SUBJECT REVIEW REPORT

DEPARTMENT OF STATISTICS AND COMPUTER SCIENCE

FACULTY OF SCIENCE
UNIVERSITY OF KELANIYA

24th to 26th September 2008

Review Team :

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CONTENTS

1. SUBJECT REVIEW PROCESS

Subject review process involves evaluating the quality of education within a specific subject or discipline, focusing on the student learning experience and on student achievement. This subject review process evaluates the quality of the undergraduate program. It is understood that the final responsibility for quality and standards remains within the institution itself, since it alone has the powers to control and to change existing practices.
Subject review process at the Department of Statistics & Computer Science of the University of Kelaniya was conducted following the guidelines provided in the Quality Assurance Handbook for Sri Lankan Universities, published by the CVCD and the University Grants Commission in July 2002. The quality of education was reviewed according to the aims and learning outcomes given in the self-evaluation report of the Department.
The following eight aspects of education were reviewed at the Departmental level:

- Curriculum design, content and review;
- Teaching, learning and assessment methods;
- Quality of students including student progress and achievements;
- Extent and use of student feedback (both qualitative and quantitative);
- Postgraduate studies;
- Peer observations;
- Skills development;
- Academic guidance and counseling.

The review team visited the department for three days from September 24 to 26, 2008. The agenda of the three-day visit was discussed with the Head of the Department and amended to suit the ground realities (see Annexure 1). The information related to the above eight aspects were collected by:

- Discussions with the Dean, Head of the Department, members of the academic and non-academic staff (see Annexure 2 for list of persons that attended the meetings) and undergraduates (special and general)
- Peer observation of the teaching process (three lectures and three tutorial/practical sessions were observed – see Annexure 3)
- Observation of the facilities at the Department / Faculty / University (see Annexure 4) and
- Examination of the documents provided by the Department (see Annexure 5).

Each of the eight aspects was judged as good/satisfactory/unsatisfactory, noting the strengths, good practices and weaknesses. Having considered the individual category judgments, an overall judgment is reported at the end of this report on the following scale: confidence/limited confidence/no confidence; in the academic pr

2. BRIEF HISTORY OF THE UNIVERSITY, FACULTY AND THE DEPARTMENT

University of Kelaniya (UOK) which was established in 1959, originated as Vidyalankara University of Ceylon from the Vidyalankara Pirivena, is premier seat of learning in the country providing opportunities for higher educationin a broader spectrum of disciplines. Currently UOK is comprised of six Faculties, i.e. Humanities, Social Science, Science, Medicine, Commerce & Management Studies and Graduate Studies, and 43 academic departments. More than 8000 students are currently enrolled in various study programs offered by the University.

The vision of UOK is to position herself as aseat of academic excellenceproviding wisdom and human values in the South Asian Region. The mission is to achieve excellence in providing learners with opportunities to develop knowledge, attitudes and skills to serve the world with respect for dignity of life.

In keeping with the mission of UOK , study program offered by the Department of Statistics and Computer Science have been designed to produce high quality graduates who possess the ability to adopt to any working environment with the ability to apply the acquired knowledge and soft kills efficiently. The curriculum has been regularly reviewed and revised to enhance the quality; resulting in further improvement in relevance and quality of the study programs, thus fulfilling the mission of UOK at a greater depth.

The Department of Statistics & Computer Science of the University of Kelaniya was established in July 1999. With the objective of meeting the ever-increasing Statistics and Computer Science education needs of the students in particular and, the academic and industrial community in general, The Department of Statistics & Computer Science, with its limited human and infrastructure resources, striven to cater to this national need by producing competent practitioners at both undergraduate and postgraduate levels.

The limited number of Computer Science graduates produced by Sri Lankan Universities is not at all sufficient to meet the demand of the country. The Department of Statistics & Computer Science recognizes the need for close collaboration with the industry both in teaching and research. The number of undergraduate students offering Statistics & Computer Science as a subject at present is 339 while the number of science students offering Computer studies is about 150.While this Department caters mainly to science students, it offers Computer Studies subject to approximately 150 non-science students. At present the staff comprises of one Associate Professor, four Senior Lecturers(Grade I), Senior Lecturers(Grade II), one Lecturer and four Probationary Lecturers. The twelve permanent staff members of the Department use five small office rooms while sixteen temporary members use the computer laboratory as their office. With assistance from ADB, This Department commenced an MSc program in Computer Science in 2001.

