SUBJECT REVIEW REPORT

DEPARTMENT OF CIVIL ENGINEERING

FACULTY OF ENGINEERING TECHNOLOGY
THE OPEN UNIVERSITY OF SRI LANKA

30th July to 01st August 2007

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1. SUBJECT REVIEW PROCESS

Subject review process of the UGC involves evaluating the quality of education within a specific subject or discipline, focusing on the student learning experience and on student achievement. The 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 Civil Engineering (DCE) of the Open University of Sri Lanka was conducted following the guidelines provided in the Quality Assurance Handbook for Sri Lankan Universities, published by the CVCD and 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 (SER).

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 30th, 31st July and 1st August 2007. 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 DCE, members of the academic and non-academic staff, a group of undergraduate students and recent graduates (see Annex 2 for persons met during the visit), by peer observation of the teaching process (day schools and practical & field work; see Annex 3), by observing the facilities at the DCE (see Annex 4) and by examining the documents provided by the DCE (see Annex 5).

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.

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

The Government of Sri Lanka, recognizing the need to ensure life-long learning and the right of every citizen to improve their life-chances through access to higher education, established the Open University of Sri Lanka (OUSL) as a national single mode distance teaching university in 1980 under Sections 23(1) and 18 of the Universities Act No. 16 of 1978, and Ordnance No. 3 of 1980.

The Mission of the OUSL is *to enhance opportunities for adult life-long learning of people by facilitating Open and Distance Learning and supporting excellence in research and scholarship*.

It is reported in the OUSL Handbook of 2005/2006 that 'The Open University has stepped beyond its teaching task and is now seriously engaged in research and dissemination of knowledge".

During the period 1980 to 2005, the enrollment in the university increased from 3099 to 23,000; the number of programmes at Doctoral, Masters, Bachelors, Diplomas and Certificate Levels increased from 4 to 42; the staff who were grouped under 2 schools at inception are now in 19 academic departments in 4 faculties [Source: OUSL Handbook of 2005/2006].

The Faculty of Engineering Technology is one of four faculties established at the OUSL. The Department of Civil Engineering (DCE) is one of six departments in the Faculty of Engineering Technology. It offers two specialized programmes of study; viz. the Diploma in Civil Technology, and the Bachelor of Technology in Civil Engineering. Further, the department offers two post-graduate programmes; viz. the Post-graduate Diploma in Technology, and the Master of Technology in Construction Management. [Source: Faculty Student Guidebook, 2007].

Since entry and exit from the OUSL can occur at different levels, and at different times, it is extremely difficult to give a single value for the number of students in the DCE. The SER shows that the student numbers vary considerably between

- number initially registering for a course and number successfully completing the course at any level; and
- number initially registering at Level 1 and number graduating at Level 6.

However, the staff numbers are fixed based on a formula proposed by the UGC as far back as 1991. Based on this formula, there are 16 Academic Cadre positions in DCE. At present (August 2007), 14 cadre posts have been filled. (The two unfilled vacancies are the Chair in Civil Engineering, and one Lecturer post for which a selection has already been made). The non-Academic cadre numbers are related to the academic cadre numbers. Therefore, an under-estimate of Academic cadre positions inevitably results in an insufficient non-Academic cadre.

The effect of this under-estimation of staff cadres, in relation to the implementation of the curriculum, is again discussed in detail under Sec. 4.1.

3. AIMS AND LEARNING OUTCOMES

3.1. Aims

Civil engineering as a profession is responsible for developing and providing infrastructure and services for the society with due consideration for safety and the environment. This needs a knowledge and skills in the aspects of planning, analysis, design, construction, operation and maintenance with regard to buildings, roads, railways, bridges, harbours, airports, water supply, sewage disposal and irrigation schemes.

In this context, the DCE aims at providing:

- diploma and degree programmes of study of high quality conducted using distance teaching methodologies to enable those engaged in relevant technical fields to upgrade their knowledge and skills for career development; and those who are qualified to enter the conventional university but prefer to follow a programme in the distance mode while being employed.
- degree programmes that include projects involving research and/or analysis, thereby exposing students to recent advances in knowledge and techniques;
- postgraduate diploma and degree programmes conducted using distance teaching methodologies to produce effective engineering managers who will contribute to productivity through upgrading of managerial skills;
- programmes of study that give the student the flexibility to progress at a pace of his or her choice in keeping with the time or financial resources available for study;
- opportunities for those desirous of gaining knowledge in a specific subject area without enrolling for a programme of study leading to a formal qualification, by offering "stand alone" courses;
- a range of challenging learning opportunities within the modular teaching structure of the university allowing students to develop their academic interests and potential through curricula consisting of a set of compulsory and elective courses;
- opportunities for students to develop personal skills required for lifelong learning;
- encouragement to students to develop knowledge, creative ability, innovative thinking and transferable skills that will enable them to meet the needs of the prospective employers, and to contribute effectively in their chosen careers;
- a friendly and supportive departmental environment that encourages enthusiastic learning and satisfactory completion of programmes by students;
- departmental committee structures for effective organization of teaching, assessment, review and quality assurance.

