STUDENT HANDBOOK

ACADEMIC YEAR 2020/2021

Faculty of Computing and Technology
University of Kelaniya
Sri Lanka

Leading Innovation Through Collaboration

University of Kelaniya established its 7th Faculty - the Faculty of Computing and Technology (FCT) - on the 30th December 2015 and commenced its operations on the 18th January 2016. The vision of the faculty is to become a centre of excellence in creation and dissemination of knowledge in the domains of Computing and Technology for sustainable development of Sri Lanka.

At present, FCT offers three, four - year degree programmes, namely, Bachelor of Information and Communication Technology Honours [BICT (Hons)], Bachelor of Engineering Technology Honours [BET (Hons)] and Bachelor of Science Honours in Computer Science [BSc Hons (CS)].

The BICT Honours degree programme provides students with a strong fundamental knowledge in the Computing domain as well as necessary skills and knowledge required to design, build and maintain industry standard software and computer networks through hands-on laboratory sessions. BICT Honours degree will help students to acquire knowledge, develop skills and attitudes to function as software developers, network administrators and ICT professionals in the future.

The BET Honours degree programme has a strong focus on practical applications of Science and Technology with the view of preparing highly employable graduates for a wide variety of industrial applications expected by the ever growing industry in Sri Lanka. Currently, the BET Honours degree programme provides graduates with skills in the fields of Materials and Process Technoogy, Robotics and Industrial Automation and Sustainable Technologies.

The BSc Honours in Computer Science degree programme provides students with solid knowledge on theoretical concepts in the domain of Computer Science. This degree programme also provide the necessary skills and knowledge required to design and implement complex software and hardware systems through supporting hands-on laboratory sessions. This programme has a strong focus on practical applications of Computer Science with the view of preparing highly employable graduates for a wide variety of industrial applications expected by the ever growing high-end IT industry in Sri Lanka. This degree programme is aligned with the recommendations of the Standing Committee on Computing of the University Grants Commission (UGC), and the guidelines stipulated by the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronic Engineers (IEEE).

The new faculty was established also to cater to unique computing needs of other faculties of the university while offering its own academic programmes in Computing and Technology. Through the collaborative model practiced by the new faculty, the graduates of University of Kelaniya can excel in their studies in diverse areas of their own interest with the aid of new technologies of Computing and Technology provided through the degree programmes offered by the FCT.

FCT will also offer Postgraduate Degree Programmes in the areas of Computer Science, Software Engineering, Information Technology and Engineering Technology leading to Master of Science (M.Sc), Master of Philosophy (M.Phil) and Doctor of Philosophy (Ph.D) degrees. The Master of Science in Information Technology in Education degree programme has been developed for the Ministry of Education to train ICT teachers for the national education system and programme commenced in January 2021.

FCT conducts research in diverse fields of significant importance. Research at the FCT will expand from fundamental Computer Science research to the development of new technologies with applications to the industry and society as a whole.

The Faculty established National e-Learning Resource Centre (NELRC) as its first Research and Development Centre where academics from faculties of Commerce & Management Studies, Humanities, Social Sciences and FCT to share their experties in the field of e-learning and planning. The following Research and Development (R & D) Centres will be established in near future:

- Centre for Nanotechnology
- Language Engineering Research Centre
- Centre for Geo-informatics
- Centre for Computational Mathematics
- Centre for Data Science
- Centre for Cyber Security and Digital Forensics

FCT has an Industry Interaction Cell for Computing and Technology (IICfCT) which will function as its commercial arm to provide services related to Computing and Technology issues of the entire country with the following objectives:

1. To encourage computing and technology experts in the university to contribute their knowledge/ experience for the development of national economy.
2. To develop IT and Engineering Solutions necessary for the government sector and SMEs at an affordable cost.
3. To provide training opportunities for the students with real world environments.
4. To encourage external experts to collaborate with FCT for Research & Development activities.

Initially, the Faculty of Computing and Technology was established with three Departments: Department of Applied Computing, Department of Computer Systems Engineering and Department of Software Engineering that encompass all the subject areas of the Computing and Technology domains. In addition to the above Academic Departments: Department of Human Centered Computing, Department of Data Science and Engineering, Department of Computational Mathematics and Intelligent Systems, Department of Network and Security Engineering and a few other technology related departments will be established in the near future to serve the needs of the country.

The Faculty of Computing and Technology is the first Faculty in Sri Lanka that has adopted the Learning-Centered education pedagogy for its programme design and delivery. This new approach will empower student learning both inside and outside the class enabling active learning. Students will develop life-long learning skills and attitudes that are required by the industry thus transforming them to highly marketable graduates.

The Faculty of Computing and Technology warmly welcomes the fifth batch of Computer Science students and the sixth batch of students from the Technology stream who qualified to enter the faculty, and wishes them success in their academic and other endeavours, with the hope that they will make their contribution to the society as proud graduates of the Faculty of Computing and Technology of the University of Kelaniya.

Vision

To become a centre of excellence in creation and dissemination of knowledge in Computing and Technology for sustainable development.

Mission

The Faculty of Computing and Technology strives for excellence in Computing and Technology through innovation and dissemination of knowledge and capacity building for socio-economic development of the nation.

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Bachelor of Information and Communication Technology Honours [BICT(Hons)] Degree

The Bachelor of Information and Communication Technology Honours Degree is a four-year degree programme. The student intake is 75. This degree programme will enable students to build necessary skills, knowledge and attitudes required to function as software developers, network administrators and ICT professionals. Strong fundamental knowledge in electronics and data communication complemented with hands-on laboratory sessions will provide the necessary skills and knowledge required to design, build and maintain industry standard software and computer networks. The pathways currently on offer are:

- Computer Networks
- Games and Animation
- Software Systems Technology

Students will get an opportunity to work in the industry for six months through the internship module in the 4th year. The medium of instructions and examinations is English.

Accreditation for this degree programme will be sought from the Computer Society of Sri Lanka (CSSL).

Bachelor of Engineering Technology Honours [BET(Hons)] Degree

The Bachelor of Engineering Technology Honours Degree is a four-year degree programme. The student intake for this degree programme is 86. This Engineering Technology degree programme has a strong focus on practical applications of science and technology with the view of preparing the graduates for a wide variety of industry applications. The first two years of the curriculum aims at developing the common competencies expected of an engineering technologist while the final two years are devoted for developing specific competencies in chosen areas of specialization.
The pathways currently on offer are:

- Materials and Process Technology
- Industrial Automation and Robotics
- Sustainable Technology

Students will get an opportunity to work in the industry for six months through the internship module in the 4th year. The medium of instructions and examinations is English.

