (i) According to the financial statements, the balance of Rs. 488,500 included in the debtor balance as being receivable to the Institute since the year 2014, had not been recovered so far.
- (ii) The employee loans and distress loans totalling Rs. 349,503 recoverable from 03 employees and 03 Lecturers, had not been recovered even after a lapse of 23 years.
- (iii) Due to breach of agreements and bonds, the balance recoverable from 4 Lecturers amounted to Rs. 6,517,800 as at 31 December 2016. Those balances have been in existence over a period of 2-13 years, and remains unrecovered so far.



2.4 Non-compliances with Laws, Rules, Regulations, and Management Decisions

The following non-compliances were observed.

Reference to Laws, Rules, Regulations and Management Decisions.

Non-compliance

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(a.) Universities Act, No. 16 of 1978</p> | <p>Every ordinance governing the universities, campuses, and open universities, should be published in the Gazette. After coming into effect, the ordinance should be tabled in Parliament as soon as possible. However, the University of Colombo School of Computing Ordinance No. 01 of 2002 had been published in the Gazette Extraordinary, No. 1262/32, dated 15 November 2002, but the Ordinance had not been tabled in Parliament thereafter.</p> |
| <p>(b.) Financial Regulation 371 of the Financial Regulations of the Democratic Socialist Republic of Sri Lanka, and Public Finance Circular, No. 03/2015, dated 14 July 2015.</p> | <p>I. Granting advances should be restricted only to the staff grade officers, but advances totalling Rs. 5,408,585 had been granted to 26 non-staff grade officers in 267 instances.</p> <p>II. The maximum amount of advance that can be granted at a time should be Rs. 100,000, but the Institute had granted advances in the range of Rs. 119,500 – Rs. 338,500 in 07 instances.</p> |

- | | |
|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (c.) Section 2.2 of Chapter 1 of the Establishments Code for the University Grants Commission and Higher Educational Institutions. | Overtime should be paid according to the rates based on the basic salary. However, overtime had been paid based on a fixed allowance up to August 2016. Hence, a sum of Rs. 79,248 had been overpaid to the employees of the Master of Computer Science Division. |
| (d.) University Grants Commission Circular, No. 01/2016, dated 01 January 2016. | The maximum fees applicable to the preparation of question papers for the external examinations, examining the papers, evaluation, and inspection and invigilator fees, are mentioned in the Circular. However, a sum of Rs. 331,140 had been overpaid in respect of the Bachelor of Information Technology (external) degree (BIT), and the Master of Information Technology degree. |
| (e.) Public Enterprises Circular, No. PED/33, dated 19 December 2005, | Even though a sum of Rs. 153,382,904 had been invested in fixed deposits in the year under review, approval of the Treasury had not been obtained thereon. The value of the investments made without approval of the Treasury with respect to the period 2007-2015, amounted to Rs. 504,432,342. |
| (f.) Section 03 of the University of Colombo School of Computing Ordinance No. 01 of 2002 | The recommendation of the Commission is required under the approval of the School and the University in respect of conducting lectures on Computer Science and Information and Communication Technology, training on research and development, and supply of consultancy services. Nevertheless, approval of the University Grants Commission had not been obtained on 08 courses conducted by the Institute. |



2.5 Transactions not Supported by Adequate Authority

The following observations are made.

- a) Of the income generated through the courses, a sum of Rs. 1,245,796 had been credited to a welfare fund funded by the staff of the Institute. The approval of the University Grants Commission, Ministry of Higher Education, or the General Treasury had not been obtained on the said transfer of funds.
- b) The sum of Rs. 18,522,348 saved from the foreign funded projects in the preceding years, had been transferred to the Staff Development, and the Infrastructure Development Accounts without obtaining the approval of the University Grants Commission, Ministry of Higher Education, or the General Treasury.

3. Financial Review

3.1 Financial Result

According to the financial statements presented, the financial result for the year ended 31 December 2016 had been a surplus of Rs. 24,205,857 as compared with the corresponding surplus of Rs. 7,627,695 for the preceding year, thus resulting in an improvement of Rs. 16,578,162 in the financial result of the year under review as compared with the preceding year. Although the expenditure on the benefits provided for the employees had increased by a sum of Rs. 20,506,634, the increase in the Government grants by a sum of Rs. 37,700,000 had mainly attributed to the said improvement.

