SUBJECT REVIEW REPORT

DEPARTMENT OF INDUSTRIAL MANAGEMENT

FACULTY OF SCIENCE
UNIVERSITY OF KELANIYA

29th September to 2nd October 2008

Review Team :

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1. SUBJECT REVIEW PROCESS

Subject review evaluates the quality of education within a specific subject or discipline. This review evaluates the quality of education within the specific disciplines of Information Technology, Management and Mathematics being offered by the Department of Industrial Management (DIM), Faculty of Science (FS) of the University of Kelaniya, Sri Lanka. The review focused on the Self Evaluation Report (SER) prepared by the Department of Industrial Management, Faculty of Science, and University of Kelaniya. Based on the SER, the team evaluated the quality of the B.Sc. in Management and Information Technology (General) and B.Sc. in Management and Information Technology (Special) degree programs using the criteria set out by the Quality Assurance Council (QAC) of the Ministry of Higher Education.

The self-evaluation report consisted of eleven sections, i.e., introduction; aims, learning outcomes and program details; students staff and facilities; curriculum design, structure and review; teaching, learning and assessment methods; quality of students, including student progress and achievement; extent and use of student feedback (qualitative and quantitative); postgraduate studies; peer observation; skills development; academic guidance and counselling. The quality of education within the disciplines was evaluated in the light of the aims and learning outcomes given in the SER submitted by the department.

The review focused on the following eight aspects of education:

- Curriculum design, content and review
- Teaching, learning and assessment methods
- Quality of students, including student progress and achievement
- Extent and use of student feedback (qualitative and quantitative)
- Postgraduate studies
- Peer observation
- Skills development
- Academic guidance and counselling

The evaluation of the above eight aspects of the program were done by obtaining the information from the following sources:

- The self-evaluation report submitted by the Department
- Meeting with the Dean/FS, Head/DIM, Academic and Non-academic Staff Members of the DIM, Students Councillors of the DIM, Graduates and Undergraduate & Post-graduate Students
- Observation of teaching, student presentations and practical sessions
- Observation of relevant documents (hand books, department publications, study guides, question papers, model answers and marking schemes, marks sheets, dissertations, evaluation sheets, minutes of various meetings, etc.)
- Observation of Department and other facilities (computer centres, lecture rooms, library, etc.)

Each subject review aspect of education was judged by making one of the three standards/levels namely; good, satisfactory and unsatisfactory. For the purpose, strengths, good practices and weaknesses in relation to the each aspect were considered. An overall judgment was made from the three options, i.e., confidence, limited confidence and no confidence by taking into account the status of the judgments given for all the eight aspects of the academic programme.

The dates the review team visited were 29th, 30th September and 01st October 2008. The agenda of the subject review is in annex 1.

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

The University of Kelaniya began its journey as Vidyalankara Pirivena in 1875, as a centre of learning for Buddhist monks. It was one of the two great national centres of traditional higher learning, heralding the first phase of the national movement and national resurgence. A historic change was achieved when the Vidyalankara Pirivena became the Vidyalankara University in 1959, and ultimately, the University of Kelaniya in 1978. The continuous progressive transformation has made it a major national University with two major campuses, seven locations, six faculties and four institutions. The vision of University of Kelaniya is to position her as the seat of academic excellence providing wisdom and human values in the South Asian Region. The mission is to achieve excellence in providing learners with opportunities to develop knowledge, attitudes, and skills to serve the world with respect for dignity of life.
The University of Kelaniya has pioneered a number of new developments in Higher Education. It was one of the first Universities to begin teaching science in Sinhala, and also the first to restructure the traditional Arts Faculty into three separate Faculties of Humanities, Social Sciences and Commerce and Management. Its Faculty of Science was the first in the Sri Lankan University system to introduce the course unit system. It also has several unique Departments not generally found in the Sri Lankan University system. The Department of Industrial Management is one such innovation. The Faculty of Science of the University of Kelaniya consists of eight academic Departments namely the Department of Botany, Chemistry, Industrial Management, Mathematics, Microbiology, Physics, Statistics & Computer Science and Zoology.

The Department of Industrial Management (DIM) of the University of Kelaniya was established in 1967 with the objective of teaching management to students reading for degrees in the science streams. Launched initially with fifteen students and three academic staff members, the Department has expanded its horizons to serve several hundred students annually and many national and international agencies through training, research, and consultancy services. The far reaching national and international advances made by the department since her inception has been due to the dedication and commitment of her staff and the dedication of its students, which enabled the transformation of a small academic unit in the Faculty of Science, University of Kelaniya, to an internationally recognized academic and professional service provider. It can be proud that, today, it has a combination of highly qualified academic staff trained in both management and information technology areas which is unsurpassed anywhere in the country.
Academically, it has progressed from the mere offering of Industrial Management as a single subject for fifteen students as part of the general degree in science, to introduce a special degree, enlarge the domain of learning into operational research and information technology, and to introduce two postgraduate programmes. It has fully transformed the conventional "one subject for the degree" concept into a separate degree in Management and Information Technology. DIM thus became the first to realize the national need of graduates with a blend of Management and Information Technology.
With its lineage on out-bound activity, it also engages students in participatory training programs, to develop their leadership and communicational skills in particular. These

activities are mandatory for all of its students and trainees. Its out-bound activities include field experience, internship training and camp style interactive training.
Its students enjoy a very high employability level and are most sought after by the industry as a productive intellectual capital to their organizations. Their staffs aggressively pursue novel endeavours to benefit the industry through collaborative, application oriented research, and work with international agencies to ameliorate the professionalism of managers and entrepreneurs. These activities have enabled it to develop a long-term productive relationship with our clients that mutually benefit the industry, the department and most importantly the student population.
Vision statement: "Be the center of excellence in education in the field of Management and Information Technology in the South Asian region."
Mission statement: "In the areas of Management and Information Technology, we strive to excel in providing higher education to selected students, training industry clients, consultancy and research by collaborating with all stakeholders in the design and delivery of need oriented programmes"

