SUBJECT REVIEW REPORT

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

FACULTY OF ENGINEERING
UNIVERSITY OF MORATUWA

06th to 08th February 2006

Review Team :
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1. SUBJECT REVIEW PROCESS

Subject review process of the University Grants Commission (UGC) 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 both undergraduate and taught postgraduate programs. 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 Computer Science and Engineering (DCSE) of the University of Moratuwa was conducted following the guidelines provided in the Quality Assurance Handbook for Sri Lankan Universities, published by the Committee of Vice Chancellors and Directors (CVCD) and UGC in July 2002. The quality of education was reviewed according to the aims and learning outcomes given in the Self-Evaluation Report (SER) of the DCSE, which was made available to review team 3 weeks prior to the review.

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, namely 6th, 7th and 8th February 2006. The agenda of the three-day visit is given in Annex 1. The information related to the above eight aspects were collected by:

- Having discussions with the Dean, Head of the Department, members of the academic and non-academic staff (see Annex 2 for persons attending), a group of about 50 undergraduate and 6 postgraduate students.

- Peer observation of the teaching process (Annex 3)
- Observing the facilities at the Department (see Annex 4) and
- Examining the documents provided by the Department (see Annex 5).

At the end of the 3rd day of the review team's visit, an opportunity was given to the Department to respond to various clarifications the review team requested.

Each of the eight aspects was judged as good/satisfactory/unsatisfactory, noting the strengths, good practices and weaknesses in each. Considering the judgment of the eight aspects, an overall judgment is reported at the end of this report selecting one of the three options; confidence/limited confidence/no confidence; in the academic program.

The review report is organized as follows. After presenting a brief history of the University of Moratuwa, the Faculty of Engineering and the Department of Computer Engineering in section 2, the section 3 presents the aims and the expected learning outcomes of DCSE as given in the SER. The findings of the Review team on each aspect are presented in section 4. The judgments on each of the eight aspects and the overall judgment are presented in section 5. The report finally provides some recommendations to improve the quality of the program.

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

History of the University of Moratuwa dates back to 1972. The technical college that had existed in this location has later been converted to a degree-awarding institute. Currently the University has three faculties, namely Engineering, Architecture and Information Technology. The Faculty of Engineering conducts Honors Degree of Bachelor of the Science of Engineering (BSc Eng (Hons)) in nine specializations. In addition, the faculty also conducts a Bachelor of Science and a Bachelor of Design degree program. The Department of Computer Science and Engineering (DCSE) was established in 1985 in the Faculty of Engineering, and the first batch of students was enrolled in 1986. The DCSE is responsible to conduct the academic programs for the specialization in Computer Science and Engineering, and number of research and taught-course Postgraduate Degree programs. Over the last 20 years, in addition to being responsible for conducting the academic program for the Computer Science and Engineering specialization, the DCSE has effectively contributed to the overall academic program of the Faculty at undergraduate level, and in particular to the programs of the Departments of Electronic & Telecommunications and Electrical

Engineering.

Current (2006 First Semester) annual intake of the Faculty of Engineering is about 745 students. They are the direct intake to the four categories of Engineering Degrees, and follow a common course during the level 1 study. The students are streamed to 9 engineering specialization at the end of the level 1. For Computer Science and Engineering specialization the current intake at the level 2 is 50 students and in 2006 it will be increased to 100.

At present (2005 December) there are 24 Academic Cadre positions, 5 positions for Technical Officers, 2 positions for Laboratory Attendants and one position each for Staff Assistant, Systems Engineer, Maintenance Engineer, Temporary Systems Engineer, Computer Application Assistant. The Department has 7 laboratories, 6 of which are mainly for the under graduate education at different levels, and the other is a research lab for postgraduate education (see Annex 4). In addition, it also houses the Lanka Software Foundation lab and LK domain registry. The Department also has several lecture rooms, a seminar room, a conference room and a student common room. The Department also maintains a small collection of books in the department, in addition to the collection at the Main Library.

