



University
of
Kelaniya



Student Handbook 2009/2010

Our Vision

“Become the center of excellence in education in the field of Management and Information Technology in the South Asian region.”

Our Mission

“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 programs”

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1. DEPARTMENT OF INDUSTRIAL MANAGEMENT

1.1 INTRODUCTION

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.

The staff becoming learned at postgraduate levels and the joining of Dr Lalith Goonatillake, who was gifted with wide international academic and industry experience as a professor and increasing numbers of staff who were skilled in varied professions, enabled the department to become aggressively extrovert in the 1980s. We can be proud that, today, we have a combination of highly qualified academic staff trained in both management and information technology areas which is unsurpassed anywhere in the country.

The Department moved into the novel areas of training and consultancy, and collaborated with many agencies to provide new vistas to our stakeholders: UN, UNIDO, UNESCO, The World Bank, OECD, SIDA, and the Asian Development Bank, to name a few of them. We have achieved national recognition by being selected to house the Center for Enterprise Management Information Services (CEMIS) in Sri Lanka. This center that was funded by the UNDP and managed by UNIDO has the Ministry of Industrial Development and the Ceylon National Chamber of Commerce & Industry (CNCI) as partners of the project. We also have gained recognition by being recognized by SIDA as an authorized trainer of small-scale entrepreneurs in the Asian region.

Our students enjoy a very high employability level and are most sought after by the industry as a productive human input to their organizations. Our staff aggressively pursues novel endeavors 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 us to develop a long-term productive relationship with our clients that mutually benefit the industry, the department and most importantly the student population.

Academically, we have 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 three postgraduate programmes. We have fully transformed the conventional “one subject for the degree” concept into a separate degree in Management and Information Technology. Fifty selected students are provided with the opportunity to empower themselves with a degree which combines management and information technology, the mix of which makes students productive, modern in their outlook, and mobile. The two postgraduate diploma programmes: Industrial and Business Management, and Information Technology, and our Masters Degree programme in Management and Information Technology are aimed at professionals and academics who aspire to acquire greater application skills in these areas.

With our lineage on out-bound activity, we engage our students in participatory training programs, to develop their leadership and communicational skills in particular. These activities are mandatory for all of our students and trainees. Our out-bound activities include field experience, internship training and camp style interactive training.

Students, encouraged and assisted by the academic staff, have formed the “Industrial Management Science Students Association” (IMSSA), one of the most active student bodies in the Faculty of Science. Its main objective is to provide the students with the opportunity to develop their leadership, communication and group skills through design, development and implementation of selected projects. In addition, it supplements the learning of its members by organizing lectures; field visits etc. and provides the opportunity for the members to interact socially among themselves and with the staff through its annual trip and cricket match.

Bachelor of Science in Management and Information Technology

With national and international demand a new Bachelors Degree programme, the B.Sc. in Management and Information Technology [B.Sc. (MIT)] has been introduced by the Department of Industrial Management, University of Kelaniya, from January 2003. This programme is unique in that **it is the first and only bachelor degree programme of universities in Sri Lanka that combines Management and Information Technology for students in both biological and physical science streams.** This programme is dedicated to make undergraduates independent, exploratory and application oriented while providing them the required soft skills that make them truly mobile in the fast changing global environment. The programme leads to either B.Sc. MIT (General) degree of 3 years duration, or B.Sc. MIT (Special) degree of 4 years duration. We admit 50 students annually, based on an aptitude test and GCE (AL) examination results. The details of the aptitude test are also available in the web site of the Department of Industrial Management, University of Kelaniya. The B.Sc-MIT degree programme is conducted entirely in the **medium of English.**

Undergraduates who read for the B.Sc. (MIT) degree programme are required to follow subjects from the two streams of study: (1) Management, and (2) Information Technology. Students are required to offer selected courses in mathematics during the first two years. The course units of the programme first provide cognition of the philosophy and concepts of Management and Information Technology. The second phase of the programme is dedicated to provide tools of applications, and finally the programme provides opportunities for students to design, develop, and experience the applications of the concepts and tools of Management and Information Technology in industry. At the end of the second year the B.Sc-MIT students are placed in leading private sector companies under its internship programme for 3 months which empowers students through applying their skills, and provides an opportunity to expose themselves to practical aspects of business and industry. In final year of studies, the students are expected to carry out an industry related IT based project.

2. B.Sc. IN MIT DEGREE PROGRAMME

2.1 PREAMBLE

Undergraduates who read for the B.Sc. in (MIT) degree programme are required to follow subjects from the two streams of study: (1) Management, and (2) Information Technology. Students are required to offer selected courses in mathematics during the first two years.

The duration of a semester is 15 weeks. After 15 weeks of teaching, a study leave period of 2 weeks will be given followed by end of semester written examinations conducted within a period of 3 to 4 weeks. Practical examinations are usually conducted either during the last week of the semester or during the study leave period.

A course unit is a subject module which has a credit value. A credit is a time based quantitative measure used in calculating the grade point average. The course modules are organized at four levels namely the level 1, level 2, level 3 and level 4.

For level 1, level 2 and level 3 course units, credit ratings are as follows.

For Course units with lectures only

15 contact hours = 1 credit

For Course units with both lectures and practical sessions

10 contact hours + 15 hours of laboratory work = 1 credit

Theory course units at level 4 with 15 hours of lectures, seminars and tutorials in any combination carry a credit rating of one.

Students are evaluated on a continuous assessment basis through tests, assignments, projects, fieldwork, reports and presentations and end of course examination, and assigned a grade. A minimum of 30% of total marks for a course module will be drawn from continuous assessment. The scheme of evaluation for each course unit will be announced to students at the commencement of that course unit. The industrial training in the second year is assessed on reports and oral presentations. The research projects of the final year are evaluated by dissertation and oral presentation. The medium of instructions and examinations is English.

2.2 NOTATIONS OF COURSE UNITS AND ABBREVIATIONS USED

There are three types of course units, namely Compulsory (C), Optional (O) and Auxiliary (A).

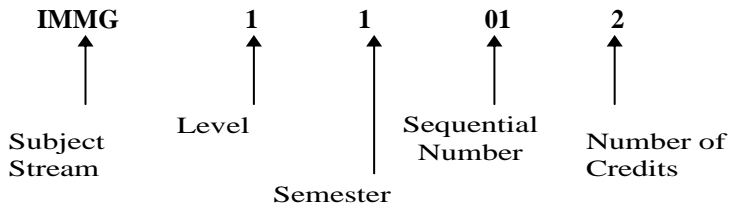
All compulsory course units of a given subject together form the minimum subject content required to be completed by a student following that as a subject.

The optional course units are those outside the core of a particular subject.

The auxiliary course units of a subject are, in general, designed to provide fundamental knowledge and to develop some skills in selected areas of the subject. Auxiliary course units of a subject are offered, without any pre-requisites, to all students other than those who are following that subject.

An alpha numeric code is used to identify a unit. The code consists of five digits prefixed by a set of four letters which refers to the principal discipline of the course content of the unit.

The first digit denotes the level of the unit whereas the fifth digit signifies the credit value. The second digit indicates the semester in which the course is offered (1 – first semester, 2 – second semester, 3 – both first & second semesters, 4 – either the first or the second semester). The third and fourth digits together form a number assigned by the Department that conducts it.



The academic disciplines designated by the 4 letters in the code are as follows:

General Studies Course Units	GNST
Industrial Management	IMGT
Information Technology*	IMIT

Pure Mathematics

PMAT

* - with a practical component

Some course units require courses of study that must previously be completed before students are allowed to follow them. Such courses of study are called pre-requisites (PR). Some of the pre-requisites are subjects taken for the GCE (Advanced Level) Examination. Some other course units require certain course units, which are called co-requisites (CR), to be taken simultaneously with them. Practical course units are co-requisites for theory course units and vice-versa.

2.3 GENERAL STUDIES COURSE UNITS

Every student is required to follow General Studies Course Units during the orientation period. A minimum of 80% attendance for these Course Units is compulsory and these would be evaluated by continuous assessment and end of course examination. The credits earned from these course units shall not be counted for the award of the B.Sc. Degree. However, obtaining at least a D grade in each of these Course Units is compulsory, and the grades earned for these course units shall be included in the transcripts.

2.4 COMPUTER LITERACY COURSE UNIT

Every student is required to follow the first part of the Computer Literacy Course during the orientation period. A minimum of 80% attendance for this Course is compulsory and this would be evaluated by continuous assessment and end of course examination. The credits earned from this course units shall not be counted for the award of the B.Sc. Degree, and a detailed certificate will be issued at the end of the course.

2.5 REGISTRATION FOR COURSES

A student is strongly advised to obtain advice from his/her Faculty or Departmental academic advisors if he/she has any questions regarding course units that suit his/her study programme. A student must also ensure that he/she has fulfilled the correct pre-requisites. A student must complete his/her registration for a selected course combination before the commencement of each academic year.

2.6 CHANGES OF COURSES

A student wishing to drop or add a course unit may do so within the first two weeks of the relevant semester. No changes in enrolment for course units shall be permitted later than this.

2.7 ATTENDANCE

Students are strongly advised to attend all courses regularly, as it has proven that there is a highly significant relationship with the grades obtained for a particular course unit and attendance. A minimum of 80% attendance is compulsory for both theory and laboratory classes. For details refer Section 2.2.

3. EVALUATION PROCEDURE

Performances of students will generally be evaluated through assignments, reports, presentations and end of course examination for each course unit. The method of evaluation will be announced by the relevant Department at the commencement of a course unit. The research projects of the Special Degree Programme are evaluated by dissertation and oral presentation.

3.1 GRADING SYSTEM

Marks obtained in respect of a course unit will be graded according to the following grading system. A grade point value as indicated below is assigned to each grade.

<i>Range of Marks</i>	<i>Grade</i>	<i>Grade Point Value</i>
85 - 100	A+	4.0
70 - 84	A	4.0
65 - 69	A-	3.7
60 - 64	B+	3.3
55 - 59	B	3.0
50 - 54	B-	2.7
45 - 49	C+	2.3
40 - 44	C	2.0
35 - 39	D+	1.5
25 - 34	D	1.0
00 - 24	E	0.0

If the attendance at a course unit is greater than or equals to 50% but less than 80% the best grade obtainable by a student will be C and if the

attendance at a course unit is less than 50% the best grade obtainable by the student will be D.

Students should complete all course units that they are registered for and if they fail to complete a particular course unit, it will be indicated in the transcript as “absent” and a zero (0·0) grade point value will be assigned to it.

3.2 REPEATING A COURSE UNIT EXAMINATION

A student who obtains a grade below C in a particular course unit may re-sit the examination of that course unit in the following academic year for the purpose of improving the grade; the best grade obtainable in this instance is C. In the event a student obtains a lower grade while attempting to better the grade, he/she will be entitled to the previous grade.

3.3 GRADE POINT AVERAGE

Grade Point Average (GPA) is the credit-weighted arithmetic mean of the Grade Point Values, which is determined by dividing the total credit-weighted Grade Point Value by the total number of credits. GPA shall be computed to the second decimal place.

Example: A student who has completed one course unit with two credits, three course units each of three credits and two course units each of 1 credit with grades A, C, B, D, C+ and A+ respectively would have the GPA of 2.48 as calculated below.

$$\frac{(2 \times 4 \cdot 0) + (3 \times 2 \cdot 0) + (3 \times 3 \cdot 0) + (3 \times 1 \cdot 0) + (1 \times 2 \cdot 3) + (1 \times 4 \cdot 0)}{2 + 3 + 3 + 3 + 1 + 1} = \frac{32.3}{13} = 2.4846$$

$$\text{Grade Point Average} = 2.48$$

Grade point values and credit values of all registered course units excluding the general studies course units, in a study programme of a student shall be taken into account in calculating the final GPA.

3.4 B.SC. MIT (GENERAL) DEGREE

3.4.1 ELIGIBILITY FOR THE B.SC. IN MIT (GENERAL) DEGREE

To be eligible for the B.Sc. in MIT (General) Degree a student must

- (i) accumulate grades of D or better in course units aggregating to at least 60 credits during the first two academic years and at least 90 credits during the entire three academic year period, of which at least 27 credits must be from each academic year,
- (ii) obtain grades of C or better in course units aggregating to at least 80 credits of which not less than 70 must be from compulsory course units inclusive of level 3 project IMIT 33066, and at least D grades in course units aggregating to a minimum of further 10 credits, considered under (i) above,
- (iii) obtain grades of D or better in each general studies course unit,
- (iv) obtained a minimum GPA of 2.00, and
- (v) completed the relevant requirements within a period of five academic years.

3.4.2 AWARD OF HONOURS

3.4.2.1 FIRST CLASS HONOURS

A student who is eligible for the B.Sc. in MIT (General) degree may be awarded First Class Honours provided he/she

- (i) obtains grades of C or better in all the course units considered for the calculation of the GPA,
- (ii) obtains grades of A or better in course units aggregating to at least half the number of total credits for the course units considered under 2.7.1 (ii),
- (iii) obtains a minimum GPA of 3.70, and
- (iv) completes the relevant requirements within three academic years.

3.4.2.2 SECOND CLASS (UPPER DIVISION) HONOURS

A student who is eligible for the B.Sc. in MIT (General) degree may be awarded Second Class (Upper Division) Honours provided he/she

- (i) obtains grades of C or better in course units aggregating to at least 80 credits and grades of at least D in the remaining course units, considered under 2.7.1 (ii),
- (ii) obtains grades of B or better in course units aggregating to at least half the number of total credits for the course units considered under 2.7.1 (ii),
- (iii) does not obtain a grade E for any of the course units considered for the calculation of the GPA,
- (iv) obtains a minimum GPA of 3.30, and
- (v) completes the relevant requirements within three academic years.

3.4.2.3 SECOND CLASS (LOWER DIVISION) HONOURS

A student who is eligible for the B.Sc. in MIT (General) degree may be awarded Second Class (Lower Division) Honours provided he/she

- (i) obtains grades of C or better in course units aggregating to at least 80 credits and grades of at least D in the remaining course units, considered under 2.7.1 (ii),
- (ii) obtains grades of B or better in course units aggregating to at least half the number of total credits for the course units considered under 2.7.1 (ii),
- (iii) does not obtain a grade E for any of the course units considered for the calculation of the GPA,
- (iv) obtains a minimum GPA of 3.00, and
- (v) completes the relevant requirements within three academic years.

3.5 B.SC. IN MIT (SPECIAL) DEGREE

At the end of the second academic year, a student may apply to follow a Special Degree Programme in Management and Information Technology. The minimum requirements for selection to the Special Degree Programme are as follows:

A student should have obtained at least B grades for Level 1 and Level 2 course units aggregating to 40 credits. In addition, a student should not have obtained either D/D+ grades in Level 1 and Level 2 course units aggregating to more than 8 credits or E grades in Level 1 and Level 2 course units.

