

# GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY



## **STUDENT HANDBOOK**

FACULTY OF COMPUTING

DEPARTMENT OF INFORMATION TECHNOLOGY

INTAKE 41

GENERAL SIR JOHN KOTELAWALA  
DEFENCE UNIVERSITY  
FACULTY OF COMPUTING

STUDENT HANDBOOK

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BSC. (HONS) IN INFORMATION TECHNOLOGY

BSC. (HONS) IN INFORMATION SYSTEMS

DEAN- FACULTY OF COMPUTING  
DEPARTMENT OF INFORMATION TECHNOLOGY

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## **Vision**

**To be a university nationally and internationally known for its unique ability to engage both undergraduate and graduate students in distinctive and interdisciplinary defense related higher education that best serves the tri-services, the state sector and society at large.**

## **Mission**

**To ensure a high-quality, learner-centered educational experience through undergraduate, graduate, and professional programs along with high quality research across many disciplines in the field of defense, in both residential and non-residential settings in the campus.**

## Message of the Dean



Incepted in 2015, the Faculty of Computing of General Sir John Kotelawala Defence University has come a long way in a time span of less than a decade, and its progressive steps are admirable. At present, the Faculty of Computing offers a total of six (06) undergraduate degrees in specialized areas of Information Technology, Computer Science, Information Systems, Computer Engineering, Software Engineering and Data Science Business Analytics, which covers a wide spectrum of Computing as one of the most pragmatic sectors in the world. The faculty of Computing offers degrees for students of all streams in the GCE Advanced Level Examination (except Technology Stream). The Faculty aims to be the main umbrella of undergraduate education in Sri Lanka in pragmatic aspects of computing disciplines, and that objective is well reflected through our undergraduate degree programmes. Further, the degree programmes are benchmarked with the Association of Computing Machinery/Institute of Electronic and Electrical Engineering (ACM/IEEE) and have aligned with the Sri Lanka Qualification Framework (SLQF). With a student population of around 1000, the Faculty aspire to provide professionals to the IT/Computing field who would excel in advanced and updated knowledge and contribute to the rapid sectoral growth and ultimately the society at large. Notably, the academia, with diverse and well-versed knowledge and practice in areas of Computing, facilitates proactively to achieve the goals of the Faculty as one team.

Predicting the future of computing is challenging given the constant evolution of technology. Key drivers of this vision include Green Computing, which prioritizes sustainable solutions while optimizing energy efficiency and reducing environmental impact, and Artificial Intelligence (AI), which focuses on simulating human behavior through machines. The Faculty of Computing is dedicated to fostering this future by delivering IT education aligned with domestic and international quality standards, focusing on designing degree programs that anticipate future needs. As we progress in Research and Development, our aim is to position the Faculty as a central hub for IT education and research.

Dr Pradeep Kalansooriya

PhD(JAPAN), MIT (SL) , BSc(Hons) (SL), JSKE, CSSL

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# 1. General Information

## 1.1 The University

General Sir John Kotelawala Defence University (KDU) was initially established as the “General Sir John Kotelawala Defence Academy” by the Parliamentary Act No 68 of 1981 and subsequently it was elevated to University status by the Amendment Act No 27 of 1988, thereby empowering it to award Bachelors’ and Postgraduate degrees in Defense Studies.

KDU is a member of the Association of Commonwealth Universities (United Kingdom) and maintains necessary standards for educating and grooming officer cadets to meet the challenges of modern defense management.

KDU is now open for civil students who wish to continue their higher studies in the fields of Engineering, Law, Management, Social Sciences and IT.

Officers with exceptional performance in reputed universities/institutions can pursue postgraduate studies in accordance with the requirements of the service to which they belong. Civil professionals are also offered a place at postgraduate studies to excel in and study a post-graduate degree in their related field of expertise.

## 1.2 Faculty of Computing

In 2015, the Faculty of Computing (FOC) of General Sir John Kotelawala Defence University was established with the dawn of the Southern Campus of KDU at Sooriyawewa. This is the first ever Computing Faculty in the Sri Lankan State University System dedicated to offer the widest spectrum of computing degrees under one umbrella of Computing, and all the computing degrees offered by FOC have been benchmarked with ACM/IEEE international standards.

FOC comprises four departments catering for teaching and research in theoretical foundations of the field of computing, engineering of computer hardware and software, mathematical and statistical requirements of computing, and technological and social aspects of computing. FOC strives to build students’ enthusiasm, intellectual capacity, and active involvement in research from the day one of their undergraduate studies. FOC at KDU is the only Computing Faculty in the State University System that offers the widest spectrum of Computing Degrees for students of all streams of G.C.E (A/L) except Technology Stream.



## 1.3 Academic Departments

### 1.3.1 Department of Information Technology

Department of Information Technology is the oldest department of the Faculty of Computing. This department offers more applications/ practicals oriented IT courses, and courses on organizational behavior, business and management. The department offers two degrees, namely BSc (Hons) in Information Technology and BSc (Hons) in Information Systems targeting candidates from all streams of G.C.E (A/L) except Technology Stream. Courses in the first two years are common to both degree programs and specialization in either IT or in IS begins from the third year. These two degree programs produce graduates with two different skills, namely, more technically oriented professionals (IT) and more management/business oriented professionals (IS) with technical knowledge.

### 1.3.2 Department of Computer Science

The Department of Computer Science has been established on 1<sup>st</sup> of January 2015 with the objective of producing Computer Science professionals of international standard and to fulfill the requirements of booming IT industry and develop researchers. It offers courses related to Scientific and Theoretical aspects of computing and enables introducing new courses on emerging trends in computing with an emphasis on the developments in Artificial Intelligence.

The Department of Computer Science is proud to offer two major computing courses including BSc (Hons) in Computer Science and BSc (Hons) in Software Engineering. These programs are targeting Science students from G.C.E (A/L). This department offers a large percentage of computing courses for BSc (Hons) in Computer Engineering, BSc (Hons) in Information Technology and BSc (Hons) in Information Systems as well. The department engages in a wide spectrum of research in broad areas of Theoretical Computing and Artificial Intelligence. This department also envisages strengthening the faculty wise research culture.

### 1.3.3 Department of Computer Engineering

Department of Computer Engineering is one of the newly established department of the Faculty of Computing. This department offers the degree of BSc (Hons) in Computer Engineering. This degree program provides students with an appropriate understanding of Software Technologies and Applications, Software Engineering, Network Technologies, Web Technologies, Leadership and Industrial Knowledge.

### 1.3.4 Department of Computational Mathematics

Department of Computational Mathematics is a recently established department of the Faculty of Computing. The department offers courses in three specific subject areas, namely, Mathematics & Statistics, Computational Intelligence and Theory of Computing. The courses primarily provide Mathematics and Statistics knowledge required for the degrees offered by the Faculty of Computing.

## 2 General Regulations

### 2.1 Admission Requirement

The durations of the degree programs and the minimum requirements to enter the Computing Programs at KDU are as follows:

*Table 1: Degree Programs and Selection Criteria*

Degree Programs	Duration	G.C.E (As/L) - Stream
BSc (Hons) in Information Technology (IT)	Military: 04 1/2 Years Civil: 04 Years	Biology / Maths / Commerce or Arts
BSc (Hons) in Information Systems (IS)	Military: 04 1/2 Years Civil: 04 Years	Biology / Maths / Commerce or Arts
BSc (Hons) in Computer Science (CS)	Military: 04 1/2 Years Civil: 04 Years	Maths
BSc (Hons) in Software Engineering (SE)	Military: 04 1/2 Years Civil: 04 Years	Maths
BSc (Hons) in Computer Engineering (CE)	Military: 04 1/2 Years Civil: 04 Years	Maths
BSc (Hons) in Data Science and Business Analytics	Military: 04 1/2 Years Civil: 04 Years	Maths

- The candidate should have a minimum of three Simple (S) Passes at the G.C.E. (A/L) Examination in the relevant stream and be qualified for university admission.
- To follow the degree programs in Computer Science, Software Engineering and Computer Engineering candidates need to have followed Maths Stream or Mathematics, Physics and any one of the following subjects: Chemistry/ Higher Mathematics/ICT at the G.C.E (A/L).

- Those who have followed the G.C.E (A/L) Examination in Biology / Maths/ Commerce or Arts streams (except Technology) are eligible to apply for IT and IS Degree Programs.
- A minimum of a Credit (C) Pass for English Language at G.C.E (Ordinary Level) Examination.
- A pass mark (marks 30 and above) for the Common General Test.

The Following additional requirements are to be fulfilled by those applying as military students.