3. AIMS AND LEARNING OUTCOMES

3.1. Aims

The Department of Industrial Management strives to provide knowledge and skills in the areas of Organizational Management and the application of Information Technology to a wide range of learners and organizations with a view that such learning will contribute towards national and organizational goals. The Department will provide continuous retraining to keep abreast with change of knowledge and skill requirements.
In this context, it aims to provide:
Conceptual knowledge and understanding
- programmes that encompass concepts and techniques that fulfil current and futuristic needs of the industry and society ;
- learning opportunities for students to acquire conceptual knowledge and skills;

Intellectual and analytical abilities
- opportunities for students to develop intellectual and analytical skills;
- opportunities for academic and non academic staff to involve in research and mutual working with stakeholders within and outside the university;

Personal, transferable skills
- develop a learning system that provides a greater level of self, independent and interactive learning and relearning;
- learning opportunities for students to acquire soft skills, attitudes, and values;
- develop a system that provides life long learning;

Other
- a pleasant, friendly and supportive departmental environment that is conducive to enthusiastic learning;
- an effective mechanism for continuous improvement of quality within the department to attain excellence in teaching, learning, assessment, review and quality assurance methodologies.

3.2. Learning Outcomes

Its programmes offer a learning experience that is intended to enable students to:

- build upon their academic qualifications and potential at entry by progressively developing knowledge, skills and understanding, based on a broad and multidisciplinary approach;
- study in fields that suit their career path by offering a choice of units within a flexible but coherent academic framework, thereby allowing students to broaden as well as deepen their educational experience;
- undertake a final year computer based application/ research project that enable integration of knowledge on Management with Information Technology;
- benefit from a curriculum in which the learning and teaching are enhanced by the collective efforts of staff, students and industry;
- have a manageable workload within University guidelines;
- be provided with clear details of programme and unit aims, learning outcomes, content, academic requirements and assessment methods;
- receive fair and appropriate assessment for progression and grading, and feedback on individual progress;
- have access to adequate academic support and resources;
- have access to counseling support and be aware of specialist help that is available within the University.

Overall outcomes

On successful completion of any of its programmes students will:

- gain conceptual knowledge in Management and Information Technology that has relevance to the Sri Lankan context;
- be able to prudently apply Information Technology in organizational and self management;
- be able to identify complex business problems, critically analyze them, develop and implement viable solutions;
- develop a range of personal and transferable skills;

Programme specific outcomes

On successful completion of each of the following specific programmes, students are expected to acquire conceptual knowledge and skills presented below:

B.Sc. (General) in Management and Information Technology:

At professional level in the design and development of Business and Industrial Systems using up to date knowledge of the tools and techniques of Information Technology in the broad areas of Systems Analysis, Database Management, Object Oriented and Structured Programming, Software Engineering, Computer Networks and Data Communication with supportive management knowledge in the functional areas of Finance, Marketing, Human Resource, Operations and Technology Management.

At professional level in managing a functional area using up to date knowledge of the tools and techniques of functional areas in Finance, Marketing, Human Resource, Operations and Technology Management with the ability to integrate them with the knowledge of Information Technology.

B.Sc. (Special) in Management and Information Technology:

At professional level in the design and development of Business and Industrial Systems using up to date knowledge of the advanced tools and techniques of Information Technology in the broad areas of Systems Analysis, Database Management, Object Oriented and Structured Programming, Software Engineering, Knowledge Base Systems, Computer Networks and Data Communication with supportive management knowledge in the functional areas of Finance, Marketing, Human Resource, Operations and Technology Management.

At professional level in managing a functional area using up to date knowledge of the tools and techniques of functional areas Finance, Marketing, Human Resource, Operations and Technology Management with the ability to integrate them with the knowledge of Information Technology.

To carry out a research project in Information Technology / Management using the knowledge of research methodologies and relevant tools.

Postgraduate Diploma in Information Technology:

For professional development and conversion to careers in Information Technology in areas of design and development of Software Systems using up to date knowledge of the tools and techniques of Information Technology in the broad areas of Systems Analysis, Database Management, Object Oriented & Structured Programming, Software Engineering, Computer Networks and Data Communication.

M.Sc. in Management and Information Technology:

For professional development and conversion to careers in Management with Information Technology capability in the design and development of Business Systems using up to date knowledge of the tools and techniques of Information Technology in the broad areas of Software Engineering, Database Management, Computer Network Management with supportive management knowledge in the functional areas of Finance, Marketing, Human Resource, Operations and Technology Management.

To carry out a research project in Information Technology / Management using the knowledge of research methodologies and relevant tools.

Programme Details

The details of the degree programmes to be reviewed are shown in the tables below.

Undergraduate programmes offered and current student numbers

Programme	Level 1	Level 2	Level 3	Level 4
BSc in MIT- General degree	50	60	35	N/A
BSc in MIT- Special degree	N/A	N/A	15	17

Postgraduate programmes offered and current student numbers

Programme	Level 1	Level 2
MSc in MIT	42	29
PGD in IT	25	N/A

4. FINDINGS OF THE REVIEW TEAM

4.1. Curriculum Design, Content and Review

The Department of Industrial Management (DIM), Kelaniya conducts course leading to the B.Sc. degree for the period of three years (general) and four years (special) students. The degree is targeted towards a structured development of students' abilities so that they gain both knowledge and understanding within Management and Information Technology areas covered, and personal and transferable skills. This is achieved through didactic lectures to develop the knowledge base, plus assignments; computer based practical work, mini projects, case studies, tutorials and course work that are designed both to encourage the transition from dependant to independent learning and to develop cognitive skills.
The DIM has provided the curriculum of the B.Sc. MIT General Degree and Special Degree, in the Self Evaluation Report (SER). With national and international demand to re-orient curricula and programme delivery, DIM introduced a new Bachelors Degree programme, the B.Sc. in MIT from January 2003. The present curriculum was introduced during the academic year 2006/2007.