3. AIMS AND LEARNING OUTCOMES

The aims of the Computer Science and Engineering program and the expected learning outcomes as given in the SER of the DCSE is presented in this section. These are very important to the review process as the objective of this exercise is to judge whether the Department conducts an effective program to achieve these outcomes set by the Department it self.

3.1 Aims

At the Department of Computer Science and Engineering, keeping in line with their stated vision and mission, aims to provide,

3.1.1 Degree programs of the highest quality keeping abreast with technological advances and adhering to internationally recognized standards.

3.1.2 A research and learning environment for students to achieve their potential and goals

3.1.3 Guidance and encouragement to students to develop their cognitive, psychomotor and affective skills in Computer Science and Engineering, which will permit them to secure high quality professional employment opportunities.

3.1.4 A friendly, open and supportive departmental atmosphere which will make the university experience enjoyable, challenging and rewarding to the students.

3.1.5 A stimulating opportunity for students from other departments to acquire skill in Computer Science related matters.

3.1.6 Rewarding and challenging prospects for its staff in their career development and research.

3.1.7 A professional and efficient administrative and managerial structure for the effective organization of teaching, learning, assessment, review and quality assurance in our programs.

3.2 Learning Outcomes

Their curricula are based on the final report of Computer Curricula 2001, Computer Science by the Joint Task Force on Computing Curricula involving the IEEE Computer Society and the Association for Computing Machinery (ACM). The learning outcomes reflect the capabilities and skills expected of a computing student.

On successful completion of its program a student should have gained the following capabilities and skills.

3.2.1 Cognitive Capabilities and Skills

- Knowledge and understanding - Demonstrate knowledge and understanding of essential facts, concepts, principles, and theories relating to computer science and software applications.
- Modeling - Use such knowledge and understanding in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoff involved in design choices.
- Requirements - Identify and analyze criteria and specifications appropriate to specific problems, and plan strategies for their solution.
- Critical evaluation and testing - Analyze the extent to which a computer-based system meets the criteria defined for its current use and future development.

- Methods and tools - Deploy appropriate theory, practices, and tools for the specification, design, implementation, and evaluation of computer-based systems.
- Professional responsibility - Recognize and be guided by the social, professional, and ethical issues involved in the use of computer technology.

3.2.2 Practical Capabilities and Skills

- Design and implementation - Specify, design, and implement computer-based systems.
- Evaluation - Evaluate systems in terms of general quality attributes and possible tradeoffs presented within the given problem.
- Information management - Apply the principles of effective information management, information organization, and information-retrieval skills to information of various kinds, including text, images, sound, and video.
- Human-computer interaction - Apply the principles of human-computer interaction to the evaluation and construction of a wide range of materials including user interfaces, web pages, and multimedia systems.
- Risk assessment - Identify any risks or safety aspects that may be involved in the operation of computing equipment within a given context.
- Tools - Deploy effectively the tools used for the construction and documentation of software, with particular emphasis on understanding the whole process involved in using computers to solve practical problems.
- Operation - Operate computing equipment and software systems effectively.

3.2.3 Transferable Skills

- Communication - Make succinct presentations to a range of audiences about technical problems and their solutions.
- Teamwork - Be able to work effectively as a member of a development team.
- Numeracy - Understand and explain the quantitative dimensions of a problem.
- Self management - Manage one’s own learning and development, including time management and organizational skills.
- Professional development - Keep abreast of current developments in the discipline to continue one’s own professional development.

4. FINDINGS OF THE REVIEW TEAM

4.1. Curriculum Design, Content and Review

Positive aspects in curriculum design and review

- The module based semester system was introduced in 2000. Then a major revision to the curriculum was done in 2004.
- The 2004 revision is based on the IEEE Computer Society's 2001 Computer Science curricula.
- Stakeholders (Industry, Graduates, Students) involvement in curriculum review. (source : SER and meeting with staff, students)
- The Department Industry Liaison Committee (DILC) which consists of all the members of the academic staff and six highly reputed industry based members regularly review the curriculum about two or three times a year.
  (source : SER and minutes of the DILC)
- The curriculum addresses the modern trends in the field of Computer Science (e.g. Advanced Computer Architecture, Neural Networks, Computer Vision, Robotics and Automation, Advanced Electronics).
  (source : SER and discussions with staff)
- Ability to select courses from a wide variety of subjects to suit individual students interests and capability.
- The industry placement in the semester 2 of the Level 3 gives an excellent opportunity to students to gain vital experience in industry based projects and also the exposure to the software industry.
- The final year project (Group project) provides an excellent opportunity to students to work as a team to produce high quality software systems and project documentation.
- The course units CS295 - Communication skills, CS 296 – Presentation skills and CS 401 - Professional practice, provide the essential skills development opportunities.