3.2. Learning Outcomes

On successful completion of either the *diploma, or the degree, or the postgraduate programme* of study, students should have:

- gained a knowledge and understanding of the different areas of civil engineering, based on programmes that provide courses in which the depth of study increases progressively from lower levels to higher levels;
- learnt to apply the knowledge and understanding gained to practical situations, and in research;
- developed the ability for critical, self-directed learning;
- acquired a range of personal and transferable skills, such as, analytical ability, computer literacy, data handling, interpretation and management, oral and written communication, independent thought, and gained experience in applying them to real situations;

- learnt the skills necessary for data acquisition and analysis through laboratory and field exercises.

On successful completion of the *Diploma in Technology programme*, the students should have:

- obtained a fundamental knowledge and understanding of the subject areas of the compulsory and chosen elective courses to a breadth and depth required to practice as middle level technical personnel;
- gained the competency to apply fundamental principles of civil engineering technology;
- become sensitive to social, environmental and economic issues related to technology;
- obtained on-the-job practical skills through the two modules of industrial training embodied in the curriculum.

On successful completion of the *Bachelor of Technology (Engineering) degree*, the students should have:

- obtained a knowledge and understanding of the subject areas of the compulsory and chosen elective courses to a breadth and depth required to practice as a civil engineer;
- acquired the competency to analyze civil engineering problems and find appropriate solutions, and to execute such solutions;
- developed the motivation to use his/her creative and analytical abilities to influence the society for the better;
- obtained on-the-job practical skills through the two modules of industrial training embodied in the curriculum.

On successful completion of the *Postgraduate Diploma or the Master's programme in Construction Management*, the students should have:

- obtained a knowledge and understanding of the aspects of project management, design phase management, construction planning and control, construction productivity, contracts and legislative requirements, project appraisal, real estate and property development, and management of human resources, finance, information and construction plant;
- acquired the managerial skills required to execute construction projects effectively and efficiently.

To help the students to achieve outcomes 3.2.1 – 3.2.15, the DCE programmes of study provide opportunities for students to:

- build upon their qualifications at entry by progressively developing knowledge and skills based on a multidisciplinary approach;
- continue studies in fields in which they have an interest or talent by offering a choice of elective courses within a flexible curriculum with lower and upper limits on various

categories of courses (engineering, mathematics, projects, general, management, computer literacy, training and language);

- undertake a final year project (in the degree programme) on a topic relevant to the work (employment) he/she is engaged in;
- have a manageable workload by providing guidance on the selection of courses within permissible limits, based on the availability of time for the individual;
- be provided with complete details of the programme, course and unit objectives, content, academic requirements and assessment methods;
- receive fair and appropriate assessment of their work, and feedback on individual progress;
- have access to adequate academic support and resources directly from the department and through the network of regional/study centers.

4. FINDINGS OF THE REVIEW TEAM

The following eight aspects of education reviewed at the departmental level are described in sub sections 4.1 to 4.8.

- 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.

4.1. Curriculum Design, Content and Review

The engineering technology programs in the OUSL have a unique characteristic that entry and exit to the programs are possible at clearly identified levels. The course curriculum has been designed so that it is conducted at seven levels defined as:

- Foundation Level courses at Levels 1 and 2;
- Diploma Level courses at Levels 3 and 4;
- Degree Level courses at Levels 5 and 6; and
- PG Diploma and Masters Courses at Level 7.

The Foundation Level courses are so referred as they provide the foundations for the Diploma and Degree courses at the higher levels. Entry levels are available at Levels 1, 2, 3, 4, 5 and 7;

whilst exit levels with Certificate, Diploma, or Degree are available at Levels 2, 4 and 6 respectively.

The curriculum, which was first developed in the 1980's, had its first major revision in 2002/2003 after consideration of the recommendations of the Institution of Engineers, Sri Lanka, (IESL); [Source: Self Evaluation Report (SER)]. This revision became necessary in order to fit into the accreditation requirements of the IESL. Another change introduced at around this time was a curriculum revision enabling the minimum duration of the course for a certain type of students; viz. the minimum duration for a student entering with GCE (A/L) qualification to complete the B.Tech. degree was reduced to 5 years. Discussions with the staff showed that they monitor very closely the implementation of the curriculum, especially the shortcomings in achieving the aims and learning objectives.

In the OUSL system, it is the course material, which is given to each student, in lieu of lectures at all levels that forms the core of the student's knowledge of each subject. The original set of course material had been prepared in the early 1990's. These were required to be continuously improved and updated. Course teams had been appointed in each subject area, and one of their terms of reference was to periodically review the syllabi of the respective courses. Minutes of Course Team meetings suggest that they have in most cases last met over 3 years back. Therefore, many staff members obtain feedback from the internal staff of the course team, and revise their course material annually. It is a good practice to obtain 'official' approval for these revisions, and print on the book produced the date of revision. If meetings with the full course team are difficult, the DCE may device alternative mechanisms to obtain feedback from subject specialists outside the university.

