COURSE MODULES OFFERED BY DEPARTMENTS OF STUDY

FOR THE

ACADEMIC YEAR 2020/2021

The following convention has been used throughout to describe the significance attached to the modules offered by the Departments:

x - Compulsory modules, i.e. the students must offer the module if this symbol appears against it for a particular degree programme and take all examination components of the module. These modules cover the essential subject material for that subject area to be considered as a major subject.

† - If this symbol appears with the code or against a particular module, it will be conducted throughout the academic year.

▼ - Optional modules, i.e. the students can choose such modules at will to fulfil the annual/overall credit requirements.

5.1 COMPUTING & INFORMATION SYSTEMS

Level	Module Code & Title	B.Sc. (General)	B.Sc. (Joint Major) Major 1	Major 2	B.Sc. (Special)
1	**Semester I**				
	CMIS 1113 - Introduction to Computers and Operating Systems	x	x	x	x
	CMIS 1123 - Computer Programming I	x	x	x	x
	CMIS 1131 - Practical Computing I	x	x	x	x
	Semester II				
	CMIS 1212 - Computer Programming II	x	x	x	x
	CMIS 1221 - Practical Computing II	x	x	x	x
	Credits from Level I (Cumulative credits)	**10 (10)**	**10 (10)**	**10 (10)**	**10 (10)**
2	**Semester I**				
	CMIS 2113 - Object-oriented Programming	x	x	x	x
	CMIS 2123 - Database Management Systems	x	x	x	x
	Semester II				
	CMIS 2214 - Data Structures & Analysis of Algorithms	x	x	x	x
	Credits from Level 2 (Cumulative credits)	**10 (20)**	**10 (20)**	**10 (20)**	**10 (20)**
3	**Semester I**				
	CMIS 3114 - Data Communication & Comp. Networks	x	x	x	x
	CMIS 3122 - Rapid Application Development	▼	x	▼	x
	CMIS 3134 - Computer Architecture & Compiler Design	-	▼	▼	x
	CMIS 3142 - Computational Methods	-	-	-	x
	CMIS 3153 - Advanced Database Systems	-	-	-	x
	Semester II				
	CMIS 3214 - Software Engineering	x	x	x	x
	CMIS 3224 - Web Designing and e-commerce	▼	x	x	x
	CMIS 3234 - Computer Graphics and Visualization	-	-	-	x
	CMIS 3242 - Mobile and Ubiquitous Computing	-	-	-	x
	CMIS 3253 - Data Mining	-	-	-	x
	Credits from Level 3 (Cumulative credits)	**8-14 (28-34)**	**14-18 (34-38)**	**12-18 (32-38)**	**32 (52)**
4	**Semester I**				
	CMIS 4114 - Artificial Intelligence		x	x	x
	CMIS 4123 - Advanced Operating Systems		-	-	x
	CMIS 4134 - Distributed and Cloud Computing		x	x	x
	CMIS 4142 - Image Processing		▼	▼	x
	CMIS 4153 - Parallel Computing		-	-	x
	CMIS 4†18 - Research Project		-	-	x
	CMIS 4†26 - Research Project		x	-	-
	Semester II				
	INDT 4216 - Industrial Training		x (3)	x (3)	-
	CMIS 4216 - Industrial Training		-	-	x
	Credits from Level 4 (Total credits)		**17-19 (51-57)**	**11-13 (43-51)**	**30 (82)**