- There are multidisciplinary subjects from areas such Mathematics, Management, Electrical Engineering and Electronics & Telecommunication Engineering,

In year 2000, the curriculum of the UOM Engineering Faculty moved from three term system (old curriculum) to the credit based semester system. The degree of B.Sc. in Engineering offered by the CSE consists of 8 academic semesters of 14 weeks each and 4 short terms of 7 weeks called June terms. Under this system the graduation requirement is 135 GPA credits and 15 non-GPA credits.

After the year 2000 curriculum revision, the three departments, namely the Departments of Computer Science and Engineering, Electrical Engineering, and Electronics & Telecommunication Engineering identified a common group of subjects (Information and Communication Engineering (ICE)), which is currently offered to the students of all three departments. This allows students to select subjects, which are common in these three Engineering fields. The students can select their optional subjects from a wide variety of subjects according to their interests.

The industrial training in the semester 2 of Level 3 (six months) and the final year project (group project) are very good areas in the curricula which provide students a hands on experience in developing industry based projects and also an exposure to the industry. They also get opportunities to present their projects at various seminars and exhibitions, which will help them to improve their presentation and communication skills. The curriculum is enriched through subjects with presentation skills, communications skills and professional practice, which are essential for a successful software professional.

The review team was satisfied with the depth and breadth of the syllabi covered in the undergraduate program. The curriculum is reviewed regularly by taking into consideration the views of the industry and students. The department possesses a well-established curriculum review and revision process.

4.2. Teaching, Learning and Assessment Methods

4.2.1 Teaching & Learning

The teaching activities of most of the courses are based on lectures, practical classes, tutorials, and seminars by industrialists. Most of the lectures are presented as a slide show using multimedia projectors, and these slides and other material are accessible via Internet using the Learning Management System developed by the Department. For some courses video recorded lectures are developed, and a CD containing these e-learning material is given to the students. Department has also developed a low cost Audio Visual unit for the purpose of developing these material. Handouts are also distributed to the students and are also available in the web. The observed lectures were well prepared, delivered well and met the stated learning outcome. However, the reviewers noted that there was less interaction between the lecturer and the students during these lectures.

Learning activities other than listening to a lecture, are based on tutorials, practical sessions, quizzes, self learning through prescribed books and internet, Level 3 project and final year group project, and Industrial training. Department has assured by various means that the students latest as small groups have access to the prescribed books. Attempts are taken in coordination to distribute and balance the tutorials/assignments and practical classes during the semester. [Source: SER, discussion with staff, visiting available facilities, peer observation]

Positive Aspects of Teaching and Learning

- Teaching and learning are carried out through a combination of methods such as lectures, tutorial assignments, practical classes, field visits, regular seminars by industry personal, industrial training [Sources: SER, Discussions with students and staff]
- Use E-learning strategies to provide video recorded lectures in a CD. Department has developed their own low cost AV studio for that purpose. [Source: Dept. documents, visiting available facilities]

- Level 3 individual project – a programming project where student learn to apply theoretical concepts in to practice. [Source: Department Documents, discussions with staff]
- Level 4 project – 1 year group project, provides experience on team work, project planning, scheduling, achieving milestones, meeting deadlines, presentation skills and report writing. Some projects have resulted in research presentations at various forums. [Sources: SER, Discussions with staff, documents]
- The friendly atmosphere in the department. This encourages the teachers and the students to interact on their academic matters, and the supporting staff efficiently contributing to the teaching –learning process. [Sources: SER, discussions with students, supporting staff]
- Attempts are taken to balance the workload per week, so that the student is not burdened at the latter part of the semester. [Source: discussions with staff and students]
- A lot of effort by the department to find excellent industries for industrial training, and a good program for monitoring the training program. [Source: SER and documents]