An analysis on the financial results of the year under review and the four preceding years revealed that the surplus of the year under review had decreased as compared with the years, 2012, 2013, and 2014, but the surplus had increased as compared with the preceding year. However, in considering the employee remuneration, tax and depreciation for non-current assets, the contribution of the year under review had increased by 23 per cent as compared with the preceding year. The contribution of the



year 2012 amounting to Rs. 185,637,653, had continuously grown and reached Rs. 194,077,496 in the year under review.

4. Operating Review

4.1 Performance

The following observations are made.

- a) According to the Strategic Plan, it was scheduled to commence the new post graduate course – International Joint Masters, in partnership with foreign stakeholders in the year 2016. However, the said course had not been commenced even up to 30 March 2017.
- b) Reports indicating the progress of the activities included in the Strategic Plan, and the Action Plan, had not been made available to audit.

4.2 Management Activities

The following observations are made.

- a) The management had not drawn its attention on proceeding with academic activities with emphasis on updating the syllabi of the existing courses, introduction of new courses based on timely requirements, and showing more interest on researches; thus, paving way for the private and foreign universities, and other institutions to introduce new degree courses on Information Technology thereby attracting many a student whilst causing an enormous challenge to the external degree courses conducted by this Institute.
- b) The land where the 05- storeyed building complex had been built for the academic and administrative activities of the School of Computing, belongs to the University of Colombo. No action has so far been taken by the Institute to take over the ownership thereof.

4.3 Underutilization of Funds

Of the provision amounting to Rs. 245,000,000 granted by the Treasury for the capital expenses of the year 2016, a sum of Rs. 38,000,000 had not been utilized effectively in order to achieve the objectives of the Institute; instead, that sum had been invested in short term fixed deposits on 28 December 2016.

4.4 Idle and Underutilized Assets

According to the stocks reports maintained by the Institute, non-moving stocks valued at Rs. 570,629 had remained at the stores for a period of more than one year, and it was observed that funds had been spent thereon in an unnecessary manner.

4.5 Staff Administration

Action had not been taken to recruit persons for 85 vacancies existed in the approved cadre of the Institute. In a manner external to the approved cadre, extensions of service had been provided for 34 employees on contract, daily, and assignment basis allowing them to serve further.

5. Accountability and Good Governance

5.1 Procurement Plan

Six activities included in the Procurement Plan prepared for the year 2016, could not be executed. It was observed that 08 activities valued at Rs. 1,827,020 not included in the Plan, had been executed.

6. Systems and Controls

Deficiencies in systems and controls observed during the course of audit were brought to the notice of the Director of the Institute from time to time. Special attention is needed in respect of the following areas of control.



Areas of Systems and Controls

Observations

- | | |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| (a.) Control of Assets | Failure to maintain the Register of Assets in an up-to-date manner. |
| (b.) Financial Control | Granting advances to non-staff grade officers, granting advances in excess, and granting advances without identifying the requirement. |
| (c.) Staff
Administration | Failure to take action to revise the approved cadre in line with the requirements of the staff and fill vacancies. |
| (d.) Control
Operations | of Failure to obtain approval for commencing new courses. |

H.M. Gamini Wijesinghe.

Auditor General

Sgd./ H.M. GAMINI WIJESINGHE
Auditor General

Reply to the final financial account of the University of Colombo School of Computing for the year ending 31 December 2016 as per section 23 of the University of Colombo School of Computing and, section 108(1) of University act No. 16 of 1978.

The above Audit report was discussed at the 55th meeting of the Audit committee on the 31st October 2017, and our reply for same is as follows.

02. Financial statements

2.2. Opinions on financial statements

2.2.1 Consolidated statements

Theekshana Company Limited had not been formed by the University Of Colombo School Of Computing and there is no legal provision to form such a limited liability company.

Theekashana Company Limited has been formed by a team of permanent carder of the institution having obtained proper authority in order to obtain external projects. Theekshana Company, for its establishment within the institutes' premises, pays an annual rent determined by the Board of Management of the Institute of Computing.

Our institute does not have any right of ownership or responsibility with regard to the Theekshana Company. However, as Auditor General has reported on the same, in order to take necessary action, it has been forwarded to the University Grant Commission along with the recommendation of the Senate of the University of Colombo.

As per the report of the Auditor General for the year 2015, due to lack of understanding about the institute, the accounts had been erroneously consolidated in the year 2015, as such the Board of management has decided to correct same in the year 2016.