The staff reported that the process of revision of the course material is slow because of the heavy workload on the existing staff. One reason for this is that most staff and students place emphasis on the 'face to face' teaching periods available. Several alternative delivery modes are available in the OUSL system, and attempts made to promote these through the Staff Development Centre are commendable. The DCE may consider events such as 'Staff Retreats' to ensure that all the staff are informed of these developments and start adopting them in their course delivery.

The provision of adequate staff resources is also essential for the efficient running of the program. The staff numbers are presently allocated based on a Funding Formula prepared as far back as 1991 in which student numbers are computed from a weighting scheme expressed as a fraction of a 'degree student'. These are:

Levels 1 & 2 = 1/4
Levels 3 to 6 = 1

It is reported in the SER that the numbers of B.Tech. graduates during recent 5 years are as indicated in the table below.

Completion Year	2001/02	2002/03	2003/04	2004/05	2005/06
Number graduating	01	02	05	09	03

The following figures have also been collected from the departmental statistics for the Core Subjects offered by the DCE 2006 for Levels 5 and 6.

Course No.	Subject	No. registered initially	No. eligible to sit for Final Exam	No. passing Final Exam
CEX 5230	Surveying II	76	46	16
CEX 5231	Mechanics of Fluids	37	10	05
CEX 5232	Engineering Geology	43	32	11
CEX 5233	Structural Analysis	33	37	25
CEX 6230	Geotechnics	29	18	00
CEX 6332	Structural Design	27	16	10
CEX 6233	Environmental Engineering	55	31	20
CEX 6239	Const. Eng. & Management	39	27	15

Referring to the above table, the fact that no student passed CEX 6230 should be a concern for the DCE, and it is hoped that remedial action would be taken after a detailed study. The staff also reported that the lower number graduating is also partly due to the emphasis placed by the DCE in maintaining high standards for the 'Design Project'; and many students being employed at this time.

Comparing the wide range of subject specializations being covered by the DCE, there is no doubt that an increase of staff numbers is essential. One expectation would be that the UGC, which determines staff cadre, comes up with a reasonable scheme for establishing the staff requirements for OUSL.

An equally important aspect, within the control of the DCE, is to ensure that more students register at the degree level, and also complete the course in time. It was informed that in the Faculties of Natural Sciences, and Law, both these indicators are more positive.

The Review Team would like to recommend that the DCE reviews:

- the entry qualifications at all levels to ensure that there is a smaller drop out during the academic year;
- the eligibility criteria to sit for the Final Examination, so that a higher proportion of students who are eligible would eventually pass;
- the progress control mechanisms for the final year project so that more students will complete the project within the minimum stipulated time.

The importance of English and IT for undergraduates has been debated for many years. Whilst these debates can go on, action is required at 'ground level'. The actions undertaken were initially based on perceptions without data. However, after operation for some time, data becomes available for analysis. The conventional universities have decided to give high priority to the learning of these subjects, and funding was made available through the IRQUE Project for improving the relevance and quality of undergraduate education. It is recommended that the OUSL re-visits these areas and take decisions based on the data available at the different faculties.

A very encouraging aspect of the review was that despite the many difficulties faced by the staff in carrying out their duties, considerable enthusiasm still exists for analyzing and experimenting with novel ideas in implementing the existing curriculum to improve student performance. As an example, the Review Team was informed that many of the staff is in favour of a review of the

Continuous Assessment criteria with steps taken to promote positive learning habits, whilst eliminating the negative aspects such as copying.

The Review Team would also like to recommend that the Faculty may have to review how best it could use its relatively meager resources for the training of graduates and post-graduates. A striking example is the limited amount of computers available to OUSL students compared to the degree students in conventional universities. Either for this reason or otherwise, it was observed that the students have only limited access to much of the software used for teaching in other engineering degree programs. However, the curriculum and content of courses up to Level 6 cover the subject area required for a first degree in civil engineering.

Considering all the above, the Review Team judged the Curriculum Design, Content and Review aspect as GOOD.

4.2 Teaching, Learning and Assessment Methods

The OUSL is different from the conventional universities as multiple entry points exist based on the student qualifications. Level 1 of the course is equivalent to that followed by students studying for the Advanced Level exam.

Teaching and learning are carried out through a combination of methods such as Comprehensive Learning Material posted or handed over to the students, few Day schools per course, tutorial assignments, practical classes, industrial visits, projects, presentations, industrial training, surveying camp etc. [Sources: SER, Discussions with students and staff]

Some students take a long time (up to 15 years) to complete the B.Tech degree. Since 2002, a fast track had been introduced, enabling capable students to obtain their degree within 5 years. Most of the students are mature and in jobs. Their responsibilities at the work place affect the rate at which they are able to proceed with their studies. Now some younger students are opting to study full time before venturing out for jobs.