Accreditation for this degree programme will be sought from the Institution of Engineers Sri Lanka (IESL).

Bachelor of Science Honours in Computer Science [BSc Hons(CS)] Degree

This is a four-year degree programme leading to the Bachelor of Science Honours in Computer Science offered by the University of Kelaniya. The intake for this degree programme is 50. The course structure of the B.Sc. Honours in Computer Science Degree is designed to align with the recommendations of the Standing Committee on Computing of the UGC, and the guidelines of the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics Engineers (IEEE).

This degree programme will help students to build necessary skills, knowledge and attitudes required to function in the software industry, conduct research and disseminate knowledge in Computer Science. Deep fundamental knowledge in theoretical Computer Science with supporting hands-on laboratory sessions will provide the necessary skills and tacit knowledge required to analyse, design, implement and maintain industry standard software. Knowledge on Database Systems, Machine Learning, Data Security, Theory of Compilers, Parallel Computing, High Performance Computing, Data Science, Natural Language Processing, Digital Forensics, Semantic Web and e-business technologies, Computer Games and Animation, Image Processing, Virtual Reality to the curriculum provides ample flexibility for students to specialize in their own areas of interest.

Students can choose the standard pathway in computer science or a pathway to give more emphases on one of the following areas :

- Data Science
- Artificial Intelligence
- Cyber Security
- Scientific Computing

Students will get an opportunity to work in the industry for six months through internship module in the 4th year. The medium of instructions and examinations is strictly in English. In the final year all students should carry out a research project relevant to their area of interest.

Accreditation for this degree programme will be sought from the Computer Society of Sri Lanka (CSSL).

Introduction to Organization of the Degree Programmes

Academic programmes of the Faculty of Computing and Technology are organized as a collection of compulsory and optional course modules to be completed within a two-semester academic year with end of semester examinations. It offers a variety of course module combinations that are designed to provide maximum possible flexibility in the choice of course module.

The duration of a semester is 15 weeks. After 15 weeks of teaching, a study leave period of 2 weeks is given followed by end of course written examinations that are conducted within a period of 3 to 4 weeks. Examinations of laboratory course units 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 (GPA). The course modules are organized at four levels namely level 1, level 2, level 3 and level 4. Credit rating of a course unit is defined as follows:

For course units with lectures only
15 contact hours = 1 credit

For course units with laboratory work only
30-45 hours laboratory work = 1 credit
60-75 hours laboratory work = 2 credits

For course units with both lectures and laboratory work
10 contact hours + 15 hours of laboratory work = 1 credit

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

All compalsory course units of a degree programme are the course modules that are compulsory to follow by a student in that discipline.

The optional course units of a degree programme are the course modules that can be selected by a student based on his/her wish.

It is important to note that, there are some course units with a credit value that are compulsory to follow but are not considered in calculating the GPA (Non-GPA Course Units).

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 (year) of the course unit whereas the fifth digit signifies its credit value. The second digit indicates the semester in which the course unit 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 or the Faculty.

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

CTEC	Computer Technology	CTNT	Computer Network Technology
ETEC	Engineering Technology	SWST	Software Systems Technology
GTEC	General Technology	GANI	Games and Animation
GCPR	Generic Competencies for Professionals	CSCI	Computer Science
LNPR	Languages for Professionals	CSEC	Cyber Security
DELT	English for Professionals	DSCI	Data Science
ENPR	Entrepreneurship for Professionals	AINT	Artificial Intelligence
ETMP	Engineering Technology for Material and Process Engineering	SCOM	Scientific Computing
ETIA	Engineering Technology for Industrial Automtion and Robotics	MGMT	Management
ETST	Engineering Technology for Sustainable Technology		

How to Select Course Units

Each year a student has to follow a combination of compulsory and optional course units aggregating to a minimum of 30 credits in addition to the non-GPA course units. At the end of the 4 year degree programme, a student must accumulate a minimum of 120 credits to claim for a degree.

Grade calculation procedure of course units

All three degree programmes offered by the FCT follow procedures which is approved by the senate of the University of Kelaniya to calculate and assign grades that represent the performance of student learning. These procedures are called "course evaluation procedure". Each course unit has two major components in the course evaluation method.

1. Continuous Assessments (CA),
2. End of Semester Examination (ESE).

1. Continuous Assessment (CA)

CAs are activities that promote learning as well as communicate student performance while the course is being taught. The purpose of assigning CA activities is to promote learning as well as to measure the progress of student learning according to the learning goals (learning outcomes) of each course. CA activities may include,

- Assignments
- Group projects and reports
- Presentations,
- Quizzes (short tests)
- Class tests (monitored tests given in a lecture)
- Mid-Semester exam (monitored examination given in a comprehensive format similar to the end semester exam)

CA activities will give information on student performance on the learning outcomes. The lecturer will be able to find gaps in student learning as well as incorrect understandings when grading CA activities. The learning outcomes, available teaching as well as self-study time are different for each course. Therefore, the types of CA activities used as well as the number of CA activities used will change from course to course.

The list of CA components and the percentage mark contributions of the CA components to the overall grade of the courses will be made known to the students at the beginning of the semester in the course outline document. Based on the CA marks a CA grade for each course unit will be calculated and assigned to reflect student performance of continuous learning of that course unit.

2. End of Semester Examination

End of Semester Examination (ESE) is the final examination for a course unit. The ESE is conducted at the end of the semester after a study leave period. It is a monitored (proctored) examination. The ESE can be a combination of any of the following types of assessments

- Written examination
- Practical examination held in a laboratory
- Oral examination - a face-to-face exam where the student will have to present and answer questions directly to an examiner panel.
- Project report – Normally given in project based courses

In practical / laboratory based courses 80% attendance is a mandatory requirement to be allowed to sit for the ESE. For ESE theory component and ESE practical component of each course unit will be given a separate grade.

Course outline document

At the beginning of the semester, a course outline document will be circulated by the lecturer in-charge of the course unit. The course outline document will specify the following.

- the learning outcomes,
- course content,
- course policies
- course evaluation procedure
- a tentative schedule outlining the dates of lectures, content covered and the tentative dates for CA activities.