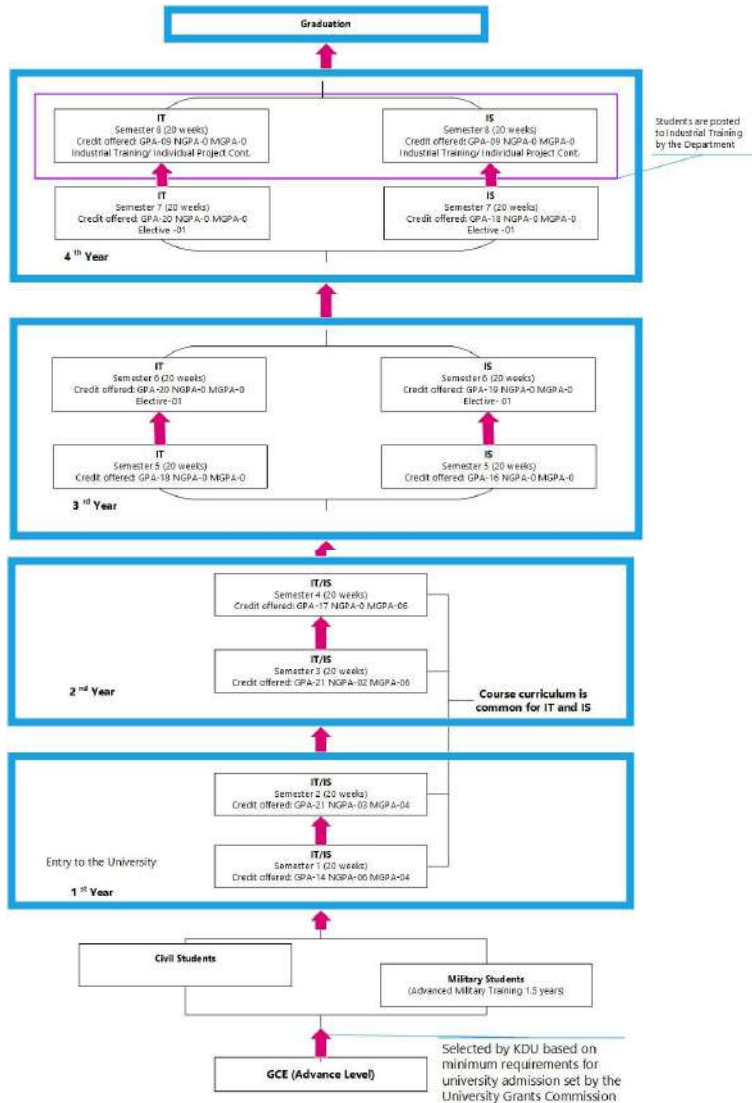
- Be a citizen of Sri Lanka.
- Be not less than 18 years and not more than 22 years of age on the closing date of applications.
- Be unmarried.
- Have a body weight not less than 50 kg (110 lbs).
- Have an unexpanded chest not less than 81.25 cm (32”).
- Have a height not less than

*Table 2 Minimum Height Requirement*

	<b>Army</b>	<b>Navy</b>	<b>Air Force</b>
<b>Male</b>	165.1 cm (5'5")	167.6 cm (5'.6")	167.6 cm (5'.6")
<b>Female</b>	152.4 cm (5'3")	160.0 cm (5'.3")	162.5 cm (5'4")

## 2.2 Course Structure

### BSc (Hons) in Information Technology and BSc (Hons) in Information Systems Degree Programs



## 3 Structure of the Curriculum and Courses

### 3.1 Courses Offered by The Faculty of Computing

#### 3.1.1 BSc (Hons) in Information Technology

Bachelor of Science Honours in Information Technology Degree -BSc Hons (IT) at KDU has been designed in accordance with ACM/IEEE international guidelines. BSc Hons (IT) Degree program provides students with an appropriate understanding of Software Technologies and Applications, Software Engineering, Network Technologies, Web Technologies, and Industrial Knowledge. Further, they must understand the concepts and processes for achieving organizational goals with Information Technology. In addition to sound technical knowledge and organizational understanding, they must possess thinking skills, the ability to analyze business problems, communication skills, and teamwork skills in face-to-face and virtual settings.

#### 3.1.2 BSc (Hons) in Information Systems

Bachelor of Science Honours in Information Systems Degree – BSc Hons (IS) program at KDU has been designed in accordance with ACM/IEEE international guidelines. BSc Hons (IS) degree program provides students with an appropriate understanding of Foundations of Information Systems, Data & Information Management, Enterprise Architecture, Project Management, IT Infrastructure, Systems Analysis & Design, and IS Strategies. Further, they must understand concepts and processes for achieving organizational goals with Information Systems. In addition to sound technical knowledge and organizational understanding, they must understand, analyze and make use of the fundamental concepts related to organizational processes and systems, thereby apply various tools and techniques on how vast amount of data collected by modern organizations can be used to review, redesign, and improve processes

#### 3.1.3 BSc (Hons) in Computer Science

The intention of formulating this program is to provide Computer Scientists to the tri-services and serve the growing demand for theoretically specialized graduates in the modern industry locally as well as internationally. This program has designed futuristically considering the needs of the industry and employability of the graduates produced. Our curriculums have been designed according to ACM/IEEE international standard. The courses in this program span a wide range, from its theoretical and algorithmic foundations to cutting-edge developments in Algorithms, Database, Artificial Intelligence, Networking and other exciting areas.

### 3.1.4 BSc (Hons) in Software Engineering

BSc (Hons) in Software Engineering program is concerned with the development and maintenance of software systems that behave reliably and efficiently. This program is different in character from other engineering disciplines due to both the intangible nature of software and the discontinuous nature of software operation. Courses of this program seek to integrate the principles of mathematics and computer science with the engineering practices developed for tangible, physical artifacts. Degree programs in Software Engineering have many courses. This program offers more about software reliability and maintenance and focuses more on techniques for developing and maintaining software that is correct from its inception. The curriculum has been designed according to ACM/IEEE international standard.

### 3.1.5 BSc (Hons) in Computer Engineering

BSc (Hons) in Computer Engineering Degree Program involves modeling, designing, implementation, testing, evaluation and integration of computer hardware and software to create computing systems. Computer Engineers use both hardware concepts from electrical engineering and system software concepts from Computer Science. Graduates will be well prepared to work in areas such as Digital Logic Design, Computer Organization/Architecture and Design, Algorithm Design and Analysis, Embedded Systems, Compilers, and Operating Systems. Elective options in the curriculum offer preparation in Software Engineering, Databases, Dependable Systems, Networking and Communications, VLSI, Graphics, Image Processing, Visualization, Artificial Intelligence, and Control Systems. Nearly all students in the Computer Engineering Program engage in collaborative research with faculty, through internships or independent study. These provide students have access to state-of-the-art facilities in computer engineering and computer vision such as those of the Laboratory for Engineering Man/Machine Systems. This degree program of KDU has been designed in accordance with ACM/IEEE international guidelines.

### 3.1.6 BSc (Hons) in Data Science and Business Analytics

BSc Hons in Data Science and Business Analytics degree programme provides students with the required knowledge and experience of Computer Science, Mathematics and Statistics, Management, and Communication in English that is needed in many branches of science such as, Data Science, Medicine, Engineering, and Business.

The computer science subject area intends to deliver a broad overview of the general field of computer science concepts, theories and tools required to support students in pursuing a data science degree programme. The Mathematics and Statistics subject area is a main part in the data science degree curriculum and intends to provide the fundamentals of mathematical and statistical concepts that are essential in data science. Application of Management is intended to cover three perspectives: financial, operational, and strategic perspectives, which have been developed in order to enhance the students' strategic thinking and application abilities. Communication in English is intended to equip students with the skills to communicate effectively with a variety of audiences through oral, written, and visual modes. This degree program of KDU has been designed in accordance with ACM/IEEE international guidelines.

## 3.2 Career Opportunities

### 3.2.1 Information Technology

Information Technology offers a foundation that permits graduates to adapt to new technologies and new ideas. Information Technology degree opens a variety of doors in the exciting world of technology. It was the only substantive computing discipline that focused explicitly on software development when academic computing degree programs were emerged. Mainly institutions such as software companies, offer career opportunities to graduates in Information Technology. Apart from that, Information Technology graduates are capable of applying any government job opportunity where the basic requirement is a bachelor's program. Also, graduates are encouraged for higher studies to pursue careers in academic field.

Information Technology is often central to groom a problem solver, skilled practitioner or a research investigator who works to integrate technology to solve problems in verity of settings in effective and efficient manner. IT graduates apply their knowledge and skills in software development, system integration, operation and deployment to support organizational projects as well as community activities through providing wide range of IT solutions for the real-world problems. They are capable of explain and justify professional decisions in a way that both clients and the management understand .IT graduates are professionals, who familiar with various laws and regulations that govern the development and operations of the IT platforms and practiced preforming duties in ethical manner.

The graduates from these programs are guaranteed with white collar employment in a thriving and prospering industry that is highly sought after in both domestic and international job market. IT job opportunities include, Software Developers/Engineers, Network Engineers, User Interface Engineers and many other IT related management vocations. Database Administrators and Enterprise Resource Planning professionals. Moreover, a career path in this area can involve advanced graduate work, followed by a position in a research university or industrial R&D lab, or it can involve entrepreneurial activity based on the following table.