3.5.1 ELIGIBILITY FOR THE AWARD OF THE B.Sc. IN MIT (SPECIAL) DEGREE

To be eligible for the B.Sc. in MIT (Special) degree, a student must

- (i) accumulate grades of D or better,
 - (a) in course units aggregating to at least 27 credits, including all compulsory course units in each academic year, totalling to a minimum of 60 credits, during the first two years, and
 - (b) at least 68 credits in the third and the fourth academic years, including all the compulsory course units, and a minimum of 48 credits from the level 4 course units, aggregating to at least 128 credits,
- (ii) obtain grades of C or better in compulsory course units inclusive of level 3 project IMIT 33066 and level 4 research project IMIT 43068 aggregating to at least 110 credits of which at least 40 credits should be from level 4 course units, and grades of D or better in course units aggregating to a minimum of further 18 credits, with the proviso that he/she should not have obtained grades of E in any of the course units, considered under (i) above,
- (iii) obtain grades of D or better in each general studies course unit,
- (iv) obtain a minimum GPA of 2.00, and
- (v) complete the relevant requirements within a period of 5 academic years.

3.5.2 AWARD OF HONOURS

3.5.2.1 FIRST CLASS HONOURS

A student who is eligible for the B.Sc. in MIT (Special) degree may be awarded First Class Honours if he/she

- (i) obtains grades of C or better in all the course units considered for the calculation of the GPA,
- (ii) obtains a minimum GPA of 3.70,
- (iii) obtains grades of A or better in level 3 and level 4 course units, aggregating to at least half the number of credits accumulated in such course units,
- (iv) obtains grades of A or better in level 4 course units, aggregating to at least half the number of credits accumulated in such course units, and
- (v) completes the relevant requirements within four academic years.

Note: A student who obtains grades of D+ for a maximum of 6 credits in level 4 course units, and fulfils all the other requirements stipulated under 2.10.2.1 may be considered by the Board of Examiners for the award of Second Class (Upper Division) Honours.

3.5.2.2 SECOND CLASS (UPPER DIVISION) HONOURS

A student who is eligible for the B.Sc. in MIT (Special) degree may be awarded Second Class (Upper Division) Honours if he/she

- (i) obtains grades of C or better in course units, including the compulsory course units, aggregating to at least 118 credits, considered under 2.10.1 (ii),
- (ii) obtains a minimum GPA of 3.30,
- (iii) obtains grades of B or better in level 3 and level 4 course units, aggregating to at least half the number of credits accumulated in such course units,
- (iv) obtains grades of B or better in level 4 course units, aggregating to at least half the number of credits accumulated in such course units,
- (v) does not obtain a grade E for any of the course units considered for the calculation of the GPA, and
- (vi) completes the relevant requirements within four academic years.

Note: A student who obtains grades of D/D+ for a maximum of 6 credits in level 4 course units, and fulfils all the other requirements stipulated under 2.10.2.2 may be considered by the Board of Examiners for the award of Second Class (lower Division) Honours.

3.5.2.3 SECOND CLASS (LOWER DIVISION) HONOURS

A student who is eligible for the B.Sc. MIT (Special) degree may be awarded Second Class (Lower Division) Honours provided he/she

- (i) obtains grades of C or better in course units, including the compulsory course units, aggregating to at least 118 credits, considered under 2.10.1 (ii),
- (ii) obtains a minimum GPA of 3.00,
- (iii) obtains grades of B or better in level 3 and level 4 course units, aggregating to at least half the number of credits accumulated in such course units,
- (iv) obtains grades of B or better in level 4 course units, aggregating to at least half the number of credits accumulated in such course units,
- (v) does not obtain a grade E for any of the course units considered for the calculation of the GPA, and
- (vi) completes the relevant requirements within four academic years.

3.5.3 OPTION OF REVERTING TO THE B.SC. IN MIT (GENERAL) DEGREE

A student reading for a B.Sc. MIT (Special) Degree may request the award of the B.Sc. MIT (General) Degree foregoing the B.Sc. MIT (Special) Degree, upon satisfying the requirements for the award of the B.Sc. (General) Degree. This request should be made in the course of the 4th Academic Year or within 14 days after the release of the results of the last level 4 course unit by the Faculty.

The results of the B.Sc. MIT (General) Degree shall be determined solely on the basis of course units followed in the first three academic years.

4. COURSE STRUCTURE

4.1 B.S.C. IN MIT (GENERAL) DEGREE PROGRAMME - MANAGEMENT

Subject: Management (IMMG)					
Year	Semester	Course Units		Status	Pre-requisite
		Code	Description		
Year 1	Sem 1	IMMG 11012	Principles of Management	C	G.C.E. (A/L)
Year 1	Sem 1	IMMG 11023	Economics for Managers	C	G.C.E. (A/L)
Year 1	Sem 1	IMMG 11033	Business Statistics	C	G.C.E. (A/L)
Year 1	Sem 2	IMMG 12043	Operations Research I	C	G.C.E. (A/L)
Year 1	Sem 2	IMMG 12062	Organizational Behaviour	C	IMMG 11012
Year 1	Sem 2	IMMG 12072	Industry and Technology	C	G.C.E. (A/L)
Year 1	Sem 1/2	IMMG 14052	Industrial and Business Law	O	G.C.E. (A/L)
Year 1	Sem 1/2	IMMG 13082	Personal Progress and Development	O*	NONE
Year 2	Sem 1	IMMG 21012	Leadership and Management Communication	C	IMMG 11012
Year 2	Sem 1	IMMG 21023	Marketing Management	C	G.C.E. (A/L)
Year 2	Sem 1	IMMG 21032	Human Resource Management	C	IMMG 11012
Year 2	Sem 1	IMMG 21063	Operations Management	C	IMMG 12043
Year 2	Sem 2	IMMG 22043	Operation Research II	C	IMMG 12043
Year 2	Sem 2	IMMG 22052	Financial Accounting	C	G.C.E. (A/L)
Year 2	Sem 2	IMMG 22072	Industrial Training	C	All prev. comp. modules

Year 3	Sem 1	IMMG 31013	Management of Technology	C	IMMG 12072
Year 3	Sem 1	IMMG 31023	Corporate Finance	C	IMMG 22052
Year 3	Sem 1	IMMG 31033	International Trade and Export Marketing	O	IMMG 21023
Year 3	Sem 2	IMMG 32042	Strategic Management	C	IMMG 11012 IMMG 21023
Year 3	Sem 2	IMMG 32052	Cross Cultural Management	O	IMMG 11012
Year 3	Sem 2	IMMG 32062	Advanced Operations Management	C	IMMG 22063
Year 3	Sem 2	IMMG 32072	Global Trends in Business Management	O	IMMG 11012
Year 3	Sem 2	IMMG 32082	Small Business Management	O	IMMG 11012

4.2 B.SC. IN MIT (GENERAL) DEGREE PROGRAMME – INFORMATION TECHNOLOGY

Subject: Information Technology (IMIT)					
Year	Semester	Course Units		Status	Pre-requisite
		Code	Description		
Year 1	Sem 1	IMIT 11063	Computer Systems	C	G.C.E. (A/L)
Year 1	Sem 1	IMIT 11022	Programming Concepts	C	G.C.E. (A/L)
Year 1	Sem 2	IMIT 12033	Object-Oriented Programming	O	IMIT 12033
Year 1	Sem 2	IMIT 12043	Database Management Systems	C	G.C.E. (A/L)

Year 1	Sem 2	IMIT 12052	Data Structures and Algorithms	C	G.C.E. (A/L)
Year 2	Sem 1	IMIT 21012	Structured Systems Analysis and Design	C	IMIT 11013
Year 2	Sem 1	IMIT 21024	Data Communication and Computer Networks	O	IMIT 11013
Year 2	Sem 1	IMIT 21032	Visual Programming	C	IMIT 12043
Year 2	Sem 1	IMIT 21042	Business Information Systems	C	IMIT 11013
Year 2	Sem 2	IMIT 22053	Software Engineering	C	IMIT 21012
Year 2	Sem 2	IMIT 22062	Object Oriented Systems Analysis and Design	C	IMIT 21012
Year 3	Sem 1	IMIT 31013	Web Programming	C	IMIT 11022
Year 3	Sem 1	IMIT 31022	Advanced Databases	O	IMIT 12043
Year 3	Sem 1	IMIT 31033	Human Factors in Information Technology	O	IMIT 21042
Year 3	Sem 2	IMIT 32042	Information Systems Management	C	IMIT 21042
Year 3	Sem 2	IMIT 32052	Emerging Technologies	O	IMIT 11013
Year 3	Year 3	IMIT 33066	Computer Project	C	All in MIT

4.3 B.SC. IN MIT (SPECIAL) DEGREE PROGRAMME – MANAGEMENT

Subject: Management (IMMG)					
Year	Semester	Course Units		Status	Pre-requisite
		Code	Description		
Year 1	Sem 1	IMMG 11012	Principles of Management	C	G.C.E. (A/L)
Year 1	Sem 1	IMMG 11023	Economics for Managers	C	G.C.E. (A/L)
Year 1	Sem 1	IMMG 11033	Business Statistics	C	G.C.E. (A/L)
Year 1	Sem 2	IMMG 12043	Operations Research I	C	G.C.E. (A/L)
Year 1	Sem 2	IMMG 12062	Organizational Behaviour	C	IMMG 11012
Year 1	Sem 2	IMMG 12072	Industry and Technology	C	G.C.E. (A/L)
Year 1	Sem 1/2	IMMG 14052	Industrial and Business Law	O	G.C.E. (A/L)
Year 1	Sem 1/2	IMMG 13082	Personal Progress and Development	O*	NONE
Year 2	Sem 1	IMMG 21012	Leadership and Management Communication	C	IMMG 11012
Year 2	Sem 1	IMMG 21023	Marketing Management	C	G.C.E. (A/L)
Year 2	Sem 1	IMMG 21032	Human Resource Management	C	IMMG 11012
Year 2	Sem 1	IMMG 21063	Operations Management	C	IMMG 12043
Year 2	Sem 2	IMMG 22043	Operation Research II	C	IMMG 12043
Year 2	Sem 2	IMMG 22052	Financial Accounting	C	G.C.E. (A/L)
Year 2	Sem 2	IMMG 22072	Industrial Training	C	All prev. Comp. modules
Year 3	Sem 1	IMMG 31023	Corporate Finance	C	IMMG 22052
Year 3	Sem 1	IMMG 31033	International Trade and Export Marketing	O	IMMG 21023
Year 3	Sem 2	IMMG 32042	Strategic Management	C	IMMG 11012 IMMG 21023
Year 3	Sem 2	IMMG 32052	Cross Cultural Management	O	IMMG 11012

Year 3	Sem 2	IMMG 32072	Global Trends in Business Management	O	IMMG 11012
Year 3	Sem 2	IMMG 32082	Small Business Management	O	IMMG 11012
Year 4	Sem 1/2	IMMG 44014	Strategic Marketing	C	IMMG 21023
Year 4	Sem 1/2	IMMG 44024	Strategic Accounting & Corporate Finance	C	IMMG 31023
Year 4	Sem 1/2	IMMG 44034	Research Methodology	C	IMMG 11033
Year 4	Sem 1/2	IMMG 44044	Management of Technology for Competitiveness	C	IMMG 12072
Year 4	Sem 1/2	IMMG 44054	Quantitative Techniques in Decision Making	O	IMMG 12043 IMMG 22043
Year 4	Sem 1/2	IMMG 44064	Investment Management	O	IMMG 22052
Year 4	Sem 1/2	IMMG 44074	Business Process Engineering	C	IMMG 21063

**The credits earned from this course unit will not be counted for the award of the BSc MIT Degree.*

4.4 B.S.C. IN MIT (SPECIAL) DEGREE PROGRAMME – INFORMATION TECHNOLOGY

Subject: Information Technology (IMIT)					
Year	Semester	Course Units		Status	Pre-requisite
		Code	Description		
Year 1	Sem 1	IMIT 11063	Computer Systems	C	G.C.E. (A/L)
Year 1	Sem 1	IMIT 11022	Programming Concepts	C	G.C.E. (A/L)
Year 1	Sem 2	IMIT 12033	Object-Oriented Programming	O	IMIT 12033
Year 1	Sem 2	IMIT 12043	Database Management Systems	C	G.C.E. (A/L)
Year 1	Sem 2	IMIT 12052	Data Structures and Algorithms	C	G.C.E. (A/L)

Year 2	Sem 1	IMIT 21012	Structured Systems Analysis and Design	C	IMIT 11013
Year 2	Sem 1	IMIT 21024	Data Communication and Computer Networks	O	IMIT 11013
Year 2	Sem 1	IMIT 21032	Visual Programming	C	IMIT 12043
Year 2	Sem 1	IMIT 21042	Business Information Systems	C	IMIT 11013
Year 2	Sem 2	IMIT 22053	Software Engineering	C	IMIT 21012
Year 2	Sem 2	IMIT 22062	Object Oriented Systems Analysis and Design	C	IMIT 21012
Year 3	Sem 2	IMIT 32042	Information Systems Management	C	IMIT 21042
Year 3	Sem 2	IMIT 32052	Emerging Technologies	O	IMIT 11013
Year 3	Year 3	IMIT 33066	Computer Project	C	All comp. modules in MIT
Year 4	Sem 1/2	IMIT 44016	Data Engineering	C	IMIT 12043
Year 4	Sem 1/2	IMIT 44026	E-commerce and Web Technology	C	IMIT 21042 IMIT 32042
Year 4	Sem 1/2	IMIT 44034	Systems Modelling and Simulation	C	IMMG 11023
Year 4	Sem 1/2	IMIT 44044	Human Computer Interaction	O	IMIT 21042
Year 4	Sem 1/2	IMIT 44054	Knowledge-based Systems	O	PMAT 12022
Year 4	Year 4	IMIT 43068	Research Project	C	IMMG 44034

4.5 ENGLISH LANGUAGE TEACHING UNIT (ELTU)

Subject: English (ELTU)					
Year	Semester	Course Units		Status	Pre-requisite
		Code	Description		
Year 1	Sem 1	ELTU 11032	English for Management Professionals	O*	None
Year 3	Sem 1	ELTU 31022	Communication Skills for Management Professionals	C	IMMG 21012

**The credits earned from this course unit will not be counted for the award of the BSc MIT Degree.*

4.6 PURE MATHEMATICS COURSES OFFERED FOR THE B.SC. IN MIT DEGREE PROGRAMME

Subject: Pure Mathematics (PMAT)					
Year	Semester	Course Units		Status	Pre-requisite
		Code	Description		
Year 1	Sem 1	PMAT 11042	Discrete Mathematics I	C	
Year 3	Sem 1	PMAT 12062	Discrete Mathematics II	C	PMAT 11042

4.7 CREDIT DISTRIBUTIONS

Stream	Level 1		Level 2		Level 3	
	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2
IMMG	11012 [C] 11023 [C] 11033 [C]	12043 [C] 12072 [C] 14052 [O] 12062 [C] 13082 [C]	21012 [C] 21023 [C] 21032 [C] 21063 [C]	22043 [C] 22052 [C] 22072 [C]	31013 [C] 31023 [C] 31033 [O]	32042 [C] 32052 [O] 32062 [C] 32072 [O] 32082 [O]
IMIT	11013 [C] 11022 [C]	12033 [O] 12052 [C] 12043 [C]	21012 [C] 21024 [O] 21032 [C] 21042 [C]	22053 [C] 22062 [C]	31013 [C] 31022 [O] 31033 [O]	32042 [C] 32052 [O] 33066 [C]
PMAT	11042 [C]	12062 [C]				
ELTU	11032 [O]				31022 [C]	
Optional Credits	2	5	4		8	8
Compulsory Credits	15	16	16	12	11	12
Total Credits	31[C], 7[O]		28[C], 4[O]		23[C], 16[O]	

5. SUBJECTS AND SYLLABUS OF B.SC. – MIT

5.1 MANAGEMENT

Level 1

Course Code	: IMM 11012
Course Title	: Principles of Management
Prerequisites	: G.C.E. (A/L)
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- explain different historical perspectives in management and organization studies
- recognize the characteristics of contemporary organizations and the different approaches to organizational structure and design
- identify the job of the manager, what it means to be a manager and how managerial identity is constructed
- recognize the role of ethics in business and management.