A "Project Guideline" will be circulated at the beginning of the research / capstone project course (CTEC 43018 / ETEC 43018 / CSCI 43018) in fourth year which will outline CA components and the format of the ESE for the research / capstone project course. A similar guideline will be circulated for the Industrial Training course as well.

Grading System

Marks obtained in respect of a course unit will be graded according to the following grading system

Range of Marks	Grade	Grade Point Value
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	C –	1.7
30-34	D+	1.3
25-29	D	1.0
00-24	E	0.0

Overall Grade

Overall grade will be decided by the final mark calculated as follows:

Final mark = CA mark x CA% + ESE (Theory) mark x ESE(Theory)% + ESE(Practical) mark x ESE(Practical)%

Here CA% , ESE(Theory)% and ESE(Practical)% are given in the detail course outline.

Example: Assessment Plan

Assessment Component	Contribution to Final Grade
Continuous Assessment Components	35 %
Assignment	10 %
Quiz	5 %
Mid – Semester Examination	20 %
End Semester Examination	65 %
Written Examination	45 %
Practical Examination	20 %
Total	100 %

Example: Student Final Mark Calculation

Assessment Component	% to Final Grade	Example Student Scores	Weighted Scores	Example Grades
CA Components	35 %			
Assignment	10 %	60 %	6 (60*.1)	
Quiz	5 %	70 %	3.5 (70*.05)	
Mid – Semester Examination	20 %	50 %	10 (50*.2)	
Marks for CA Grade			19.5/35 = 65 %	CA grade = A-
ESE Components	65 %			
Written Examination	45 %	58 %	26.1 (58*.45)	ESE-Theory Grade = B
Practical Examination	20 %	45 %	9 (45*.2)	ESE-Practical Grade = C+
Total Marks for Overall Grade			19.5+26.1+9=54.6% ≅ 55 %	B

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 one credit with grades A, C, B, D, C+ and A+ respectively would have the GPA of 2.48 as calculated below.

$$\frac{(2\times4.0)+(3\times2.0)+(3\times3.0)+(3\times1.0)+(1\times2.3)+(1\times4.0)}{2+3+3+3+1+1} = \frac{32.3}{13} = 2.4846$$

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

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

Completion of a course unit

A course unit will be considered as completed for the continuation of the programme if a student

1. obtains a D+ or better grade for Continuous Assessment (CA) component, and
2. obtains a D or better grade for End of Semester Assessment (Theory) component, and
3. obtains a D or better grade for End of Semester Assessment (Practical), if any

If one or more of the above conditions are not satisfied for a particular course unit then the course unit will be considered as an incomplete course unit. An INC grade will be assigned to indicate that the course unit is not complete. All INC grades are assinged a grade point value of 0.0 for the calculation of the GPA. The status of each assesment component will be given using the following references.

Reference	Grade Point Value	Component Condition
Inc[CA]	0.0	CA mark < D+ (30)
Inc[ESE-Theory]	0.0	ESE-Theory mark < D (25)
Inc[ESE-Practical]	0.0	ESE- Practical mark < D (25)

Students should repeat one or more of the assesment component of course unit with INC grades in the following academic year to complete those course units.

Passing of a course unit

Students can obtain a pass grade (A+, A, A-, B+, B, B-, C+, C) for a course unit if and only if
1. the course unit is completed, and
2. the final marks obtained for the course unit is within the range of above grades.
3. satisfy the conditions 1 and 2 above within maximum of 4 attempts.

If the attendance of a student at a laboratory or laboratory component of a theory course unit (i.e theory cum practical) is less than 80 %, he/she will not be allowed to sit for the practical examination of the relevant course unit and will be considered as a referred candidate for the relevant course unit at subsequent sittings.

Students should complete all course units that they have registered for. If a student fails to complete a particular course unit by being absent for ESE-Theory component, it will be indicated in the transcript as "absent" with the status of the other components and a zero (0.0) grade point value will be assigned to it.

Completion of a Semester

A student is considered to have completed a semester successfully, if and only if the student:

1. has successfully completed all registered course units considered in the calculation of the GPA for the semester and
2. has achieved a semester GPA of 2.00 or above and
3. has no E/INC grade for a course unit considered to calculate the GPA

Progression to the Third Year for the Bachelor of Information and Communication Technology Honours Degree and Bachelor of Engineering Technology Honours Degree

To register for the third year of study, the student should:
• Successfully complete the first three semesters. (i.e. both semesters of Level 1 and first semester of Level 2)

Special Re-sit examinations will be given for the incomplete course units of the third semester (i.e. 1st semester of the Level 2) ONLY.

Repeating a Course Unit Examination

The assessment components of a course unit maybe retaken to improve the overall grade of the course unit in the cases outlined below. Students may retake one or more assessment components (CA, ESE-theory, ESE-practical) of a particular course unit in the following academic year.
Repeating of a course unit is only allowed in the following instances
   1. The overall course grade is below "C"
   2. The overall course grade is "Incomplete"
   3. The overall course grade is "Absent"
The maximum number of repeat attempts allowed per course is three (03). The best overall grade out of all attempts will be retained for final component grades and overall grade.

1. Repeating a course unit with an overall grade below "C"

A student who obtains an overall grade below 'C' on a particular course unit can repeat one or more assessment components of that course unit (CA, ESE-theory, ESE-practical)
The maximum overall grade achievable in any repeat attempt is 'C'.

2. Repeating a course unit with an overall grade of "Incomplete"

If a student receives an Incomplete Grade for the overall course grade then it means that one or more of the three (03) assessment components (CA, ESE-theory, ESE-practical) of a course unit has an "Incomplete" grade.
Therefore, such assessment components has to be repeated in the following academic year. The student should apply to repeat the relevant assessment components to improve the Incomplete grade to a grade equal or greater than 'D'.
After receiving an Inc[ESE-Theory] reference for the INC grade, the maximum overall grade in the repeat attempt is a 'C'.

3. Repeating a course unit with an overall grade of absent

a. Absent without medical excuse

If a student is absent without a medical excuse for one or more of the three (03) assessment components (CA, ESE-theory, ESE-practical) the attempt on the component will be counted. The student can repeat the absent assessment components and they will be counted as repeat and not as his/her first-time attempt.
When a student repeats an assessment component after being absent without a medical excuse, the maximum grade achievable for the component grade in the repeat attempt is a C.

b. Absent with medical excuse

If a student is absent with a medical excuse for one or more of the three (03) assessment components (CA, ESE-theory, ESE-practical) he/she will receive an Absent grade for the absent assessment components and the attempt on the component will not be counted. The medical excuse is valid for only one (01) academic year. Therefore, repeat attempts made in the following academic year (after the medical excuse) are considered as first attempts.