The three year B.Sc. MIT General Degree program under the review consist of minimum of 90 credits and the four year B.Sc. MIT Special Degree program under the review consist of minimum 128 credits. The year is divided into 2 semesters and General degree students need to accumulate at least 30 credits in each academic year and special degree students need to accumulate at least 30 credits, in each academic year, during first two years and at least 68 credits in the third and fourth years.

During the first two years, students are required to follow 23 compulsory course units, which give 58 credits and 4 elective course units, which give 14 credits. Third year B.Sc. MIT General Degree students are required to follow 6 compulsory course units, which gives 18 credits, and 8 elective course units consist of 18 credits. B.Sc. MIT Special students are required to follow the same structure for the first two years and third year they required to follow 4 compulsory course units, which gives 13 credits and 5 electives gives 11 credits. The final year special degree students are required to follow 8 compulsory course units including 1 course unit on Independent Research Study, aggregating to 40 credits and 6 elective course units, aggregating to 24 credits. All students are also required to follow the three course units on English offered by the ELTU and need to obtain at least "C" grades.

The contents of the curriculum are structured to achieve intended learning outcomes of the degree programs. The programs and course units are at a suitable academic level and sufficient opportunities are available for students to gain required subject knowledge in the specializing fields.

The degree programme is conducted in English medium. Undergraduates who read for the B.Sc. MIT degree programme gain Management and Information Technology related subject knowledge in a balance manner. The curriculum is designed to provide learning opportunities to impart a sound and current conceptual knowledge in Management and Information Technology and to develop intellectual and analytical skills. This is a remarkable achievement of the degree program.

The Reviewers observed that the programme is structured to maintain inter relationships among different subjects within the semester. All programs offered by the department

conform to the University's modular teaching structure and therefore provide sufficient flexibility to enable students to develop knowledge and skills to suit their chosen career paths. Various techniques are imbedded into the programme to ensure that the students acquire: soft skills, attitudes, and values throughout the programme

The third year project requires students to identify a real life business problem critically analyze it and then design and develop an appropriate computer based solution this module also enables students to acquire: soft skills, attitudes, and values. Reviewers were able to witness student projects during the site visit. DIM has developed excellent guidelines for both students and staff to ensure the expected outcomes. Students are expected to submit a comprehensive project proposal, a poster presentation, mid year report and a presentation, final report, final presentation and defence and demonstration of the product. This project also enables students to find better employment opportunities.

The inbuilt industry placement for a period of 3 to 5 months expose students into corporate culture and provide an opportunity to relate concepts learned in the class to organizational contexts. Further, it has many features to enhance soft skills, attitudes, and values. DIM has developed a comprehensive training manual giving clear guidelines to students, industry advisors, academic supervisors and the training coordinator. Students are expected to provide fortnightly reports, a final report and also make a presentation at the end of the training period. As per comments of the industry advisors students have made valuable contributions to the organizations as well. The fortnightly reports, final reports and student presentations which reviewers witnessed endorsed this. Academic supervisors and the training coordinator too seem to be making considerable effort to ensure that both students and the training providers benefit during the industry placement. Reviewers are highly satisfied with the arrangements made by the DIM for close monitoring of the training process which is a vital factor for its success. It is recommended to extend the training period at least up to six months to provide a better opportunity for the students to learn real working culture of the training organization.

The final year B.Sc. MIT special students are required to complete a 8 credit research project. This is helpful in developing skills in problem identification, data collection and analysis, critical evaluation and communication. This project work is conducted throughout the final year and progress is monitored continuously by a series of seminars presented by the students at three stages.

Since 2007 level 1 and level 2, B.Sc. MIT undergraduates are required to follow Personal Progress and Development (PPD) course unit 2 hours a week throughout the first two academic years. This covers many essential areas of the personality development of the undergraduates with both class room and outward bound activities. Leadership, Communication skills, Team Building, Personal Goal setting, and Personal Grooming are a few of the main areas covered and the remaining part is customized depending on the requirements of the students. Reviewers had the opportunity of witnessing one of these sessions. Reviewers are very much impressed by the innovative techniques used to ensure student participation. This can be highlighted as a good practice.

The review team is of the view that the aspect of Curriculum Design, Content and Review would be judged as 'GOOD'

4.2 Teaching, Learning and Assessment Methods

The DIM consists of 16 internal and 10 visiting staff members. The internal staff consists of 2 professors, 9 senior lecturers, 5 probationary lecturers. Three of five probationary lecturers need to be provided with postgraduate training. The whole degree programme is conducted

by the internal members of the departments, where necessary services of the visiting lecturers are also obtained. All the lectures are conducted during the weekdays. DIM also has services of 2 technical officers. The total commitment of the entire staff was a prominent feature of DIM. At the sessions with the students it was revealed that the academic staff was always available for consultation and that they go out of the way to sought out any of their issues.

Currently the department has a four storied building designed to international standards. Within this building all the necessary facilities including classrooms, computer laboratories, study areas, staff/research rooms, conference room, and a separate mini library is located. The department owns three air conditioned lecture rooms with multimedia facilities. The physical environment and the facilities of these class rooms are excellent. However computers in one of the laboratories are over 8 years old and need to be replaced. According to the SER, this Degree programme has a broad multi disciplinary approach which provides the students with comprehensive knowledge in the areas of Management and Information Technology. The staff of the department is also highly qualified in diverse fields relevant to Information Technology and Management.

The teaching and learning strategy at DIM is designed to advance the students' personal development through a range of skills delivered in the course. It focuses on the ability of a student to transfer skills he/she has developed during the degree to employment or for higher studies. Emphasis is laid on the student acquiring capabilities and transferable skills. The intention of this strategy is to assist students to fulfil their potential via self development and to improve their competency in a range of subject matter relevant to employment and self employment.