Course contents:

Understanding organizations. The evolution of management thought. Organizational structure and design. Organization and environment. Managerial roles and competencies. The managerial process: planning, strategic decision making, and ethical decision making.

Method of teaching and learning:

Lectures, in-class discussions, real world case studies and self study.

Assessment:

End-of-course exam, in-class assignments, mini projects and quizzes.

Recommended reading:

1. Stephen Robbins and David De Cenzo, “*Fundamentals of Management*,” 6th Edition, 2008, Prentice Hall
2. Samuel Certo, “*Modern Management*”, 10th edition, 2008, Prentice Hall

3. Thomas S Bateman and Scott A Snell “*Management: Leading & Collaborating in the Competitive World*” 7th edition, 2007, MacGraw Hill

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Course Code : **IMMG 11023**
Course Title : **Economics for Managers**
Prerequisites : **G.C.E. (A/L)**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- describe microeconomic problems such as why markets allocate resources where they are most wanted
- illustrate how; prices and wages rise and fall, consumers allocate their budgets, and firms arrive at production decisions
- explain the macroeconomic issues that are given priority by modern governments.

Course contents:

Introduction to economics. Demand and supply. Elasticity. Utility theory; production, cost and revenue. Introduction to the market structures. Introduction to macroeconomics.

Method of teaching and learning:

Lectures, in-class discussions, real world case studies and self study.

Assessment:

End-of-course exam, in-class assignments, mini projects and quizzes.

Recommended reading:

1. Paul A. Samuelson and William D Nordhaus, “*Economics*”, 18th Edition, 2007, McGraw-Hill.
2. John Sloman, “*Economics*”, 6th Edition, 2006, Prentice Hall.

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Course Code	: IMM 11033
Course Title	: Business Statistics
Prerequisites	: G.C.E. (A/L)
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- apply a variety of methods for exploring, summarizing and presenting data
- apply statistical modelling and analysis techniques to a wide range of practical problems
- evaluate statistical evidence; interpret the results of a statistical analysis
- identify and use appropriate statistical software to solve selected statistical problems

Course contents:

Descriptive statistics: Compilation, classification, tabulation and diagrammatic and graphical representation of various types of statistical data, skewness and kurtosis, frequency distributions, and measures of location and dispersion.

Elements of Probability Theory: Set theory, concepts of probability, sample space, field of events and generalized addition theorem, conditional probability, independence, Bayes' theorem, random variables, distribution theory, expectation, variance, normal, exponential, Binomial and Poisson Distributions.

Sampling Distribution: Population parameters and statistics, type of samples, probability distribution of sample means, distribution of linear combination of random variables and the Central Limit Theorem.

Regression Theory: Simple Linear Regression Model and Least Square Method of estimating the parameters.

Index numbers, Time Series and Forecasting: Secular trend, linear trend and nonlinear trend.

Method of teaching and learning:

Lectures, interactive classroom sessions, case discussions, and applications of statistical software packages.

Assessment:

End-of-semester examination, practical tests, group assignments, tutorials and in-class assessment.

Recommended reading:

1. Robert D. Mason, Douglas A. Lind and William G. Marchal, “*Statistical Techniques in Business and Economics*”, 13th Edition, 2006, McGraw-Hill.
2. James R. Evans, David Louis Olson, “*Statistics, Data Analysis, and Decision Modelling*”, 2002, Prentice Hall.
3. Allen Webster, “*Applied Statistics for Business & Economic*” 3rd edition, 1997 McGraw Hill Higher Education.
4. David R. Anderson, Dennis J. Sweeney and Thomas A. Williams, “*Statistics for Business and Economics*” 9th Edition, 2004, South-Western College Pub.

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Course Code	: IMM 12043
Course Title	: Operations Research 1
Prerequisites	: G.C.E. (A/L)
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- identify and analyze business problems and formulate decision problems as mathematical programmes
- apply appropriate quantitative techniques and perform sensitivity analysis in managerial decision-making.
- identify and use the right software to solve complicated problems.

Course Content:

Linear Programming: Introduction to Operations Research and Linear Programming (LP). Applications of LP; problem formulation, algebraic representation, graphical method of solving LP problems, in-depth look at the simplex method, duality and economic interpretation, dual simplex method, sensitivity analysis. Use of computers in solving LP problems.

Special types of LP Problems: Transportation problems. Assignment problems.

Network Modeling: Introduction, solution techniques for various classes of network problems: minimal-cost, network flow, maximal flow and shortest path problems.

Method of teaching and learning:

Lectures, tutorials and practical sessions of OR software ‘Solver’ to solve large-scale linear programs.

Assessment:

End-of-semester examination, practical tests, group assignments, and in-class assessments.

Recommended Reading:

1. Anderson D R, Williams T A and Sweeney S J, “*An Introduction to Management Science: Quantitative Approaches to Decision Making*”, 11th Edition, South western college Pub.
2. Fedrick F. Hiller. “Introduction to operations research”, 8th edition, 2004, McGraw-Hill Professional.
3. Hamady A. Taha, “*Operations Research in Introduction*”, 6th edition, 1996, Prentice Hall.
4. Barry Render and Ralph M Stair, “*Quantitative analysis for Management*” 8th Edition Prentice Hall.

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Course Code	: IMM 12062
Course Title	: Organizational Behaviour
Prerequisites	: IMM 11012
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- explain the fundamental variables underlying the coexistence of organization and its environment,
- describe the process of organizational learning, adapting, and change.

Course contents:

The concept of organization. Organizational behavior; influence of the individual, culture, work environment and the processes of organizational change. The role of leader/manager in influencing, catalyzing, and changing the organization.

Method of teaching and learning:

Lectures, interactive classroom sessions and case analysis.

Assessment:

End-of-semester examination, case analysis and presentations.

Recommended reading:

1. Stephen P. Robbins, Timothy A. Judge, "*Organizational Behaviour*", 2007, Prentice Hall.
2. Fred Luthans, "*Organizational Behaviour*", 2001, McGraw Hill.
3. Arthur Thompson, J and A.J. Strickland S, "*Strategic Management Concepts and Cases*", 2001, McGraw Hill.
4. Robert Kreitner and Angelo Kinaki, "*Organizational Behaviour*", Eighth Edition, McGraw Hill.

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Course Code	: IMM 12072
Course Title	: Industry and Technology
Prerequisites	: G.C.E. (A/L)
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- describe the general industrial environment in Sri Lanka
- define the role of technology in micro enterprises and regional (macro) growth
- explain the basic manufacturing processes used in different industries in Sri Lanka.

Course contents:

Industrial environment; external and internal factors. Role of technology in industrial development. research and development, invention and innovation. Technology; evolution of technology, technological development, design concepts, manufacturing technologies, principles of engineering, basic manufacturing processes, principles of product and process design.

Method of teaching and learning:

Interactive classroom sessions and case analysis.

Assessment:

End-of-semester examination and case analysis and presentations.

Recommended reading:

1. Soman,S., Swernofsky, N.R., “*Experience Technology*”, Macmillan/McGraw-Hill.
2. Harms, H.R., Kroon, D.K., “ *Production Systems Technology*”, Macmillan/McGraw-Hill.
3. Annual Reports, Central Bank of Sri Lanka.

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Course Code	: IMMG 14052
Course Title	: Industrial and Business Law
Prerequisites	: G.C.E. (A/L)
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- apply the legal provisions learned in the class to less complex legal situations in organizational settings.

Course contents:

A general and practical knowledge in: Industrial Disputes Act No.43 of 1950; Employment of Women, Young Persons and Children Act No.47 of 1956; Employees Provident Fund Act No.15 of 1958; The Employees Trust Fund Act No.46 of 1980; The Payment of Gratuity Act No.12 of 1983. Application of legal principles relevant to the conduct and understanding of commercial business transactions. Topics include the legal, ethical and social environment of business; agencies, partnerships, and other forms of business organizations; and contracts and sales agreements. Government regulations affecting employment and marketing. Negotiable instruments. Debtor/creditor relationships. Bankruptcy and reorganization.

Method of teaching and learning:

Lectures, and case discussions.

Assessment:

End-of- Semester examination and continuous assessment.

Recommended reading:

1. Industrial Disputes Act No.43 of 1950.
2. Employment of Women, Young Persons and Children (47/1956).
3. EPF Act, ETF Act, and Gratuity Act.

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Course Code	: IMMIG 13082
Title	: Personal Progress and Development
Prerequisites	: None
Co requisites	: None

Learning Outcomes:

On completion of this course, students should be able to:

- identify, aspects of good leadership.
- importance of team work in organizations.
- identify, the need to align and manage diverse groups to meet organizational objectives.
- Effectively communicate.
- develop professional attributes essential for success in the global business environment.

Course Content:

Personality development & Personal branding, Leadership, Team building, Personal goal setting, Personal grooming, Communication & Presentation skills, Time management, Successful interviewing, Taking care of mental health, Food & Nutrients, First-aid & Life support, Etiquette(s), Social & physical environmental sensitivity.

Method of Teaching and Learning:

This course will be delivered as a combination of class room instruction and outbound activity based learning.

Assessment:

Continuous assessment.

Recommended Reading:

1. Walter, R. (2006). *Kick Start Your Success – Four Powerful Steps to Get What You Want out of your Life, Career and Business*, John Wiley & Sons.
2. George, K. (2006). *Coaching into Greatness – Four Steps to Success in Business & Life*, John Wiley & Sons.
3. Razeyhi, A. (2006). *Hope – How Triumphant Leaders Create the Future*, Jossey Bass.
4. Tichy, M.H. and McGill, A.R. (2003). *The Ethical Challenge – How to Lead with Unyielding Integrity*, Jossey Bass.

Note :

1. *The credits earned from this course unit will not be counted for the award of the BSc MIT Degree.*
2. *This course unit will be graded as 'Pass' or 'Fail'.*

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Level 2

Course Code	: IMMG 21012
Course Title	: Leadership and Management Communication
Pre-requisites	: IMMG 11012
Co-requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- identify and self inculcate leadership qualities, and acquire effective presentations, report writing and listening skills
- demonstrate communicational skills in daily and professional lives.

Course Content:

Evolution of leadership thoughts. The traits theory. Contingency and situational theories. Path-goal behaviour of leaders. Pygmalion effect; Passive, aggressive, and assertive personalities. Childhood experience and formation of beliefs and attitudes. Influence of groups and environment on personality, charismatic and transformational leadership. Physical, clinical, psychiatric, and do- it-yourself methods of leadership development. Universal communication model, purpose and modes of organizational communications, and techniques of presentation, negotiation, writing and listening.

Method of teaching and learning:

Interactive classroom sessions, case analysis and projects.

Assessment:

End-of-semester examination and case analysis and presentations.

Recommended Reading:

1. Lesikar, Pettit, and Flatley, “*Basic Business Communication*”, 2001, Irwin McGraw-Hill.
2. Murphy and Hildebrandt, “*Effective Business Communications*”, 6th Edition, 1996, McGraw-Hill.
3. Kaagan Stephen S., “*Leadership Games*”, 1999, Response Books.

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Course Code : **IMMG 21023**
Course Title : **Marketing Management**
Prerequisites : **G.C.E. (A/L)**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- explain the increasingly significant role of marketing in modern organizational management
- identify the variables at work of various marketing situations
- prepare a comprehensive marketing plan for a business organization.

Course Content:

Marketing as an organizational function. Evolution of marketing concepts. Marketing goals and strategies. Consumer behavior, Marketing mix and targeting, strategies for products, pricing, channeling and promoting products. Brand strategies and brand management. Preparation of a marketing plan.

Methodology:

Interactive classroom sessions, case analysis and projects.

Assessment:

End-of-semester examination, case analysis and presentations.

Recommended Reading:

1. Kotler P., “*Marketing Management*”, 12th Edition, 2007, Prentice Hall.
2. Boyd & Walker, “*Marketing Management*”, 1995.
3. Wells and Bernette, “*Advertising ; principles and practice*”, 2007, Prentice Hall.

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Course Code	: IMM 21032
Course Title	: Human Resources Management
Prerequisites	: IMM 11012
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- explain the theoretical aspects of HRM functions
- apply HRM techniques of staffing, selection, training and development, performance appraisal in less complex scenarios.

Course contents:

The role of human resources in organizational achievements. Human resources planning. Recruitment and selection. Training and development of human resources. Compensation issues. Performance appraisal of employees. Writing of job descriptions. Job evaluation. Interviewing techniques. The global issues involved in managing human resources.

Method of teaching and learning:

Lectures, interactive classroom sessions and case study presentations.

Assessment:

End-of-semester examination and case analysis presentations.

Recommended reading:

- 1.Noel, Hollenbeck, Gerhart, “*Human Resource Management*”, 2nd Edition, 2005, McGraw-Hill.
- 2.Gary Dessler, “*Personnel/Human Resource Management*”, 9th Edition, 2006, Prentice Hall International.