2.2.2 Sri Lanka Public Sector Accounting Standards.

The relevant correction has been effected on material misstatement

2.2.3 Unexplained Differences.

The extra amount indicated as Rs. 17,315.00 shown in the sector-wise classified accounts is corrected.

2.2.4 Lack of Evidence for Audit.

The Register of Fixed Assets of the institute as at 31st December 2016 was submitted to the Auditor General for the purpose of auditing. However, as it was not possible to compare the total value of the assets with the amount mentioned in the financial statements, the Auditor General has reported that the register has not been produced.

2.3 Accounts Receivable and Payable

(a) These balances are the cash receivable for rendering computing services to various public institutes. For instance; the cash receivable for services supplied to the various police stations under the Ministry of Law and Order on the recommendations of the courts. Oral and written reminders had been made regularly to recover this money.

(b) The recoverable distress loans and the employee loans include amounts recoverable from two lecturers and three members who left the institute.

One of the lecturers who had re- entered active service had agreed to pay off the total recoverable amount of the loan before 31st December 2017.

Legal proceedings had been initiated against the other lecturer in respect of money recoverable from him for violating the terms of the agreement, and his whereabouts are also not known. .

Although the others had left our institute, and they had not received refunds from their Employment Provident Fund remitted by the University Employment Fund of our institute, the University Grant Commission had been notified to recover the loan amount out of the balance payable to them from the said fund.

(C) Following are the actions taken by the institute in respect of recoveries, resulting from the breach of agreements and bonds.

Mr. S.J.Paheerathan

A balance due from Mr. S.J.Pathiranadue is Rs. 3, 440, 575. 75 due to the breach of bond. . The Attorney General's Department had filed an action against him. Parallel on to this, the police inquiry is also under way on the same on a complaint made by the Deputy Registrar and the Senior Assistant Internal Auditor of the University of Colombo to the Fraud Investigation Division of Colombo under complaint bearing no. D M R /07902/10, It has been disclosed that he had arrived in Sri Lanka as a citizen of some other country in an another name and had run away from the country a day before the investigation commenced. . It has also been difficult to recover the amount of loan due to the fact that even his guarantor is also absconding the court. Nevertheless, a letter dated 31/12/2016 has been sent to the University Grant Commission to recover the balance amounting to Rs. 2,069,73946 out of the Provident fund balance as at 31.12.2016 and the process of recovery is underway. Once the EPF recoveries are made, In order to recover the balance amount due, if there is any further balance action would be taken as per the instructions of the Attorney Generals department.

Mr. Rukman Senanayake has to pay an amount of Rs. 798,588.54 to the University due to the breach of bond. In order to recover the amount of Rs. 409,207.86 out of his Provident Fund balance as at 31/12/2016, the University Grant Commission had been informed by letter dated 31/03/2017 and the process of recovery is in progress. Action to recovery the balance would be taken by the Attorney Generals department.

Mr. W.R.M.U.K.Wickramasinghe

The total amount recoverable from Mr. W.R.M.U.K.Wickramasinghe for breach of bonds has already been recovered by the institute.

Mr. M.C.Jayawardane

Rs. 3,289,238.00 out the Rs. 5,976,485.89 due from Mr. M.C.Jayawardana had been paid by him on 22/07/2016 and an amount of Rs. 259,272.50 had been recovered from his gratuity. Accordingly, action is already under way to recover 2,427,975.39 out of his Provident fund balance of Rs. 1,691,999.93 as at 31/12/2016, and the further balance will be recovered out of his pension. With this all the amounts due from his would be fully recovered.

2.4. Non-compliance of Laws, Rules, Regulations and Management Decisions

(a)The regulations to establish the University Of Colombo School Of Computing had been published and gazette in 2002 and amended in 2011. We were not informed that the said ordinance needs to be tabled in Parliament after it was gazette. However, it is hereby forwarded to the University Grant Commission for necessary action.

(b)(I)Since there are limited number of staff-grade officers in our institution and obtaining funds for variety of projects using advances cannot be handled solely by them, and for this reason advances had been granted to non-staff grade officers under the supervision of staff-grade officers.

However, after the month of June, 2016.the advances have been granted only to the staff-grade officers and the sectional heads.

(II)These advances were granted to conduct island wide external degree programs and at the discussion of the auditing committee of the institution, it has been decided not to grant advances in excess of Rest. 100,000.00.