Weaknesses observed in Teaching and Learning Methods

- Students' interaction with the teacher during the lecture seems to be very low. [Source: peer observations]
- In case of doubling the intake (as planned already to implement in 2006) insufficient laboratory space to carry out practical classes and difficulty with limited resources. [Sources: Staff, students and non-academic staff]
- Limited access to computer facilities, to complete the assignments in time. Extended opening hours for Computer labs are needed. [Sources: Staff, students]

The discussions with academic staff, non-academic staff, students, Instructors and PG students revealed that the atmosphere in the Department is very conducive to work with satisfaction. Students felt that they have full accessibility to the academic staff to discuss matters related to their education. The non-academic staff felt, they feel happy to contribute

to the Department. However, they felt that some arrangements could be made by the department for them to get a regular training, in this ever-changing field, so that they could continue to contribute.

The review group observed that the Level 4 project is planned, conducted and monitored very well, thus being able to achieve its intended learning outcomes.

4.2.2 Assessment Methods

The DCSE uses a number of different assessment methods to determine the Level of achievement of the stated outcomes. They are based on the subject taught and the method of teaching used. For most of the subjects the students are assessed by a number of continuous assessments and End Semester Examination (ESE). For more practical oriented subjects the ratio may differ, but would stay within the Faculty guidelines. The continuous assessment takes the form of take-home assignments, lab practical sessions, in-class quizzes, oral presentations and viva voce. Each subject should conduct at least three assessments.

Positive Aspects of Assessment Methods

- Uniform assessment method for the Faculty. For most course units 30% for CA and 70% for ESE. [Sources: Performance Criterion, SER, Discussions]
- Dean's List – providing encouragement for students obtaining GPA greater than 3.8 [Sources: SER, Discussions].
- Progress monitored at the Dept. level, and students are allowed to appeal for re-corrections. [Sources: SER, Discussions with students and staff]
- One week period allowed between the Department Meeting and Board of Examiners – Allowing students to appeal for re-correction. [Source: SER, Discussions with students and staff]
- End semester results are evaluated and discussed at the Department Board of Examiners meeting. Any problems related to poor performances are discussed, and remedies are sought.
- Sometimes the examiners are allowed to change the range of marks for grades, on their judgment. (No rigid range) [Sources: SER, Discussions with staff]
- A strong procedure has been established by the department on the monitoring and evaluation of the Industrial training of the students. After assuring the students are given quality training by at least three visits by the staff during the five and a half

month period, the students are assessed on monthly progress reports, final training report and viva voice examination. [Sources: SER, discussion with staff]

- The level 4 project the progress of which is continuously monitored through progress reports are evaluated based on the presentation, final report and viva voce examination. [Sources: SER, discussion with staff, documents]

It is made clear that examination papers are moderated by internal moderators to ensure questions are clear, relevant and coverage is appropriate. However there are no external examiner or moderator for each course, but one for evaluating the whole course. It was also stated that the model solutions for the examination papers are prepared only for some of the subjects. The examination dates are scheduled and the students are informed before the commencement of the semester. [Sources: discussion with staff, documents]

4.3 Quality of Students, Including Student Progress and Achievements

Based on the Z score in the AL for physical science stream, the students are selected first to the Faculty of Engineering, University of Moratuwa. At least for the last decade or more the Faculty of Engineering, University of Moratuwa has been the most preferred choice out of all the three Engineering Faculties in the country. The students who enter the Faculty of Engineering follow a general engineering course in the level 1. Students are selected to different specializations based on the results of the 2 semesters in level 1, considering their preference and the performance. A total of 50 students are selected to DCSE out of a total engineering student population of 745. However from 2006, the DCSE will take 100 students to follow the computer science and engineering program.