Course Code : **IMMG 21063**
Course Title : **Operations Management**
Prerequisites : **IMMG 12043**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- define the role of operations in an organization
- demonstrate basic competencies in planning and controlling of manufacturing and service operations.

Course contents:

Introduction to operations management. Background and development of production management systems. Product design and process selection. Strategic capacity planning. Plant location. Facility layout. Aggregate planning. Operations scheduling. Materials planning and control. Quality management. Recent trends in operations management.

Method of teaching and learning:

Lectures, case analysis and industry visits.

Assessment:

End-of-semester examination and continuous evaluation.

Recommended reading:

1. William J. Stevenson, “*Operations Management*,” 9th Edition, 2007, McGraw Hill – Irwin.
2. Chase, Jacobs, and Aquilano, “*Operations Management for competitive advantage*,” 11th Edition, 2006, McGraw Hill –Irwin.

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Course Code : **IMMG 22043**
Course Title : **Operations Research II**
Prerequisites : **IMMG 12043**
Co requisites : **None**

Teaching and learning outcomes:

On completion of this course, the student should be able to:

- identify and analyze business problems and formulate decision problems as mathematical programmes

- apply appropriate probabilistic and other quantitative techniques and methodologies to transform managerial situations including those under uncertainty, into OR models
- identify and use the right software to solve complicated problems.

Course Content:

Project Scheduling: Introduction to PERT and CPM, construction of networks, determining the critical path, project scheduling with uncertain activity times, crashing activity times, planning and scheduling, project costs.

Decision Theory and Games: Introduction, structuring the decision situations, decision making under uncertainty, decision tree, utility theory. two person zero-sum games with and without saddle points. LP solution of zero-sum games.

Dynamic Programming: Introduction to Dynamic Programming under certainty and under uncertainty, Infinite State Dynamic Programming.

Waiting Line Theory: Waiting line situations in practical life, arrival distribution, service distribution, queue discipline. Introduction to stochastic processes, M/m/1, M/M/m systems with finite & infinite population, tandem queues. Introduction to other queuing models and queuing networks.

Method of teaching and learning:

Lectures, case discussions, tutorials, and applications of OR software such as Solver and Microsoft Project.

Assessment:

End-of-semester examination, practical tests, group assignments, and in-class assessments.

Recommended Reading:

1. Anderson D R, Williams T A and Sweeney S J, “*An Introduction to Management Science: Quantitative Approaches to Decision Making*”, 11th Edition, South western college Pub.
2. Fedrick F. Hiller. “*Introduction to operation research*”, 8th edition, 2004, McGraw-Hill Professional.
3. Hamady A. Taha, “*Operations Research in Introduction*”, 6th edition, 1996, Prentice Hall.

Course Code	: IMMIG 22052
Course Title	: Financial Accounting
Prerequisites	: G.C.E. (A/L)
Co requisites	: None

Learning outcome:

On completion of this course, the student should be able to:

- demonstrate an understanding of the principles of accounting
- record economic transactions and develop the key financial statements for the enterprise.

Course content:

Concepts of financial accounting. Practice of book keeping including books of Prime Entry. Ledgers and Trial Balance. Preparation of Trading Profit & Loss and Balance Sheet. Cash flow statement. Bank reconciliation.

Method of teaching and learning:

Class room lectures, interactive group discussions and presentations.

Assessment:

In class assignments, tutorials, mid/end of semester examination, group assignments and presentations.

Recommended reading:

1. Williams, Haka, Bettner, Carcello, “*Financial Accounting*”, McGraw-Hill, 2006.
2. Hilton, “*Managerial Accounting*”, 7th Ed., McGraw-Hill/Irwin, 2006.

Course Code	: IMMIG 22072
Course Title	: Industrial Training
Prerequisites	: All previous BSc in MIT compulsory modules
Co requisites	: None

Learning outcomes:

On completion of this industrial training, the student should be able to:

- relate concepts learned in the class to organizational and environmental management
- integrate and apply the theory, knowledge, skills and values acquired through their first and second years in areas related to their interests and learning needs

- identify the issues in making concepts operational, and acquire skills in resolving these issues
- perform a range of work skills developed during the training
- employ a range of soft skills
- utilize the networks developed to advance their career opportunities.

Course content:

Development of learning needs and objectives, within the framework of industrial training and student expectations. Pre-training orientation: work ethics, professional conduct. Placement organization: history, products, organizational goals, organizational structure, personnel profile, operational policies, values, function and place of organization in the community. Exposure and participation in organizational processes. Identification and analysis of suitable industrial problems.

Method of teaching and learning:

Exposure to world of work, active participation in organizational processes, self study, analysis of industrial problems, interactive group discussions and presentations.

Assessment:

Fortnightly progress reports, final report, oral presentation and feedback from industrial training supervisor.

Recommended reading:

1. Industrial training handbook – B.Sc. MIT, Department of Industrial Management, Faculty of Science, University of Kelaniya.

Level 3

Course Code : IMM 31013
Course Title : Management of Technology
Prerequisites : IMM 12072
Co requisites : None

Learning outcomes:

On completion of this course, the student should be able to:

- evaluate technology requirements of an organization

- demonstrate a clear understanding of the interactions between competition, patterns of technological and market change, & the structure and development of internal firm capabilities
- analyze determine which technologies to invest in, how to structure those investments and how to anticipate and respond to behaviour of the competitors, suppliers as well as customers.

Course contents:

Unique characteristics of technology for socio-economic development. Appropriateness of technology. Different embodiment forms of technology used by productive enterprises. Available degrees of sophistication of various technology components. Proven path for technology development. Economic restructuring based on make-some and buy-some technology. Some aspects of technology transfer. Research and development as a core of the technological innovation process. Technology strategy. Technology infrastructure. Technology climate. Technology incubators. Strategic management of technology in high tech firms.

Method of teaching and learning:

Lectures and case discussions.

Assessment:

End-of- Semester examination, case study presentations and group assignments.

Recommended reading:

1. Burgelman, R.A. and Maidique, M.A. and Wheelright, C., *“Strategic Management of Technology and Innovation”*, Irwin, Chicago, 2001.
2. Khalil, T., *“Management of Technology: The Key to Competitiveness and Wealth Creation”*, McGraw-Hill Book Co., Singapore, 2000.
3. Sherif, H., Khalil, T.M. 2006, *“Management of Technology: New Directions in Technology Management”*, Elsevier, Oxford.
4. Morel_Guimaraes L., Khalil, T., Hosni Y.A. 2005, *“Management of Technology: Key Success Factors for Innovation and Sustainable Development”*, Elsevier, Oxford.
5. Hosni, Y.A., Khalil, T.M. 2004, *“Management of Technology: Internet Economy: Opportunities and Challenges for Developed and Developing Regions of the World”*, Elsevier, Oxford.

Course Code : **IMMG 31023**
Course Title : **Corporate Finance**
Prerequisites : **IMMG 22052**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- explain and use financial management concepts to analyze the performance of the enterprise
- value financial products and assess viability of projects that the enterprise may undertake.

Course content:

Corporate finance and the enterprise. Analysis of financial statements. Long term financial planning and growth. Time value of money and valuation of stocks and bonds. Investment appraisal methods and capital budgeting analysis. Understanding risk and return and short term financial planning and management.

Method of teaching and learning:

Class room lectures, guest lectures, interactive group discussions and presentations.

Assessment:

Class assignments, end of semester examination, group assignments and presentations,

Recommended reading:

1. Ross, Westerfield and Jordan, “*Fundamentals of Corporate finance*”, 8th Edition, 2007, McGraw-Hill/Irwin.
2. Brealey and Myers, “*Principles of Corporate Finance*”, 7th Edition, 2007 McGraw-Hill/Irwin.
3. Bodie and Kane, “*Investments*”, 7th Edition, 2006, McGraw-Hill/Irwin.

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Course Code : **IMMG 31033**
Course Title : **International Trade & Export Marketing**
Prerequisites : **IMMG 21023**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- differentiate between domestic and international trade
- evaluate international markets in relation to a given product(s), and
- advise SMEs to develop strategies for exporting.

Course Content:

The international environment. Definitions and the concept of global marketing. Economic, political, legal, socio-cultural environment. International Marketing Management – Global marketing strategy. International Marketing Intelligence. International product policy. Distribution strategy. International promotion. Pricing in International Marketing. Coordination, planning, organizing and control of International Marketing. The future of International Marketing. Sri Lankan export activities – Export policy and development. Export development institutions. Operational aspects of International Trade.

Method of teaching and learning:

Lectures, case discussions, tutorials and projects.

Assessment:

End-of- Semester examination, practical test and continuous assessment.

Recommended Readings:

1. Kotler P., “*Marketing Management*”, 11th Edition, 2002, Prentice Hall.
2. Onkvisit, s, Show. John J., “*International Marketing, analysis and strategy*”, 3rd Edition, 1996, Prentice Hall.

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Course Code : **IMMG 32042**
Course Title : **Strategic Management**
Prerequisites : **IMMG 11012 and IMMG 21023**
Co requisites : **None**

Learning outcome:

On completion of this course, the student should be able to:

- explain the need and process of strategic planning in an enterprise

- analyze the environment in which it operates through the use of analytical tools and contribute towards the formulation of a strategic management plan.

Course content:

Need for strategic planning. The process of strategic planning. Components of strategic planning. Developing vision and mission statements. Analysis of the external and internal analysis. Competitive analysis. Driving forces and critical success factors. Formulation of objectives. Different strategy options and selection.

Method of teaching and learning:

Class room lectures, case analysis through interactive group discussions and presentations.

Assessment:

Group assignments and presentations, in class assignments, end of semester examination.

Recommended reading:

1. Pearce and Robinson, “*Strategic Management – Formulation, Implementation and Control*”, McGraw-Hill/Irwin, 2007
2. Hill and Jones, “*Strategic Management Theory: An Integrated Approach*”, 7th Ed., 2006.
3. Thompson and Strickland, “*Strategic Management – Concepts and Cases*”, 13th Ed., 2001.

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Course Code : IMM 32052
Course Title : Cross Cultural Management
Prerequisites : IMM 11012
Co requisites : None

Learning outcomes:

On completion of this course, the student should be able to:

- appreciate the increasing instances of cross-cultural situations due to rapid globalization
- apply skills in managing heterogeneity of cultures for sustained productivity.

Course Content:

Man and culture. Culture and work place values. Harmonizing values and organizational growth. Cultural dimensions in management. Changing environment of management. The changing organizational culture and the cross cultural leadership techniques.

Method of teaching and learning:

Lectures and case discussions.

Scheme of Evaluation:

Interactive classroom sessions, case analysis, group work, assignments and final written examination.

Recommended Reading:

1. Michele A. Paludi, “*Human Development in Multicultural Contexts*“, 7th Edition, 2000, Prentice Hall.
2. Helen Deresky, “*International Management: Managing Across Borders and Cultures*”, 4th Edition, 2002, Prentice Hall.
3. Alex Inkeles, Masamichi Sasak, “*Comparing Nations and Cultures: Readings in a Cross-Disciplinary Perspective*”, 1995, Prentice Hall.

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Course Code	: IMMG 32062
Course Title	: Advanced Operations Management
Prerequisites	: IMMG 22063
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- identify the strategic role of operations management in making organizations competitive
- apply techniques of operations management in organizations in an information technology based environment.

Course contents:

Operations/manufacturing strategy and competitiveness. Job design. Work study. Productivity and performance measurement. Total Quality Management (TQM), National/ international standards on quality. Quality awards. Production planning and control, dependent demand inventory models, MRP, MRPII, Enterprise Resources Planning (ERP) systems. Just-

in-time production. Advanced schedulers. Supply chain management. Software for operations management. Issues of computerization.

Method of teaching and learning:

Lectures. interactive classroom sessions, case analysis and industry visits.

Assessment:

Continuous assessment and end-of-semester examinations.

Recommended reading:

1. Slack, Chambers, Johnston, “*Operations Management*”, 4th Edition, 2006, Prentice Hall.
2. Chase, Jacobs, and Aquilano, “*Operations Management for competitive advantage*, 11th Edition, 2006, McGraw Hill –Irwin.
3. William J. Stevenson, “*Operations Management*,” 9th Edition, 2007, McGraw Hill – Irwin.

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Course Code : IMM 32072
Course Title : Global trends in Business Management
Prerequisites : IMM 11012
Co requisites : None

Learning outcomes:

On completion of this course, the student should be able to:

- explain new and sweeping global trends in business practices, and how the operations of a given firm are influenced by these trends.

Course contents:

Corporate social responsibility (CSR) activities. Good governance. Sustainability reporting and global reporting initiative. Green marketing, green consumerism, eco-labeling and eco-innovation. Triple bottom line reporting. 24 lessons of Six Sigma.

Method of teaching and learning:

Lectures and case discussions.

Assessment:

End-of- Semester examination, case study presentations.

Recommended reading:

1. Greg Brue, “*Six Sigma For Managers: 24 Lessons to Understand and Apply Six Sigma Principles In Any Organization*”, 2005, McGraw Hill.
2. Richard J. Schonberger, “*World Class Manufacturing: The Next Decade*”, 1996, The Free Press.
3. John Grant, “*Green Marketing Manifesto*”, 2007.

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Course Code : **IMMG 32082**
Course Title : **Small Business Management**
Prerequisites : **IMMG 11012**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- differentiate the terms: entrepreneurship, self-employment, and businessman, and acquire skills in conceptualizing, planning, and managing a small-scale venture.
- plan and organize a small scale business operation, and
- provide advise to SMEs.

Course Content:

Theories of Entrepreneurship; Variables that build entrepreneurship. Traits and skills of entrepreneurs. Small-scale businesses. Family owned business. Theories of growth of a small-scale venture. New product development. Global business. Starting a new business/Buying an existing business. Franchising and other alternatives. Analyses of markets and development of business strategy. Writing a business plan. The functions of marketing, management and personnel. Finance and legal issues. Insurance. The role of Internet in Business.

Method of teaching and learning:

Lectures, case discussions, field projects, interactive classroom sessions and case analysis.

Assessment:

End-of-semester examination, projects and continuous assessment.

Recommended Reading:

1. Hisrich and Peters, “*Entrepreneurship*”, 5th Ed, Irwin McGraw-Hill.
2. Nickels, McHugh and McHugh, “*Understanding Business*”, 4th Ed, Irwin McGraw-Hill.