Table 3 Graduates Career Paths IT

Category/ Field	Occupation/ Career
Engineer	Database Administrator Web Developers Mobile Application Developers Network Engineers Network Administrator Systems Administrator System Analyst Information Security Engineer Cyber Security Engineer
Academic/ Research	University/HE Academic or Academic/Training support staff Engineer (Training) Research positions at public sector organizations Private sector research and development officer
Alternative Careers	Entrepreneurs Management Trainee Sales Engineer /Executive Project Manager

### 3.2.2 Information Systems

Information Systems offers a foundation that permits graduates to adapt to new technologies and new ideas. Information Systems degree opens a variety of doors in the exciting world of technology. It was the only substantive computing discipline that focused explicitly on software development when academic computing degree programs were emerged. Mainly institutions such as software companies, offer career opportunities to graduates in Information Systems. Apart from that, Information Systems graduates are capable of applying any government job opportunity where the basic requirement is a bachelor’s program. Also, graduates are encouraged for higher studies to pursue careers in academic field.

Information Systems is often central to groom a problem solver, skilled practitioner or a research investigator who works to integrate Information Systems concepts to solve problems in verity of settings in effective and efficient manner. They are capable of explain and justify professional decisions in a way that both clients and the management

understand .IS graduates are professionals, who familiar with various laws and regulations that govern the development and operations of the IS platforms and practiced performing duties in ethical manner.

The graduates from these programs is guaranteed with white collar employment in a thriving and prospering industry that is highly sought after in both domestic and international job market. IS job opportunities includes, Database Administrators, Enterprise Resource Planning professionals, Business Analysts, Quality Assurance Engineers and many IS related management vocations. Moreover, a career path in this area can involve advanced graduate work, followed by a position in a research university or industrial R&D lab, or it can involve entrepreneurial activity based on the following table.

*Table 4 Graduate Career Paths IS*

Category/ Field	Occupation/ Career
Engineer	Web Developers Network Engineers Network Administrator Systems Administrator System Analyst Information Security Engineer Cyber Security Engineer
Academic/ Research	University/HE Academic or Academic/Training support staff Engineer (Training) Research positions at public sector organizations Private sector research and development officer
Alternative Careers	Entrepreneurs Management Trainee Sales Engineer /Executive Project Manager

### 3.3 Credit Ratings and Course Codes

#### 3.3.1 BSc (Hons) in IT and BSc (Hons) in IS (Level 1)

The following table gives an overall summary of the course units entitled for the level one of the BSc (Hons) in Information Technology and BSc (Hons) in Information Systems Degree Programs. The respective course units have been outlined in detail beneath the table.

*Table 5 Level one IT IS course unites*

Level 1								
Module Code	Module Name	Category	Credits			Norm		
			GPA	NGPA	MGPA	GPA	NGPA	MGPA
<b>Semester 1</b>								
IT1022	Information Technology Concepts	C	2	-	-	15	6	4
IT1033	Fundamentals of Computer Programming	C	3	-	-			
IT1043	Fundamentals of Computer Systems	C	3	-	-			
IT1062	Fundamentals of Visual Computing	C	2	-	-			
IT1072	Career Development Plan	C	-	2	-			
CM1023	Mathematics for IT-1	C	3	-	-			
DL1172	English Study Skills for ICT	C	-	2	-			
MF1112	Principles of Management	C	2	-	-			
LS1052	Leadership Training	C	-	2	-			
MS1014	Military Studies I	M	-	-	4			
<b>Total for Semester 1</b>						<b>15</b>	<b>6</b>	<b>4</b>
<b>Semester 2</b>								
IT1083	Computer Systems Architecture	C	3	-	-	16	4	4
IT1093	Object Oriented Programming	C	3	-	-			
IT1103	System Analysis and Design	C	3	-	-			
IT1113	Fundamentals of DBMS	C	3	-	-			
IT1992	Visual Computing Project (Group)	C	2	-	-			
IT1122	IoT Applications and Design	C	-	2	-			
CM1042	Basic Probability and Statistics	C	2	-	-			
DL2192	Presentation Skills for ICT	C	-	2	-			
MS2024	Military Studies II	M	-	-	4			
<b>Total for Semester 2</b>						<b>16</b>	<b>4</b>	<b>4</b>
<b>Total for Level 1</b>						<b>31</b>	<b>10</b>	<b>8</b>

### 3.3.1.1 Semester 01

#### **Information Technology Concepts**

**IT1022**

*This module introduces modern software development concepts, and their principles, and its practices which provides the necessary academic groundwork in the software development process.*

**Credits** 02

GPA-Compulsory

#### **Fundamentals of Computer Programming**

**IT1033**

*This module aims to introduce programming concepts which allows the creation of procedure-oriented programs which will be useful to solve certain problems.*

**Credits** 03

GPA-Compulsory

#### **Fundamentals of Computer Systems**

**IT1043**

*This module aims to cover concepts related to computer systems, such as hardware, software and provide the fundamental information required to grasp the various functions of computers by discussing computer hardware related subjects and their various uses.*

**Credits** 03

GPA-Compulsory

#### **Fundamentals of Visual Computing**

**IT1062**

*This module is designed to teach students the computer visualization used for e-Learning, web industry, gaming, movies, and multimedia developments using various computer animation and other multi-media manipulation software.*

**Credits** 02

GPA-Compulsory

**Career Development Plan****IT1072**

*Following this module will allow the professional and personal growth in knowledge and soft skills related to one's career growth in the professional IT/IS fields with the use of personal skills development, that embraces a whole range of practical and transferable skills which can be applied within the workplace.*

**Credits** 02

NGPA-Compulsory

**Mathematics for IT - I****CM1023**

*The aim of this module is to develop logical thinking and problem-solving skills in number systems, set theory, functions and vector algebra.*

**Credits** 03

GPA-Compulsory

**English Study Skills for ICT****DL1172**

*This module aims to assist the students to enhance their English language competencies so that they can confidently engage themselves in their academic studies in the disciplinary of English.*

**Credits** 02

NGPA-Compulsory

**Principles of Management****MF1112**

*This module is to provide learners with an opportunity to learn and then apply various theories/concepts/ideas/practices associated the field of Management.*

**Credits** 02

GPA-Compulsory

**Leadership Training****LS1052**

*This module aims to develop the leadership skills and personnel qualities which are required to perform the duties of any position related in the IT and IS fields.*

**Credits** 02

NGPA-Compulsory

### 3.3.1.2 Semester 02

#### **Computer Systems Architecture**

**IT1083**

*This module aims to explain the building blocks of a computer systems and its design architecture to explain the inner workings of a computer systems by exploring its theoretical and practical aspects.*

**Credits** 03

GPA-Compulsory

#### **Object Oriented Programming**

**IT1093**

*This module covers Object Orient theories and concepts in programming which is a widely used programming paradigm in the Software Development Industry.*

**Credits** 03

GPA-Compulsory

#### **System Analysis and Design**

**IT1103**

*This module aims to laydown foundation knowledge required to analyse and design system specification using various structured techniques and industry best practices.*

**Credits** 03

GPA-Compulsory

#### **Fundamentals of DBMS**

**IT1113**

*This module provides explanations of theory and design, broad coverage of models and real systems, and an up-to-date introduction to modern database technologies result in a leading introduction to database systems.*

**Credits** 03

GPA-Compulsory

**Visual Computing Project (Group)****IT1992**

*This module aims to utilize the concepts learnt from a previous module titled fundamental of visual computing (1st year 1st semester) and apply it in a real-life scenario by working as a team.*

**Credits** 02

GPA-Compulsory

**IoT applications and Design****IT1122**

*In this module, students will gain an understanding about the concept of IoT and its related components and use this knowledge to design their own IoT solutions.*

**Credits** 02

NGPA-Compulsory

**Basic Probability and Statistics****CM1042**

*The aim of this module is to introduce the mathematical concepts of probability and statistics to solve real world scenarios while working with data in their varied academic disciplines.*

**Credits** 02

GPA-Compulsory

**Presentation Skills for ICT****DL2192**

*This module intends to instill the skills of audience-centric presentation skills and enhance the professional writing skills of the students. The students will also be able to achieve skills pertain to research writing and academic report writing in the long run, with an impactful content delivery.*

**Credits** 02

NGPA-Compulsory

### 3.3.2 BSc (Hons) in IT and BSc (Hons) in IS (Level 2)

The following table gives an overall summary of the course units entitled for the level two of the BSc (Hons) in Information Technology and BSc (Hons) in Information Systems Degree Programs. The respective course units have been outlined in detail beneath the table.