If the student does not repeat the assessment in the following academic year after the medical excuse, the student will receive an "Absent" grade and the medical excuse will not be considered for future repeat attempts. There is no limit on the maximum overall grade achievable for the repeat assessment when it is considered as a first attempt.

Credit Distribution of the Course Structure - BICT Honours Degree Programme.

Level		Credits for Compulsory Courses	Credits for Optional Courses	Minimum Required Credits
Level 1		30	03	30
Level 2		30	04	30
Level 3	Pathway 1	30	00	30
	Pathway 2	30	00	30
	Pathway 3	30	00	30
Level 4	Pathway 1	30	00	30
	Pathway 2	30	00	30
	Pathway 3	30	00	30

Pathway 1 – Computer Network

Pathway 2 – Games and Animation

Pathway 3 – Software Systems

Common Course Units offered for the Bachelor of Information and Communication Technology Honours Degree Programme

Semester		Course Code	Course Title	Type	Credits	Pre-requisite	Counted for GPA
Year 1	Semester 1	GTEC 11013	Mathematics for Technology – 1	C	3	GCE (A/L)	Yes
		GTEC 11023	Physics for Technology I	C	3	GCE (A/L)	Yes
		GTEC 13032	Projects in Technology I	C	2	GCE (A/L)	Yes
		GTEC 11041	Engineering Drawing with CAD I	C	1	GCE (A/L)	Yes
		GTEC 11071	Physics for Technology Laboratory I	O	1	GCE (A/L)	Yes
		CTEC 11052	Structured Programming I	C	2	GCE (A/L)	Yes
		CTEC 11063	Computer Systems Organization	C	3	GCE (A/L)	Yes
		DELT 13522	English for Computing & Technology	C	2	GCE (A/L)	No*
	Semester 2	GTEC 12013	Mathematics for Technology – II	C	3	GTEC 11013	Yes
		GTEC 12023	Physics for Technology II	C	3	GTEC 11023	Yes
		GTEC 12033	Fundamental Practices in Technology	C	3	GCE (A/L)	Yes
		GTEC 12041	Engineering Drawing with CAD II	O	1	GTEC 11041	Yes
		GTEC 12062	Statistics for Technology	C	2	GTEC 11013	Yes
		GTEC 12081	Physics for Technology Laboratory II	O	1	GTEC 11071	Yes
		CTEC 12052	Data Communication and Networking	C	2	GCE (A/L)	Yes
		CTEC 12073	Structured Programming II	C	3	CTEC 11052	Yes
Year 2	Semester 1	GTEC 21023	Fundamentals of Electronics	C	3	GTEC 12023	Yes
		GTEC 23032	Projects in Technology II	C	2	GTEC 13032	Yes
		GTEC 21043	Mathematics for Technology III	C	3	GTEC 12013	Yes
		CTEC 21042	Web Programming I	C	2	CTEC 12052, CTEC 12073	Yes
		CTEC 21052	Introduction to Cyber Security	C	2	CTEC 12052	Yes
		CTEC 21063	Database Systems	C	3	CTEC 12073	Yes
		LNPR 21072	Japanese Language – I	O	2	GCE (A/L)	No*
		DELT 21512	English for the World	C	2	DELT 13522	No*
	Semester 2	GTEC 22033	Mathematics for Technology – IV	C	3	GTEC 21043	Yes
		CTEC 22023	Data Structures & Algorithms	C	3	CTEC 12073	Yes
		CTEC 22032	Software Engineering	C	2	CTEC 12073	Yes
		CTEC 22043	Object Oriented Programming	C	3	CTEC 12073	Yes
		CTEC 22053	Computer Architecture & Operating Systems	C	3	CTEC 11063	Yes
		CTEC 22061	Systems and Network Laboratory	C	1	CTEC 12052	Yes
		DELT 22552	English for Technology	C	2	DELT 13522	No*
		LNPR 22072	Japanese Language – II	O	2	LNPR 21072	No*

* Minimum grade D required for Graduation

Course Units offered for the Computer Networks Pathway

Semester		Course Code	Course Title	Type	Credits	Pre-requisite	Counted for GPA
Year 3	Semester 1	CTEC 31013	Web Programming II	C	3	CTEC 21042	YES
		CTEC 31023	Mobile Application Development	C	3	CTEC 21042	YES
		CTEC 31032	ICT for Business	C	2	GTEC 23032	YES
		CTEC 31042	Python Programming	C	2	CTEC 22023	YES
		CTNT 31012	Introduction to Telecommunication	C	2	CTEC 12052	YES
		CTNT 31022	Wireless and Mobile Communication	C	2	CTEC 12052	YES
		ENPR 31042	Principles and Practices of Management and Technology Management	C	2	GTEC 23032	YES
	Semester 2	GTEC 32012	Project Management	C	2	GTEC 23032	YES
		CTEC 32023	Internet of Things	C	3	CTEC 22053, CTEC 31022	YES
		CTNT 32012	Optical Fibre Communications and Satellite Communications	C	2	CTNT 31022	YES
		CTNT 32032	Virtualization and Cloud Computing	C	2	CTEC 21052, CTEC 22053	YES
		CTNT 32042	Advanced Communication Networks	C	2	CTNT 31022	YES
		CTNT 32051	Cyber Security Laboratory	C	1	CTEC 21052	YES
		CTNT 32062	Mobile Computing	C	2	CTNT 31022	YES
Year 4		CTEC 41016	Industrial Training	C	6	All compulsory units up to Level IV Sem I	YES
		CTEC 43018	Project	C	8	All compulsory units up to Level III	YES
		CTNT 44021	Advanced Networking Laboratory	C	1	CTNT 32042	YES
		CTNT 44032	Network and System Administration	C	2	CTNT 32042	YES
		CTNT 44042	Advanced Wireless and Mobile Communication	C	2	CTNT 31022	YES
		CTNT 44053	Network and Information Security	C	3	CTNT 32042	YES
		CTNT 44062	Security Management	C	2	CTNT 21052	YES
		CTNT 44073	Distributed Computing	C	3	CTNT 22053,CTNT 32062	YES
		ENPR 44043	Entrepreneurship and Small Business Management	C	3	ENPR 31042	YES