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Level 4

Course Code : **IMMG 44014**
Title : **Strategic Marketing**
Prerequisites : **IMMG 21023**
Co requisites : **None**

Learning Objectives:

On successful completion of this course, the student should be able to:

- identify macro and micro variables on which the corporate marketing plans should be based,
- formulate product, pricing, promotional, and place strategies for a given marketing situation,
- conduct marketing research, and
- develop a marketing plan for a company.

Course Content:

Socio economic and technological imperatives for metamorphosis of marketing thoughts, approaches, and applications. Shifts in the significance of corporate marketing functions. The marketing planning process, product, pricing, distribution, and promotional strategies. Marketing information systems, competitive strategies, and product development strategies.

Method of teaching and learning:

Lectures, class room discussions, case analysis and group projects.

Assessment:

End-of-semester examination and continuous assessment.

Recommended Reading:

1. Kotler, Philip, “*Management*”, 12th ed, Prentice Hill, Delhi, 2006.
2. Boyd and Walker, “*Marketing Management*”, 3rd Ed. McGraw Hill, 2007.

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Course Code	: IMMIG 44024
Course Title	: Strategic Accounting and Corporate Finance
Prerequisites	: IMMIG 31023
Co requisites	: None

Learning outcome:

On completion of this course, the student should be able to:

- apply, analyze, design and critique diverse options available for corporate decision making through the use of concepts in accounting and corporate finance.

Course content:

Accounting information systems. Budgeting. Cost analysis. Cost benefit analysis. Behaviour of capital markets. Dividend policy. Capital structure and cost of capital. Leasing. Risk management and use of options.

Method of teaching and learning:

Class room lectures, presentation, guest lectures and case analysis.

Assessment:

In class assignments, end of semester examination, group assignments and presentations.

Recommended reading:

1. Ross, Westerfield, Jordan, “*Fundamentals of Corporate Finance*”, 8th Edition, McGraw-Hill/Irwin, 2007.
2. Brealey and Myers, “*Principles of Corporate Finance*”, 7th Edition, McGraw-Hill/Irwin, 2007.
3. Bodie and Kane, “*Investments*”, 7th Ed., McGraw-Hill/Irwin, 2006.
4. Hilton, R., W., “*Managerial Accounting*”, 2nd Ed., McGraw Hill, 1994.
5. Anthony E. Boardman , David H. Greenberg, Aidan R. Vining, “*Cost-Benefit Analysis: Concepts and Practice*”, 2000.

Course Code	: IMM 44034
Course Title	: Research Methodology
Prerequisites	: IMM 11033
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- transform an issue into a research project, conduct a comprehensive research,
- perform a literature search and do a literature review; develop a research proposal,
- design survey questionnaires; collect and analyze data to develop Analytical skills,
- work independently on a particular research project, make verbal presentations and present written work (a dissertation) with useful conclusions and recommendations.

Course Contents:

Some reflections on the theory of evolution of knowledge. Inductive and deductive methods in research. Research design: identifying issues and problems, defining research problem(s) and objectives. Identifying data requirements, sources, and instruments of data gathering. Sampling theory and estimation, Time series analysis, index, analysis of variance (ANOVA) and co-variance, non-parametric methods, hypothesis testing, General Statistical Hypothesis testing and General Statistical Estimation for population parameters. Testing of Lack of Fit, Residual Analysis, Multiple Linear Regression Models, Estimation of Model Parameters, use of statistical packages.

Method of teaching and learning:

Lectures, interactive classroom sessions, and case discussions.

Assessment:

End-of-semester examination, group assignments, and in-class individual assessments.

Recommended reading:

1. Robert D. Mason, Douglas A. Lind and William G. Marchal “*Statistical Techniques in Business and Economics*”, 1999, McGraw-Hill.

2. James R. Evans, David Louis Olson, “*Statistics, Data Analysis, and Decision Modelling*”, 2002, Prentice Hall.
3. David M Lavine, Thimothy C Krehbiel, Mark L Berson, “*Business Statistics: A First Course*”, 3rd Edition, 2002, Prentice Hall.
4. M. Easterby-Smith, R. Thorpe and A. Lowe (2001) *Management Research: An Introduction*, London, Sage.
5. Blaxter,L., Hughes,C., Tight,M., “*How to research*”, Second Edition, Viva Books, 2002
6. Karunanda, A.S., “*How to do Research*”, Tharanjee Prints, Maharagama, 2000.

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Course Code : **IMMG 44044**
Course Title : **Management of Technology for Competitiveness**
Prerequisites : **IMMG 12072**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- examine how technology is embodied in a firm and the capabilities required to exploit it for achieving competitive advantage at the firm level,
- apply relevant techniques to understand and forecast the process of technological change,
- examine the issues involved in the process of technology acquisition and the interrelationships between technology transfer and research and development management,
- identify link between national policies and the technological behaviour of the firm.

Course contents:

Introduction to technology. Technology imperative. Technology and competitiveness. Components of technology. Technological capabilities. Technology assessment and related concepts. Technology and environment. Technological forecasting. Developing corporate technology roadmap. International technology transfer. Corporate research and development. National technology infrastructure and climate. Formulating corporate technology strategy. Trends in the management of high-technology industries.

Method of teaching and learning:

Lectures and case discussions.

Assessment:

End-of- Semester examination, case study presentations and group assignments.

Recommended reading:

1. Burgelman, R.A. and Maidique, M.A. and Wheelright, C., “*Strategic Management of Technology and Innovation*”, Irwin, Chicago, 2001.
2. Khalil, T., “*Management of Technology: The Key to Competitiveness and Wealth Creation*”, McGraw-Hill Book Co., Singapore, 2000.
3. Day, G.S., and Schoemaker, P.J.H., “*Wharton on Managing Emerging Technologies*”, John Wiley & Sons, Inc., New York, 2000
4. Betz, F., “*Strategic Technology Management*”, McGraw-Hill, Inc., New York, 1994.
5. Gaynor, G.H. (Editor-in-Chief), “*Handbook of Technology Management*”, McGraw-Hill, Inc., New York, 1996.

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Course Code : **IMMG 44054**
Course Title : **Quantitative Techniques in Decision Making**
Prerequisites : **IMMG 12043 and IMMG 22043**
Co requisites : **None**

Learning Outcomes:

On completion of this course, the student should be able to:

- identify and analyze business problems and formulate decision problems as mathematical programmes
- assess the main issues in a situation and choose an appropriate approach to tackling them
- use the concepts discussed to analyze different types of business problems
- select the appropriate technique and develop solutions to assist managerial decision making
- use the right software to solve complicated problems.

Course contents:

Reliability Theory. Stochastic process. Integer programming. Non-linear programming. Simulation of management systems. Advanced queuing theory.

Method of teaching and learning:

Lectures, Interactive classroom sessions, case discussions, tutorials, and applications of OR software.

Assessment:

End-of-semester examination, practical tests, group tests, and in-class assessments.

Recommended reading:

- 1.Winston, W. L., “Operations Research Applications and Algorithms”, 2001.
- 2.Anderson, D. R., Williams, T. A., and Sweeney S. J., “An Introduction to Management Science: Quantitative Approaches to Decision Making”, 12th Edition, South Western Pub.
- 3.Hamady A. Taha, “Operations Research in Introduction”, 8th Edition, Prentice Hall, 2006.
- 4.Fedrick F. Hiller. “Introduction to operations research”, 8th edition, 2004, McGraw-Hill Professional.

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Course Code : **IMMG 44064**
Course Title : **Investment Management**
Prerequisites : **IMMG 22052**
Co requisites : **IMMG 44024**

Learning outcome:

At the completion of this course, the student should be able to:

- demonstrate an understanding of the different investment products available in the market
- use through the asset allocation decision different investment strategies to meet alternative investment objectives
- manage the risk and return characteristics of a portfolio
- analyze the performance of the portfolio.

Course content:

Introduction to Investment, Capital Markets and Instruments, Security Trading, Risk and Risk Aversion, Capital Allocation between Risky and Risk Free Asset, Optimal Risky Portfolios, Market Efficiency, Options, Futures and Forward Contracts.

Method of teaching and learning:

Class room lectures, interactive group discussions, projects and presentations.

Assessment:

In class assignments, tutorials, mid/end of semester examination, group assignments and presentations.

Recommended Reading:

1. Bodie, Kane, Marcus, “*Investments*”, 7th Ed., McGraw-Hill/Irwin, 2007.
2. Ross, Westerfield and Jordan, “*Fundamentals of Corporate finance*”, 8th Edition, 2007, McGraw-Hill/Irwin.
3. Hull, John, C., “*Options Futures and Other Derivative Securities*”, 7th Ed., Prentice Hall, 2008.

Journal Articles and Working Papers

1. Arnott, R.D. and R.D. Henriksson, “*A Disciplined Approach to Global Asset Allocation*” *Financial Analysts Journal*, March-April, pp. 17-28, 1989.
2. Ho, R.Y.K., “*Stock Return Seasonalities in Asia Pacific Markets*,” *Journal of International Financial Management & Accounting*”, 2, 47-78, 1990.
3. Michand, R.O., “*The Markowitz Optimization: Is 'Optimized' Optimal*,” *Financial Analysts Journal*”, January-February, pp. 31-42, 1989.
4. Sharpe, W.F., “*Integrated Asset Allocation*”, *Financial Analysts Journal*, September-October, 1987.

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Course Code	: IMM 44074
Course Title	: Business Process Engineering
Prerequisites	: IMM 21063
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- identify the complementary strategies of re-engineering and continuous improvement for achieving corporate goals while making organizations competitive
- employ techniques of productivity and quality management in organizations for improving business performance
- develop models for representing and analyzing business processes and business performance.

Course contents:

Operations/Manufacturing strategy and competitiveness. Business Process Re-engineering (BPR). Process modelling tools. Measurement of productivity, quality, profitability and performance. Job design. Work study.

Total Quality Management (TQM). Statistical Process Control (SPC). Acceptance sampling. National/ international standards on quality. Quality awards. Quality Function Deployment (QFD) model. Six-sigma. Reliability engineering.

Manufacturing Resources Planning (MRP II) systems. Introduction to commercial Enterprise Resources Planning systems (ERP). Lean production. Distribution requirements and logistics planning. Supply chain management. Computerization issues in business. Benchmarking. Performance measurement models. Balanced Score Card (BSC). Business analysis tools such as Business Platform and So Is My Boss.

Method of teaching and learning:

Interactive classroom sessions, case analysis, industry visits and guest lectures.

Assessment:

Continuous assessment and end-of-semester examinations.

Recommended reading:

1. Chase, Aquilano and Jacobs, *“Operations Management for Competitive Advantages”*, 11th Edition, McGraw Hill – Erwin, 2007.
2. Slack, N., Chambers, S., and Johnston, R., *“Operations Management”*, 4th Edition, Prentice Hall, 2006.

3. Stevenson, W., J., “*Operations Management*”, 9th Ed, McGraw Hill – Irwin, 2007.
4. Mitra, A., “*Quality Control and Improvement*”, 2nd Ed., Pearson Education, Asia, 1998.
5. Carter, T., “*The Aftermath of Re-engineering*”, Viva Books Private Ltd., The Hawthorn Press, Indian Ed, 2000.
6. Bendell, T. L., Gatford, H., “*The Benchmarking Workout*” Pitman Publishing, 1997.
7. Salvendy, G., “*Handbook of Industrial Engineering, Technology and Operations Management*”, John Wiley and Sons 2001.
8. Hamilton, S., “*Maximising Your ERP System*”, McGraw-Hill.

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5.2 INFORMATION TECHNOLOGY

Level 1

Course code : IMIT 11063

Course title : Computer Systems

Status : Core

Pre-requisite : GCE A/L

Co-requisite : None

Teaching and learning outcomes

On completion of this course, the student should be able to:

- explain the evolution of computer
- understand basic computer architecture and operations of a computer
- understand the concepts of data representation, computer arithmetic and Boolean algebra
- understand the basic component of a CPU, its operations, and how it is used to execute programs
- understand and describe the role of high level languages, assembly language and machine language in program execution
- understand operations of an operating system

Course Content

Introduction to computer technology: various kinds of computers, functional view of a computer, hardware, hardware peripherals, communication equipment & concepts. Data representation of a computer, number systems, computer arithmetic and Boolean algebra, computer system architecture (basic and MIPS), Instruction set architecture. Computer memory components and organization. Assembly and machine languages. Application software, system software, functionality of operating systems, execution cycle.

Methodology

Lectures, supervised practical sessions, tutorials and group work

Scheme of Evaluation

End-of-semester examination, continuous assessments: take home assignments & in class test

Recommended Readings

1. Linda I. O’Leary & Timothy J. O’Leary, “Computing Essentials 2007”, 19th Edition, 2007, McGraw – Hill.
2. William Stallings, “Computer Organization and Architecture: Designing for Performance”, 7th Edition, 2006, Prentice Hall.
3. William Stallings, “Operating Systems: Internals and Design Principles”, 5th Edition, 2005, Prentice Hall.
4. Irv Englander “The Architecture of Computer Hardware and System Software: An Information Technology Approach “3rd Edition, 2002, John Wiley & Sons Inc

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Course Code	: IMIT 11022
Course Title	: Programming Concepts
Pre-requisites	: G.C.E. (A/L)
Co-requisites	: None

Learning Outcomes:

On completion of this course, the student should be able to:

- explain the fundamental software components of a computer system
- develop programs using the syntax and semantics of a general purpose programming language
- to apply the principles of program design to implement practical application

Course Content:

Program Execution Cycle. Language Translation – Compilers & Interpreters. Different approaches of problems solving. Elementary data types. Variables. Constants. Type casting. Control structures for selection and repetition. Functions. Recursion. Pre-define modules. Structured data types –arrays & structures. Abstract data types. References. Pointers.

Methodology of Teaching and Learning:

Lectures, supervised hands on practical and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended Readings:

1. Gary J. Bronson, “*A First Book of C++: From Here to There*”, 2000, Books/Cole Publishing.
2. Jesse Liberty, “*Teach Yourself C++ in 21 Days Complete*”, 2001, Sams Publishing.
3. Harvey M. Deitel & Paul J. Deitel, “*C++ How to Program*” ,4th Ed, 2002, Prentice Hall.

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Course Code	: IMIT 12033
Course Title	: Object Oriented Programming
Prerequisites	: IMIT 12033
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- know the principles of object-oriented programming,
- design and develop computer programs using object-oriented approach,

- test and debug object-oriented programs.

Course contents:

Principles of Object Oriented Programming (OOP): objects and classes, encapsulation, inheritance, aggregation, associations, static binding and dynamic binding, polymorphism, overloading and overriding. Java Development Toolkit. Advantages of platform dependence and independence. Java: data types, type casting, operators, arrays, string objects, control structures, errors and exceptions, input /output streams, event handling, graphic programming, java applets.