The teaching and learning activities are designed to meet the aims and objectives of the programmes it offer so that graduates possess conceptual knowledge in Management and Information Technology that has relevance to the Sri Lankan context; be able to prudently apply Information Technology in organizational and self management; be able to identify complex business problems, critically analyze them, develop and implement viable solutions; possess a range of personal and transferable skills.

Formal lectures, tutorials, practical classes, and small group assignments are used in the learning process. More opportunities could be given to students for developing language skills and interpersonal skills. Some modules include factory visits; the number of field and industrial visits is insufficient. Reviewers noted that these aspects should be improved further.

Virtual Learning Environment (VLE) plays a very important role in providing all the information relevant to academic activities. VLE is an online system that is used to supplement and enhance class room teaching. The system is a customized course management system based on Moodle open source system. Lecturer could create an online course and upload lecture notes and supplementary reading material so that students are able to access uploaded material either from within the university or outside the university. In addition, students could access assignments and submit answers through the system. The VLE has facilities to administer MCQ tests and some staff members use this to provide practice MCQ tests to students. Mid-semester student feedback questionnaires could also be administered through VLE. Currently, the department is evaluating the possibility of using the VLE as an online notice board.

The lectures are conducted in English medium. Three Business Communication course units are offered to the students during first three years. Feedback from the students revealed that this is sufficient to improve their knowledge of English.

During the observation of lecture sessions, reviewers noted that lecture content is supported with handouts. The use of multimedia and other teaching aids was also evident. Students'

participations during the lectures are at a satisfactory level. All lectures are delivered in English medium. All these were found to be good practices.

The general principles governing assessment on the BSc in MIT are that a variety of assessment methods should be used to supplement formal examinations, with an appropriate assessment method being selected for the particular learning outcome being assessed, and that coursework assessments should be considered part of the learning process. The assessment criteria are clearly outlined in the student handbook and also in the VLA. At the start of each module students will be given details, in writing, of the assessment scheme, the timetable against which each component of assessed work must be submitted, and details of when marked coursework will be returned to students.

The present evaluation system includes the relative weightings of the examination and coursework components, which vary from 20% to 80%. The final examination normally runs for two to three hours. The choice of weighting is made on a module-by-module basis, depending on the nature of the subject, the characteristics of the learning outcomes being assessed, and the extent to which they correspond to assessable practical skills. The students are made aware of the assessment criteria at the commencement of the course module.

Most of the modules require students to carry out some form of practical work, to exercise and develop the skills taught in the module. Depending on the nature of the module, this may involve anything from structured laboratory exercises through to extended open-ended coursework.

Assessment is primarily the job of the lecturer. Students will be assessed both on the quality of the products delivered at the end of the module, such as design documentation, source code and project planning documents, and also on the generic skills displayed, such as presentation skills, participation in the group, and the ability to work to a schedule.

The moderation of the examination papers is done by senior staff within the Faculty and answer scripts are evaluated by two examiners. When necessary, services of the outside examiners are also obtained from other universities and institutions. There were sufficient evidences to support that paper marking is methodical. Prior to submitting results to the Dean of the Faculty, examiners of the department discuss them in detail. Statistical analysis of the results is also made available at these meetings to facilitate appropriate decisions.

The department has an in-house library with a comprehensive collection of latest textbooks in both Information Technology and Management disciplines. The total number of textbooks is approximately 5000, out of which around 1500 are in Information Technology. The library also has a reference section with 66 permanent reference books. Permanent reference books are made available without any supervision during library hours. Library also has a study area with seating capacity for 36 students.

The members of academic staff are mostly involved in teaching in programs of the department, other departments within the faculty and other faculties. Students are provided computing facilities through two well equipped computer laboratories. All computers are connected to the Internet. All the necessary software can also be accessed through the network. These facilities are normally made available for students during week days from 8.00 A.M to 6.00 P.M. but kept open for longer hours based on student requests.

Within the department, there are specially arranged areas for the students to study as well as to have group discussions. These areas could accommodate approximately 50 students at a time and includes oval shape tables and cushioned chairs. An air conditioned room with a capacity for 25 is allocated for the Special Degree students with around 15 computers connected to the Internet. Each special degree student thus has a separate study area.

Considering the above facts, the aspect of Teaching, Learning and Assessment Methods is judged as ‘’.GOOD”

4.3. Quality of Students, including Student Progress and Achievements

The B.Sc. degree program in Management and Information Technology requires varied competencies and the Department is of the view that performance at the GCE Advanced Level examination alone is not indicative of a good match between expectations of the students and the expectation of a successful graduate of the program. Therefore, applicants are subjected to an eligibility examination covering relevant areas such as General Knowledge, Logical Analysis, Analytical Skills and English Language Comprehension.
Eligible applicants should have followed subjects in the Science stream and obtained credit passes for Mathematics or Physics at the GCE Advanced Level examination. From the shortlist of successful applicants, the University Grants Commission selects 50 students using its standard criteria. Above selection procedure has enabled them to recruit suitable students with good potential to excel in the program.
All students selected for the B.Sc. MIT programme undergo the general orientation programme conducted by the Faculty. The Faculty of Science of the University of Kelaniya conducts an orientation programme for a period of six weeks from the academic year 2007/2008. During this period the students are introduced to the university environment, courses offered by departments and will also be trained on the use of common facilities of the university like the Library, Computer Centre, Gymnasium, Medical Centre, etc. The programme also includes short courses on Ethics, Heritage and a selected Language. Undergraduates also get an opportunity to meet their personal tutors who will be guiding them in their career and personal development at individual levels during their stay at the University.