Course Structure for the BICT Honours Degree Programme

Course Units offered for the Games and Animation Pathway

Semester		Course CodeCourse Title	Type	Credits	Pre-requisite	Counted for GPA
Year 3	Semester 1	CTEC 31013 Web Programming II	C	3	CTEC 21042	YES
		CTEC 31023 Mobile Application Development	C	3	CTEC 21042	YES
		CTEC 31032 ICT for Business	C	2	GTEC 23032	YES
		GANI 31012 Data Structures for Game Development	C	2	CTEC 22023	YES
		GANI 31022 Introduction to 3D Modelling	C	2	GTEC 21043, CTEC 22023	YES
		GANI 31032 Game Design and Development	C	2	CTEC 22043	YES
		ENPR 31042 Principles and Practices of Management and Technology Management	C	2	GTEC 23032	YES
	Semester 2	GTEC 32012 Project Management	C	2	GTEC 23032	YES
		CTEC 32012 Human Computer Interaction	C	2	CTEC 22043	YES
		GANI 32013 Advanced 3D Modelling Workshop	C	3	GANI 31022	YES
		GANI 32024 Mathematics for Modelling and Rendering	C	4	GTEC 22033	YES
		GANI 32033 Animation for Game Development	C	3	GANI 31022	YES
Year 4		CTEC 41016 Industrial Training	C	6	All compulsory units up to Level IV Sem I	YES
		CTEC 43018 Project	C	8	All compulsory units up to Level III	YES
		CTEC 44022 Software and Hardware Optimization Techniques	C	2	CTEC 22053	YES
		GANI 44033 3D Games Prototyping	C	3	GANI 32013	YES
		GANI 44043 Real-Time 3D Techniques for Games	C	3	GANI 32013	YES
		GANI 44053 Fundamentals of Virtual Reality	C	3	GANI 32013	YES
		GANI 44062 Motion Graphics Workshop	C	2	GANI 32024	YES
		ENPR 44043 Entrepreneurship and Small Business Management	C	3	ENPR 31042	YES

Course Units offered for the Software Systems Technology Pathway

Semester		Course CodeCourse Title	Type	Credits	Pre-requisite	Counted for GPA
Year 3	Semester 1	CTEC 31013 Web Programming II	C	3	CTEC 21042	YES
		CTEC 31023 Mobile Application Development	C	3	CTEC 21042	YES
		CTEC 31032 ICT for Business	C	2	GTEC 23032	YES
		CTEC 31042 Python Programming	C	2	CTEC 22023	YES
		SWST 31022 Requirements Engineering	C	2	CTEC 22032	YES
		SWST 31032 Applied Information Systems	C	2	CTEC 22032	YES
		ENPR 31042 Principles and Practices of Management and Technology Management	C	2	GTEC 23032	YES
	Semester 2	GTEC 32012 Project Management	C	2	GTEC 23032	YES
		CTEC 32012 Human Computer Interaction	C	2	CTEC 22043	YES
		SWST 32012 System Analysis and Design	C	2	CTEC 22032	YES
		SWST 32022 Quality Assurance	C	2	CTEC 22032	YES
		SWST 32033 Advanced Databases	C	3	CTEC 21063	YES
		SWST 32043 Software Architecture and Concepts	C	3	CTEC 22032	YES
Year 4		CTEC 41016 Industrial Training	C	6	All compulsory units up to Level IV Sem I	YES
		CTEC 43018 Project	C	8	All compulsory units up to Level III	YES
		CTEC 44022 Software and Hardware Optimization Techniques	C	2	CTEC 22053	YES
		SWST 44022 Applied Internet-of-Things	C	2	CTEC 31013	YES
		SWST 44032 Scientific Communication	C	2	CTEC 22032	YES
		SWST 44042 Speech Interfaces	C	2	CTEC 32012	YES
		SWST 44053 Software Modelling	C	3	SWST 32012	YES
		SWST 44062 Enterprise Application Development	C	2	SWST 31032, S WST 32012	YES
		ENPR 44013 Entrepreneurship and Small Business Management	C	3	ENPR 31042	YES

Reference

C : Compulsory   O : Optional

GTEC : General Technology   CTEC : Computer Technology   GCPR : Generic Competency for Professionals

LNPR : Languages for Professionals   ENPR : Entrepreneurship for Professionals   CTNT : Communication Technology for Networking Technology

SWST : Software Systems Technology   GANI : Games and Animations

3rd Year

Course Code	Course Title	Pathway 1	Pathway 2	Pathway 3
CCTEC 31013	Web Programming II	X	X	X
CTEC 31023	Mobile Application Development	X	X	X
CTEC 31032	ICT for Business	X	X	X
CTEC 31042	Python Programming	X		X
ENPR 31042	Principles and Practices of Management and Technology Management	X	X	X
GTEC 32012	Project Management	X	X	X
CTEC 32023	Internet of Things	X		
CTEC 32012	Human Computer Interaction		X	X
Computer Networks Pathway				
CTNT 31012	Introduction to Telecommunication	X		
CTNT 31022	Wireless and Mobile Communication	X		
CTNT 32012	Optical Fibre Communications and Satellite Communications	X		
CTNT 32032	Virtualization and Cloud Computing	X		
CTNT 32042	Advanced Communication Networks	X		
CTNT 32051	Cyber Security Laboratory	X		
CTNT 32062	Mobile Computing	X		
Games and Animation Pathway				
GANI 31012	Data Structures for Game Development		X	
GANI 31022	Introduction to 3D Modelling		X	
GANI 31032	Game Design and Development		X	
GANI 32013	Advanced 3D Modelling Workshop		X	
GANI 32024	Mathematics for Modelling and Rendering		X	
GANI 32033	Animation for Game Development		X	
Software Systems Pathway				
SWST 31022	Requirements Engineering			X
SWST 31032	Applied Information Systems			X
SWST 32012	System Analysis and Design			X
SWST 32022	Quality Assurance			X
SWST 32033	Advanced Databases			X
SWST 32043	Software Architecture and Concepts			X
SWST 41062	Enterprise Application Development			X

4th Year

Course CodeCourse Title	Pathway 1	Pathway 2	Pathway 3
CTEC 43018 Project	X	X	X
CTEC 41016 Industrial Training	X	X	X
CTEC 44022 Software and Hardware Optimization Techniques		X	X
ENPR 44043 Entrepreneurship and Small Business Management	X	X	X
Computer Networks Pathway			
CTNT 44021 Advanced Networking Laboratory	X		
CTNT 44032 Network and System Administration	X		
CTNT 44042 Advanced Wireless and Mobile Communication	X		
CTNT 44053 Network and Information Security	X		
CTNT 44062 Security Management	X		
CTNT 44073 Distributed Computing	X		
Games and Animation Pathway			
GANI 44033 3D Games Prototyping		X	
GANI 44043 Real-Time 3D Techniques for Games		X	
GANI 44053 Fundamentals of Virtual Reality		X	
GANI 44062 Motion Graphics Workshop		X	
Software Systems Pathway			
SWST 44022 Applied Internet-of-Things			X
SWST 44032 Scientific Communication			X
SWST 44042 Speech Interfaces			X
SWST 44053 Software Modelling			X
SWST 44062 Enterprise Application Development			X

If a student has followed compulsory course units of a given pathway, aggregating to a minimum of 30 credits each in level 3 and 4, the pathway will be specified in the transcript.