Method of teaching and learning:

Lectures, supervised hands on practical sessions and group work.

Assessment:

End-of-semester examination, practical examination and continuous assessment.

Recommended reading:

1. Deitel & Deitel, “*Java How to program*”, Fifth Edition, 2007, Prentice Hall
2. Laura Lemay & Rogers Cadenhead, “*Teach Yourself Java in 21 Days*”, 2002, Sams Publishing.
3. Laura Lemay & Rogers Cadenhead, “*Teach Yourself Java in 21. Days – Professional Reference Edition*”, 2001, Sams Publishing.
4. Online documents and tutorials.
 - i. <http://www.java.sun.com>.
 - ii. <http://www.java.sun.com/docs/books/tutorial/>

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Course Code	: IMIT 12043
Course Title	: Database Management Systems
Pre-requisites	: G.C.E. (A/L)
Co-requisites	: None

Learning Outcomes:

On completion of this course, the student should be able to:

- describe various logical database architectures
- design & develop databases using relational models

- manipulate data & prepare forms and reports using Structured Query Language.

Course Content:

The role of DBMS in organizations. The database approach. Database fundamentals. Data modeling. Entity Relationship Diagram. Relational database architecture. Logical modeling. Data independence. Data dictionary. Data manipulation and Structured Query Language (SQL). Historical database architectures and comparison with relational architecture.

Methodology of Teaching and Learning:

Lectures, supervised hands on practical sessions on SQL, tutorials and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended Reading:

1. Fred R. McFadden, Jeffrey A. Hooper, and Mary B. Prescott, “*Modern Database Management*”, 7th Edition, Addison-Wesley Pub Co.
2. CJ Date, “*Introduction to Database Systems*”, 8th Edition, 2004, Addison Wesley.
3. Elmira R. and Navathe S. B., “*Fundamentals of Database Systems*”, 4th Edition, 2003, Addison Wesley.

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Course Code : IMIT 12052
Course Title : Data Structures and Algorithms
Pre-requisites : G.C.E. (A/L)
Co-requisites : None

Learning Outcomes:

On successful completion of this course, the student should be able to:

- illustrate the properties and implementation details of fundamental data structures and algorithms
- design and successfully implement correct and efficient algorithms for real-world problems

Course Content:

Algorithms:

Correctness and efficiency of an algorithm. The best, worst, and average complexities of algorithms. The big O notation, growth rates, analysis of time and space complexities of algorithms. Searching and sorting algorithms. Recursion and backtracking.

Data structures:

Fundamental data structures: Arrays, structures, linked-list, stacks, queues, dictionaries, hash tables, trees, and graphs. Introduction to classes.

Methodology of Teaching and Learning:

Lectures, supervised hands on practical and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended Readings:

1. Robert L. Kruse, Clovis L. Tondo, and Bruse P. Leung, “*Data Structures and Program Design in C*”, 2004, Prentice-Hall of India.
2. Steven S. Skiena, “*The Algorithm Design Manual*”, 1998, Springer-Verlag, Inc.
3. H.M. Deitel and P.J. Deitel, “*C: How to Program*”, 1994, Prentice-Hall, Inc.

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Level 2

Course Code	: IMIT 21012
Course Title	: Structured Systems Analysis & Design
Pre-requisites	: IMIT 11013
Co-requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- describe the stages of software development life cycle
- apply the methods of requirements gathering to analyze the system and its implications
- describe human and technical factors involved in systems analysis and design and the need for a structured approach to the systems development process
- identify the importance of user interface design

- demonstrate system analysis and design for information systems using Structured System Analysis and Design Methodology

Course contents:

Early systems and methods used for system analysis & design. Evolution of system analysis & design. Software Development Life Cycle (SDLC). System Concepts: system approaches, system elements, systems environment, boundary of a system, sub systems, types of systems, control of a system. Facts gathering techniques. Systems analysis and design: feasibility studies, requirement analysis, system design, logical & physical design, code design, testing, file / database design, system implementation and maintenance. Documentation techniques (static & dynamic). Implementation: system specifications, security, recovery, and versioning. Structured System Analysis & Design Methodology (SSADM) version 4+: modules, stages, steps & tasks of SSADM. Data Flow Modeling & Logical Data Modeling. Products of SSADM. CASE tool support.

Method of teaching and learning:

Lectures, supervised practical sessions, tutorials and group work.

Assessment:

End-of- semester examination, continuous assessment and group project.

Recommended reading:

1. Philip L. Weaver, Nicholas Lambrou & Matthew Walkley, “*Practical SSADM version 4+*”, 3rd Edition, 1998, Pitman Publishing.
2. Philip L. Weaver, Nicholas Lambrou & Matthew Walkley, “ *Practical Business Systems Development using SSADM: A complete tutorial guide* “ 3rd Edition, 2002, Financial Times/ Prentice Hall
3. Goodland & Slater, “*SSADM Version 4 – A Practical Approach*”, 1995, McGraw Hill.
4. David Hargrave, “*SSADM 4+ for Rapid System Development*”, 1996, McGraw Hill.

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Course Code : **IMIT 21024**
Course Title : **Data Communication and Computer Networks**
Prerequisites : **IMIT 11013**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- Define different network types and network protocols.
- Analyze computer network requirements of an organization and design a computer network.
- Actively participate in computer network implementation and maintenance activities in an organization.

Course Content:

Network topologies: LAN, MAN, WAN. Communication media. Communication services and devices. Codes. Analogue and digital signals. Modulation and demodulation. Modems. Transmission modes. Interface standards. Multiplexing. Contention protocols. Data compression. Parity checking. CRC. Hamming codes. Encryption and decryption. Public key encryption. OSI model. TCP/IP protocol suit. IP addresses. Routing. Sub-netting. Super-netting. ARP protocol. RAPR protocol. ICMP protocol. Applications such as email, Internet, FTP, and Telnet.

Method of teaching and learning:

Lectures, case discussions, tutorials and group work.

Assessment:

End-of- semester examination, in-class assessments, and continuous assessment.

Recommended Reading:

1. Andrew S. Tanenbaum, “*Computer Networks*”, 3rd Edition, 1997, Prentice-Hall International, Inc.
2. William A. Shay, “*Understanding Data Communications and Networks*”, 2nd Edition, 1999, Brooks/Cole Publishing Company.
3. Comer Douglass E, “*Internetworking with TCP/IP*”, 3rd Edition, 2000, Prentice-Hall.

Course Code	: IMIT 21032
Course Title	: Visual Programming
Prerequisites	: IMIT 12043
Co requisites	: None

Learning outcome:

On completion of this course, the student should be able to:

- define the term event-driven programming,
- identify components of the Integrated Development Environment (IDE),
- characterize the commonly used events in event-driven programming,
- describe main controls and their methods and properties,
- explain the use of object-oriented programming concepts in visual programming,
- choose appropriate controls and events to develop quality and user-friendly interfaces,
- perform database access through graphical user interfaces by using available classes and technologies,
- implement a quality information system for a simple, real-world business problem.

Course contents:

Introduction to visual and event-driven programming. Relevance of object oriented programming concepts. The Integrated Development Environment. Graphical User Interface (GUI) design. Controls and their Properties. Methods and Events. Data types, variables and constant. Structured data types. Control structures. Sub programming. Error Handling and Debugging. Database programming. Design of Reports. Design of context-sensitive help systems. Creation of custom controls and libraries. Practical sessions using Visual Basic .NET

Method of teaching and learning:

Lectures, interactive classroom sessions, hands-on practical sessions, self-study assignments and a group mini project.

Assessment:

End-of-course exam, in-class assignments, mid-term test, practical test

Recommended reading:

1. Harvey M. Deitel, Paul J. Deitel, Tem R. Nieto, “*Visual Basic .Net How to Programme*”, 2nd Edition, Prentice Hall
2. Richard Blair, Jonathan Crossland, Matthew Reynolds, Thearon Willis, “*Beginning VB.NET*”, 2nd Edition, Wrox Publishing
3. Thearon Willis, “*Beginning Visual Basic 2005 Databases*”, Wrox Publishing

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Course Code : **IMIT 21042**
Course Title : **Business Information Systems**
Prerequisites : **IMIT 11013**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- explain the value of information for decision making
- examine the suitability of different types of information systems for enterprises
- identify operational, strategic and practical issues in information systems
- recognize the impact of rapid changes in technology on information systems

Course contents:

Introduction to information systems. Strategic role played by information systems. Types of information systems. Information technology infrastructure. E-commerce and e-business applications. Enterprise applications: reorganizing enterprises through information systems. Managing knowledge in enterprises.

Method of teaching and learning:

Lectures, in-class discussion of cases, self study

Assessment:

End-of-course exam, in-class assignments, mini-project, Quizzes

Recommended reading:

1. Kenneth C Laudon and Jane P Laudon, “Management Information Systems”, 10th edition, 2007, Prentice Hall
2. James A O’Brien and George M Marakas, “Management Information Systems”, 7th edition, 2006, McGraw Hill
3. Additional reading material available in Virtual Learning Environment

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Course Code : IMIT 22053
Course Title : Software Engineering
Prerequisites : IMIT 21012
Co requisites : None

Learning outcomes:

On completion of this course, the student should be able to:

- Define what software is
- List software development process models
- Recognize the need of formal approach for software development.
- Identify software requirements of an organization.
- Propose a suitable software solution for an organization.
- Select suitable software development process model, and tools for software development.
- Analyze and design software systems for organizations.
- Review software designs.
- Inspect software systems.

Course Content:

Software and Software Engineering: Software process, project management, managing people, software cost estimation, quality management, configuration management, software requirements, system models, software prototyping, formal specification, architectural design, object-oriented design, user interface design, software testing.

Method of teaching and learning:

Lectures, case discussions, tutorials and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended Reading:

1. Roger S. Pressman, “*Software Engineering - A Practitioner’s Approach*”, 5th Edition, 2001, McGraw Hill
2. Ian Sommerville, “*Software Engineering*”, 6th Edition, 2001, Addison Wesley

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Course Code	: IMIT 22062
Course Title	: Object Oriented Systems Analysis & Design
Prerequisites	: IMIT 21012
Co requisites	: None

Learning outcome:

On completion of this course, the student should be able to:

- explain object oriented systems analysis and design concepts
- describe the Unified Modeling Language (UML) techniques
- apply object-oriented analysis and design techniques to design software systems
- use CASE tools effectively for software systems modeling

Course contents:

Introduction to Object Orientation: background and rationale for object-oriented analysis and design, definitions and examples of the principles of object-orientation. Analysis/Design using ‘OOSE with ‘UML’ use-case analysis, identification and representation of class objects, class diagrams, sequence diagrams, collaboration diagrams, state diagrams, demonstration of a CASE tool. ‘OOSE with UML’ in Context the link between object-oriented design and code, the complete cycle of object-oriented analysis, design and coding, object-oriented analysis and design in context, project management, knowledge elicitation techniques, object identification techniques, prototyping, reuse and rapid application development (RAD).

Object-oriented analysis in the future: CASE tools, object patterns and distribution.

Method of teaching and learning:

Lectures, case discussions, tutorials and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended reading:

1. Mark Priestley, “Practical Object-Oriented Design With UML, 2nd edition, 2005, Tata McGraw-Hill Ed.
2. Simon Bennett, Steve McRobb, Ray Farmer, “Object Oriented Systems Analysis and Design using UML”, 3rd re print, 2006, Tata McGraw-Hill Ed.
3. Ali Bahrami, “*Object Oriented Systems Development,*” 1998, McGraw-Hill Higher Education.
4. Bernd Bruegge, Allen H. Dutoit “Object-Oriented Software Engineering Using UML, Patterns and Java, Second Edition 2006, Pearson Education”

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Level 3

Course Code	: IMIT 31012
Course Title	: Web Programming
Prerequisites	: IMIT 11022
Co requisites	: None

Learning outcome:

On completion of this course, the student should be able to:

- identify and evaluate various kinds of problems related to different forms of Web based business transaction
- explain different Web technologies to overcome above identified problems
- design and develop Web based applications for different types of business transactions.

Course contents:

Introduction to the Internet. World Wide Web. Client-server model. Apache. HTML. CSS. Client-side programming and server side programming. Dynamic interfaces using JavaScript. Dynamic web sites using PHP and MySQL.

Method of teaching and learning:

Lectures, supervised hands on practical and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended reading:

1. Deitel & Deitel, Internet & World Wide Web How to Program, 3rd Edition, 2004, Prentice Hall
2. Luke Welling & Laura Thomson, “PHP & MySQL Web Development”, 3rd Edition, 2005, sams Publishing
3. Chris Bates, “Web Programming: Building Internet Applications”, 2nd Edition, 2002

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Course Code : **IMIT 31022**
Course Title : **Advanced Databases**
Prerequisites : **IMIT 12043**
Co requisites : **None**

Learning Outcomes:

On completion of this course, the student should be able to:

- explain the concepts of transaction processing in Database Management Systems and mechanisms for dealing with transaction management and security of database systems.

Course Content:

Relational Algebra. Query optimization: different approaches of building query, query trees, query graphs. Database security. Concurrency & recovery: transaction, types of transaction, problems with uncontrolled concurrency, immediate update, differed update, check point, time stamping and locking.

Methodology of Teaching and Learning:

Lectures, practicals and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended Reading:

1. Elmasri R. and Navathe S. B., “*Fundamentals of Database Systems*”, 4th Edition, 2003, Addison Wesley.

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Course Code : IMIT 31033
Course Title : Human Factors in Information Technology
Prerequisites : IMIT 21042
Co requisites : None

Learning outcome:

On completion of this course, the student should be able to:

- describe concepts in ergonomics and human factors engineering
- illustrate the relevance of user characteristics to the process of systems analysis
- apply different ergonomic and human factors engineering techniques in computer and computer interface design.

Course contents:

A general model of computer users: physiological aspects, eye and vision, cognitive psychology, memory, learning, knowledge representation. Interface parameters: interaction devices, screen design, communication and dialogue design. Testing and evaluation: paradigms for systems design, user centered design, review of task analysis methods, review of evaluation purposes and methods. Organizational aspects: managing change.

Method of teaching and learning:

Lectures, group discussions and group work, supervised hands on practical.

Assessment:

End-of- semester examination and continuous assessment.

Recommended reading:

1. Jennifer Preece, Yvonne Rogers, Helen Sharp, “*Interaction Design: Beyond Human-Computer Interaction*”, 2002, John Wiley & Sons, Inc.
2. Alan J. Dix, Janet E. Finlay, Gregory D. Abowd, Russell Beale, “*Human-Computer Interaction*”, 3rd Edition, 2004, Prentice Hall.