5.2 ELECTRONICS

Level	Module Code / Title	B.Sc. (General)	B.Sc. (Joint Major) Major I	B.Sc. (Joint Major) Major II	B.Sc. (Special)
1	**Semester I**				
	ELTN 1112 - Fundamentals of Electricity and Magnetism	x	x	x	x
	ELTN 1122 - Introduction to Semiconductors	x	x	x	x
	ELTN 1132 - Basic Digital Electronics	x	x	x	x
	Semester II				
	ELTN 1212 - Basic Electronics - Lab	x	x	x	x
	ELTN 1222 - General Physics	x	x	x	x
	Credits from Level 1 (Cumulative Credits)	**10 (10)**	**10 (10)**	**10 (10)**	**10 (10)**
2	**Semester I**				
	ELTN 2112 - Electricity and Magnetism	x	x	x	x
	ELTN 2121 - Electricity and Magnetism - Lab	x	x	x	x
	Semester II				
	ELTN 2213 - Semiconductor Devices	x	x	x	x
	ELTN 2221 - Semiconductor Devices - Lab	x	x	x	x
	ELTN 2232 - Analogue Electronics	x	x	x	x
	ELTN 2241 - Analogue Electronics - Lab	x	x	x	x
	Credits from Level 2 (Cumulative Credits)	**10 (20)**	**10 (20)**	**10 (20)**	**10 (20)**
3	**Semester I**				
	ELTN 3113 - Digital Electronics	x	x	x	x
	ELTN 3121 - Digital Electronics - Lab	x	x	x	x
	ELTN 3133 - Data Acquisition and Signal Processing	▼	x	x	x
	ELTN 3141 - Data Acquisition and Signal Processing – Lab	▼	x	x	x
	ELTN 3†53 - Applied Electronics Laboratory I				x
	Semester II				
	ELTN 3212 - AC Theory	▼	x	▼	x
	ELTN 3222 - Scientific Writing				x
	ELTN 3233 - Microprocessor and Microcontroller Technology	▼	x	x	x
	ELTN 3241 - Microprocessor and Microcontroller Technology - Lab	▼	x	x	x
	ELTN 3252 - Electromagnetic Theory				▼
	ELTN 3262 - Power Electronics		▼		x
	ELTN 3272 - Optimization Techniques and Applications	▼	x	▼	x
	ELTN 3282 - Mechatronics				▼
	Credits from Level 3 (Cumulative Credits)	**4-16 (24-36)**	**16-18 (36-38)**	**12-16 (32-36)**	**23-27 (43-47)**
4	**Semester I**				
	ELTN 4114 - Communication Theory and Systems		x	x	x
	ELTN 4122 - Optoelectronics Devices and Fiber Communication Systems		▼	x	x
	ELTN 4131 - Communication Technology - Lab		▼		x
	ELTN 4143 - Programmable Logic Devices		x	x	x
	ELTN 4151 - Programmable Logic Devices -Lab		x	x	x

Course				
ELTN 4†63 - Applied Electronics Laboratory II				x
ELTN 4†78 - Research Project				x
ELTN 4†86 - Research Project		x		
ELTN 4†92 Seminar in Electronics				x
Semester II				
ELTN 4213 - Digital Signal Processing				x
ELTN 4222 - Nano-Technology Devices and Nano-Materials				▼
ELTN 4232 - Data Communication Networks				▼
ELTN 4242 - Solid State Theory				▼
ELTN 4252 - Polymer Electronics				▼
ELTN 4272 - Embedded Systems				▼
ELTN 4282 - Antenna Design				▼
INDT 4216 - Industrial Training		x (3)	x (3)	
Credits from Level 4 (Total Credits)		**17-20 (53-58)**	**13 (45-49)**	**27-39 (70-86)**

5.3 INDUSTRIAL MANAGEMENT

Level	Module Code/Title	B.Sc. (General)	B.Sc. (Joint Major)		B.Sc. (Special)
			Major 1	Major 2	
1	**Semester I**				
	IMGT 1112 - Principles of Management *	x	x	x	x
	IMGT 1122 - Business Economics	x	x	x	x
	IMGT 1132 - Entrepreneurial Dynamics*	x	x	x	x
	Semester II				
	IMGT 1212 - Principles of Accounting	x	x	x	x
	IMGT 1222 - Marketing Management*	x	x	x	x
	Credits from Level 1 (Cumulative Credits)	**10 (10)**	**10 (10)**	**10 (10)**	**10 (10)**
2	**Semester I**				
	IMGT 2112 - Operations Management I	x	x	x	x
	IMGT 2122 - Cost & Management Accounting	x	x	x	x
	IMGT 2132 - Service Industry Concepts *	x	x	x	x
	Semester II				
	IMGT 2212 - Human Resource Management*	x	x	x	x
	IMGT 2222 - Operations Research I *	x	x	x	x
	Credits from Level 2 (Cumulative Credits)	**10 (20)**	**10 (20)**	**10 (20)**	**10 (20)**
3	**Semester I**				
	IMGT 3112 - Operations Management II	x	x	x	x
	IMGT 3122 - Organization Development	▼	x	x	x
	IMGT 3†34 - Design & Development of Computer Based Project		x†		x†
	IMGT 3142 - Structured System Analysis & Design Methodologies and Management Information Systems		▼		x
	IMGT 3153 - Environmental Management based on ISO 14001				x
	IMGT 3162 - Business & Industrial Law	x	x	x	x
	Semester II				
	IMGT 3212 - Operations Research II	▼	x	x	x
	IMGT 3222 - Management of Technology	▼	x	x	x
	IMGT 3232 - International Business	▼	x	x	x
	IMGT 3242 - Project Management				x
	IMGT 3252 - Industrial Technology*	▼	▼	▼	x
	Credits from Level 3 (Cumulative Credits)	**4-14 (24-34)**	**16-20 (36-40)**	**12-14 (32-34)**	**25 (45)**
4	**Semester I**				
	IMGT 4†16 - Research Project				x†
	IMGT 4123 - Environmental Management based on ISO 14001		x	x	
	IMGT 4133 - Computer based Modelling & Simulation		x	x	▼
	IMGT 4142 - Supply Chain Management		x	x	x
	IMGT 4152 - Productivity Techniques				x
	IMGT 4164 - Strategic Management				x
	IMGT 4172 - Strategic Management		x	x	
	IMGT 4†86 - Research Project		x		
	IMGT 4192 - Research Methodology				x
	Semester II				
	IMGT 4213 - Advanced Marketing Management				x
	IMGT 4222 - Applied Econometrics				x
	IMGT 4234 - Advanced Operations Research				x
	IMGT 4242 - Financial Management				x
	INDT 4216 - Industrial Training		x(3)	x(3)	
	Credits from Level 4 (Total Credits)		**19 (55-59)**	**13 (45-47)**	**27-30 (72-75)**