(c)Due to the fact that the post graduate courses are being held during weekends, the budget report is prepared taking into consideration to ensure that the services obtained to conduct the courses are done without any obstruction, are available after the regular office hours and during weekends as well as its cost. Further, these budget reports are approved by the management board of our institute and payments are made under the said approved allocations of budget.

(d) The Circular indicating the limitations of fees applicable for the payments for external examinations was issued on 1st of January 2016, but the payment rates have been fixed and paid few years before the

issue of the said Circular and to ensure that the courses are conducted without any interruptions the fixed payment were made irrespective the Circular.

(e) The investments made by the institution have been forwarded to obtain the approval of Treasury along with the recommendation of the board of management.

(f) The University Grant Commission provides its approval only for Degree Courses. The request of approval for the degree and post graduate degree courses conducted by our institute was forwarded to the University Grant Commission and the approval has been received for all courses.

2.5 Transactions not supported by adequate authority

(a) The said welfare society was established by our staff members of the institute for their wellbeing with the support of the management board.

The function of this welfare society is to design and conduct the programs of induction and promotion of team work activities on behalf of the employees under the guidance of the institute. Part of the funds needed for these programs is covered by the budget allocations of the courses conducted by the institute with the approval of the Board of management as through these programs valuable contribution has been made for the development of the institute during the past years.

(b) Under the circumstances that sufficient provisions are not received from the Treasury the sum of Rs 18 million earned by the successful completion of the foreign projects in the preceding 15 years had been transferred to the development of the institute as per the decision of the board of management on the recommendation of the Auditing Committee of the institute based on the audit report of 2015.

3. Financial Review

3.1 Financial Result

It has been noted.

4. Operating Review

4.1 Performance

(a) Although it has been decided to start the Course in 2016, it was delayed until the connected practical issues are solved.

(b) I will take the necessary steps to submit a report indicating the progress of the activities included in the strategic plan and the action plan for auditing.

4.2 Management Activities

(a) The institute implements various activities upon the approval of the Board of Management particularly in order to face the competition observed recently in the field of computer technology education in Sri Lanka.

(b) The University of Colombo School of Computing is also a part of the University of Colombo. The land where the building complex located is also situated within the University of Colombo Premises. Therefore, there is no need to take over the ownership thereof.

4.3 Underutilization of Funds

The institute implemented the building projects which had been approved by the cabinet of ministers during the years of 2014, 2015 and 2016 but, no provision was granted by the government as contracted it had been incurred by the funds of the institution and the institution received the said money in the year 2016.

The summary of the capital grants received by the institution during 2016, 2015 and 2014 and the capital expenditure of the said years are mentioned below.

	2014	2015	2016	Total
Capital grants received	15,000	45,000	245,000	305,000
Capital expenditure	133,347	106,270	199,687	439,304
Difference	(118,447)	(61,270)	(45,313)	(134,304)

Rs. 45 million was received by our institution as the Treasury Capital Grants in the year of 2015. However, our capital expenditure was Rs. 106 million. A discussion was held with the treasury in this regard in the end of the year 2015 and we were informed to make the payments by utilizing the funds for other activities and agreed to provide the said money within the year of 2016.

After receiving the said money during the year of 2016, the other money obtained temporarily in 2015 had been utilized for relevant activities.

4.4 Idle and Underutilized Assets

I will take the necessary actions to remove the non-moving stocks from the stores after conducting a proper survey.

4.5 Staff Administration

Only 34 employees for 85 vacancies had been recruited on contract, daily and assignment basis in order to maintain the day to day activities in this institute. After a review of the whole staff under the Zero Cadre Policy, the institute had submitted a request to the Department of Management Services for the approval of required new number of employees. It is expected to fill the vacancies, once the approval was received.

5. Accountability and Good Governance

5.1 Procurement Plan

The following procurements had been done under the Rehabilitation of Lab Partitioning; Labs power Management which included in the procurement plan 2016.

UCSC/CW/2016/03	Water Proofing Ground Floor	1,477,575/-
UCSC/CW/2016/04	Floor Tiling	1,742,400/-
UCSC/S/NOC/2016/039	WI FI Access Point	829,600/-

In addition to this other purchases were made using allocations for office equipment.

6. Systems and Controls

- (a) It has been noted.
- (b) It has been noted.
- (c) It has been noted.
- (d) It has been noted.

Thank You.

Prof.K.P.Hewagamage
Director
University of Colombo School of Computing