3. Ben Shneiderman, “*Designing the User Interface: Strategies for Effective Human-Computer Interaction*”, 3rd Edition, 1998, Addison Wesley Higher Education.
4. Jakob Nielsen, “Usability Engineering”, 1993, Academic Press

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Course Code : **IMIT 32042**
Course Title : **Information Systems Management**
Prerequisites : **IMIT 21042**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- identify and explain the different issues that have to be considered when managing information systems
- identify and examine different issues enterprises face when implementing information systems.

Course contents:

Information systems security. Ethical, legal and social issues relating to information systems. Information systems planning: feasibility analysis, risk analysis and information systems audits. Change management relating to information systems.

Method of teaching and learning:

Lectures, in-class discussion of cases, self study.

Assessment:

End-of-course exam, in-class assignments, mini-project, quizzes.

Recommended reading:

1. Barbara C. McNurlin and Ralph H. Sprague “*Information Systems Management in Practice*”, 7th edition, 2006, Prentice Hall
2. Kenneth C Laudon and Jane P Laudon, “*Management Information Systems*”, 10th edition, 2007, Prentice Hall
3. Additional reading material available in Virtual Learning Environment

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Course Code : IMIT 32052
Course Title : Emerging Technologies
Prerequisites : IMIT 11013
Co requisites : None

Learning Outcomes:

On completion of this course, the student should be able to:

- explain the impact of emerging technologies on business and industry.

Course contents:

Relevant current topics related to information technology will be discussed.

Methodology of teaching/learning:

Lectures, practicals and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended reading:

To be announced at the commencement of lectures.

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Course Code : IMIT 33066
Course Title : Computer Project
Prerequisites : All compulsory course modules of the BSc MIT programme
Co requisites : None

Learning outcome:

On completion of this project, the student should be able to:

- identify a business problem and user requirements
- evaluate different business system options for the problem selected
- plan a complex piece of work, select and apply appropriate methodology,
- develop a computer system for a selected problem domain utilizing Systems Analysis and Design methodologies giving due recognition to MIS needs of the business problem concerned.

- perform appropriate testing on the developed computer system
- demonstrate the ability to present computer based solution in written report form as well as orally.

Course contents:

Students must propose project topics of their own, subject to the approval of suitability by the department. Suitable topics could be proposed from the area or problems that they experienced during their Industrial Training (IMMG 22072). The department may also propose topics based on current requirements and interests of the faculty. Projects will normally aim at the creation of a innovative product and will involve substantial practical work. Students are expected to apply the knowledge they have gained throughout the programme.

Method of teaching and learning:

Workshops, Seminars, one-to-one supervision and feedback from the staff.

Assessment:

Poster presentation, oral presentations, product demonstration and comprehensive project report.

Recommended reading:

1. Student guide book for the computer based project available at the department
2. Selected project reports

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Level 4

Course Code	: IMIT 43016
Course Title	: Data Engineering
Prerequisites	: IMIT 12043
Co requisites	: None

Learning Outcomes:

On successful completion of this course, student should be able to:

- explain the concepts of transaction processing in Database Management Systems and security of database systems
- explain the state-of-the-art of database technologies and use these techniques to develop database systems to exploit data as a corporate resource.

Course Content:

Relational Algebra. Query optimization: different approaches of building query, query trees, query graphs, database security. Concurrency & recovery: transaction, types of transaction, problems with uncontrolled concurrency, immediate update, differed update, check point, time stamping and locking. Distributed database architectures: distributed queries, data integration, interoperability, legacy systems. Object-oriented DBMSs. Parallel Databases. Data warehouses: data warehouse architectures, data warehouse design, Online Analytical Processing (OLAP). Data mining,

Methodology of Teaching and Learning:

Lectures, supervised self-study and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended Reading:

1. Connolly, T., Begg, C., Wesley, A., “*Database Systems: A Practical Approach to Design, Implementation, and Management*”, 3rd Edition, , 2002.
2. Kimble R., “*Data Warehouse Toolkit*”, 2rd Edition, 2002, John Wiley & Sons.

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Course Code	: IMIT 44026
Course Title	: E Commerce and Web Technology
Prerequisites	: IMIT 21042, IMIT 32042
Co requisites	: None

Learning outcomes:

On completion of this course, the student should be able to:

- explain the impact of web based technologies on commercial activities of enterprises
- identify and evaluate requirements for e-commerce applications
- design, develop and manage web based solutions.

Course contents:

E-commerce: E-commerce models, e-business strategies; electronic payments; security, legal and social issues, e-business prospects in Sri Lanka, future trends of e-commerce.

Web Technology: Design and development of enterprise Web applications, Website types and architectures, data-centric and dynamic Web sites, interactivity and multimedia, XML and semantic Web, Web services, Web usability.

Method of teaching and learning:

Lectures, in-class discussion of cases and self study.

Assessment:

End-of-course exam, in-class assignments and mini-projects.

Recommended reading:

1. Dave Chaffey, “*E-Business and E-Commerce Management*”, 3rd edition, 2007, Prentice Hall
2. Kenneth C Laudon and Carol Guerico Traver, “*E-Commerce: Business, Technology, Society*”, 4th edition, 2008, Prentice Hall
3. Extra reading material available in Virtual Learning Environment

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Course Code	: IMIT 44034
Course Title	: Systems Modelling and Simulation
Prerequisites	: IMM 11033
Co requisites	: None

Learning outcome:

On completion of this course, the student should be able to:

- appreciate the importance of modelling and simulation in manufacturing and service based applications
- evaluate different options available when simulating systems
- formulate a discrete-event simulation model of a selected system
- use a simulation software package/language to simulate and analyze a system
- analyze the results of a simulation and hence recommend appropriate solutions to the problem.

Course contents:

Simulation in management decision-making. Different categories of simulations. Concepts of discrete-event simulation. Construction of models: modelling issues, verification and validation of models, development of simulation models using selected software, analysis of results.

Method of teaching and learning:

Lectures, in-class discussion of cases, self study; laboratory sessions.

Assessment:

End-of-course exam, in-class assignments, mini-project.

Recommended reading:

1. W. David Kelton, “*Simulation with Arena*”, 4th Edition, 2007, McGraw Hill
2. Marvin S Seppanen, Sameer Kumar, and Charu Chandra, “*Process Analysis and Improvement*”, 2005, McGraw Hill
3. Jerry Banks, “*Discrete Event Systems Simulation*”, 4th Edition, 2007, Prentice Hall

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Course Code	: IMIT 44044
Course Title	: Human Computer Interaction
Prerequisites	: IMIT 21042
Co requisites	: None

Learning outcome:

On completion of this course, the student should be able to:

- identify the classification of input/output devices and techniques, and specifications of human-computer dialogue
- describe and evaluate methods of design, prototyping and evaluation of a user interface
- explain how different disciplines (human factors, cognitive psychology, engineering, graphics design, etc.) influence the design, evaluation and implementation of interactive computer systems for human use
- develop appropriate interfaces by recognizing how different disciplines (human factors, cognitive psychology, engineering, graphics design, etc.) influence the design, evaluation and implementation of interactive computer systems.

Course contents:

Principles of human factor engineering. Ergonomics in work place design. Cognitive engineering and human performance: perception psychophysics, attention, time-sharing, workload and its implications on human performance. User psychology. Usability engineering. Know the user and tasks. Usability benchmarking. Goal orientated interaction design: prototyping, usability metrics, usability testing and evaluation. Usability in practice.

Method of teaching and learning:

Lectures, supervised self-study, group work and tutorials.

Assessment:

End-of-semester examination, tutorials and continuous assessment.

Recommended reading:

1. Cooper, A., and Reimaan, R., “*About Face 2.0: The Essential of Interaction Design*”, John Wiley, 2003
2. Isaacs, E., Walendowski, A., Walendow, A., “*Designing from Both Sides of the Screen: A Dialogue Between a Designer and an Engineer*”, Sams, 2001
3. Faulkner, X., “*Usability Engineering*”, Macmillan, 2000
4. Dix, A., Finlay, J., Abowd, G. and Beale R., “*Human-Computer Interaction*”, 3rd Edition, Prentice Hall, 2003
5. Wickens, C.D., and Hollands, J.G., “*Engineering Psychology and Human Performance*”, Prentice Hall, 2000

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Course Code : IMIT 44054
Course Title : Knowledge-based Systems
Prerequisites : None
Co requisites : None

Learning outcomes:

On completion of this course, the student should be able to:

- define what Knowledge based systems are.
- list different searching techniques.
- identify different knowledge representation schemes.
- justify the need of new software development life cycle for KBS.
- identify different human reasoning mechanism.
- critically evaluate the capabilities of methods, tools and theories available against the requirements of a given problem domain.
- select best tools and techniques for KBS development.

Course Content:

KBSs their relative merits and weaknesses. Current real world KBS case studies. Architectures of KBSs. Knowledge engineering process: knowledge acquisition, representation, verification and validation. Knowledge engineering methodologies: black board architectures, problem solving methods. Cooperative and distributed knowledge based systems.

Intelligent agent systems: agent behaviour operation & control.
Complexities behind KBS developments and current research in this area.

Method of teaching and learning:

Lectures, case discussions, tutorials and group work.

Assessment:

End-of- semester examination and continuous assessment.

Recommended Reading:

1. Avelino J. Gonzalez and Douglas D. Dankel “*The Engineering of Knowledge-Based Systems - theory and practice*”, Prentice Hall, 1993
2. Darlington, K. W., “*The Essence of Expert Systems (Prentice-Hall Essence of Computing)*”, Prentice Hall, 1999
3. Addison, M. N., “*Artificial Intelligence: A Guide to Intelligent Systems*”, Wesley, 2001
4. Wooldridge, M., “*An Introduction to Multi-agent Systems*”, John Wiley and Sons Ltd, 2002

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Course Code : **IMIT 43068**
Course Title : **Research Project**
Prerequisites : **IMMG 44034**
Co requisites : **None**

Learning outcomes:

On completion of this course, the student should be able to:

- understand the scientific process of carrying out a research
- identify and formulate a suitable research problem in management and information technology areas
- design and carry out experiments, data collection and analysis
- critically analyze the research results
- summarize the results obtained and write a research paper

Course Content:

Each special degree student is assigned a project by the department in areas such as finance, operations, marketing, information systems etc. The projects assigned are directly relevant to a typical industry issue and the

students are expected to apply the knowledge gained throughout the programme.

Method of teaching and learning:

Progress monitoring continuously by a series of seminars, presentations, discussions, and progress review meetings.

Assessment:

End-of- the year presentation and thesis evaluation, mid-term assessments, continuous assessment.

Recommended Reading:

1. Colin Robson, “How to do a research project – A guide for undergraduate students”, Blackwell Publishing, 2006.

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5.3 PURE MATHEMATICS COURSES OFFERED FOR THE B.Sc. MIT GENERAL DEGREE PROGRAMME

Level 1

Course code : PMAT 11042
Title : Discrete Mathematics I

Learning Outcomes:

At the end of the course the student should be able to demonstrate knowledge of the concepts of Set Theory, Relations and Matrix Algebra and to apply them in Modular Arithmetic and solving systems of linear equations.

Course Contents:

Set theory: Sets, Operation on sets, ordered pairs and Cartesian Products.

Relations: Relations, Order relations, Equivalence relations, Module Arithmetic, Functions.

Matrices: Matrix algebra, Special types of square matrices, Determinant of a matrix.

Systems of Linear Equations: Homogeneous and Non-homogeneous types, Method of solving such systems.

Method of Teaching and Learning: A combination of lectures and tutorial discussions.

Assessment: Based on the tutorials, tests, and end of course examination.

Recommended Reading:

1. Johnsonbaugh, R., (1990). *Discrete Mathematics*, MacMillan.
2. Lipschutz, S., (1976). *Discrete Mathematics*, McGraw-Hill, New York.

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Course code : PMAT 12062
Title : Discrete Mathematics II
Pre-requisites : PMAT 11042

Learning Outcomes:

At the end of the course the student should be able to demonstrate knowledge of the concepts of Mathematical Logic, Methods of Proofs and basic Graph Theory and to apply them in developing mathematical arguments in a logical manner.

Course contents:

Mathematical Logic: Propositional Calculus, Predicate Calculus.

Boolean algebra: Boolean algebra and its properties, Algebra of propositions, Boolean functions, Algebra of electric circuits and its applications.

Methods of Proof: Direct proof, Proof by contrapositive, Proof by contradiction. Mathematical induction, Case analysis, Counter examples.

Cardinality: Finite sets, Denumerable sets, Uncountable sets, Cardinal numbers.

Graph Theory: Graphs and Multigraphs, Subgraphs, Matrices and graphs, Isomorphic and homeomorphic Graphs, Planar graphs, Kuratowski's theorem.

Method of Teaching and Learning: A combination of lectures and tutorial discussions

Assessment: Based on tutorials, tests and end of course examination.

Recommended Reading:

1. Johnsonbaugh, R., (1990). *Discrete Mathematics*, MacMillan.
2. Lipschutz, S., (1976) *Discrete Mathematics*, McGraw-Hill, New York.
3. West, D. B., (2002). *Introduction to Graph Theory*, Prentice Hall, India.

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5.4 ENGLISH LANGUAGE COURSES OFFERED FOR THE B.Sc. IN MIT DEGREE PROGRAMME

Level 1

Course code	: ELTU 11032
Title	: English for Management Professionals
Prerequisites	: None
Co-requisites	: None

Learning outcomes :

On completion of this course, the students should be able to:

- use English in a variety of social and academic settings
- listen to lectures and take down lecture notes in English
- provide summaries of written and spoken material
- write essays, reports, and business correspondence in English
- make presentations effectively

Course content:

Formats of business correspondence such as letters, reports etc. Reading comprehension of passages. Listening comprehension. Grammar for effective business communication

Method of teaching and learning:

Interactive classroom sessions, guest lectures and workshops.

Assessment:

Listening and speech tests, In-class assignments, End-of-course exam.

Recommended reading:

1. Folse, K.S., Mahnke, M.K., Solomon, E.V., Williams, L. 2003. *Blueprints 1: Composition Skills for Academic Writing*. New York : Houghton Mifflin Company.
2. Lefevre. C.A. & Lefevre, H.E. 1978. *Reading Power and Study Skills for College Work*. New York: Harcourt Brace Jovanovich, Inc
3. Goodale, M. 1998. *Professional Presentations*. Cambridge: Cambridge University Press.