*Table 6 Level two IT/IS course unites*

Level 2								
Module Code	Module Name	Category	Credits			Norm		
			GPA	NGPA	MGPA	GPA	NGPA	MGPA
<b>Semester 3</b>								
IT2022	Computer Network Systems – I	C	2	-	-	17	2	6
IT2032	Object Oriented Designing	C	2	-	-			
IT2043	Data and Information Management	C	3	-	-			
IT2053	Rapid Application Development	C	3	-	-			
IT2063	Software Engineering	C	3	-	-			
IT2072	UX and UI Engineering	C	2	-	-			
CM2022	Mathematics for IT- II	C	2	-	-			
DL24202	Writing and Speaking Skills	C	-	2	-			
MS3032	Strategic Defence Studies	M	-	-	2			
MS3044	Military Studies III	M	-	-	4			
<b>Total for Semester 3</b>						<b>17</b>	<b>2</b>	<b>6</b>
<b>Semester 4</b>								
IT2082	Web Technologies	C	2	-	-	21	2	4
IT2093	Data Structures and Algorithms	C	3	-	-			
IT2103	Computer Network Systems – II	C	3	-	-			
IT2992	Industry based Software Engineering Project	C	2	-	-			
IT2113	Project Management	C	3	-	-			
IT2122	Operating Systems	C	2	-	-			
IT2132	Research Methodology	C	2	-	-			
CM2032	Statistical Distribution and Inference	C	2	-	-			
MF2212	Human Resource Management	C	2	-	-			
DL29302	Research Writing Skills	C	-	2	-			
MS4064	Military Studies IV	M	-	-	4			
<b>Total for Semester 4</b>						<b>21</b>	<b>2</b>	<b>4</b>
<b>Total for Level 2</b>						<b>38</b>	<b>4</b>	<b>10</b>



### 3.3.2.1 Semester 03

#### **Computer Network Systems – I**

**IT2022**

*This module aims students to learn essential networking concepts that will enable them to develop the necessary skills to plan and implement small to medium networks across a range of applications.*

**Credits** 02

GPA-Compulsory

#### **Object Oriented Design**

**IT2032**

*This module aims to deliver concepts and principles in object-oriented analysis and design in software engineering by laying down the foundation for applying these concepts and principles to analyse, design and develop software systems.*

**Credits** 02

GPA-Compulsory

#### **Data and Information Management**

**IT2043**

*This module aims at furthering database systems concepts through adding complexity and a more hands-on approach with real world problems and scenarios.*

**Credits** 03

GPA-Compulsory

#### **Rapid Application Development**

**IT2053**

*This module teaches the theory behind the Rapid Application Development (RAD) concepts and programming knowledge on using standard industry used RAD software tools and techniques.*

**Credits** 03

GPA-Compulsory

**Software Engineering****IT2063**

*This module aims to deliver fundamental concepts and principles in software engineering. Also, this is to lay down the foundation for applying these concepts and principles to analyse, design, develop, test and maintenance of software systems.*

**Credits** 03

GPA-Compulsory

**UX and UI Engineering****IT2072**

*This module teaches an integrative and cross-disciplinary approach to bring together a wide variety of topics together to the problem of developing quality user interaction designs to introduce the field of Human-Computer Interaction (HCI) and its practices.*

**Credits** 02

GPA-Compulsory

**Mathematics for IT- II****CM2022**

*The aim of this module is to provide knowledge in advanced mathematical concepts such as calculus and create logical thinking useful in solving problem.*

**Credits** 02

GPA-Compulsory

**Writing and Speaking Skills****DL24202**

*This module will provide students to enhance their English language (writing and speaking) competencies so that they can confidently engage in their academic studies in the medium of English in the present-day working environments.*

**Credits** 02

NGPA-Compulsory

### 3.3.2.2 Semester 04

#### **Web Technologies**

**IT2082**

*This module introduces World Wide Web Consortium (W3C) standard markup languages and services of the Internet which will allow the students to create hand-coded web sites.*

**Credits** 02

GPA-Compulsory

#### **Data Structures and Algorithms**

**IT2093**

*This module is to provide the knowledge in various data structures, their computer representations, and associated algorithms and to investigate the efficiency of an algorithm.*

**Credits** 03

GPA-Compulsory

#### **Computer Network Systems – II**

**IT2103**

*This module is to assist the students in developing the skills necessary to plan and implement small networks across a range of applications. Also, this module aims to provide knowledge on IP and sub-netting calculations, which is important in any networking industry.*

**Credits** 03

GPA-Compulsory

#### **Industry Based Software Engineering Project**

**IT2992**

*This module will allow the students to put into practice all the theories and concepts they have learned up to now by solving a real-life IT related problem by working as a team and under supervision.*

**Credits** 02

GPA-Compulsory

**Project Management****IT2113**

*This module aims to introduce the principles, tools, techniques, and best practices of software project management that is required in the field of Information Technology and software development.*

**Credits** 03

GPA-Compulsory

**Operating Systems****IT2122**

*This module aims at introducing the operating system to students and develop thorough understanding about its main services and strategies. Through this module, students are exposure to explore how different processes of computer have designed following the natural processes.*

**Credits** 02

GPA-Compulsory

**Research Methodology****IT2132**

*The module aims to teach students the Identify the concepts, tools, techniques, and other required skills to carry out a research based on scientific method and further investigate and find solutions to real world research problems.*

**Credits** 02

GPA-Compulsory

**Statistical Distributions and Inference****CM2032**

*The aim of this module is to provide the knowledge about probability distributions, estimation, hypothesis testing, linear regression and to apply those statistical techniques in real world problems using statistical software.*

**Credits** 02

GPA-Compulsory

**Human Resource Management****MF2212**

*This module allows the students to better understand key management topic areas such as Human Resource Planning, staffing, compensation, human resource development, and performance management which is required in the modern-day business environment.*

**Credits** 02

GPA-Compulsory

**Research Writing Skills**

**DL29302**

*By completing this module, it will provide the students with the knowledge and skills necessary for conducting and documenting research in an academic and professional environment.*

**Credits**      02

NGPA-Compulsory

### 3.3.3 BSc (Hons) in IT (Level 3)

The following table gives an overall summary of the course units entitled for the level three of the BSc (Hons) in Information Technology Degree Program. The respective course units have been outlined in detail beneath the table.

*Table 7 Level three IT course unites*

Level 3								
Module Code	Module Name	Category	Credits			Norm		
			GPA	NGPA	MGPA	GPA	NGPA	MGPA
<b>Semester 5</b>								
IT3023	Advanced Multimedia Technologies	C	3	-	-	19	2	0
IT3033	Information and Data Security	C	3	-	-			
IT3043	Advanced Computer Network Systems - I	C	3	-	-			
IT3052	Programming Frameworks	C	2	-	-			
IT3063	Advanced Web Technologies	C	3	-	-			
IT3072	Enterprise Resource Planning Systems	C	2	-	-			
IT3082	Computer Ethics and IT Law	C	-	2	-			
IT3093	Mobile Computing	C	3	-	-			
<b>Total for Semester 5</b>						<b>19</b>	<b>2</b>	<b>0</b>
<b>Semester 6</b>								
IT3103	Service Oriented Web Programming	C	3	-	-	20	0	0
IT3113	Cyber Security	C	3	-	-			
IT3123	Cloud Computing and Virtualization	C	3	-	-			
IT3133	Programming Distributed Components	C	3	-	-			
IT3143	Independent Study	C	3	-	-			
IT3153	Software Quality Assurance	C	3	-	-			
IT3162	GIS and Remote Sensing	E	2	-	-			
IT3172	Ergonomics	E	2	-	-			
IT3182	Essentials of Artificial Intelligence	E	2	-	-			
<b>Total for Semester 6</b>						<b>20</b>	<b>0</b>	<b>0</b>
<b>Total for Level 3</b>						<b>39</b>	<b>2</b>	<b>0</b>

### 3.3.3.1 Semester 05

#### **Advanced Multimedia Technologies**

**IT3023**

*This module introduces students to the latest video/audio manipulation software and applications which will allow them to work with a variety of advanced concepts and theories associated with multimedia.*

**Credits** 03

GPA-Compulsory

#### **Information and Data Security**

**IT3033**

*This module aims to introduce students to the techniques used when implementing secure information and data which will allow them a proper understanding of common threats, disaster recovery planings and defending networked systems issues.*

**Credits** 03

GPA-Compulsory

#### **Advanced Computer Network Systems – I**

**IT3043**

*This module will allow students how configure various network related components and implement different types of networks according to given user requirement.*

**Credits** 03

GPA-Compulsory

#### **Programming Frameworks**

**IT3052**

*This module covers the issues when designing and engineering large enterprise software systems. Students will learn about distributed and increasingly complex inter-enterprise as well as intra-enterprise coordination, software services and cloud computing platforms.*