At present the Department possesses a well equipped small computer laboratory with 35 computers, a network server running on Widows Server 2000, two laser printers, two overhead projectors, a visualiser, two photocopiers, two scanners and a lectern.

The mission of the Department is to impart the undergraduates a thorough knowledge in the subject area and prepare them for the real world working environment. In order achieve these objectives various mechanisms are employed by the Department. Imparting subject knowledge as well as presentation skills, critical and logical thinking are the main goals of the designed courses of the Bachelor of Science degree program.

Thus the Department of Statistics & Computer Science strives to incorporate at least most areas of competency the industry requires in its curriculum. Major areas thatthat have been included in the curriculum represent the needs of both academia and industry. Further professionals from the industry are invited for workshops, guest lectures and seminars that are organized frequently.
The greatest strength of the Department of Statistics & Computer Science of the University of Kelaniya is the well qualified , dedicated members of the academic staff.

3. AIMS AND LEARNING OUTCOMES

3.1. Aims

The specific aims of each level of study program are given below:

Undergraduate program

* Provide an intellectually stimulating environment.
* Help students to develop key intellectual skills.
* Provide a challenging education in statistics and its applications.
* Produce high-quality graduates who are well prepared for professional life either in research or in a career.
* Provide courses based on statistical theory and its applications suitable for students aiming for a career involving statistics.
* Give students an understanding of the principles of statistics and the opportunity to study in depth areas which are of interest to them.
* Enhance students' problem-solving skills and the ability to study independently.
* Enhance students' communication skills (oral, written and IT skills)
* Help students' personal development by extending and broadening their intellectual abilities.

M.Sc. Program:

* To attract well qualified students.
* Provide courses which help students to convert to statistics from other areas of study.
* Introduce students to a range of topics and technical skills in their chosen area leading to a variety of potential applications and career opportunities.
* Inculcate an insight into current practice in the chosen area particularly techniques relevant to professional practice.
* Provide an appreciation of the link between theory and application in the chosen area of study.

M.Phil. / Ph.D. Program:

* To attract well qualified students.
* Provide an environment for developing research skills.
* Encourage publication of work.
* Develop independent thinking abilities of students.

3.2 Learning Outcomes

On successful completion of any one of the study programs, students are expected to have:

* Gained knowledge of the main areas of their subjects and pursued same topics in greater depth.
* Enhanced their problem solving skills.
* Gained transferable skills (oral, writing).
* Had the opportunity to study units which benefit from the research interests and professional activities of staff.
* Enhanced their career opportunities.
* In the case of the more successful, developed skills necessary to pursue academic research or further study.

* Developed skills in formulating and solving both theoretical and applied problems and in presenting logical agreements.
* Acquired skills in Information Technology (IT).
* Acquired independent study and working skills.

To promote these objectives, the DST provides the following:

* Appropriate programs of teaching and learning opportunities.
* Tutorial and practical support.
* Advice and guidance to students in their selection of courses and options and advice on their attainment during the course.
* A system of recording and monitoring students' progress.
* Opportunities for industrial training.
* Opportunities for a final year research project.
* Regular reviews of study programs at monthly departmental meetings.

The details of the programs the DSCS is involved in are given in Table 1.1.

Table 1 - Descriptions of programs *(incomplete)

Program	Duration	Current no. of students per batch	Component of Statistics
B.Sc. (Physical Science) General Degree	3 years	321	
B.Sc. (Stat. & Comp.Sc.) Special Degree	4 years	22	
M.Sc. in Applied Statistics	2 years		Total in 2 years

* Includes students from general and other special degree

4. FINDINGS OF THE REVIEW TEAM

Concentration is on he following two degree programs:
(i) BSc(gen) stat+cs (statistics + computer science) and,
(ii) BSc(sp) stat+cs.
It is noted that a revised syllabus is being implemented from 2007/2008 intake.