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Level 3

Course code	: ELTU 31022
Title	: Communication Skills for Management Professionals
Prerequisites	: IMM 11012
Co-requisites	: None

Learning outcomes:

On completion of this course, the students should be able to:

- engage in conversations in English in a range of academic and professional contexts
- use strategies for active listening
- engage in business correspondence in English
- make impromptu presentations
- apply theories of business communication in real life situations

Course content:

Reading comprehension of passages. Listening comprehension. Presentation skills. Negotiation skills. Active listening skills

Method of teaching and learning:

Interactive classroom sessions, guest lectures and workshops.

Assessment:

Listening and speech tests, In-class assignments, End-of-course exam.

Recommended reading:

1. Blundel, R. 1998. *Effective business communication*. London: Prentice Hall
 2. Munter, M. 2003. *Guide to managerial communication*. New Jersey: Pearson Education Inc.
- Taylor, S. 1999. *Communication for business*. New York: Pearson Education Inc.

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6. LEARNING ENVIRONMENT

The department offers its students an excellent learning environment that would enable them to acquire the necessary skills and knowledge required for success in their chosen careers.

6.1 COMPUTER LABORATORY

The Department has a well equipped Computer Laboratory comprising 80 IBM compatible personal computers in a network with a high end server for use by students and boasts the latest industry hardware and software standards. This dedicated laboratory has, in addition to all common application software, specialized database applications such as ORACLE, cutting edge Enterprise Resource Planning (ERP) system and simulation modeling software. It is equipped with multi media and visual projectors and conveniently located in the department's custom-built modern four-storey building, which also has specialized computer interface equipment for demonstration purposes and a networking laboratory for training.

This computing facility is in addition to the Central computing facilities of the University that has a network of over 100 IBM compatible personal computers and other computer equipment.

6.2 LIBRARY

When it comes to studying, the students have access to a wide range of material to help them with the academic work. In addition to the use of the main University library, all our undergraduate and postgraduate students will have exclusive access to the library and information center maintained by the department which has an impressive collection of books, videos, CD-ROMs and other research publications. It is located in the basement of the new building complex. It is well stocked and has the latest selection of books in management and information technology subjects. Recommended textbooks for most courses conducted by the department are available here while the computer based library information system makes borrowing of books extremely efficient.

The department offers its graduates an excellent learning environment that would enable them to acquire the necessary skills and knowledge required for success in their chosen careers. (Refer Appendix B for library Rules and Regulations)

7. ASSOCIATIONS

7.1 INDUSTRIAL MANAGEMENT SCIENCE STUDENTS ASSOCIATION (IMSSA)

The Industrial Management Science Students Association (IMSSA) has been formed with the blessings and the tacit support of the Department, to promote academic and welfare activities of Management students. This association conducts seminars, arranges industry visits, social activities, and the annual induction ceremony for the new students. The association is a registered student body and all Industrial Management students are strongly advised to become members by paying the normal membership fee of Rs. 5/-.

7.2 ALUMNI ASSOCIATION

Industrial Management graduates have formed an Alumni association called “Industrial Management Alumni Association.” The objectives of the association are to foster continuing friendship and comradeship between past students and exchange ideas and information regarding their professional experience. A further objective is to contribute towards the development of the Department of Industrial Management.

8. INDUSTRIAL TRAINING

8.1 INDUSTRIAL TRAINING / CAREER PLACEMENT

The Industrial Training is embedded to the B.Sc. MIT curriculum as a compulsory course module, where the students are required to under go training for a period of three months during the second semester of the second academic year. Over the years, the department has developed a close rapport with leading industrial and business establishments in the country. Students who are seeking an appropriate training provider are required to contact Prof. Lalith Munasinghe who is the Industrial Training coordinator. The following analysis has been carried out using the summery of the Industrial Training programme in the year 2005.It illustrates how the industrial training providers are scattered among different business sectors.

Analysis of the Industrial Training Company Profile	
Blue Chip Companies	
1	Commercial Bank of Ceylon Ltd
2	DFCC Bank
3	Hatton National Bank Ltd
4	National Development Bank Ltd
5	John Keells Holdings Ltd
6	Sri Lanka Telecom Ltd
Companies categorized under business sectors of Colombo Stock Exchange	
Banks, Finance and Insurance	
7	Commercial Bank of Ceylon Limited
8	DFCC Bank
9	Eagle Insurance Company Limited
10	Hatton National Bank
11	Lanka Orix Leasing Company Limited
12	National Development Bank
Chemicals and Pharmaceuticals	
13	Chemanex Limited
Construction and Engineering	
14	Colombo Dockyard Limited
Diversified Holdings	
15	Carson Cumberbatch & Company Limited
16	John Keells Holding Limited
17	Hayleys Limited

	Food, Beverages and Tobacco
18	Ceylon Tobacco Company Ltd.
	Motors Vehicles
19	Associated Motorways Limited
	Telecommunication
20	Sri Lanka Telecom Limited
Companies which are not listed on the Colombo Stock Exchange (CSE)	
	Banks Finance & Insurance
21	Central Finance Ltd
22	Hong Kong & Shanghai Banking Corporation (HSBC)
	Consumer Care & Health products
23	Unilever Ceylon Ltd.
	Information Technology
24	Arch International (Pvt.) Ltd.
25	EDMS (Pvt.) Ltd.
26	IFS
27	IMAS Corporate Software
28	Orient Lanka (Pvt.) Ltd.
29	Srilogic (Pvt.) Ltd.
30	Virtusa Incorporation
31	Webstation (Pvt.) Ltd.
	Manufacturing
32	Ceylon Pencils Ltd.(Atlas)
33	Brandix Textiles Ltd.,
34	DSI
35	FDK Company Ltd.
36	Hirdaramani (Industries) ltd.
37	I-E Group of Companies
38	Laugfs Gas (Pvt.) Ltd.
39	MAS Holdings-Noyon Ltd.
40	MAS Holdings-Slimline Ltd.
41	Polytex Garments (Pvt.) Ltd.
42	Pungkook (Pvt.) Ltd.
43	Toroid International (Pvt.) Ltd.
	Air Line/Transportation
44	Srilankan Airlines

The entire team at the Department of Industrial Management wishes to place on record the deep appreciation to all the companies for consenting to come on board as training partners for Industrial Training programme.

Based on the feedback we received from both the students and the training supervisors in the company, the students have gained immeasurably from the exposure that they have received during their month stint in the company. On top of the technical skills that they have been exposed to, there is a pronounced difference in their confidence, communication skills and attitudes. They also have a new sense of awareness of the need to maximize the opportunity provided to them in the degree programme to integrate learning in both management and information technology.

The department also assists final year students to find employment after graduation. Since her inception, we have observed that the majority of our graduates gain employment without much difficulty in key industries and the rest in state sector. The department actively pursues opportunities in these sectors for placement of graduates. Certain key industries contact the department seeking management trainees and the department arranges the necessary contacts. Special advice is given to final year students on career planning, effective application procedures and facing job interviews.

9 AWARDS

Due to the recognition the Department has gained in the past, a number of leading private and public sector organizations have endowed various annual awards, which are made available exclusively for Industrial Management students. The awards are:

- MAS Award for most outstanding student.

The Department of Industrial Management in cooperation with the MAS Holdings Pvt. Ltd. is planning to recognize the most outstanding final year student reading for B.Sc. in MIT degree programme evaluating the academic activities, extracurricular activities, soft skills and community activities carried out by the student during the degree programme.

The applicants will be evaluated by a panel comprising of representatives from both the Department and MAS Holdings. The most outstanding student will be awarded Rs. 100000/=, along with a certificate and an

assured employment opportunity at MAS Holdings. The name of the winner will also be displayed on MAS wall of fame at the Department and the whole programme is expected to motivate the students in developing the key areas the corporate world is looking for.

- IFS Award for outstanding academic achievement

The IFS Award will be awarded to the most outstanding final year student regarding for B.Sc. General Degree in MIT degree program.

- Gold Medal Awarded by Alumni of Science Faculty

This will be awarded to the most outstanding student who has received over minimum of Second Class (Upper Division) Honor in B.Sc. MIT (Special) degree program.

10. POSTGRADUATE PROGRAMMES

10.1 MASTER OF SCIENCE IN MANAGEMENT AND INFORMATION TECHNOLOGY

The role of manager in a modern business has recently evolved in such a way that it demands a combination of management competences blended with capability to exploit the developments in computer and information technology as a powerful tool for achieving excellence in enterprise management. This need is there in all sectors of the economy regardless of whether it is services, manufacturing, utilities or government organisation.

The need for a category of postgraduate programmes was voiced by the business and industrial community, especially in view of the increasingly large numbers of science and engineering graduates moving into middle managerial positions. The Masters Degree programme offered by us addresses this need and provides an opportunity for the graduates of science, engineering, management and commerce to undertake advanced studies at the masters level in the latest professional field of Management and Information Technology.

The Masters programme has been designed to develop fundamental skills in information technology, business systems and modelling and analysis which will enable the effective application of the management concepts of business strategy, business development, managing people and organisations, projects and operations with a background in marketing and finance. It is of two years duration with lectures held on selected weekdays and weekends.

10.2 POSTGRADUATE DIPLOMA IN INFORMATION TECHNOLOGY

The information technology sector is acknowledged worldwide as an industry that would outperform other industries over the next decade or more. However, Sri Lanka has failed to capitalize on this booming sector, mainly due to lack of trained personnel. The Department of Industrial Management of the University of Kelaniya has identified this need and designed a programme, namely **Postgraduate Diploma in Information Technology** to cater to this requirement. This postgraduate programme is primarily designed specifically as a conversion course for graduates desiring to pursue a career in information technology who do not have a specialised training in the field. It is of one year duration with lectures held on weekends, which would be supplemented by practical sessions during the weekdays. We aim to make them competent enough to face the challenges of the modern Information Technology environment in their professional career.

11. LIST OF STAFF MEMBERS

For over 35 years, the department has continuously evolved with highly qualified, foreign trained faculty in the various specialised fields of Management and Information Technology. The members are actively engaged in teaching, research and offering extension services to industry.

(Staff as known at December 2008)

11.1 INTERNAL STAFF MEMBERS

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11.2 TECHNICAL STAFF MEMBERS

Senior Technical Officer

Miss. Sitha Jayasinhe

Technical Officer

Mr. D. P. M. N. C. Jayawardena

11.3 EXTERNAL/VISITING STAFF MEMBERS

Mr. Alexis Silva

BA (Cey), FCA

Mr. Sriyan Weerasinghe

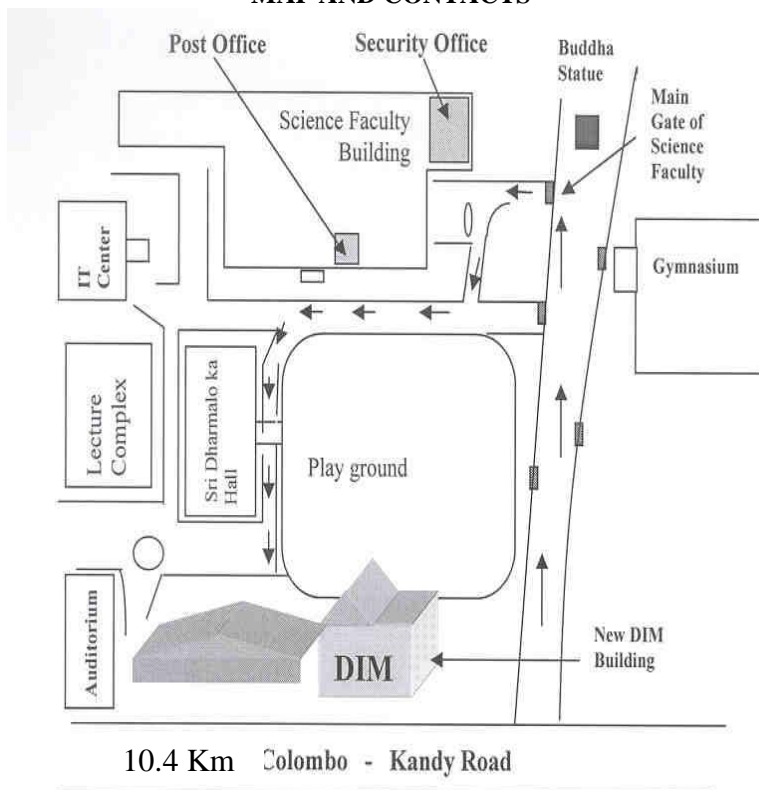
BSc Hons (Cey), MA (Lancaster), Diploma in Statistics (Sri Lanka)

Mr. Vasana Wickremasena

LL.B. (Colombo), MA (Manila), Attorney at Law

APPENDIX A

MAP AND CONTACTS



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APPENDIX B

LIBRARY RULES & REGULATIONS

The books in the library are classified into ten categories based on the subject area. The books are labeled using a color code according to the classification criteria. Rules are enforced to safeguard the resources of the library and to improve the quality of the services rendered by the library.

- a) All the books are categorized into three groups as ‘Permanent Reference’ (PR), ‘Short Reference’ (SR) and ‘Lending’ (L) according to the number of copies available. Students can refer PR books during the library hours using the reading room and other facilities provided within the library for reference purposes and PR books are not allowed to take out and should be referred inside the library. Students should produce their University Student Identity (USI) card when borrowing and returning books.
- b) A SR book would be lent for a period of two days. SR books should be returned on the immediate/next library session from the issue date. Books belonging to Lending category are issued for a period of two weeks. Students who fail to return books on due dates will not be entitled to borrow any books for a period as determined by the department. Students’ not returning books on time several times would be disbarred from using these facilities in the future.
- c) All the library books must be returned before the end of each semester and those who do not return the books before the end of the semester would not be allowed to borrow any books in the next semester. At the end of each semester, names of all the students who have not returned library books will be displayed. Certificates will not be issued to those students who have not returned their library books.
- d) If a student wishes to keep a book for a period of over two weeks, they must then renew the book on a fortnightly basis by producing the particular book to the librarian. If this specific book has been

reserved, the book would have to be returned and will be issued to the student who had reserved it.

- e) Project reports are available only for reference purposes. CDs and videocassettes are issued only to staff members at present.
- f) General degree students are entitled to borrow up to two books at a time while students following the special degree are entitled to borrow up to five books at a time.
- g) Library hours for the semester and the rules for the library are informed at the beginning of each semester.
- h) For each batch two hours of library time is allocated weekly. Books are not issued outside the library hours.
- i) Library rules and regulations would be subject to changes at the discretion of the department.
- j) Students should not take their bags, food items inside the library and the mobile phones should be switched off when they are inside the library.
- k) Liability for missing books will be double the cost of replacement and penalty of Rs.10/- per working day per book is required if books are not returned before the due date.

Students who wish to request for a specific book that is unavailable at the library could do so using the application available at the department. Based on these requests, the department would strive to obtain those books deemed essential, based on the availability of funds.