In addition, DIM conducts its own orientation programme customized to make newcomers familiar with MIT curriculum, facilities and senior students and staff of the Department. A specially designed module on personal progress and development is offered for the new entrants during the first and second years. The personal progress and development program covers many essential areas of the personality development of the undergraduates with both class room and outward bound activities. Leadership, Communication skills, Team Building, Personal Goal setting, Personal Grooming, are few of the main areas covered and the remaining part is customized depending on the requirements of the students.

Within the DIM each student is assigned to an academic mentor. Academic tutors are provided with guidelines for mentoring students. Beginning of each semester academic mentors is provided with the current GPA and detail results of the students assigned to them. Academic mentors analyze the performance of each student and where ever necessary personally discuss with each student their performance and arrive at the corrective actions that need to be taken.

Department also monitors the attendance and timely submission of tutorials and assignments and take corrective action before it is too late, through the intervention of academic mentors. Where necessary individual cases are discussed at the Department meetings

Special effort is made to improve the overall standard of English language among the students. Department has recruited its own English instructor to provide personal assistance to those who are weak in English.

If a student following the special degree program fails to maintain the required level of performance during the third year, he/she is advised to revert to the general degree program.

At the end third / fourth year (general / special) those who satisfy the evaluation criteria are recommended to the board of examination for the award of respective degree and relevant class.

Forty one percent of the special degree students obtained First Class Honours while the rest received Second Class Honours. The department had an extensive prizes scheme from the early 1980s with more than ten prizes in selected competency areas were awarded by some of the leading private and public sector organizations in the country. The Ceylon Tobacco Company Gold Medal was awarded to the Best Graduating Student in Industrial Management at that time.

DIM maintain databases of student information which can be accessed by authorized users. Records contain information such as units taken, attendance, marks for coursework and examinations.

The department is keeping continuous attention on student's progress and achievements towards the main learning objectives of the degree program. Care is taken at the orientation process to answer their problems. Students confirmed that all lecturers are available for consultations at any time during the week days.

According to the SER, department has taken many strategies to maintain student's progress and achievements from the student's selection to their first destination of employments. Some significant measures observed were; updating the curriculum in keeping with emerging industry needs, providing adequate facilities, organizing various skills development programs, applying attractive methods of teaching and arranging personnel of leading industries to visit DIM for recruitment.
Reviewers observed final year students' project presentations, which were at an appropriate level. Reviewers also observed several lectures and practical sessions during the site visit. It was noted that the department maintain a comprehensive database of their current as well as passed out students**.** Thus DIM is able to consider data of all their students and graduates to determine the statistics relevant to student progress and employability. Both average time for employment and average first salary were found to be very good.

Based on the above facts, the aspect of the Quality of Students, Student Progress and Achievements could be judged as 'GOOD'

4.4. Extent and Use of Student Feedback

The Department firmly believes that constructive student feedback of all aspects related to their learning experience is essential for developing the program further to ensure the overall goals of excellence in the teaching and developing students to their maximum potential are met. The DIM has therefore continuously improved the student feedback mechanism over the last five years. This has enabled the Department to have in place a well structured student feedback mechanism. Student feedback is obtained at three levels to ensure a feedback of all aspects related to their learning experience as follows:

Programme level	• Staff-student liaison committees held at mid-semester, end semester and whenever a need arises • End of year student feedback forum
Module level	• Mid and end semester student questionnaires • Verbal feedback sessions
Individual level	• Meetings with academic tutors and academic advisors, academic and non-academic staff. Students have the liberty of meeting the said personnel whenever a need arise.

The DIM has a culture of continuous improvement of quality of teaching and learning it provide. Qualitative student feedback is a key component of enhancing quality in the Department. The Main mechanisms for obtaining qualitative feedback are staff-student liaison committees; end-of-year student feedback forum; meetings with academic tutors and academic advisors, academic and non-academic staff; student representation at Science Faculty Board.
The staff-student Liaison committee meets at mid-semester and end-semester. It comprises the Head of the Department, academic advisors, four other members of the academic staff and two students from each student batch. Minutes of the meetings are published on the VLE. Actions decided upon at these meetings are displayed on the notice boards with a column to indicate the date of implementation so that all students are aware of action taken in response to their concerns.

All students of a particular year group and relevant members of the academic staff are invited for End of the Year Student Forums. This enables them to discuss all aspects of their learning experience during the year. A student is elected to keep minutes of each forum. Minutes are also gone through by the facilitator of the forum. Items which need action are discussed at the staff meeting and followed up. Minute of the meetings are published on the VLE. Actions decided upon are displayed on the notice boards with a column to indicate the date of implementation so that all students are aware of action taken in response to their concerns.

Meetings with academic tutors and academic advisors, academic and non-academic staff method enables them to get feedback on an individual basis. Often the feedback is on issues specific to individual students. Sometimes these are of confidential nature. Through this mechanism they have been able to resolve some very serious personal problems that would have had detrimental impact on their careers. In addition to meeting the students on a personal basis when a need arises, academic advisors make every effort to meet their respective students over a meal or tea at least once a year.

Two members of the Science Students Association are also present at the Science Faculty Board when discussing matters other than those related to examinations.

The DIM provided a structured questionnaire for students to obtain feedback of student feedback at the 4^{th} week and end of each semester. This enables students of the same batch too to benefit from resulting improvements. Since recently questionnaire administered using VLE. Summaries of the results of evaluation questionnaires posted on the VLE and also provided to the relevant academic staff. Computer based colour coded (Green, Orange and Red) visual display method to analyse the responses seemed very useful and innovative. All

suggestions are also discussed at the Department meeting. Such feedbacks are supposed to be evaluated and monitored by the Head of the Department.
There was ample evidence of effective implementation of the above feedback processes. Reviewers observed that the academics are very enthusiastic to get qualitative and quantitative feedback from the students of their teaching performance. This seems to have helped the lecturers in the department to improve their teaching process. This situation seems a good sign from the point of view of the students as well as teachers because this creates a positive atmosphere to improve and maintain a good student teacher relationship.