**Credits** 02

GPA-Compulsory

**Advanced Web Technologies****IT3063**

*This module introduces the way of working with an Internet environment and delivers knowledge and experience to develop web applications for state-of-the-art web experience. Also, this module introduces how to implement high-quality web applications that serve dynamic content from a database to meet the customer expectations.*

**Credits** 03

GPA-Compulsory

**Enterprise Resource Planning Systems****IT3072**

*This module takes a generic approach to enterprise resource planning systems and their interrelationships, covering all functional areas of this new type of management challenge. It discusses the re-design of business processes, changes in organizational structure, and effective management strategies that will help assure competitiveness, responsiveness, productivity, and impact for many organizations.*

**Credits** 02

GPA-Compulsory

**Computer Ethics and IT Law****IT3082**

*This module offers extensive coverage of the legal, ethical, and social implications when dealing with technology in the current society and modern-day business environment.*

**Credits** 02

NGPA-Compulsory

**Mobile Computing****IT3093**

*This module introduces the concept of mobile computing with a strong emphasis on application development for the Android operating system which will enable the students to complete a major project with the goal of releasing an app on the Android Market place.*

**Credits** 03

GPA-Compulsory



### 3.3.3.2 Semester 06

#### **Service Oriented Web Programming**

**IT3103**

*This module aims to present the principles and fundamental underpinnings of Web Services and Service Oriented Architectures. Based on an understanding of architectural styles, the student will review architectures for web applications, then explore the basics of Service-Oriented Architecture.*

**Credits** 03

GPA-Compulsory

#### **Cyber Security**

**IT3113**

*This module introduces the various aspects of cyber security which is an essential component in safeguarding one's electronic devices, systems, data, and other necessary components in the modern-day world.*

**Credits** 03

GPA-Compulsory

#### **Cloud Computing and Virtualization**

**IT3123**

*This module investigates cloud computing models, techniques, and architectures which enables information, software, and other shared resources to be provisioned over the network as services in an on-demand manner.*

**Credits** 03

GPA-Compulsory

#### **Programming Distributed Components**

**IT3133**

*This module explains how to develop software components specially to work in distributed and heterogeneous environments as well as the software development based on such distributed software components to support modern industrial requirements.*

**Credits** 03

GPA-Compulsory

**Independent Study****IT3143**

*This module objective is students to further study and practice all the theories and concepts that they have studied up to now, which will enable them to prepare for their final year project by enabling them to conduct an independent study on various research areas.*

**Credits** 03

GPA-Compulsory

**Software Quality Assurance****IT3153**

*This module is to provide the awareness of the theories and concepts of software quality assurance thereby enabling improved quality software which is a much-needed attribute in the software development life cycle.*

**Credits** 03

GPA-Compulsory

**GIS and Remote Sensing****IT3162**

*This module is to provide the fundamental principles of Remote Sensing, Geographic Information Systems and GIS Programming to understand the difference between temporal data analysis over spatial data analysis and develop a spatial decision-making model.*

**Credits** 02

GPA –Elective

**Ergonomics****IT3172**

*This module allows the students to understand the interaction among humans and other elements of a computer system, and the discipline that applies theory principles, data, and methods to design in order to optimize human well-being and overall system performance.*

**Credits** 02

GPA –Elective

*This module aims to introduces the fundamental concepts and theories associated with the discipline of artificial intelligence and provides the ability to analyse, understand, and create intelligent systems.*

**Credits** 02

GPA –Elective

### 3.3.4 BSc (Hons) in IT (Level 4)

The following table gives an overall summary of the course units entitled for the level four of the BSc (Hons) in Information Technology Degree Program. The respective course units have been outlined in detail beneath the table.

*Table 8 Level four IT course unites*

Level 4								
Module Code	Module Name	Category	Credits			Norm		
			GPA	NGPA	MGPA	GPA	NGPA	MGPA
<b>Semester 7</b>								
IT4023	Data Mining and Data Warehousing	C	3	-	-	14	0	0
IT4033	Advanced Computer Network Systems - II	C	3	-	-			
IT4043	Semantic Web and Ontology	C	3	-	-			
IT4053	Database Administration	C	3	-	-			
IT4062	Image Processing	E	2	-	-			
IT4072	Social Analysis and Social Media	E	2	-	-			
IT4082	Emerging Technologies in ICT	E	2	-	-			
IT4092	Machine Learning	E	2	-	-			
IT4999	Individual Research Project (Evaluate by Semester 8)	C	-	-	-			
<b>Total for Semester 7</b>						<b>14</b>	<b>0</b>	<b>0</b>
<b>Semester 8</b>								
IT4986	Industrial Training	C	-	6	-	9	6	0
IT4999	Individual Research Project	C	9	-	-			
<b>Total for Semester 8</b>						<b>9</b>	<b>6</b>	<b>0</b>
<b>Total for Level 4</b>						<b>23</b>	<b>6</b>	<b>0</b>

### 3.3.4.1 Semester 07

#### **Data Mining and Data Warehousing**

**IT4023**

*This module covers the use of data mining techniques covering the high-volume data processing mechanisms by building data warehouse schemas, while introducing the Online analytical processing query retrieval techniques.*

**Credits** 03

GPA-Compulsory

#### **Advanced Computer Network Systems – II**

**IT4033**

*This module allows students how configure advanced network related components and implement different types of complicated real-life networks according to given user's requirements and specifications.*

**Credits** 03

GPA-Compulsory

#### **Semantic Web and Ontology**

**IT4043**

*This module allows the students to understand the rationale behind the concept of the semantic web. They should be able to model and query domain knowledge as ontologies defined using industrial standards and the applications of semantic web to web services.*

**Credits** 03

GPA-Compulsory

#### **Database Administration**

**IT4053**

*This module explores the physical and logical components of a database system. It also looks at database administration tasks for development, testing and production environments. The module will explain memory management, I/O strategy, performance diagnostics and management of operating system resources.*

**Credits** 03

GPA-Compulsory

**Image Processing****IT4062**

*This module introduces a thorough grounding of the principles of computer vision and image processing and seeks to develop student's knowledge from basic image processing techniques to advanced computer vision and image analysis systems.*

**Credits** 02

GPA-Elective

**Social Analysis and Social Media****IT4072**

*This module covers concepts and techniques for retrieving, exploring, visualizing, and analyzing social network and social media data.*

**Credits** 02

GPA-Elective

**Emerging Technologies in ICT****IT4082**

*This module describes how emerging technologies are having an impact on everyday life and examines how new technologies that appear to be promising in the IT field.*

**Credits** 02

GPA-Elective

**Machine Learning****IT4092**

*This module provides a broad introduction to machine learning and statistical pattern recognition which enables machines to make smart decisions that makes expert systems possible.*

**Credits** 02

GPA-Elective

**Individual Research Project (Evaluate by semester 8)**

**IT4999**

*The aim of this module is to provide the undergraduates an exposure to research undertaken individually and to achieve a specific objective within a fixed time and to achieve it independently. Additionally, this module allows undergraduates to conduct research in Information Systems, by applying techniques learned throughout the degree programme, including the technical skills of analysis, design and implementation.*

**Credits** 09

GPA-Compulsory

**3.3.4.2 Semester 08**

**Industrial Training**

**IT4986**

*This module exposes the students to the industry to learn from the industry, practice work ethics, adhere to professional conduct, learn about organization cultures & its processes, mater self-evaluation and practice to solve industrial problem using the gained knowledge.*

**Credits** 06

NGPA -Compulsory

**Individual Research Project**

**IT4999**

*The aim of this module is to provide the undergraduates an exposure to research undertaken individually and to achieve a specific objective within a fixed time and to achieve it independently. Additionally, this module allows undergraduates to conduct research in Information Systems, by applying techniques learned throughout the degree programme, including the technical skills of analysis, design and implementation.*

**Credits** 09

GPA-Compulsory

The Bsc (Hons) in Information Technology degree programme contains 131 GPA credits from core course units, 22 NGPA credits and 18 MGPA credits. The distribution of the academic credits in BSc in IT degree program are illustrated in the table below.

*Table 9 GPA Summary*

<b>GPA Summary</b>			
<b>SEMESTER</b>	<b>GPA</b>	<b>NGPA</b>	<b>MGPA</b>
Semester 1	15	6	4
Semester 2	16	4	4
Semester 3	17	2	6
Semester 4	21	2	4
Semester 5	19	2	0
Semester 6	20	0	0
Semester 7	14	0	0
Semester 8	9	6	0
<b>Total</b>	<b>131</b>	<b>22</b>	<b>18</b>



### 3.3.5 BSc (Hons) in IS (Level 3)

The following table gives an overall summary of the course units entitled for the level three of the BSc (Hons) in Information Systems Degree Program. The respective course units have been outlined in detail beneath the table.