The DCSE usually gets students from the top performing group (high GPA) at the level 1, and they have consistently maintained high academic standards. Large majority of the students secure a class at the graduation, and a high percentage of students gets included in the "Dean's list" for excellent performance (Semester GPA>3.8) in each semester. The students of the first batch under the semester system graduated with 28% first classes, 52% second class upper and 20% second-class lowers. The completion rate of the of the Computer Science and Engineering Program is almost 99%. It is important to note that the students of

the DCSE need secure high ranking in significant number of courses they take from other departments to obtain a high GPA. [Sources: SER, documents, discussions with staff]

In addition to the very high performance in the academic program, some students have presented research papers at the conferences based on their final year projects. Moreover, the students have also presented exhibits for various exhibitions of technical nature held in the country. The students are also encouraged to participate in various national and international IT competitions and have secured awards at a number of national competitions. [Sources: SER, documents, discussions with staff]

The graduates of the DCSE have a very high demand in the industry, and all graduates are employed soon after they are graduated, and some students in the final year secure employments even many months before the graduation. [Sources: SER,discussions with staff]

4.4 The Extent and Use of Student Feedback

Qualitative student feedback is obtained through the use of questionnaires given to students at the end of each subject. The department uses the standard questionnaire developed by the faculty for this purpose from April 2005. In addition to the formal feedback, informal discussions with the students, Level coordinators and batch representatives also provide vital feedback on curriculum and learning and teaching methodology. *It was the opinion of the students that the Department is open minded in receiving their feedback and has often accommodated the feedback given by them.*

The review team is in the opinion that the department has a satisfactory process of receiving students' feedback and of utilizing it for improvements. The present practice should be continued. In addition it may be useful to have two representatives from each batch in the Department committee meetings where the issues related to for course evaluation etc, are discussed. [Sources: SER, discussions with staff and students, documents]

4.5 Post Graduate Studies

The DCSE offers four postgraduate programs, one with emphasis on research and three based on taught courses. The MSc in Research is a one year research degree program, which provides higher training required for the development of the IT industry in the country and for those who intend to do higher studies. This program seems to have a high demand and the students are satisfied with supervision, the research environment, and the other facilities provided by the Department. [Sources: SER, PG students, staff]

The MBA in IT and PG Diploma in IT management is a program which is mainly taught courses, and is conducted in collaboration with the Department of Management of Technology (DMT). The main objective of this program is to train IT managers for the modern business environment and has an enrolment of about *40 students* per batch. However the completion rate of the program is only about 50%, and these seems to be a main problem today as these postgraduate students are mostly persons from the industry.

The other program is the MSc/PG Diploma in Computer Science, which provides further training and continuing education to the professionals in the IT industry. This course has a high demand but only 32 students are enrolled to maintain high quality. In this case the pass rate seems to be only about 40%. In all these programs, senior staff members are appointed as course coordinators and they are constantly monitoring the quality of the programs.

In addition there is also a PG Diploma in IT for Education, which is conducted in collaboration with Faculty of IT.

These postgraduate programs are self-financing and thus the department is able to maintain a separate administrative staff for these programs. One of the important outcomes of conducting these programmes is that the staff of the department is able to earn competitive salaries, thus encouraging them to stay in the university system.

The rules and regulations governing the PG program are formulated and guided by the Faculty Higher Degrees committee and the Director postgraduate studies.
[Sources: SER, discussions with staff and PG students, documents]

4.6 Peer Observation

The department has a formal peer review process where lecturers attend the lectures conducted by their colleagues, fill in their observations in a standard form and discuss their observations at a meeting later. The peer observation process at DCSE is currently effective as the Department's academic staff is a friendly small group that is willing to help each other. The students too confirm that this process is taking place.

However, the lectures conducted by the visiting lecturers of the Department are not currently undergoing this process. It is essential that those lectures too go through this process as the Department is obtaining the services of many visiting lecturers.

The reviewers are of the opinion that the peer observation and review process of the CSE is satisfactory.
[Source: SER, documents, discussions with staff and students]

4.7 Skills Development

Department has designed the curriculum, giving importance to the development of interpersonal skills and practical technical skills.