Based on the above facts, the aspect of the extent and use of student feedback, qualitative and quantitative could be judged as 'GOOD'.

4.5. Postgraduate Studies

At present the DIM offers the Master of Science in Management and Information Technology programme and Postgraduate Diploma in Information Technology programme. It is the policy of the department to recruit candidates with high level of academic achievements as well as candidates with professional qualifications with work experience to maintain a high level of professionalism in these programmes. Selection is based on required qualifications and performance at entrance examination and interview.
Though the Faculty of Graduate Studies is expected to administer the postgraduate programmes most of the responsibilities have been entrusted to the Department. The Department has appointed a senior academic staff member as Manager of all the postgraduate programmes. The adaptation of interactive teaching methods by internal staff members qualified in multiple disciplines supplemented by visiting lecturers with corporate experience make the programmes industry relevant and keep them in tune with latest developments in the relevant fields.
The Master degree programme contains a research module where the students are encouraged to involve in industry relevant research. The supervision of these research projects are handled by senior staff members with many years of research experience. The department, through the main library of the university provides access to the students to several full text databases. In addition, the students have access to the postgraduate library as well as the department's own library which boast of most up-to-date publications especially in management and information technology subject areas.
The Department also offers both MPhil and PhD programmes mainly on a part time basis. The research students are guided by the respective supervisors while their progress is monitored by the Head of the Department, Board of Science and the Faculty of Graduate Studies.
All the senior academics in the DIM play a significant role in conducting these postgraduate programs.
All most all lecturers in the Department have either completed the Ph.D. and master degree or are following PhD programmes. The publications related to academic members of the Department are available in the DIM website.

Based on the above facts, the aspect of the Postgraduate Studies could be judged as 'GOOD'.

4.6. Peer Observation

Department of Industrial Management firmly believes that peer observation and review could play a substantial role in enhancing the staff performance. They have therefore in place an effective mechanism of peer observation.

DIM currently operates a formal mechanism for peer observation. Each member of the Department is paired with another member of staff who has similar area of expertise. The two staff members are expected to observe one another's delivery methods at least once a year. The department uses standard check list which contains a comprehensive list of aspects to be observed, to facilitate the process. Joint report prepared by both staff members is submitted to the head of the Department at the end of the review. This enables the head of the Department to monitor the progress of the peer observation process. The reports are kept confidential, but good practices are discussed at a staff meeting and shared by all.

DIM also has grouped staff members by the area of expertise. This enables staff to continuously update the curriculum and improve the delivery of the courses. Some course modules are also being shared by members of staff who have similar areas/interests of expertise.

Departmental meetings are held once a month to discuss various matters and staff members share their views. Minutes of the meetings are properly maintained and shared among the staff members soft copies of these were available for observation. Evidence of regular Department meetings for nearly a decade was available.

Question papers are moderated by peers. Moderators are provided with relevant course contents, learning outcomes, overall allocation of marks of continuous assessment and final examination, check list for moderation and skeleton answers along with the question papers.

Based on above facts, the aspect of the Peer Observation could be judged as 'GOOD'.

4.7. Skills Development

The Department offers a compulsory non-credit course unit on Personal Progress and Development from the Level 1 onwards with the objective of developing the much required skills and competencies by the corporate world.

The Industrial Training is embedded to the B.Sc. in MIT curriculum as a compulsory course module, where the students are required to undergo training for a period of three to five months during the second semester of the second academic year.

Skills of the students are developed through the compulsory projects. The Level three undergraduates of B.Sc. in MIT are designing and developing a computer based project to solve a managerial problem that they identified mostly during their Industrial Placement. The Level four undergraduates reading for the special degree carry out a compulsory research based project to bridge an identified knowledge gap in their area of interest either in Management or Information Technology or a combination of both.

DIM gets the assistance of the English Language Teaching Unit (ELTU) of the University of Kelaniya in developing the communication and presentation skills of B.Sc. MIT undergraduates. ELTU offers course units in the first three levels of the degree programme. These programmes prepare undergraduates to function in an English speaking professional environment. There seems to be a close liaison between DIM and ELTU to offer right kind of courses to MIT students and the benefits were evident from the level of competency observed.

In addition to the formal effort of the Department, DIM gets the support of the Industrial Management Science Students Association (IMSSA) in developing undergraduates. IMSSA conducts seminars, arranges industry visits, social activities, and the annual induction

ceremony for the new students. The association organizes an annual talent show, which creates a stage for showing the talents of the students. Students also publish a high quality magazine annually.

Based on above facts, the aspect of the Skills development could be judged as 'GOOD'.

4.8. Academic Guidance and Counseling

Academic guidance is provided to the students at three levels: University, Faculty and Department.

All new students are provided with the University and Faculty hand books, which contain details of administrative Departments, related to the academic activities, relevant service centres, degree programmes and their syllabi & pathways. Department provide the BSc in MIT students with a comprehensive hand book, which contain the course structure, credit distribution, detailed description of course modules, recommended text books, details of learning environment provided by the department, associations, industry training and career placements, prizes and scholarships, details of staff members and relevant rules and regulations.

The Faculty of Science provides a special orientation program to the new students to make them familiar with the activities of the Faculty. In addition to the orientation provided by the Faculty, Department provides its own orientation, which provides all details required for selection of modules as well as other relevant details.

The Faculty has four senior academic advisors, specially-appointed academic advisors for each and every subject (stream), and personal tutors to guide students in academic and other matters. Department has its own academic advisor for the BSc in MIT programme who plays a major role in guiding the students on academic matters.

The Department also has an effective academic mentoring programme, where each staff member is assigned with a few students from each level. The academic mentor provides guidance during the course of study. This programme provides assistance in academic matters as well as the personal matters of students. Mentors are expected to meet the group of students assigned to them at least once a semester. In addition students are free to meet their mentor whenever a need arise.