Table 10 Level three IS course unites

Level 3								
Module Code	Module Name	Category	Credits			Norm		
			GPA	NGPA	MGPA	GPA	NGPA	MGPA
<b>Semester 5</b>								
IS3022	Accounting Principles and Costing	C	2	-	-	19	0	0
IS3042	Principles of Economics	C	2	-	-			
IS3053	Strategic Management	C	3	-	-			
IT3082	Computer Ethics and IT Law	C	2	-	-			
IS3062	Knowledge Management	C	2	-	-			
IT3063	Advanced Web Technologies	C	3	-	-			
IT3072	Enterprise Resource Planning Systems	C	2	-	-			
CM3013	Operational Research	C	3	-	-			
<b>Total for Semester 5</b>						<b>19</b>	<b>0</b>	<b>0</b>
<b>Semester 6</b>								
IS3073	Management Information Systems	C	3	-	-	21 (including 1 Elective)	0	0
IS3112	Marketing Management	C	2	-	-			
IS3083	E-Commerce	C	3	-	-			
IS3093	Financial Management Concepts	C	3	-	-			
IT3143	Independent Study	C	3	-	-			
IS3102	Organizational Behaviour	C	2	-	-			
IT3153	Software Quality Assurance	C	3	-	-			
IT3162	GIS and Remote Sensing	E	2	-	-			
IT3172	Ergonomics	E	2	-	-			
IT3182	Essentials of Artificial Intelligence	E	2	-	-			
<b>Total for Semester 6</b>						<b>21</b>	<b>0</b>	<b>0</b>
<b>Total for Level 3</b>						<b>40</b>	<b>0</b>	<b>0</b>

### 3.3.5.1 Semester 05

#### **Accounting Principles and Costing**

**IS3022**

*This module covers the system of the financial recording system and the preparation of financial statements and reports that is required by the relevant internal and external stakeholders so that they have a better understanding of the cost behaviour and decision-making aspects in management accounting.*

**Credits** 02

GPA-Compulsory

#### **Principles of Economics**

**IS3042**

*This module covers the macro and microeconomic factors which influence the business environment and making of economic choices. This further exposes students to the theoretical and practical connections between computer science and economics.*

**Credits** 02

GPA-Compulsory

#### **Strategic Management**

**IS3053**

*This module aims at cultivating the strategic perspective among the students in managing organizations for long term survival and growth by introducing a suitable strategic orientation.*

**Credits** 03

GPA-Compulsory

#### **Computer Ethics and IT Law**

**IT3082**

*This module offers extensive coverage of the legal, ethical, and social implications when dealing with technology in the current society and modern-day business environment.*

**Credits** 02

NGPA-Compulsory

**Knowledge Management****IS3062**

*This module will allow the student to study the theory and practices associated with Knowledge Management which will allow them to critically evaluate the nature, computer representation, access, and utilization of knowledge versus information within a human context.*

**Credits** 02

GPA-Compulsory

**Advanced Web Technologies****IT3063**

*This module introduces the way of working with an Internet environment and delivers knowledge and experience to develop web applications for state-of-the-art web experience. Also, this module introduces how to implement high-quality web applications that serve dynamic content from a database to meet the customer expectations.*

**Credits** 03

GPA-Compulsory

**Enterprise Resource Planning Systems****IT3072**

*This module takes a generic approach to enterprise resource planning systems and their interrelationships, covering all functional areas of this new type of management challenge. It discusses the re-design of business processes, changes in organizational structure, and effective management strategies that will help assure competitiveness, responsiveness, productivity, and impact for many organizations.*

**Credits** 02

GPA-Compulsory

**Operational Research****CM3013**

*The aim of this module is to introduce the concepts and techniques of operations research and to make students apply those techniques to solve real world problems.*

**Credits** 03

GPA - Compulsory

### 3.3.5.2 Semester 06

#### **Management Information Systems**

**IS3073**

*This module provides a look at how the present-day organizations to better-utilized information technologies and systems to achieve corporate objectives and goals to get a competitive advantage over others.*

**Credits** 03

GPA-Compulsory

#### **Marketing Management**

**IS3112**

*This module aims to provide basic knowledge and understanding about the nature and the scope of marketing management with special reference to the practical applications in the Sri Lankan context.*

**Credits** 02

GPA-Compulsory

#### **E-Commerce**

**IS3083**

*This module provides an overview of the current and next generations of e-commerce systems which enables its subsequent development and maintenance that is essential in the present-day society.*

**Credits** 03

GPA-Compulsory

#### **Financial Management Concepts**

**IS3093**

*The aim of this module is to give students a broad understanding about the basis of financial management in the aspects of making investment and financing decisions making through its theories and concepts.*

**Credits** 03

GPA-Compulsory

**Independent Study****IT3143**

*This module objective is students to further study and practice all the theories and concepts that they have studied up to now, which will enable them to prepare for their final year project by enabling them to conduct an independent study on various research areas.*

**Credits** 03

GPA-Compulsory

**Organizational Behavior****IS3102**

*This module aims to develop an understanding of the importance of giving due recognition to the behaviour of people within the organization and their motivational process by examining the behavioural styles of individuals, groups and organizations.*

**Credits** 02

GPA-Compulsory

**Software Quality Assurance****IT3153**

*This module is to provide the awareness of the theories and concepts of software quality assurance thereby enabling improved quality software which is a much-needed attribute in the software development life cycle.*

**Credits** 03

GPA-Compulsory

**GIS and Remote Sensing****IT3162**

*This module is to provide the fundamental principles of Remote Sensing, Geographic Information Systems and GIS Programming to understand the difference between temporal data analysis over spatial data analysis and develop a spatial decision-making model.*

**Credits** 02

GPA –Elective

**Ergonomics****IT3172**

*This module allows the students to understand the interaction among humans and other elements of a computer system, and the discipline that applies theory principles, data, and methods to design in order to optimize human well-being and overall system performance.*

**Credits** 02

GPA –Elective

**Essentials of Artificial Intelligence****IT3182**

*This module aims to introduce the fundamental concepts and theories associated with the discipline of artificial intelligence and provide them the ability to analyse and create intelligent systems.*

**Credits** 02

GPA –Elective

### 3.3.6 BSc (Hons) in IS (Level 4)

The following table gives an overall summary of the course units entitled for level four of the BSc (Hons) in Information Systems Degree Program. The respective course units have been outlined in detail beneath the table.

Level 4								
Module Code	Module Name	Category	Credits			Norm		
			GPA	NGPA	MGPA	GPA	NGPA	MGPA
<b>Semester 7</b>								
IS4023	System Acquisition Management	C	3	-	-	15(including 1 Elective)	0	0
IS4033	IS Auditing and Control	C	3	-	-			
IS4043	Business Process Re-Engineering	C	3	-	-			
IS4052	Production and Operation Management	C	2	-	-			
IS4062	Enterprise Architecture	C	2	-	-			
IT4062	Image Processing	E	2	-	-			
IT4072	Social Analysis and Social Media	E	2	-	-			
IT4082	Emerging Technologies in ICT	E	2	-	-			
IT4092	Machine Learning	E	2	-	-			
IS4999	Individual Research Project (Final Evaluation at Semester 8)	C	-	-	-			
<b>Total for Semester 7</b>						<b>15</b>	<b>0</b>	<b>0</b>
<b>Semester 8</b>								
IS4986	Industrial Training	C	-	6	-	9	6	0
IS4999	Individual Research Project	C	9	-	-			
<b>Total for Semester 8</b>						<b>9</b>	<b>6</b>	<b>0</b>
<b>Total for Level 4</b>						<b>24</b>	<b>6</b>	<b>0</b>

### 3.3.6.1 Semester 07

#### **System Acquisition Management**

**IS4023**

*This module aims to recognize the fundamental precepts and basics concepts of Information Systems acquisition management thereby recognizing the diverse, interrelated, and changing nature in the different disciplines of Information Systems acquisition management.*

**Credits** 03

GPA-Compulsory

#### **IS Auditing and Control**

**IS4033**

*This module introduces the concepts of IS auditing that allows users to audit and investigate their respective systems which enables them to increase the overall efficiency and effectiveness of their operations.*

**Credits** 03

GPA-Compulsory

#### **Business Process Re-engineering**

**IS4043**

*This module covers learning about modelling and optimizing of business processes which will allow the students to get a correct understanding of Business Process Re-engineering. Furthermore, they will be able to identify the impact of BPR, learn how the overall business environment influences BPR and BPR practices for simple processes.*

**Credits** 03

GPA-Compulsory

#### **Production and Operation Management**

**IS4052**

*This module emphasizes the concepts and practices of managing production and operations in contemporary organizations by introducing the field of production and operations management.*

**Credits** 02

GPA-Compulsory



**Enterprise Architecture****IS4062**

*This module introduces enterprise analysis, design, planning, and implementation for the successful development and execution of strategy. Enterprise Architecture applies architecture principles and practices to guide organizations through the business, information, process, and technology changes necessary to execute their strategy.*