From Level 3 the course, there is a sudden change in learning environment (medium of instruction changing from vernacular to English). The workload is partly controlled by the students in all the levels as they have the option of registering for a lesser number of courses as they wish. Looking at the requirement specified for fast track, the total workload seems to be reasonably distributed throughout the program. Students are exempted from courses depending on their A/L passes and on completing other courses such as NDT/HNDE etc. Many teachers expressed concern about some of the exemptions given to students with A/L passes, as at higher levels they find that some exempted students do not have the basic knowledge expected. [Sources: Discussions with students and staff, OUSL Student Handbook and the Activity Diary]

The improvement strategies for teaching, learning and assessment methods have been addressed and discussed. [Source: Discussions with staff]. The Course teams have to meet regularly but as mentioned previously, many of them have not met for over 3 years because of difficulties due to poor participation of the external members.

The comprehensive project is found to be a good opportunity for the application of learnt theories in the field of civil engineering [Sources: Final year project reports, Discussions with staff]. The quality of the reports is relatively better than what is seen in conventional universities. (The OUSL project is a combination of multi disciplinary design project and the research project seen in conventional universities). By insisting on a literature survey the student

is guided in the proper manner to do a research/design project. While the quality of Project report is good, many students spend an additional year doing this part. Some additional guidance may be useful to convince the students that this work can be successfully done within a calendar year. The combination of requiring projects to be of a high standard, and the inability of employed students to give priority to the successful completion of the project is a major reason for the relatively long period taken by many students for graduation. This was an area of concern of the Alumni and students that the Review Team met. However, it needs to be emphasized, that the reduction of the time for graduation should not be at the expense of the 'Project', which has helped develop considerable skills among the students.

Greater attention to ensuring that the students are better prepared to face the Final Examination may be a desirable objective to improve the pass rate and the rate of progression of the students through the course. An example brought to the attention of the Review Team was of a Staff Member who (i) analyzed the pre-requisites to ensure that the most appropriate are put in place; (ii) introduced 'problem based learning' and evaluated the outcome; (iii) reviewed the assignments set periodically to ensure that they focused learners' attention on the key ideas and the important competencies they were expected to develop; (iv) prepared a lesson plan, and obtained a feedback through a staff member who sat through one of the lessons; and (v) provided to each student a feedback on the assignment, when a shortcoming was observed. This is a good practice, which need to be shared.

Laboratory work as an essential part is found in many of the DCE courses. Further, Industrial Training for 6 months (2 * 3 months) given at Level 4 is found to be an essential and important component of the program.

The module assessment method consists of continuous assessment (CA) and end-of-semester examination. By setting a criterion for each course module, taking in to consideration the weight of its components such as labs, tutorials, assignments etc. to get the eligibility for sit for the end-of-semester exam, the students are continuously monitored right throughout a particular level. As per the existing regulations, students once they become eligible are allowed to postpone sitting the exam up to five years. Many staff members were of the opinion that this be reviewed, as it has a negative bearing on the performance of the student at the exam. [Sources: Discussions with staff]

It was a request of both present students and the alumni, whom the Review Team met that the provision of a 'repeat' examination would go a long way to reduce the length of study. This will certainly add to the work load of the staff, and may benefit only a few. A far better method would be to build confidence in the students not to miss an examination after eligibility has been obtained; and this can happen only if the final results support this view.

The Review Team witnessed the availability of Internet facilities for students. This facility is expected to enhance student's self-learning abilities. However, since the available computer terminals are limited, students face hardship and inconvenience. This situation is expected to be improved with the Distance Education Modernization Project (DEMP) funding in the near future. The situation in the regional centers has to be verified.

Sufficient laboratory space to carry out practical classes for large groups of students is needed. Instructors complained about uncomfortable conditions especially when large numbers of students are present.

Having a comprehensive database about all students is a plus point, as all the records of a student are available to the assessor/ teachers.

The Review Team again wishes to draw attention to the possibilities of staff adopting alternative delivery modes, as discussed previously in Sec. 4.1.

On the basis of its observations, the Review Team considers that Teaching, Learning, and Assessment aspects are GOOD.

4.3. Quality of Students, including Student Progress and Achievements

Student enrollment for the Faculty of Engineering of the OUSL follows the Open University concept, where any aspiring student can join at a suitable level and work their way up. Out of the four Engineering Faculties in Sri Lanka, OUSL is the fourth preferred choice of students at undergraduate level but this trend is different for postgraduate courses. A recent phenomenon of young full time students could improve the student performance, as the time available for studies is more. [Source: Discussion with staff and students]. It was a view of one staff member (not in the DCE), that students who follow Levels 1 & 2 full time, Levels 3 & 4 while in employment, and Levels 5 & 6 again full time has produced the best students in his department.