DIM provides guidance to the students to get the maximum benefits of Industrial training. Prior to industry placements a session is arranged with the senior students to enable students share their experiences and get the best use of the opportunity. During Industry placements students are assigned an academic supervisor as well as an industry advisor to support and guide them.

The University of Kelaniya has a student counselling service called "Kalana Mituru Service" consisting of a male senior lecturer and a female senior lecturer from each faculty to provide guidance and counselling. Director of the counselling unit is an academic staff member of the University who is also a trained counsellor.

As part of the continuous career development programme, the Department conducts seminars with participation of prominent personnel from the industry to give guidance from preparation of resumes to successfully facing an interview, and views on how to select a career and other relevant issues. End of each academic year Department makes arrangements for personnel from leading Industries to visit DIM for recruitment.

Based on above facts, the aspect of the Academic Guidance and Counselling could be judged as 'GOOD'.

5. CONCLUSIONS

It was evident that DIM has been following good practices pertaining to quality assurance for over a decade. This had been a major contributory factor for their success. Also the academic staff members seemed determined to perform activities to near perfection with high level of commitment. Many of these activities like, academic mentoring, supervision of 3rd year computer based project, supervision of industry training and 4th year research project involve one to one contact. As a result academic staff members carry a much higher work load than that reflected in the timetable. Exemplary leadership provided by the senior members of the academic staff is also commendable. Implementation of the '5S' concept within Department has helped to enhance the administrative efficiency.
For the purpose of convenient readability, other conclusions are presented in statement form under respective headings:

5.1 Curriculum Design, Content and Review

Strengths/Good Practices

- Credit, GPA and Semester system are adopted.
- The four year special degree curriculum carries a minimum credits weight of 120 and three year general degree curriculum carries a minimum credit weight of 90.
- The programme consists of sufficient number of IT and Management course units
- The Department conduct the B.Sc MIT degree entirely in English medium.
- The Special degree programme consists of an independent research project and the project in the General degree offers students the opportunity to analyze a practical business problem and develop solutions using IT.
- Industrial training is incorporated to the curriculum.
- To address the development of soft skills, DIM offers a very effective, **'**Personal Progress and Development (PPD)', non credit compulsory course module which runs throughout the first two years.
- All staff members are provided with all modern facilities and a well designed work station using open office concept conducive for team work.

Weaknesses

- Only one specialization is offered to the students.
- Number of students admitted to the B.Sc in MIT is limited to 50.
- Limited number of electives offered to the students.
- Industrial training period limited to 3 to 5 months.

5.2 Teaching, Learning and Assessment Methods

Strengths/Good Practices

- The objective of the course, learning outcome, detailed syllabus and assessment methods are provided with the course materials, and the objectives and summary of the course content are given in the department hand book and Virtual Learning Environment (VLE).
- Some lecturers also provide outcomes for each lesson.
- Assessment criteria explained to the students at the beginning of the course units.
- According to the timetable, student workload is sufficiently balanced. Student feedback used to balance workload due to assignments.

- The DIM uses a wide range of teaching and learning methods appropriate to the development of highly competent graduates.
- Equal emphasis is laid on acquisition of knowledge and experience to apply them in real life situations.
- Most of the modules require students to present their work orally using visual aids as part of the coursework assessment.
- Maintain an excellent learning environment providing necessary teaching and learning facilities.
- VLE plays a very important role in providing all the information relevant to academic activities.
- The library usage by the undergraduates is at an acceptable level.
- The weighting of assessment of coursework and final examination of taught modules varies to meet the respective requirements.

Weaknesses

- Lack of qualified staff in a few specialized areas.
- Some probationary lecturers have not undergone postgraduate training
- Computers in one of the laboratories are over 8 years old and outdated.

5.3 Quality of Students, including Student Progress and Achievement

Strengths/Good Practices

- Students are admitted to the DIM from Science stream.
- Competitive examination is conducted by the department to select the 50 students.
- All students selected for the B.Sc. MIT programme undergo the general orientation programme conducted by the Faculty and the Department, which adequately meet needs of newcomers.
- The department makes a special effort to attract students that would excel and develop to their full potential.
- All lecturers are available for consultations at any time during the week days.
- Both academic staff and undergraduates have positive attitudes.

Weaknesses

- No weaknesses identified

5.4 The Extent and Use of Student Feedback

Strengths/ Good Practices

- Uses a very structured and effective student feedback mechanism at programme level, module level and individual level.
- Above mechanisms include staff-student liaison committees, end-of-year student feedback forum, meetings with academic mentors and academic advisors, academic and non-academic staff. Minutes of all these meetings displayed on relevant notice boards.
- Formal teacher evaluation system is in practice using a well designed questionnaire. Since recently VLE being used for teacher evaluation.
- Teacher evaluation done during 4^{th} week of semester as well as at the end of the semester
- Student evaluation sheets are analysed and summaries of the results of evaluation questionnaires posted on the VLE and also provided to the relevant academic staff.

- Use a very useful and innovative Computer based colour coded (Green, Orange and Red) visual display method to analyse the responses of students.
- Most important and noteworthy is the effort made by the academic staff to rectify the shortcomings revealed by the feedback process.
- Both staff and students consider themselves to by one family (often identify themselves as the IM family). This atmosphere encourages students to freely express their views.
- The Head and the entire staff practice an open door policy.

Weaknesses
- No weaknesses identified

5.5 Postgraduate Studies

Strengths/Good Practices
- The trust developed by the post graduate candidates towards the staff of the Department.
- Availability of services of senior academic members of the Department as lecturers and thesis supervisors.
- Members of academic staff of the DIM have published a significant number of research articles despite their heavy work load on undergraduate programmes.
- The Department also offers both MPhil and PhD programmes mainly on a part time basis.
- Adequate research facilities available in the DIM.