**Credits** 02

GPA-Compulsory

**Image Processing****IT4062**

*This module introduces a thorough grounding of the principles of computer vision and image processing and seeks to develop student's knowledge from basic image processing techniques to advanced computer vision and image analysis systems.*

**Credits** 02

GPA-Elective

**Social Analysis and Social Media****IT4072**

*This module covers concepts and techniques for retrieving, exploring, visualizing, and analysing social network and social media data.*

**Credits** 02

GPA-Elective

**Emerging Technologies in ICT****IT4082**

*This module describes how emerging technologies are having an impact on everyday life and examines how new technologies that appear to be promising in the IT field.*

**Credits** 02

GPA-Elective

**Machine Learning****IT4092**

*This module provides a broad introduction to machine learning and statistical pattern recognition which enables machines to make smart decisions that makes expert systems possible.*

**Credits** 02

GPA-Elective

**Individual Research Project (Evaluate by semester 8)****IS4999**

*The aim of this module is to provide the undergraduates an exposure to research undertaken individually and to achieve a specific objective within a fixed time and to achieve it independently. Additionally, this module allows undergraduates to conduct research in Information Systems, by applying techniques learned throughout the degree programme, including the technical skills of analysis, design, and implementation.*

**Credits** 09

GPA-Compulsary

**3.3.6.2 Semester 08****Industrial Training****IS4986**

*This module exposes the students to the industry to learn from the industry, practice work ethics, adhere to professional conduct, learn about organization cultures & its processes, mater self-evaluation and practice to solve industrial problem using the gained knowledge.*

**Credits** 06

NGPA -Compulsory

**Individual Research Project****IS4999**

*The aim of this module is to provide the undergraduates an exposure to research undertaken individually and to achieve a specific objective within a fixed time and to achieve it independently. Additionally, this module allows undergraduates to conduct research in Information Systems, by applying techniques learned throughout the degree programme, including the technical skills of analysis, design, and implementation.*

**Credits** 09

GPA-Compulsory

The Bsc (Hons) in Information Systems degree programme contains 133 GPA credits from core course units, 20 NGPA credits and 18 MGPA credits. The distribution of the academic credits in BSc in IT degree program are illustrated in the table below.

*Table 11 GPA Summary*

<b>GPA Summary</b>			
<b>SEMESTER</b>	<b>GPA</b>	<b>NGPA</b>	<b>MGPA</b>
Semester 1	15	6	4
Semester 2	16	4	4
Semester 3	17	2	6
Semester 4	21	2	4
Semester 5	19	0	0
Semester 6	21	0	0
Semester 7	15	0	0
Semester 8	9	6	0
<b>Total</b>	<b>133</b>	<b>20</b>	<b>18</b>

## 4 Examinations

### 4.1 Examination Criteria

Each course of the program is assessed independently. The assessment has two components: Continuous Assessment (CA) and End Semester Written Examination (WE). The CA component is generally 30% and the WE component is 70% (The weightage of a component might change based on the nature of the course). The relevant percentages of assessment for a course are incorporated into the curriculum. In order to complete a course, the student has to earn a minimum of 35% of the allocated marks for each component and a total pass mark of 45% “C” grade.

The CA component includes laboratory work, tutorials, take home assignments, in class tests, case studies, quizzes, presentations, field visits and mid semester examinations. These are conducted during the semester.

### 4.2 Maximum Allowed Duration of Study

*Table 12 Maximum Allowed Durations*

<b>Degree Program</b>	<b>Max. No. of years in which a degree can be completed</b>
Computer Science	8
Software Engineering	8
Computer Engineering	8
Information Technology	8
Information Systems	8
Data Science and Business Analytics	8

The BoS (Senate)/ BOM (Council) on the recommendation of the Faculty Board of Faculty of Computing may grant permission to extend the duration of study beyond the maximum period allowed on medical grounds or under exceptional circumstances other than medical grounds on a case-by-case basis.

### 4.3 Attendance

The eligibility requirement to sit an End Semester examination paper in a Course Unit, relevant to the field of study in a particular semester, as a first-time candidate, is an attendance record of not less than 80%. However, an attendance record of not less than 70% may be considered on valid medical grounds and/or due to any other valid reason by the Faculty Board for the purpose of calculating the required attendance.

## 4.4 Grading System

There are two categories of Academic Credits: GPA (Grade Point Average) and NGPA (Non-Grade Point Average). Each course in the curriculum is assigned with a credit value and its category. Only the GPA credits are considered when calculating SGPA (Semester Grade Point Average), YGPA (Year Grade Point Average) and FGPA (Final Grade Point Average).

Military courses offered to the military students are assigned with a credit value of a third category, called MGPA (Military Grade Point Average). Both GPA and MGPA credits are considered when calculating the SGPA, YGPA and FGPA of military students. A prescribed minimum MGPA credits, over and above the Academic Credits, must be earned by a military student to qualify for graduation. The following table describes the grade point values (GPV) dedicated for each grade.

*Table 13: Details of Grades and GPVs*

<b>Final Marks</b>	<b>Grade</b>	<b>GPV</b>
85 – 100	A+	4.20
75 – 84	A	4.00
70 – 74	A-	3.70
65 – 69	B+	3.30
60 – 64	B	3.00
55 – 59	B-	2.70
50 – 54	C+	2.30
45 – 49	C	2.00
40 – 44	C-	1.70
35 – 39	D+	1.30
ES <35	Ie	0.00
CA < 35	Ia	0.00
PBCA <35%	Ia	0.00
Both ES & CA < 35	Ib	0.00
Not eligible	Ne	0.00
Absent	Ab	0.00
Excused	Ex	

Ab = Absent for a course unit    Ex = Excused on a valid reason

### Pass Marks and Grades

The details of the grades and Grade Point Value (GPV) corresponding range of marks are described in the above table. Grading for MGPA courses are decided by the senate,

considering the raw marks submitted by Military Training Academies and the pass mark of the respective Academies of the Army, Navy and Air Force. The semester Grade Point Average (SGPA) is calculated from GPV earned for individual courses in a semester as per the following formula,

$$\text{SGPA} = \frac{\sum[\text{GradePoint scored for Course Unit} \times \text{Credit value of Course Unit}]}{\text{Cumulative credit value of all GPA Course Units of the Semester}}$$

For further information of YGPA and FGPA, refer the section 3.7 of the Faculty of Computing By-Laws.

## 4.5 Criteria for Completing a Semester

### 4.5.1 Passing a Semester

A student shall satisfy the following minimum requirements to successfully complete a semester:

- a. obtain a “C” grade or above for all Course Units, other than as specified in Faculty of Computing By-Laws. b,
- b. obtain not more than one “D+” or “C-“grade for a GPA Course Unit per semester subject.
- c. have no Failure grades or “Ex” for any of the course units in the relevant semester.

### 4.5.2 Re-sitting a Course Unit

- a. Re-sitting a Course Unit for which an Excuse has been granted would be on the same basis as a normal first attempt candidate.
- b. A charge shall be levied by the registry as approved by the BOM, for re-sitting a course unit.
- c. All the Course Units having grade “Ie” shall be completed by re-sitting the ES component.
- d. All the Course Units having grade “Ia” shall be completed by re-sitting the CA/PBCA component.
- e. All the Course Units having grade “Ib” shall be completed by re-sitting the both ES and CA/PBCA component.
- f. The earned CA mark in the first attempt would be carried over when re-sitting of the ES component.

- g. All NGPA Course Units having a grade less than ‘C’ shall have to be repeated to obtain a pass grade.
- h. All GPA Course Units having a grade less than ‘C’, except those “weak passes” permitted under section (Faculty of Computing By-Laws), shall be repeated to obtain a pass grade.
- i. Any NGPA Course Unit having a grade ‘C’ or higher may be repeated if desirous of upgrading the given grade.
- j. Any GPA Course Unit with a permitted “Weak Pass” may be repeated if desirous of upgrading the given grade up to a maximum of grade ‘C’.

#### 4.5.3 Supplementary Examinations

- a. Supplementary Examinations will not be held following the Semesters 1 to 6.
- b. To allow students to graduate without delay, a supplementary examination may be held at end of the 7th and 8th Semester to permit students to complete all incomplete Course Units in 7th and 8th Semesters.

## 5 Discontinuing A Student

### 5.1 Discontinuation from the Degree

A student shall be deemed to have discontinued a degree programme at the University under any of the following conditions.

- a. When a student has been unable to complete the degree programme within the maximum period of sixteen semesters.
- b. When a student has been determined to be unfit to continue his/her studies at the University by a competent medical board recommended by the University on account of an illness.
- c. Following punishment for an examination offence in terms of the provisions of the “Bylaws pertaining to the conduct of examinations” approved by the BOM.
- d. When a student has been absent for two continuous semesters without informing the faculty and getting its acceptance.

### 5.2 Poor Performance of Students

- a. Any student will be allowed to progress through the semester whilst being in the original batch whilst completing low performed academic course units through subsequent examinations during the maximum duration specified in clause (Faculty of Computing By-Laws).