4.1. Curriculum Design, Content and Review

Strengths:

a. Separation of degree streams into statistics and computer science.
b. Having compulsory general studies in the first year (had a wider range in the previous version of the syllabus)
c. Core computer science and statistics units of the general degree
d. Short professional placement in 3rd year
e. One year individual project for the special degree students.
f. Statistical computing unit is a "welcome unit".

Weaknesses:

a. Absence of regular departmental staff meetings, especially on curriculum matters: however some activity was visible in statistics.
b. In curriculum matters, the industry input and the external university input was not visible, again significantly in computer science.
c. Especially in computer science, some core units could have been made optional, and vice versa (eg o-o programming), may be due to staff necessities which is a 'bad' practice
d. Could have consulted the IEEE/ACM syllabus recommendations in designing computer Science.
e. Course code system could have been made better with semester and revision identification
f. Need for at least 3 month industry placement prior to 4th year (chemistry has 6 weeks)
g. SAD and OOAD courses were to have commenced but not yet, due to lack of staff
h. Proposed cs+electronics degree is ill advised
i. More group project activities are required at least in the 1st and 2nd years (esp CS). For stat, there is such a project
j. Review of KSA of learning pedagogy, in improving transferable skills of students (e.g., statistics practical not available for gen. degree programme; need for group projects+ industry placements)
k. Statistical computing/data analysis is a strong tool to understand concepts, principles and techniques of statistics. Importance given for this aspect does not seem to be adequate. It is strongly recommended that a future curriculum revision will seriously consider rectifying this situation.
l. Development and use of software as learning packages is a good practice. It may be a good idea to give students these as their projects.

4.2 Teaching, Learning and Assessment Methods

Strengths:

a. Regarding tutorials, constructive feedback is given well in time
b. Course objectives, aims learning outcomes indicated in the course material
c. Exam paper moderation is acceptable

Weaknesses:

a. Conducting tutorial/assignment classes is done as more or less like a lecture. Division into groups is desirable so that students have better contact with the teacher.
b. Exam board process has weaknesses, ie cross checking of marks, student wise/subject wise
c. 4th year must have a 'research literature review' unit in promoting such a skill
d. Special students are 'under-utilized' and there should be sufficient w/load for them; also goes with industry placement

4.3. Quality of Students, including Student Progress and Achievements

Strengths:

a. Students are a motivated lot; some have on their own arranged industry placements
b. Special degree completion rate is usually 100% (this may be due to good and motivated students being selected)

Weaknesses:

a. Questionable level of skills due to the combined 'old' degree, perhaps now resolved; however, the "earlier joint degree" may also have its appeal
b. Considerable number of general degree students with classes, but at the same time, the failure/incompletion rate is too high at around 40%.
c. Since all the students in (b. under Strengths) has passed it may be possible to accommodate a few more students for the special degree program.

4.4 Extent and Use of Student Feedback

Strengths:

a. Use of standard form for evaluation of teaching style
b. Students are represented in the Faculty Board.
c. Students convey ideas to junior staff (especially statistics), and some such ideas are taken at a higher departmental level

Weaknesses:

a. No summarized analysis of the feedback forms
b. No feedback on tutorial classes or on syllabus revisions
c. Almost no actions seems to have taken with respect to student concerns
d. Lack of evaluation forms for individual course units

4.5 Postgraduate Studies

Observation: only two intakes have been taken in for the conversion masters part time course, and there are M Phil students

Strengths:

a. Motivation of staff to do research is visible, and encouraging
b. Two MPhil students at present.
c. In the 2nd batch of MSc, out of 31, only six students have completed the program, while four students are yet to complete the coursework
d. Good demand exists for such part time courses

Weaknesses:

a. Lack of resources: eg. a separate laboratory
b. Low completion rate in the 2004 intake, typical of part time programs.

4.6 Peer Observation

Strengths:

a. A few junior and probationary staff striving to do good things but there is a lack of recognition of such activities, or their adoption

Weaknesses:

a. No evidence of regular minuted internal staff meetings, though there could have been.