Some students take a long time (up to 15 years) to complete the B.Tech degree, but many complete the Diploma within a relatively short time. Since 2002 a fast track had been introduced, enabling capable students to obtain their B. Tech. degree within 5 years (Source: discussions with the staff, students).

In the statistics shown in the SER provided by the DCE, Table A1 gives the number of admissions to the Diploma in Technology and Bachelor of Technology; Table A2 gives the number of students registered in PG program in Construction Management; the student progress is given in Table A3; and Student progress in the PG courses is given in Table A4. According to Tables A5 and A6, the completions in Diploma in Technology (Civil) are 16 in 2003/2004; and 17 in B. Tech (Eng) degree over a 4 year period between 2003 and 2006. Table A7 of SER shows the PG Diploma and Master of Technology Completions.

The SER reported that the progress achieved during the past twenty-six years (1980-2006) by the DCE should not only measured by number of graduates, but also by the contributions made to the country by all students completing their OUSL studies at various levels. But the view of the Review Team is that it is a responsibility of a university to produce a sufficient number of graduates, and more attention needs to be paid to both increasing graduate numbers, and ensuring faster completion rates. One way of achieving this would be to display the success stories (of Alumni) in prominent Notice Boards, so that the present undergraduates would be inspired,

Considering all the above the Review Team judged this aspect as SATISFACTORY.

4.4. Extent and Use of Student Feedback

The Review Team was informed by the students that academic problems faced by them are resolved using three avenues open to them; viz. representations to (i) Head of the DCE directly; (ii) Academic Counselor, who is a Senior Lecturer; and (iii) Course Coordinator. The students reported that they use all these avenues, and their problems are quickly resolved.

The Head of the DCE had (a few months previously) prepared two sets of questionnaires, one to students who are dropping out after initial registration at any level; and the second to newly graduating students. The analysis of these has not begun.

Even though the OUSL is different from a conventional university, the DCE could still obtain student feedback on the course material provided, assignments set, course delivery methods, etc. through a formal system operated by the Head of the DCE.

The Review Team observed that some discontent of the students [Source: Discussion with students, alumni], arise out of their not understanding the concept of an Open University system, and demanding support from the academic staff similar to that given in a conventional university. The view of the Review Team is that it is important to disseminate to the students at all levels (in the vernacular), what is 'distance learning', and what is the role of the OUSL in terms of course delivery and assessment.

Considering all the above the Review Team judged the Extent and Use of Student Feedback SATISFACTORY.

4.5. Postgraduate Studies

At present, the DCE conducts two Postgraduate programs. These are the postgraduate diploma in construction management and masters program in construction management. The student intake to theses programs are restricted to those with an engineering or engineering related degree and a minimum of two years of field experience. Minimum duration for the Postgraduate Diploma is 1 year and that for the masters program is two years. The Postgraduate programs are conducted with assistance from external consultants from other universities and industry. The program coordinator who is an academic staff member coordinates the program. Postgraduate Diploma is awarded to those completing the taught courses of 2 credits. They can then register for the M.Tech program. M.Tech program consists of a research project in construction management under the supervision of an academic staff member. The students select a research topic suggested by a staff member or select an industry related problem at their place of employment. An internal supervisor and an industrial co-supervisor guide the student. A dissertation is submitted at the end of the research project and a viva voce examination is held. The assessment committee will comprise internal & external examiners. Both Postgraduate Diploma and M.Tech will be awarded to those who successfully complete the taught courses and the research project.

Most of the students who register for the Postgraduate Diploma complete the program. However, the number of students registering and completing the masters program is few. The DCE has awarded 22 postgraduate diplomas and M.Tech degrees over the last five years.

The DCE offers the provision for students to obtain research degrees. A few M.Phil. Degrees have been awarded from the DCE for their research conducted in the department. However, at present no research students are attached to the department.

Hence, this aspect can be considered GOOD, although improvements are still possible with further inputs to encourage Postgraduate diplomates to continue for M.Tech and also to enroll few students for research degrees. This will help improve the research culture at the university.

4.6. Peer Observation

As mentioned previously in Sec.4.2, one of the staff members who met the Review Team voluntarily obtained direct feedback from a peer, who sat through one of the lessons in a Day School conducted at Level 6. It may be possible to extend this to other courses as well, starting initially with Level 5 and Level 6 courses.

The review of course materials is also a strong peer review measure. As mentioned previously, the Course Teams should meet more frequently, or an alternative mechanism should be set in place to obtain feedback from subject specialists outside the university.

Although improvements require to be made in this area, the Review Team judged this aspect as SATISFACTORY.

4.7. Skills Development

According to the SER, The students in the DCE are expected to be able to identify and use materials, tools and manufacturing processes, incorporating good engineering practices, for the implementation of systems or processes within the field of Civil Engineering.