In developing the program to achieve these objectives, the Department has constantly interacted with the industry, the employers and the training places, students and the graduates. In the CSE degree program there are number of subjects and activities that cultivate these skills.

To develop communication skills in English, in addition to the regular English course in the early levels of the program, there is one course on Communication skills and one on presentation skills. Both these courses are conducted by the DCSE, with the help of visiting lecturers. These courses also include talks/seminars by experts in the industry on non-technical topics. In addition, the final year group project has the report writing and presentation components, which intend to develop and consolidate their communication skills training.

In order to develop their practical skills, other than the regular lab components in the respective subjects, there are two courses introduced at the level 1, soon after the students have selected their specialization. These two subjects are conducted in collaboration with the Engineering Design Centre, and provide opportunities to understand the engineering design process, for some early experience on doing a practical project, and to acquire the basic skills required by an engineer. An additional programming project in the Level 3 also provides additional practical training.

The practical skills as well communication skills are also cultivated through the well-monitored industrial training of five and a half months duration and the final year project.

The DCSE also encourages the students to participate in extracurricular activities, through the Students societies, organizing get together meetings, exhibitions and some social/community activities. However there was no evidence to say the students are involved in activities such as sports, which could be important for professionals in the IT field.
[Sources: SER, documents, discussions with staff and students]

4.8 Academic Guidance and Counseling

The Department of CSE has a strategy for providing academic guidance and counseling. This is mainly carried out informally by students talking to the academic staff, and is facilitated by the friendly environment prevailing in the Department. In addition the university has a network of student counselors who mainly deal with the matters other than the academic matters. It was also noted from the students that some times they discuss the issues they may have relating to the field selection with the senior students. The University has two units, one for career guidance and the other for student counseling, with separate offices located near the library building. It was indicated by students that there are rare occasions where the students feel at the end of the undergraduate career that they have made the wrong choice for their specialty. For this reason and for the continuous functioning of the process under various staff situation, it would be helpful to formalize the academic counseling.
[Source: SER, documents, discussions with students and staff]

5. CONCLUSIONS

The Department of Computer Science and Engineering seems to be serious, concerned and committed, and puts tremendous effort to conduct an excellent undergraduate programme. It provides a very good academic and working environment, where all levels of staff of the Department felt contended in serving the Department. The small number of students as well the cohesive group of staff members has facilitated this very good performance, and the review team is concerned that the doubling the student group as planned to be implemented, might effect the future performance.

Curriculum Design, Content and Review: Department curriculum has been developed based on international guide lines in 2000, and a review was done in 2004, where the students feedback and the industry input was taken into consideration. Review team is satisfied with the development shown in this aspect. ***Judgment: Good***

Teaching, Learning and Assessment Methods: In addition to lectures conducted in the regular manner using black/white board and slides, e-learning technology has been incorporated in the teaching - learning process. Ample computing facilities and access to them is provided to the students for effective learning process. A wide variety of assessment methods are also used for assessment of the students, and sufficient mechanisms have been implemented to guarantee a justifiable assessment process while assuring the quality.

Judgment: Good

Quality of Students, Including Student Progress and Achievements: Students with a good performance at the GCE advance level and later students who secure high GPA at Level 1 apply for this course. The review team noted that the students also maintains a high level of performance throughout. Almost all the students have successfully completed the degree, and a considerable number of them obtained classes at their first attempt. Many students find employment even before graduation or immediately after graduation.

Judgment: Good

Extent and use of Student Feedback, Qualitative and Quantitative: DCES has both formal and informal way of getting the students feedback, and the students were satisfied that the Department has accommodated their feedback in program revisions.

Judgment: Good

Postgraduate Studies: The Department has correctly understood the demand and also the need for PG programs in IT/Computer Science in the industry, and moreover its benefits to the Department's staff and the undergraduate program. The DCSE conducts three course based PGDip/MSc programs and one research based program. They have successfully collaborated with DMT and the Faculty of IT, and the experts from the industry to cater very good PG programs. The completion rate of these programs seems to be unsatisfactory, but seems be a main problem when the students are from the industry.