4.7 Skills Development

Strengths:

a. Residential four(4) week workshop for new intake during orientation
b. One chance to do a presentation on projects during the degree
c. In the old curriculum, for GSCU (gen) a variety of topics have been done
d. Industry placement as an optional module in the new curriculum, but facing opposition from faculty
e. Gavel club doing good work in improving student communications skills

Weaknesses:

a. Staff unaware of KSA/pedagogy needs of students especially transferable skills, and as a result the degree is viewed as a collection of courses
b. Research skills of special degree students can be improved – eg literature review
c. Ibid for industry skills

4.8. Academic Guidance and Counseling

Strengths:

a. Well structured academic and student counseling arrangement available at UoK, with director/student affairs with chief student counselor/faculty under which 5-10 departmental counselors exist; also a senior student advisor
b. Relatively good staff student relationship in the FoSc
c. Psychological counseling available

5. CONCLUSIONS

Based on the observations made during the visit by the review team, the eight aspects were judged as follows:

Aspect Reviewed	Judgment Given
Curriculum Design, Content and Review	Satisfactory
Teaching Learning and Assessment Methods	Satisfactory
Quality of students including student progress and achievements	Satisfactory
Extent and use of student feedback, qualitative and quantitative	Unsatisfactory
Postgraduate studies	Good
Peer observations	Unsatisfactory
Skills development	Satisfactory
Academic guidance and counseling	Good

The overall judgment is suspended

6. RECOMMENDATIONS

Based on our reading of the SER, discussions with academic / non-academic staff and students and the inspection of supporting documents, we wish to make the following recommendations.

A major handicap is the lack of space, academic staff and facilities – especially IT facilities – in the DSCS. Although, both the Statistics & Computer Science study programs have high demand, lack of the above facilities make it difficult for the DSCS to increase the number of places for "Special" degree students. It is strongly recommended that the university authorities provide space and IT facilities to the DSCS on a priority basis along with developing and retaining of academic staff.

It is recommended that more collaborative research be carried out in the DSCS. Our discussions with the staff revealed that one of the limiting factors is the lack of time, exacerbated by the long gap between end of teaching and end of examination (long periods for study leave and examinations). It is recommended that the study leave and examination period be completed within 11 weeks (for each semester).

Adequate numbers of copies of recommended textbooks should be available in the library

Course modules to improve the communication skills especially for "General Degree" students are recommended

It is recommended that the Career Guidance Unit organize specific programs for ST and CS general degree students to direct them to available careers requiring knowledge in statistics and computer science.

We recommend that all teachers should use standard student feedback forms. Perhaps optical readers to read the student feedback questionnaires could facilitate the analysis process.

A formal peer evaluation process is recommended to be started at the earliest

A permanent mechanism to formally receive on-going student feedback is recommended

A workable mechanism to get academic guidance/counseling is needed especially for "General" students.

7. ANNEXES

Annex 1. AGENDA FOR THE REVIEW VISIT

Day 1 – Wednesday24th September, 2008

08.30 – 09.00 Private Meeting of Review Panel with QAA Council Representatives
09.00 – 09.30 Discuss the Agenda for the Visit
09:30 – 10:30 Meetings with the Internal QA Unit/Dean, Head of Department and Faculty QA Cell(Working Tea- Faculty Board Room)
10.30 – 11.30 Department Presentation on the Self Evaluation Report
11.30 – 12.30 Discussion
12.30 – 13.00 Lunch
13.00 – 13.30 Meeting with staff
13.30 – 14.30 Observing other Facilities (Library and Computer Centre)
14.30 – 15.30 Meeting with undergraduate students
15.30 – 16.30 Meeting with Department Academic Staff(Working Tea)
16:30 – 17:30 Observing Departmental Facilities
17:30 – 18:00 Brief Meeting of Reviewers