Teaching/learning of both general and specialized skills required for the practice of engineering is accomplished through two different processes. One is the use of formal OUSL courses where particular skills (for example Traditional engineering skills, Communication and presentation skills and computer skills) are introduced to the student by teaching materials, assignments and day schools and lab classes and the other is where these skills are further developed by way of multi disciplinary design projects. The latter is considered to be particularly important for the proper assimilation of these skills. Some examples of projects undertaken by students in the recent past under the skills development programme were made available to the review team.

The support given by other departments to the DCE is also commendable. Department of Mechanical Engineering helps in imparting knowledge in conventional engineering drawing (3 day schools), CAD and technical communication including report writing (two compulsory technical reports) and presentation (viva). More than 40% students pass these courses. According the staff members of the Department of Mechanical Engineering met, an improvement is seen in many students since year 2002 onwards. In 2006 the number of students for this module was approximately 2500 (Source: Discussion with the staff members of the Department of Mechanical Engineering).

The Department of Mathematics conducts courses for DCE students also. Up to level 5, these are compulsory. There is an optional course at level 6. Again about 40% of the candidates pass the exam (Source: Discussion with the staff members of the Department of Mathematics).

The support given by the English Teaching Unit (Department of Language Studies) is also commendable, but just like in all other universities the students' poor standard of English is a point disturbing many teachers. The staff of the English department feels that the workload due to DCE is high, and needs more resources in future to support possible higher number of DCE students.

Considering the above, the Review Team judges this aspect as GOOD.

4.8. Academic Guidance and Counseling

The faculty has arrangements to provide academic guidance and counseling for applicants and students from the beginning of the program to the end. The pre-orientation program is held at OUSL and regional centers every year. The applicants will be informed the courses available at OUSL, method of distant learning and assessment process. At the time of annual registration academic staff members of the DCE provide necessary guidance for the students to select and decide courses to be registered for the year. The detail information about the program and each course is provided through the activity diary. Once the students are registered for a course the students are free to contact the academic coordinator responsible, in person, via e-mail or telephone. The students have face-face contact with academic staff during the various activities involved in the course such as day schools, laboratory classes and field work. The students are given guidance by way of written and verbal comments on their assignments.

However, from the discussions with the staff and the students it was revealed that the students do not make use of the opportunities given for them to communicate with the staff and obtain necessary guidance. This may be the reason for the failure in the system of assigning personal tutors at the faculty level. At present no one member of staff is assigned to each student, however therefore students have freedom to discuss their problems and obtain guidance from a member of staff of their choice.

The university is in the process of implementing computer based learning and staff-student communication through 'MOODLE'. More computer facilities will be available for the students at the OUSL and regional centers with Distance Education Modernization Project (DEMP). Therefore, better academic support and guidance through enhanced staff-student communication can be expected.

Faculty has appointed academic staff members as student counselors and the students are encouraged to consult them for professional guidance on their personal problems. Common student problems are addressed at the student forum and the faculty through student representatives.

Considering the above, the Review Team judges this aspect as GOOD.

5. CONCLUSIONS

The Review Team wishes to summarize the observations on the eight aspects under review as follows.

1. Curriculum Design, Content and Review

Faculty of Engineering at OUSL has revised the old curriculum which was first developed in 1980's in 2002/03 to fit into the accreditation requirement of the IESL. The Review Team also observed that the course material which is given to the students is regularly revised by the internal staff. However, the feedback originally expected from subject specialists outside the university is very limited. The DCE may consider either revising the Course Team concept, or find an alternative mechanism to obtain external input to subject content. The curriculum and content of courses up to Level 6 cover the subject area required for a first degree in civil engineering.

2. Teaching, Learning and Assessment Methods

A combination of teaching and learning methods such as providing course materials, conducting day schools, laboratory classes, mini projects, industrial training, surveying camp, and final year project are adopted. Students are required to obtain eligibility to sit for the final examination paper by satisfactory completion of Continuous Assessment Test (CAT) and laboratory work. Academic staff is mainly involved in teaching and assessment process, while the academic support staff assists them. However, despite the laboratory facilities, computer facilities and staff numbers being limited, maximum effort is taken to ensure the quality of teaching and assessment.

The Review Team also commends the alternative delivery modes being promoted by the Staff Development Centre. The departmental staff should be encouraged to follow these courses and adopt some of them for their own teaching.

3. Quality of Students including Student Progress and Achievements

The OUSL provides several entry and exit levels to suit students with different qualifications which enable a determined student to enroll and obtain a Diploma or B.Tech degree. However, the Review Team noted high drop out rates, low graduate output, and relatively long durations for completion of the undergraduate degree. The Review Team recommends that reasons for these should be studied and corrective action taken.

4. Extent and Use of Student Feedback, Qualitative and Quantitative

The students have the opportunity to forward their feed back on individual subjects and general program to the Head of the DCE or individual course coordinators. The DEC has initiated obtaining student feed back through questionnaires. However, so far the method is not formalized.