Eligibility for the Award of the Bachelor of Information and Communication Technology Honours Degree

To be eligible for the Bachelor of Information and Communication Technology Honours degree, a student must
  i.   accumulate grades of D or better, in course units aggregating to at least 30 credits, including all compulsory course units considered for the calculation of the GPA in each academic year, totaling to minimum of 120 credits, and
  ii. obtain grades of C or better aggregating to at least 100 credits of which at least 40 credits should be from level 3 and 4 course units, and at least grades of D for the re maining course units considered in section (i) above, and
  iii. obtain grade C or better for the course unit CTEC 43018, and
  iv. obtain grades of D or better in each generic competency for professionals, course units (GCPR,DELT course unis), and
  v.   obtain grades of D or better in each language for professionals course units (LNPR course units), and
  vi. obtain a minimum GPA of 2.00 or greater, and
  vii. complete the relevant requirements within a period of six(06) Consecutive academic years.

First Class

A student who is eligible for the Bachelor of Information and Communication Technology Honours Degree may be awarded First Class if he/she

  i.   obtains grades of C or better in all course units considered for the calculation of the GPA, and
  ii. obtains a GPA of 3.70 or greater , and
  iii. obtains grades of A or better aggregating to at least half the number of credits in level 3 and 4 course units,   and
  iv. obtains grades of A or better aggregating to at least half the number of credits in level 1, level 2, level 3 and level 4 course units, and
  v.   completes the relevant requirements within four consecutive academic years.

Second Class (Upper Division)

A student who is eligible for the Bachelor of Information and Communication Technology Honours Degree may be awarded Second Class (Upper Division) provided, if he/she

  i.   obtains grades of C or better in all course units aggregating to at least 110 credits, and grades D or better in the remaining course units considered for the GPA calculation, and
  ii. obtains a GPA of 3.30 or greater, and
  iii. obtains grades of B or better aggregating to at least half the number of credits in level 3 and 4 course units, and
  iv. obtains grades of B or better aggregating to at least half the number of credits in level 1, level 2, level 3 and level 4 course units, and
  v.   completes the relevant requirements within four consecutive academic years.

Second Class (Lower Division)

A student who is eligible for the Bachelor of Information and Communication Technology Honours Degree may be awarded Second Class (Lower Division) provided, if he/she

i. obtains grades of C or better in all course units, aggregating to at least 110 credits, and grades D or better in the remaining course units considered for the GPA calculation, and

ii. obtains a GPA of 3.00 or greater, and

iii. obtains grades of B or better in level 3 and 4 course units, aggregating to at least half the number of credits accumulated in such course units, and

iv. obtains grades of B or better in level 1, level 2, level 3 and 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 consecutive academic years.

Credit Distribution of the Course Structure - BET Honours Degree

	Level	Credits for Compulsory Courses	Credits for Optional Courses	Minimum Required Credits
Level 1		30	00	30
Level 2		30	02	30
Level 3	Pathway 1	15	57	30
	Pathway 2	15	57	30
	Pathway 3	15	57	30
Level 4	Pathway 1	19	30	31
	Pathway 2	19	30	31
	Pathway 3	19	30	31

Pathway 1 - Materials and Process Technology

Pathway 2 - Industrial Automation and Robotics

Pathway 3 - Sustainable Technology

Common Course Units offered for the Bachelor of Engineering Technology Honours Degree Programme

Semester		Course Code	Course Title	Type	Credits	Pre-requisite	Counted for GPA
Year 1	Semester 1	GTEC 11013	Mathematics for Technology – 1	C	3	GCE (A/L)	YES
		GTEC 11023	Physics for Technology I	C	3	GCE (A/L)	YES
		GTEC 11041	Engineering Drawing with CAD I	C	1	GCE (A/L)	YES
		ETEC 11052	Introduction to programming for Technology	C	2	GCE (A/L)	YES
		ETEC 11063	Chemistry for Technology	C	3	GCE (A/L)	YES
		GTEC 11071	Physics for Technology Laboratory I	C	1	GCE (A/L)	YES
		GTEC 13032	Projects in Technology I	C	2	GCE (A/L)	YES
		DELT 13522	English for Computing & Technology	C	2	GCE (A/L)	NO*
	Semester 2	GTEC 12013	Mathematics for Technology – II	C	3	GTEC 11013	YES
		GTEC 12023	Physics for Technology II	C	3	GTEC 11023	YES
		GTEC 12033	Fundamental Practices in Technology	C	3	GCE (A/L)	YES
		GTEC 12041	Engineering Drawing with CAD II	C	1	GTEC 11041	YES
		ETEC 12051	Engineering Workshop	C	1	GCE (A/L)	YES
		GTEC 12062	Statistics for Technology	C	2	GTEC 11013	YES
		ETEC 12071	Chemistry for Technology Laboratory	C	1	GCE(A/L)	YES
		GTEC 12081	Physics for Technology Laboratory II	C	1	GTEC 11071	YES
Year 2	Semester 1	GTEC 21013	Applied Calculus - I	C	3	GTEC 12013	YES
		GTEC 21023	Fundamentals of Electronics	C	3	GTEC 12023	YES
		GTEC 23032	Projects in Technology II	C	2	GTEC 13032	YES
		ETEC 21043	Engineering Materials -I	C	3	ETEC 11063 & GTEC 12033	YES
		ETEC 21053	Manufacturing Processes	C	3	ETEC 12051	YES
		ETEC 21062	Object Oriented Programming for Engineering Technology	O	2	ETEC 11052	YES
		LNPR 21072	Japanese Language – I	O	2	GCE (A/L)	NO*
		DELT 21512	English for the World	C	2	DELT 13522	NO*
	Semester 2	GTEC 22013	Applied Calculus- II	C	3	GTEC 21013	YES
		GTEC 22023	Sustainable Technology Systems	C	3	ETEC 11063 & GTEC 12033	YES
		ETEC 22033	Applied Thermodynamics	C	3	GTEC 11023 & GTEC 12023	YES
		ETEC 22042	Electric Circuits and Electric Machines	C	2	GTEC 21023 & GTEC 12081	YES
		ETEC 22053	Industrial Control Systems	C	3	GTEC 11023 & GTEC 12023	YES
		ETEC 22063	Mechanics of Materials	C	3	GTEC 11041 & GTEC 12041	YES
		DELT 22552	English for Technology	C	2	DELT 13522	NO*
		LNPR 22072	Japanese Language -II	O	2	LNPR 21072	NO*