5.4 MATHEMATICS & MATHEMATICAL MODELLING AND STATISTICS

Level	Module Code/Title	B.Sc. (General)	B.Sc. (Joint Major) — Major 1	B.Sc. (Joint Major) — Major 2	B.Sc. (Special)
			MATH & MMOD and STAT		
1	**Semester I**				
	MATH 1112 - Introduction to Mathematics I	x	x	x	x
	STAT 1113 - Introduction to Probability and Statistics I	x	x	x	x
	Semester II				
	MATH 1212 - Introduction to Mathematics II	x	x	x	x
	MATH 1222 - Differential Equations	x	x	x	x
	STAT 1213 - Introduction to Probability and Statistics II	x	x	x	x
	Credits from Level 1 (Cumulative Credits)	**12 (12)**	**12 (12)**	**12 (12)**	**12 (12)**
2	**Semester I**				
	MATH 2114 - Linear Algebra I	x	x	x	x
	STAT 2112 - Statistical Inference I	x	x	x	x
	Semester II				
	MATH 2213 - Linear Algebra II	x	x	x	x
	STAT 2212 - Design of Experiments	x	x	x	x
	STAT 2222 - Regression Analysis	x	x	x	x
	Credits from Level 2 (Cumulative Credits)	**13 (25)**	**13 (25)**	**13 (25)**	**13 (25)**

Level 3 (B.Sc. General split into MATH & MMOD / STAT; Joint Major = MATH & MMOD and STAT)

Level	Module Code/Title	B.Sc. (General) MATH & MMOD	B.Sc. (General) STAT	Major 1	Major 2	B.Sc. (Special)
3	**Semester I**					
	MATH 3114 - Advanced Calculus			▼	▼	x
	MMOD 3113 - Mathematical Methods	x		x	x	x
	MMOD 3124 - Mathematical Models	x		▼	▼	▼
	STAT 3112 - Statistical Inference II		x	x	▼	x
	STAT 3124 - Time Series Analysis		x	x	x	x
	Semester II					
	MATH 3214 - Discrete Mathematics	▼		▼	▼	▼
	MMOD 3214 - Numerical Methods	x		x	x	x
	MATH 3224 - Applied Number Theory			▼		x
	STAT 3212 - Statistical Techniques		x	▼	▼	x
	STAT 3223 - Operations Research		x	▼	▼	▼
	STAT 3232 - Data Analysis & Preparation of Statistical Reports		x	▼	▼	x
	STAT 3243 - Theory of Interest		▼	▼	▼	▼
	Credits from Level 3 (Cumulative Credits)	**11-15 (24-28)**	**13-16 (25-28)**	**13-39 (38-64)**	**11-35 (36-60)**	**25-39 (50-64)**

Level 4

Level	Module Code/Title	B.Sc. (General)	Major 1	Major 2	B.Sc. (Special)
4	**Semester I**				
	MATH 4114 - Complex Variables				x
	MATH 4124 - Functional Analysis		▼	▼	▼
	MATS 4†16 - Research Project		x†		
	MATS 4†28 - Research Project				x
	STAT 4114 - Stochastic Processes		x	x	x
	STAT 4124 - Quality Control		▼	▼	▼
	STAT 4134 - Actuarial Mathematics		x	x	x
	Semester II				
	MATH 4214 - Partial Differential Equations				x
	MATH 4224 - Measure Theory				x
	STAT 4214 - Multivariate Analysis				▼
	INDT 4216 - Industrial Training		x(3)	x(3)	
	Credits from Level 4 (Total Credits)		**17-25 (55-89)**	**11-19 (47-79)**	**28-40 (78-104)**

5.5   ENGLISH

The Department of English Language Teaching (DELT) is committed to improve the English language competency of the undergraduates from the very inception as they pursue the degree programme in English medium. The DELT offers the following courses to achieve the above objective as the successful performance of the students depends on the high standard of literacy in English Language.