5. Postgraduate Studies

The DCE conducts PG Diploma and M. Tech. programmes successfully. While the Department could be satisfied with the taught courses, an attempt should also be made to enroll more students for research based degrees.

6. Peer Observation

No formal peer observation procedure is adopted. However, course material is moderated by the course team and question papers and model answers are moderated by an external examiner.

7. Skills development

The DCE has taken steps to develop student skills of: workshop skills, communication & presentation skills, and computer skills with the help of other departments at OUSL. However, it is the view of the Review Team that further measures are necessary to overcome the poor English knowledge of students which hinders their performance in field subjects.

8. Academic guidance and counseling

Guidance and counseling is provided to students during the enrollment and registration every year. Academic staff is directly involved in the counseling process. Students can forward their problems in various forums at the faculty.

The Review Team's judgment of the eight aspects studied during the review visit is summarized below.

Aspect Reviewed	Judgment Given
Curriculum design, content and review	Good
Teaching learning and assessment methods	Good
Quality of students including student progress and achievements	Satisfactory
Extent and use of student feedback, qualitative and quantitative	Satisfactory
Postgraduate studies	Good
Peer observations	Satisfactory
Skills development	Good
Academic guidance and counseling	Good

The overall judgment is suspended

6. RECOMMENDATIONS

Based on the findings indicated above, the Review Team found that in most aspects the ways things are done at the DCE are commendable. While sharing the lack of funds and other problems inherent to all the Sri Lankan universities, the high moral and positive attitude of the staff should be commended.

The Review Team also wishes to make the following specific recommendations.

- The academic and non-academic cadre need to be increased to reflect the subject content covered, and take into account the actual work load of the staff.
- It is recommended to hold regular Course Team meetings to obtain feedback from subject specialists outside the university. If funding is a problem, an alternative feedback mechanism needs to be devised.
- To further improve teaching and learning process it is recommended that better computer and laboratory facilities be provided.
- The academic staff need to be encouraged to participate in the new initiatives being undertaken by the Staff Development Centre for improved course delivery and assessment.

- The DCE may consider reviewing the exemptions given to students with A/L passes. The DCE and the Faculty may use the feedback from academic staff during this review.
- Some discontent from the students is due to them not understanding the OU concept and demanding support from academic staff as given by a conventional university. It is recommended to disseminate this knowledge (what is distance learning, and what OU is there to do) in vernacular to students at all levels.

7. ANNEXES

Annex 1. AGENDA FOR THE REVIEW VISIT

Day 1: 30/07/2007 (Monday)

From	To	Activity
08.30	09.00	Meeting with the Review Panel and QAA Council representatives
09.00	09.15	Meeting with the Dean and Head of the Department
09.15	10.00	Observe Teaching – Day School + Laboratory
10.00	10.30	Tea
10.30	11.00	Discuss the Self Evaluation Report with HOD and other staff members, & Agenda for the review with HOD
11.00	12.30	Meeting with Departmental Academic staff individually, & observing documents
12.30	13.30	Lunch Break
13.30	14.00	Meeting with Director RES & Officers from Regional Centres, observing printing & dispatch
14.00	14.30	Meeting with Director ET and observing Educational Technology, & visit Library
14.30	15.30	Meeting with Director Operations, Director MIS, Director SDC
15.30	16.30	Meeting with undergraduates

Day 2: 31/07/2007 (Tuesday)

From	To	Activity
08.30	09.30	Observing Computer Room, Lecture Theatres and Drawing Rooms
09.30	10.00	Observing student facilities (Student Hostel, Canteen, Medical Centre, etc.)
10.00	10.30	Tea
10.30	11.00	Observing Teaching
11.00	12.30	Meeting with Departmental Academic staff individually, & observing documents
12.30	13.30	Lunch Break
13.30	14.00	Observing departmental facilities
14.00	14.30	Meeting with Technical Staff and other Non-Academic Staff
14.30	15.00	Meeting with Student Counselors and Academic Advisors
15.00	15.30	Private meeting of Reviewers and observing documents
15.30	16.30	Meeting with graduates of B. Tech (Civil)
16.30	17.00	Meeting of Reviewers and report writing

Day 3: 01/08/2007 (Wednesday)

From	To	Activity
08.30	10.00	Meeting with Departmental Academic staff individually, & observing documents
10.00	10.30	Tea and Reviewers Private Discussion
10.30	11.30	Observing students' Presentations of undergrad. projects
11.30	12.00	Meeting with HOD's and some academic staff members of Mathematics and Mechanical Engineering, English Teachers, and Training Engineer
12.00	12.30	Outline DEMP and Online courses
12.30	13.30	Lunch
13.30	14.30	Meeting with Head and Staff for reporting
14.30	16.00	Report writing