* Minimum grade D required for Graduation

Course Units offered for the Materials and Process Technology Pathway

Semester		Course Code	Course Title	Type	Credits	Pre-requisite	Counted for GPA
Year 3	Semester 1	ETEC 31013	Programming in Python for Engineering Technology	O	3	ETEC 11052	YES
		ETEC 31023	Fluid Mechanics and Fluid Systems	C	3	ETEC 22033	YES
		ETEC 31033	Mechanics of Machines	C	3	ETEC 22063	YES
		ENPR 31042	Principles and Practices of Technology management	C	2	GTEC 23032	YES
		ETMP 31213	Chemical Process Technology	O	3	ETEC 21043 & ETEC 21053	YES
		ETMP 31223	Engineering Materials -II	O	3	ETEC 21043	YES
	Semester 2	ETEC 32012	Machine Design with Computer Aided Design	C	2	GTEC 12041	YES
		ETEC 32022	Manufacturing Systems and Computer Integrated Manufacturing	C	2	ETEC 21043 & ETEC 21053	YES
		ENPR 33033	Innovations to Market	C	3	GTEC 23032	YES
		GCPR 32041	Professional Ethics and Practices	C	1	GTEC 12033	NO*
		ETMP 32213	Science of Engineering Materials	O	3	ETEC 21043 & GTEC 12023	YES
		ETMP 32223	Materials Processes in Industry- I	O	3	ETEC 21043 & ETEC 21053	YES
		ETMP 32233	Nanoscience and Nanomaterials	O	3	ETEC 21043	YES
		ETMP 32243	Integrated Computational Materials Engineering	O	3	ETEC 32012 & ETEC 11063	YES
Year 4		GTEC 41016	Industrial Training	C	6	All compulsory units up to Level 4	YES
		ETEC 43018	Capstone Project	C	8	GTEC 23032 & ENPR 31042	YES
		GCPR 44022	Occupational Health and Safety	C	2	ETEC 12051 & GTEC 12081 & ETEC 12071	NO*
		ENPR 44033	Total Productive Maintenance (TPM)	O	3	ETEC 12051	YES
		ENPR 44043	Entrepreneurship and Small Business Management	C	3	ENPR 31042	YES
		ENPR 44052	Lean/Six Sigma Management	C	2	ENPR 31042	YES
		ETMP 44213	Materials Processes in Industry --II	O	3	ETMP 32223	YES
		ETMP 44223	Novel Engineering Materials and Next Generation Devices	O	3	ETMP 31223 & ETMP 32213	YES
		ETMP 44233	Materials Characterization and Testing Laboratory	O	3	ETEC 21043 & ETEC 22063	YES

* Minimum grade D required for Graduation

Course Units offered for the Industrial Automation and Robotics Pathway

Semester		Course Code	Course Title	Type	Credits	Pre-requisite	Counted for GPA
Year 3	Semester 1	ETEC 31013	Programming in Python for Engineering Technology	O	3	ETEC 11052	YES
		ETEC 31023	Fluid Mechanics and Fluid Systems	C	3	ETEC 22033	YES
		ETEC 31033	Mechanics of Machines	C	3	ETEC 22063	YES
		ENPR 31042	Principles and Practices of Technology management	C	2	GTEC 23032	YES
		ETIA 31413	Introduction to Industrial Automation	O	3	ETEC 22042 & ETEC 22053	YES
		ETIA 31423	Introduction to Microprocessors and Embedded systems	O	3	ETEC 11052	YES
	Semester 2	ETEC 32012	Machine Design with Computer Aided Design	C	2	GTEC 12041	YES
		ETEC 32022	Manufacturing Systems and Computer Integrated Manufacturing	C	2	ETEC 21043 & ETEC 21053	YES
		ENPR 33033	Innovations to Market	C	3	GTEC 23032	YES
		GCPR 32041	Professional Ethics and Practices	C	1	GTEC 12033	NO*
		ETIA 32413	Introduction to Robotics in Manufacturing	O	3	ETIA 31413	YES
		ETIA 32423	Process Instrumentation and Control	O	3	ETEC 22042 & ETEC 22053	YES
		ETIA 32433	Industrial Automation Networks	O	3	ETIA 31413	YES
		ETIA 32443	Embedded systems and Applications	O	3	ETIA 31423	YES
Year 4		GTEC 41016	Industrial Training	C	6	All compulsory units up to Level 4	YES
		ETEC 43018	Capstone Project	C	8	GTEC 23032 & ENPR 31042	YES
		GCPR 44022	Occupational Health and Safety	C	2	ETEC 12051 & GTEC 12081 & ETEC 12071	NO*
		ENPR 44033	Total Productive Maintenance (TPM)	O	3	ETEC 12051	YES
		ENPR 44043	Entrepreneurship and Small Business Management	C	3	ENPR 31042	YES
		ENPR 44052	Lean/Six Sigma Management	C	2	ENPR 31042	YES
		ETIA 44413	Computer Integrated Manufacturing	O	3	ETEC 32012 & ETEC 32022	YES
		ETIA 44423	Industrial Motion Control	O	3	ETIA 31423 & ETIA 32423	YES
		ETIA 44433	Computer Aided Manufacturing with Lab	O	3	ETEC 32012 & ETEC 32022	YES