Day 2 – Thursday 25th September, 2008

09.00 – 09.30 Observe Teaching / Tutorial Class – (Computer Science – Ms W A C Weerakoon, A11 201)
09:30 – 10:00 Observing Teaching – Practical (Computer Science - Mr KH Kumara. ICT Centre – Lab 07)
10.00 – 10.30 Observing Teaching – Lecture (Computer Science - Mr KH Kumara. A11 201)
10.30 – 11.30 Observing Documents(Working Tea)
11:30 – 12:30 Meeting with Technical Staff and Non-Academic Staff
12:30 – 13:30 Lunch
13.30 – 14.00 Meeting with Special Degree Students
14:00 – 14:30 Observing Student Presentations
14.30 – 15.00 Observing Teaching – Lecture (Computer Science - Ms P.G.N. Priyadarshani Computer Laboratory (K220). Faculty of Social Sciences/Statistics-Ms K.B.V.B.R. Gunathilaka, A11 201)
15:00 – 15:30 Observing Teaching – Lecture (Computer Science – Mr S.R. Liyanage, B11 212)
15.30 – 16.00 Tea
16:00 – 16:30 Meeting with Postgraduate students
16:30 – 17:00 Meeting of Reviewers

Day 3 – Friday26th September, 2008

09.00 – 09.30 Observing Teaching – Practical (Statistics - Mr W. Lakmal, Computer Laboratory, Department f Statistics and Computer Science)
09.30 – 10.00 Meeting Student Counselors/Academic Advisors/Personal Tutors
10.00 – 10.30 Tea
10.30 – 11.00 Reviewers Private Discussion
11.00 – 12.00 Meeting with Head and Staff for Reporting
12.00 – 13.00 Lunch
13:00 – 16:00 Report Writing

Annex 2. LIST OF PARTICIPANTS

Dean, Faculty of Science
Prof. K. D. Jayasuriya
Members of the Academic Staff
Prof(Mrs) T. K. Hewapahirana, Head,DSCS
Mr D.J.C. Sooriyaarachchi
Dr N.G.J. Dias
Dr. M.C. Wijegunasekara
Mr C.H. De Silvae
Dr(Ms) D.I. Perera
Dr(Mrs) D.D.M. Jayasudara
Mr R.I.P, Wickremasinghe
Mr. K.G.H.D.Weerasinghe
Mr. S.R.Liyanage
Mr. W.D.Lakmal
Mr. K.H. Kumara

Members of the Non - Academic Staff
Ms. Indika De Silva (Technician)
Mr T. A. Ravindra (Lab Attendant)

Discussions were also held with around 50 undergraduate students (General and Special) and 06 postgraduate students.

Annex 3. OBSERVATION OF TEACHING PROCESS

25th September,2008

Tutorial Class	– Comp Sc Ms W.A.C. Weerakoon
Practical	– Comp Sc Mr K.H. Kumara
Lecture	- Comp Sc Mr K. H. Kumara and Ms. P.G.N. Priyadarshani
Lecture	- Statistics Ms K.B.V.B.R.Gunathilaka
Practical (26/09/2008)	- Statistics Mr W.D. Lakmal

Annex 4. OBSERVATION OF FACILITIES

Department
Lecture Halls
Computer Centre
Library

Annex 5. LIST OF DOCUMENTS INSPECTED (TO BE CORRECTED)

Institutional Information

* Strategic Plan, Action Plan, Prospectus, University Year Books, University Calendar, Corporate Plan, List of Registered Students,

Aim(s), Learning Outcomes, Program Details

* Hand Book, Objectives & Learning Outcomes, Faculty Prospectus

Students, Staff and Facilities

* Department files, Main Library Book List, Resource Centre, Computer Centre, Practical Equipments, Alumni Association, University Canteen, Hostel, Gymnasium, Staff Training File, Industry Links File

Curriculum Design, Content and Review

* University Reform Files, Department Progress Files, Employability File, Valuation Directory, Town & County Planning Directory

Teaching, Learning and Assessment Method

* Academic Guideline Files, Tutorials, Assignments, Teaching Materials, Handouts,
* Model Answers, Examiners Feedbacks, Time Tables, Exam Mark Sheets, Exam Bylaws, Student Appeal Files

Quality of Students' Progress and Achievement

* Result File, Merit Award File, Gold Medal File

Students' Feedback

* Suggestion Box, Questionnaires,

Postgraduate Study

* M. Sc. Final Document File, Application List, Paper Advertisement, Comments, Exam Schedule, Budgets, Minutes,

Skills Development of the EMV Students

* Extra Curriculum Activities, Student Association, Practical Work

Academic Guidance and Counseling

* UGC Hand Books, Student Hand Book, Website, Student Orientation,
* Student Contact Program