Compulsory Courses:

➤ **Intensive English Course:**

- A short Intensive English Course would be conducted for the new entrants before the commencement of the academic programme depending on the availability of time after the students are admitted to the Faculty.

➤ **ELPC 1†10 - English Language Proficiency Course I:**

- conducted throughout the academic year at Level 1.
- in addition to the continuous assessments during the course, the English Language Proficiency Test I (ELPT I) will be held at the end of Semester II at Level 1.
- a partial requirement for all degree programmes, i.e. the degree will not be awarded until the student obtains a minimum of an ordinary pass at ELPT I.

➤ **ELPC 2†20 - English Language Proficiency Course II:**

- conducted throughout the academic year at Level 2.
- in addition to the continuous assessments during the course, the English Language Proficiency Test II (ELPT II) will be held at the end of Semester II at Level 2.
- a partial requirement for all degree programmes, i.e. the degree will not be awarded until the student obtains a minimum of an ordinary pass at ELPT II.

Optional Courses:

➤ **Certificate Course in Business English:**

- a professional course conducted during Semester II of the academic year at Level 3.
- a separate certificate will be issued by the Examination Branch to the students who complete the course successfully.

➤ **Advanced English Proficiency Course:**

- enrollment is limited for only the best performers at ELPT I and ELPT II.
- an optional course conducted during semester I at Level 3.
- the aim is to prepare students to be confident enough in all four major skills of English Language and to perform well at any standard examination both at local and international level such as TOFEL and IELTS.
- a separate certificate will be issued by the Examination Branch to the students who complete the course successfully.

5.6 DIPLOMA/ADVANCED CERTIFICATE IN INFORMATION TECHNOLOGY

The ICT Center-Kuliyapitiya has introduced a Diploma in Information Technology for undergraduates of the Faculty of Applied Sciences. It is a two-year program, which is conducted in parallel to the academic program of the Faculty. The programme is targeted for undergraduates of combination 2 (who do not follow the subject streams offered by the Department of Computing & Information Systems (CMIS)), and it enhances students' basic IT skills that are required to perform academic program of the Faculty. Furthermore, valuable Certificates are offered for those who successfully complete the programme and it would provide students with added qualifications for highly competitive job market.

5.6.1 Details of the Programme

The duration of the Diploma programme is four-semesters (2 academic years). During the first two semesters students will learn basic and essential IT skills. These skills are necessary for successfully complete the undergraduate degree programme of the Faulty where students have to write reports, make interactive presentations using PowerPoint, and analyze data using different software in their projects.

During the third and fourth semesters, students those who wish to learn more than just essential IT skills, can explore a wide range of subjects related to the computer science. With the knowledge gained through these modules, student will become more competent among other graduates who have followed IT related subject streams, when they are competing in the job market.

Students have the option to quit the program after successfully completing the first two semesters with the Advanced Certificate in Information Technology. However, students are strongly advised to obtain the Diploma Certificate completing the entire programme successfully.

Details of the four modules offered under the programme are given bellow:

Semester I:
1. ICT 111 IT Fundamentals
   Main Topics: Fundamentals of Computer Technology, Operating Systems: Windows & Linus, MS Office Application Packages (MS Word, MS Excel), Web Applications, Computer Peripheral Devices.

   Evaluation:
   * Continuous assessment 40%
   * End-semester examination 60%

Semester II:

2. ICT 122 IT Essentials
   Main Topics: Introduction to Computer Programming using C, Web Designing Basics, Creation of Interactive presentation slides using MS Powerpoint, Information Management using MS Access, and Introduction to PC Hardware.

   Evaluation:
   - Continuous assessment 40%
   - End-semester examination 60%

Semester III:

3. ICT 211 IT for Advanced Users
   Main Topics: Computer Networks, Computer Security, Web Application Development, E-commerce, and Introduction to DBMS.

   Evaluation:
   - Continuous assessment 40%
   - End-semester examination 60%

Semester IV:

4. ICT 222 IT for Designer & Developers
   Main Topics: Object Oriented Programming using Java, Graphics Design, Projects

   Evaluation:
   - Continuous assessment 20%
   - Project 40%
   - End-semester examination 40%

Please refer the HANDBOOK available on the Faculty Website for more details on

ACADEMIC PROGRAM:

- **COMBINATIONS AND SELECTION CRITERIA**

- **REGISTRATION AND DE-REGISTRATION OF COURSE MODULES**

- **ANNUAL & TOTAL CREDIT REQUIREMENTS**

- **EVALUATION CRITERIA**