- b. A warning shall be issued to students who have failed to obtain a minimum SGPA of 2.0 at any stage of progression of the degree.

### 5.3 Relegation

Procedure for relegation of officer-cadets for poor performance shall be according to the FDSS By-Law

## 6 Awards and Trophy

### 6.1.1 Criteria for Awarding Degrees

Following criteria are considered for awarding degrees,

- a) Following the programme in the specified field of study for the minimum stipulated period of time;
- b) Satisfactory completion of the academic requirements of all semesters of the Degree Programme;
- c) As stipulated in the respective Degree Programme Curriculum obtaining a minimum of GPA credits and a minimum of NGPA credits
- d) Fulfilment of the criteria for completing the examinations within the maximum stipulated time period;
- e) Earning a GPA of not less than 2.00 for the entire degree programme;
- f) Not having more than 1 D+ or C- grades per semester in the entire programme.

A student shall be entitled to the award of the Hons Degree unless he/she has completed the above requirements (a – f) within four academic years.

### 6.1.2 Criteria for Awarding Classes

Awarding of classes shall be determined at the completion of all requirements for graduation within the minimum time period stipulated for the degree programme, except upon approvals granted by the BOM on the recommendation of the BOE for a valid and accepted reasons. The highest eligible Class shall be awarded based on the FGPA as in the following table.



Table 14 Criteria for Awarding Classes

<i>FGPA</i>	<i>Final Result</i>
FGPA $\geq$ 3.70	First Class
3.30 $\leq$ FGPA and FGPA $<$ 3.70	Second Class (Upper Division)
3.00 $\leq$ FGPA and FGPA $<$ 3.30	Second Class (Lower Division)
2.00 $\leq$ FGPA and FGPA $<$ 3.00	Pass

### **First Class**

For the award of a First Class, a student shall:

- a. have received a FGPA of not less than 3.70 for the entire Degree Programme.  
and
- b. not have received any failure grade at any time during the entire Degree Programme  
and
- c. not have carried over any weak passes for the entire Degree Programme at the time of finalizing the awarding of classes.

### **Second Class (Upper Division)**

For the award of a Second Class (Upper Division), a student shall:

- a. have received a FGPA of not less than 3.30 for the entire Degree Programme.  
and
- b. not have received more than one failure grades at any time during the entire Degree Programme  
and
- c. not have received any failure grade during the semesters 7 and 8  
and
- d. not have carried over any incomplete or failure grades or weak passes for the entire Degree Programme at the time of finalizing the awarding of classes.

## **Second Class (Lower Division)**

For the award of a Second Class (Lower Division), a student shall:

- a. have received a FGPA of not less than 3.00 for the entire Degree Programme.  
and
- b. not have received more than two failure grades at any time during the Programme  
and
- c. not have received any failure grade during the semesters 7 and 8  
and
- d. not have carried over any incomplete or failure grades for the entire Degree Programme at the time of finalizing the awarding of classes.

### **6.1.3 Merit Awards**

Students obtaining the highest GPA in Academic Studies shall be entitled for the respective Awards of merit. Awards to which students may be eligible on the recommendation of relevant authorities and the approval of the Board of Management are:

- a) Trophy for the Best Graduant in Computer Science.
- b) Trophy for the Best Graduant in Software Engineering.
- c) Trophy for the Best Graduant in Computer Engineering.
- d) Trophy for the Best Graduant in Information Technology.
- e) Trophy for the Best Graduant in Information Systems.
- f) Trophy for the Best Graduant in Data Science and Business Analytics.
- g) Trophy for the Best Overall Performance in Academic Studies Computing Stream.

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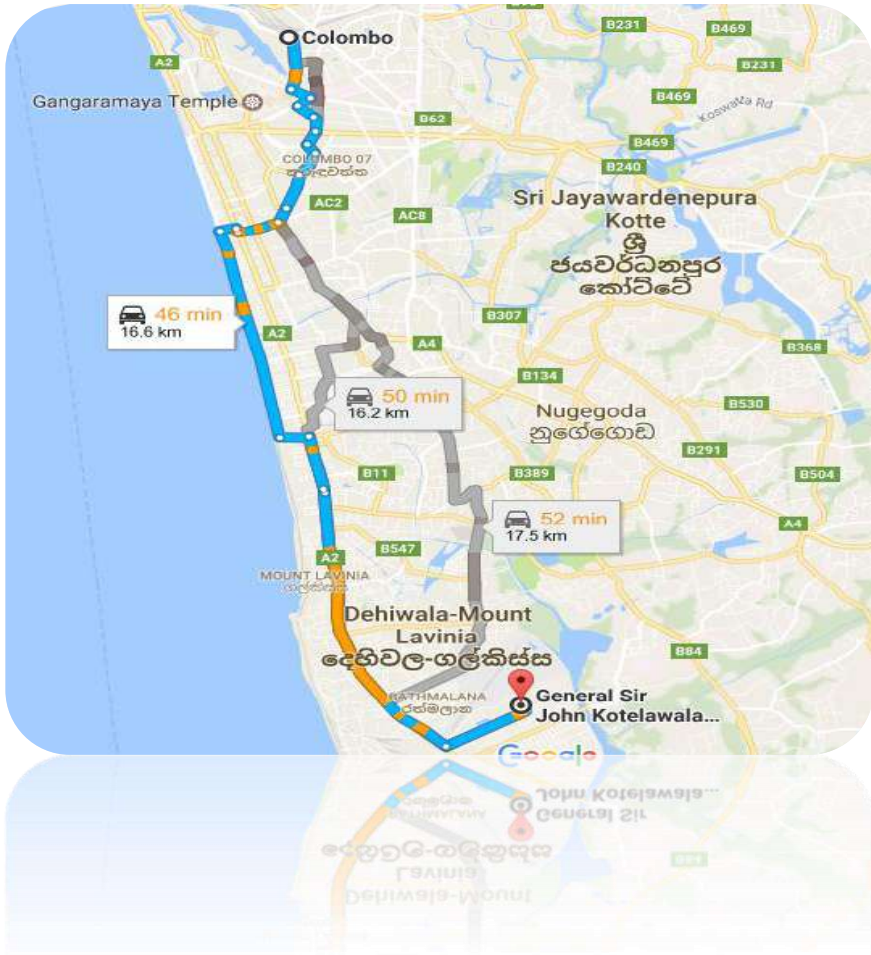
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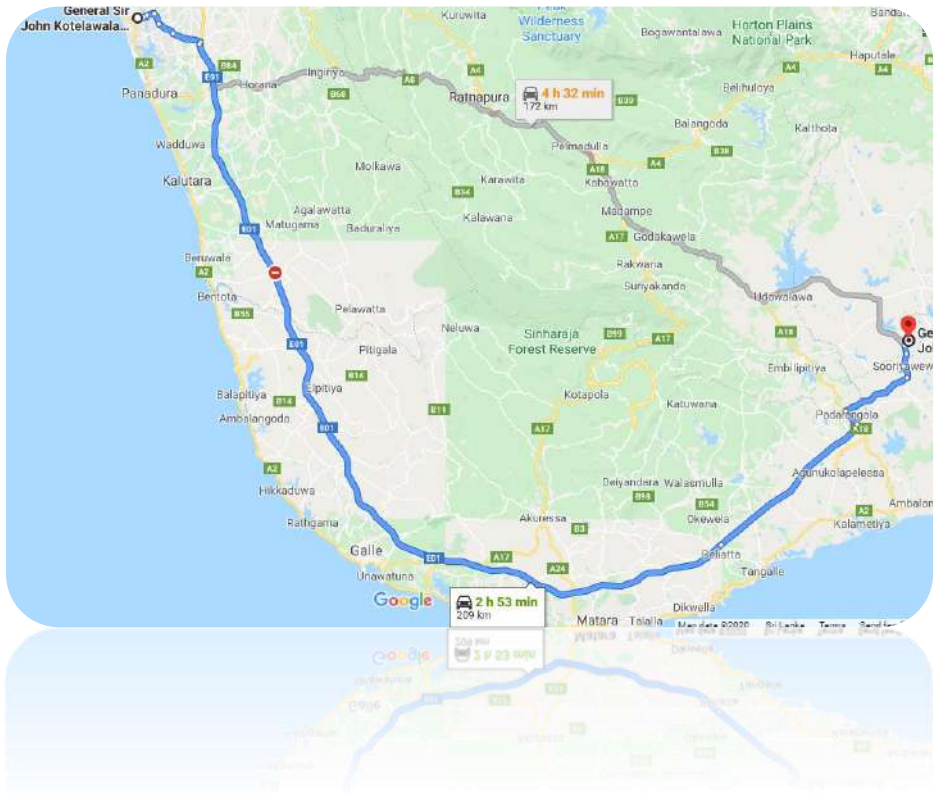


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