Judgment: Good

Peer Observation: Peer observation is successfully practiced in the Department and the students appreciated this attempt by the staff. Currently this practice is not formalized and also not applied to the visiting lecturers, and need to be addressed in the future.

Judgment: Good

Skills Development: The Department has introduced a fair number of courses to develop the students presentation, communication and practical skills. These courses are successfully conducted and monitored to assure that the objectives are achieved.

Judgment: Good

Academic Guidance and Counseling:

The Department of CSE has a strategy for providing academic guidance and counseling. The amicable environment in the department has provided the way to implement the strategy effectively. In addition the University too has a very good network of students' councilors to guide the students. ***Judgment: Good***

Judgment of Eight Aspects

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	Good
Teaching learning and assessment methods	Good
Quality of students including student progress and achievements	Good
Extent and use of student feedback, qualitative and quantitative	Good
Postgraduate studies	Good
Peer observations	Good
Skills development	Good
Academic guidance and counseling	Good

Overall Judgement - Suspended

6. RECOMMENDATIONS

The Review team was highly impressed by the commitment, seriousness and dedication the Department of Computer Science and Engineering has showed in conducting their Degree program. This is even highly appreciated when considering the limited funds, human and physical resources available for conducting an effective program. The Department has planed its strategy to conduct a quality programme and has devised ways to achieve it. We also recognized that the highly dynamic nature of the Department lies in the fact that it has a small cohesive group of staff members with relatively a small number of students. Nevertheless based on the findings indicated in section 4, and information gathered from various discussions, the review team wish to make the following specific recommendations.

- Although the DCSE is conducting a commendable program, with a small number of staff members, limited resources and relatively a small number of students, the intended increase in intake to the Department's degree program by 50 more (doubling the number)

students, without much funds to the development of lab infrastructure would adversely effect the quality the Department has maintained so far. This may also destroy the existing academic and working environment of the Department. These concerns were expressed by the academic staff, non-academic staff, post-graduate students and more importantly the undergraduate students. Although the UGC has promised funds for the infrastructure development, only a half of the money is being given. The Department must be cautious on this issue.

- The IT/ Computer Science and Engineering being a highly dynamic discipline, the review team is in the opinion the technical staff of the department must be given opportunities for continuing education by sending them for training workshops/ short courses etc.
- The secretarial staff in the department also need to be given opportunities to train them further on modern secretarial tools and methodologies.
- Although, the review team was given access to various information they needed, it was observed that the Department do not maintain records of some of their important activities. It is recommended that the Department maintains a very good record keeping system so that it could be very useful when they need to undergo an external review.
- As the students following the CSE program need to do a lot of assignments using the computer, extending the opening hours for computer labs would benefit the students, and would ease out the pressure.

7. ANNEXURES

ANNEX 1

Agenda for the Visit by the Review Team

Day 1 – Monday 6th February 2006

09.00 – 09.30 Welcome Meeting with the Dean and Head of the Department

09.30 – 10.00 Meeting with the Academic Staff, Agenda for the Visit

10.00 – 10.30 Tea Break

10.30 – 11.30 Department Presentation on the Self Evaluation Report

11.30 – 12.30 Discussion

12.30 – 13.30 Lunch Break

13.30 – 14.15 Observing a lecture session – Mr. Sanath Fernando

14.15- 15.15 Observing Department facilities

15.15 – 16.00 Meeting with Departmental Academic Staff

16.00 – 17.30 Meeting with undergraduate students

17:30 – 18:00 Brief meeting of reviewers

Day 2 – Tuesday7 February, 2006

09.30 – 10.00 Observing Other facilities

10:00 – 11:00 Observe Documents (Working Tea)

11.00 – 12.00 Meeting with Technical Staff and Other Non-Academic Staff

12.00 – 12.30 Meeting with postgraduate students

12:30 – 13:30 Lunch Break

13.30 – 15.00 Observe Lecture Session (Dr. Chatura De Silva and Dr. Sanath Jayasena)