Weaknesses
- No weaknesses identified

5.6 Peer Observation

Strengths/Good Practices
- Availability of a formal mechanism for peer evaluation of teaching.
- Moderation of question papers.
- Provision of relevant course contents, learning outcomes, overall allocation of marks for continuous assessment and final examination, check list for moderation and skeleton answers to moderators, along with the question papers.
- Conducting regular departmental meeting to share good practices and develop innovative programmes.
- Practicing group teaching.
- Regular discussions of groups of staff members of same area of expertise to continuously improve curriculum.

Weaknesses
- Moderation of question papers mainly by the internal staff. Limited participation of external academics/experts in the moderation process.
- Inadequate qualified staff to observe each other

5.7 Skills Development

Strengths/Good Practices

- Availability of dedicated course modules for development of the personnel skills of the students.
- Availability of a compulsory industrial training programme for all the students.
- Inclusion of compulsory final year projects to the undergraduate curriculum.
- Availability of dedicated modules for developing English knowledge of the students.
- The department gets the support of the alumni to develop skills of the students.

Weaknesses

- Limitation of industrial training to a period of three to five months.
- Personal development programmes are limited to activities within the University and no external programmes conducted.

5.8 Academic Guidance and Counselling

Strengths/Good Practices

- Academic advisors, mentors and student counsellors provide continuous guidance to students.
- Orientation program conducted by the university, make fresh students familiar with environment in the University.
- Course details and information on academic support are contained in university, faculty and department handbooks.
- Student records are maintained and monitored by the academic mentors.
- Lecturers are available to help students whenever additional support or advice is required.
- Students are supported by a career development programme.

Weaknesses

- Lack of formal training for staff on the student counselling and guidance.

It was evident the DIM does its activities to near perfection and reviewers would have been more comfortable if the evaluation criteria had an excellent category. Based on the observations made during the visit by the Review Team and as per the facts discussed above the judgments given to the eight aspects under review are as follows:

Aspect Reviewed	Judgement 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	Good
Postgraduate Studies	Good
Peer Observation	Good
Skills Development	Good
Academic Guidance and Counselling	Good

The overall judgment is suspended

6. RECOMMENDATIONS

On the basis of the quality review conducted, the reviewers would like to suggest the following recommendations in order to enhance relevance and quality of the B.Sc. MIT degree programme.

- Form an industry advisory council for obtaining stakeholders' input for the curriculum revision process.
- Increase the intake to the DIM to leverage the success of the programme to a wider student group. It is highly recommended that DIM explore the possibility of establishing a separate school focussing on their core expertise in management and in information technology. This would enable them to offer a wider choice of specializations in selected areas and enable the department to open out its programme to a wider student audience.
- Introduce new optional and auxiliary course modules into the curriculum to provide students with increased flexibility and wider choice. This is however, subject to availability of resources.
- Three probationary lecturers need to be provided with postgraduate training
- Computers in one of the laboratories need to be replaced with up to date machines.
- Given the constraints in teaching two main areas in a single degree, and the overall objectives of an undergraduate degree programme where the focus is more at a conceptual level try and introduce a mechanism to facilitate transfer of knowledge on current new technologies especially in the rapidly evolving IT area even outside the normal study programme.
- Explore the possibility of increasing the Industrial training period to at least six months.
- Develop an alumni directory which could act as a valuable resource pool and information warehouse for the department.
- In order to further build on the very close rapport found between students across different years and importantly between students and the faculty and to bring out the concealed talents, leadership skills in the students, it is recommended that the department explore the possibility of organizing outbound training programmes for the first and second year students.

- Based on the overall review of the department and the programmes offered, its achievements, and the culture and team spirit and enthusiasm among students and staff alike, the review team are of the opinion that the Department of Industrial Management, University of Kelaniya be recommended as a model department for the other universities and departments to adopt.

- We recommend that the University Grants Commission support the expansion of this department by providing the necessary financial support, so that a greater number of students would be able to benefit from its success.

7. ANNEXES

Annex 1. AGENDA FOR THE REVIEW VISIT - DEPARTMENT OF INDUSTRIAL MANAGEMENT

Day 1 - 29th Sept. 2008

08.30- 09.00 Private Meeting of Review Panel with QAA Council Representatives
09.00 - 09.30 Discuss the Agenda for the visit
09.30 - 10.30 Meeting with the Vice Chancellor, Dean and Head of the Department (*Working Tea*)
10.30 – 11.30 Department Presentation on the Self Evaluation Report
11.30 – 12.30 Observing Virtual Learning Environment
12.30 – 13.30 *Lunch*
13.30 – 14.30 Observing Department Facilities
14.30 – 15.30 Observing Other Facilities (Library, Computer Center)
15.30 – 16.30 Meeting with the Department Academic Staff
16.30 – 17.30 Meeting with Undergraduate Students
17.30 – 18.30 Brief Meeting of Reviewers

Day 2 – 30th Sept. 2008

09.00 – 09.30 Observing Teaching – Lecture
09.30 – 10.00 Observing Teaching – Lecture
10.00 – 11.30 Observing Documents (*Working Tea*)
11.30 – 12.00 Meeting with Technical Staff and Other Non-Academic Staff
12.00 – 12.30 Meeting with Postgraduate Students
12.30 – 13.30 *Lunch*
13.30 – 14.00 Observing Teaching – Lecture
14.00 – 15.30 Students Presentations (*Industry Placement & Final Year Project*)
15.30 – 16.30 Meeting Student Counselors/Academic Advisors/Personal Tutors
16.30 – 17.00 Meeting of Reviewers

Day 3 – 1st Oct. 2008

09.00 – 10.00 Presentation by Passed-out Students
10.00 – 11.00 Observing Documents
11.00 – 12.00 Meeting of Reviewers
12.00 – 01.00 **Meeting with Head and Staff for Reporting**
12.00 – 13.00 *Lunch*
13.00 – 17.00 Report Writing