Annex 2. LIST OF PERSONS MET DURING THE VISIT

List of Academic Staff from DCE

Ms. M.N. Tantrimudalige – Head, DCE
Dr. A.G.K.de S. Abeysuriya
Dr. P.S.D. Aluvihare
Mr. D.A.R Dolage
Mr. D.I. Fernando
Mr. M.M. Jayatilaka
Dr. J. Liyanagama
Dr. B.C. Liyanage Atapattu
Dr. T.M. Pallewatta
Dr. H.G.P.A. Ratnaweera
Dr. P. Sivaprakasapillai
Ms. L.A. Udumulla
Dr. K.S. Weerasekera
Dr. P.N. Wickramanayaka

List of Academic Staff from other supporting departments

Mr. M.P.W.S Fernando	Dept. of Mathematics and Philosophy of Engineering
Mr. N.D. de Silva	Dept. of Mathematics and Philosophy of Engineering
Mr. Y.A.G.S. Yapa	Dept. of Mathematics and Philosophy of Engineering
Mr. J.A.D.F.M. Jayathilaka	Dept. of Mathematics and Philosophy of Engineering
Mr. W.U.P. Nanayakkara	Training Engineer
Mrs. S.F. Nisamdeem	Dept. of Language Studies
Mrs. A.P. Munasinghe	Dept. of Language Studies
Mr. B.K.P. Abeysooriya	Head, Dept. of Language Studies
Mr. D.C. Wijewardena	Academic Coordinator, Dept. of Mechanical Engineering
Mr. D.W. Medagedara	Academic Coordinator, Dept. of Mechanical Engineering
Mr. P.D. Sarath Chandra	Senior Lecturer in Mechanical Engineering
Mr. W.R.G.A. Wijebndara	Senior Lecturer in Mechanical Engineering

List of Student Counselors

K.A.E. Udhyakumara	Electrical
T.S.S. Jatunarachchi	Mechanical
N.E.R. Perera	Textile
B.C. Liyanage	Civil

Annex 3. DAY SCHOOLS & PRACTICAL CLASSES OBSERVED DURING THE VISIT

Day Schools:

- 2007.07.30 morning: Dr. Gamini Abeysuriya – Surveying CEX3233
- 2007.07.30 morning: Mr. Indika Fernando – Level 1 – CEX 1330 Sinhala Medium

Lab & Field Work:

- 2007.07.31 Surveying Field Work CEX 3233

Presentations:

- 2007.08.01 6 Project Presentations
  (On Solid Waste Management, Recycling of demolished concrete waste, Feasibility of straw bale houses, hydraulic & hydrologic mode for a small semi urban catchment, reducing polymer addition in wastewater treatment, Sewer system for Koralawella area).

Annex 4. FACILITIES OBSERVED AT THE DEPARTMENT

- Surveying Laboratory
- Geotechnics Laboratory
- Structures/ Highway laboratory
- Hydraulics Laboratory
- Environmental Laboratory
- Departmental Computer Room
- Regional Computer Center
- Classrooms and Auditorium
- Electronic repair facility
- Hostels (Male & Female)
- Television Studio
- Medical Center
- Open University Press
- Library

Annex 5. LIST OF DOCUMENTS OBSERVED

1. OUSL Handbook 2005/2006
2. OUSL Corporate Plan 2006-2010
3. Student Guidebook 2007
4. Activity Diary of Faculty of Engineering 2007/2008
5. Statistical information of DCE
6. Minutes of the staff meeting - Department of Civil Engineering
7. Curriculum and syllabi
8. Course materials
9. Laboratory sheets
10. Students' reports on laboratory studies

11. Continuous assessment tests and making schemes
12. Examination papers, model answers and marking scheme for all the subjects conducted by the DCE
    a. PG Diploma
    b. Undergraduate program
13. Final year project reports
14. Questionnaires prepared for student feed back

Annex 6. LIST OF TECHNICAL STAFF AND OTHER NON-ACADEMIC STAFF

A.U.B. Rajaguru	Senior Staff Technical Officer
D.N. Lokuge	Data Entry Operator
R.A.A. Ranasinghe	Lab Attendant
M.S. Hemapala	Lab Attendant
K.D. Tusara Wijesinghe	Lab Attendant
B.A.S.U. Bogoda	Computer Applications Assistant
N.P.M. Rajaguru	Staff Technical Office

Annex 7. LIST OF B.TECH (CIVIL) GRADUATES

Name	Year of Graduation	Current Place Of Work
T.J. Prasanna	2004	V.V. Karunaratne & Co Ltd.
L. Abeyweera	2000	Sri Lanka Telecom
B.S. Bandara	2001	Dept. of Buildings
Mohan Karunaratne	2006	V.V. Karunaratne & Co Ltd.
K.I. Surendra	2005	Own Construction Company
N.N. Amerasinghe	2005	National Housing Dev. Authority
P.P. Vinitha	2005	National Housing Dev. Authority
T.P.G.P.R. Gurusinghe	2007	Demonstrator, OUSL