15.00 – 15.30 Meeting with instructors

15.30 – 16.30 Observe a practical class- Final year project lab

16.30 – 17.00 Meeting of Reviewers

Day 3 – Wednesday 8th February, 2006

09.00 – 10.00 Observe a practical class

10.00 – 10.30 Academic Guidance and Counseling Core Aspect Meeting

10.30 – 11.00 Reviewers Private Discussion

11.00 – 12.00 Meeting with Head and Staff for Reporting

12.00 – 13.00 Lunch Break

13.00 – 17.00 Report Writing

ANNEX 2

List of Persons Met During the Visit

Permanent Academic Staff Members:

1. Prof. Ananda Jayawardene, Dean, Faculty of Engineering, UoM
2. Ms. Vishaka Nanayakkara, Head/Department of CSE
3. Dr. Gihan Dias, Senior Lecturer and Former Head
4. Dr. Sanath Jayasena, Senior Lecturer and Former Head
5. Dr. Chatura De Silva, Senior Lecturer
6. Mr. Shantha Fernando, Senior Lecturer
7. Dr. Ashok Peiris, Senior Lecturer, Former Head
8. Mr. Dilum Bandara, Lecturer
9. Mr. Samantha Senaratna, Lecturer (Contract)
10. Mr. Sumith Gamage, Lecturer (Contract)

Temporary Instructors

1. Ms. Anuradha Jayarathne
2. Ms. Nishani Withana
3. Ms. Indika Swarnamali
4. Mr. F. Ananda
5. Mr. Sanjaya Suriarachchi

Members of the Technical and Non-Academic Staff of the Department

1. Miss. A. Wellappili Staff Assistant (C.S.)
2. Mr. NHKG de Silva Staff Technical Officer
3. Mr. JC Rajapaksa Technical Officer Grade 1
4. Mr. STAC Perera Technical Officer Grade 1
5. Mr. HK Jinadasa Technical Officer Grade 1
6. Mr Wasantha Edirisooriya Technical Officer Grade 2
7. Mr. SK Gilbert Lab Attendant Higher Grade
8. Mr. PAD Albert Lab Attendant Higher Grade
9. Mr K Rajeevan Systems Engineer
10. Mrs S Fernando Maintenance Engineer

Post-graduate Students

1. Mr Sumith Bandula
2. Mr Suranga De Silva
3. Mr Chamara Dasanayake
4. Mr K Rajeevan

Discussions were also held with about 50 students representing mostly final year and the third year.

ANNEX 3

List of Teaching Sessions Observed

6th February 2006

Observed Mr Shantha Fernando's lecture on 'Advanced Computer Architecture'

7th February, 2006

Observed Dr. Sanath Jayasena's lecture on 'Theoretical Computing' and
Dr. Chathura de Silva's lecture on 'Computer Vision'.

ANNEX 4

List of Facilities Observed

1. Laboratory facilities
2. Lecture Rooms of the Department
3. AV Studio
4. Office facilities
5. Department's Staff (both academic and non-academic) facilities

ANNEX 5

List of Documents Observed

- Performance criterion for B.Sc. Engineering degree program
- First Year Handbook – Faculty of Engineering, University of Moratuwa
- Undergraduate Handbook, BSc Engineering, Dept. of Computer Science & Engineering
- Detailed Course Module information.
- Curriculum for MSc/PG Diploma in Computer Science (Revised 2005)
- Department's Facilities Development Plan 2005 – 2007
- Faculty of Engineering Academic Policies.
- Calender for BSc Engineering – 2006
- Academic Registration Schedule, Faculty of Engineering - 2006
- BSc Eng. Examination Schedule – 2005 June to 2006 June
- Students Feedback forms
- Department document on case examples of using students feedback
- Training guidelines for Engineering Undergraduates- University of Moratuwa.
- Industrial Training Evaluation form
- Industrial Training Supervision Report
- Supervision report on undergraduate Industrial Training
- Weekly Progress report forms – Final year project
- Self evaluation forms for CS 296- Presentation Skills
- Examination Question papers and model answers
- Final year project Reports
- Teaching material – handouts
- Teaching Material – e-learning CD
- Lab handouts