* Minimum grade D required for Graduation

Course Units offered for the Sustainable Technology Pathway

Semester		Course Code	Course Title	Type	Credits	Pre-requisite	Counted for GPA
Year 3	Semester 1	ETEC 31013	Programming in Python for Engineering Technology	O	3	ETEC 11052	YES
		ETEC 31023	Fluid Mechanics and Fluid Systems	C	3	ETEC 22033	YES
		ETEC 31033	Mechanics of Machines	C	3	ETEC 22063	YES
		ENPR 31042	Principles and Practices of Technology management	C	2	GTEC 23032	YES
		ETST 31613	Hydrology and hydrogeology with lab	O	3	GTEC 11023 & ETEC 11063	YES
		ETST 31623	Conventional and Alternative Energy Resources	O	3	GTEC 12023 & GTEC 22023	YES
		ETEC 32012	Machine Design with Computer Aided Design	C	2	GTEC 12041	YES
	Semester 2	ETEC 32022	Manufacturing Systems and Computer Integrated Manufacturing	C	2	ETEC 21043 & ETEC 21053	YES
		ENPR 33033	Innovations to Market	C	3	GTEC 23032	YES
		GCPR 32041	Professional Ethics and Practices	C	1	GTEC 12033	NO*
		ETST 32613	Energy Storage Technologies with Lab	O	3	GTEC 12023 & ETEC 11063	YES
		ETST 32623	Water and Wastewater Treatment	O	3	GTEC 22023	YES
		ETST 32633	Soil and Solid Waste Treatment	O	3	GTEC 22023	YES
Year 4		ETST 32643	Air and Air Pollution Control	O	3	ETEC 11063	YES
		GTEC 41016	Industrial Training	C	6	All compulsory units up to Level 4	YES
		ETEC 43018	Capstone Project	C	8	GTEC 23032 & ENPR 31042	YES
		GCPR 44022	Occupational Health and Safety	C	2	ETEC 12051 & GTEC 12081 & ETEC 12071	NO*
		ENPR 44033	Total Productive Maintenance (TPM)	O	3	ETEC 12051	YES
		ENPR 44043	Entrepreneurship and Small Business Management	C	3	ENPR 31042	YES
		ENPR 44052	Lean/Six Sigma Management	C	2	ENPR 31042	YES
		ETST 44613	Monitoring and Assessment of Sustainability	O	3	GTEC 22023	YES
		ETST 44623	Sustainable Facilities and Operations	O	3	ETST 31623 & GTEC 22023	YES
		ETST 44633	Geographical Information Systems for Sustainability with Laboratory	O	3	ETEC 11052	YES

* Minimum grade D required for Graduation

Reference

C : Compulsory   O : Optional

GTEC : General Technology   ETEC : Engineering Technology   GCPR : Generic Competency for Professionals

LNPR : Languages for Professionals   ENPR : Entrepreneurship for Professionals   ETMP : Materials and Process Technology

ETIA : Industrial Automation and Robotics   ETST : Sustainable Technology

3rd Year

Course Code	Course Title	Pathway 1	Pathway 2	Pathway 3
Materials and Process Technology Pathway				
ETMP 31213	Chemical Process Technology	X		
ETMP 31223	Engineering Materials -II	X		
ETMP 32213	Science of Engineering Materials	X		
ETMP 32223	Materials Processes in Industry- I	X		
ETMP 32233	Nanoscience and Nanomaterials	X		
ETMP 32243	Integrated Computational Materials Engineering	X		
Industrial Automation and Robotics Pathway				
ETIA 31413	Introduction to Industrial Automation		X	
ETIA 31423	Introduction to Microprocessors and Embedded systems		X	
ETIA 32413	Introduction to Robotics in Manufacturing		X	
ETIA 32423	Process Instrumentation and Control		X	
ETIA 32433	Industrial Automation Networks		X	
ETIA 32443	Embedded systems and Applications		X	
Sustainable Technology Pathway				
ETST 31613	Hydrology and hydrogeology with lab			X
ETST 31623	Conventional and Alternative Energy Resources			X
ETST 32613	Energy Storage Technologies with Lab			X
ETST 32623	Water and Wastewater Treatment			X
ETST 32633	Soil and Solid Waste Treatment			X
ETST 32643	Air and Air Pollution Control			X

4th Year

Course Code	Course Title	Pathway 1	Pathway 2	Pathway 3
Materials and Process Technology Pathway				
ETMP 44213	Materials Processes in Industry --II	X		
ETMP 44223	Novel Engineering Materials and Next Generation Devices	X		
ETMP 44233	Materials Characterization and Testing Laboratory	X		
Industrial Automation and Robotics Pathway				
ETIA 44413	Computer Integrated Manufacturing		X	
ETIA 44423	Industrial Motion Control		X	
ETIA 44433	Computer Aided Manufacturing with Lab		X	
Sustainable Technology Pathway				
ETST 44613	Monitoring and Assessment of Sustainability			X
ETST 44623	Sustainable Facilities and Operations			X
ETST 44633	Geographical Information Systems for Sustainability with Laboratory			X

If a student has followed compulsory course units of a given pathway, aggregating to a minimum of 30 credits each in level 3 and 4, the pathway will be specified in the transcript.

Eligibility for the Award of the Bachelor of Engineering Technology (Honours) Degree

To be eligible for the Bachelor of Engineering Technology Honours degree, a student must

i.   accumulate grades of D or better, in course units aggregating to at least 30 credits, including all compulsory course units considered for the calculation of the GPA in each academic year, totaling to minimum of 120 credits, and
ii. obtain grades of C or better aggregating to at least 100 credits of which at least 40 credits should be from level 3 and 4 course units, and at least grades of D for the remaining course units considered in section (i) above, and
iii. obtain grade C or better for the course unit ETEC 43018, and
iv. obtain grades of D or better in each generic competency for professionals, course units (GCPR,DELT course unis), and
v.   obtain grades of D or better in each language for professionals course units (LNPR course units), and
vi. obtain a minimum GPA of 2.00 or greater, and
vii. complete the relevant requirements within a period of Six (06) consecutive academic years.

First Class

A student who is eligible for the Bachelor of Engineering Technology Honours Degree may be awarded First Class if he/she

i.   obtains grades of C or better in all course units considered for the calculation of the GPA, and
ii. obtains a GPA of 3.70 or greater, and
iii. obtains grades of A or better aggregating to at least half the number of credits in level 3 and 4 course units, and
iv. obtains grades of A or better aggregating to at least half the number of credits in level 1, level 2, level 3 and level 4 course units, and
v.   completes the relevant requirements within four (04) consecutive academic years.

Second Class (Upper Division)

A student who is eligible for the Bachelor of Engineering Technology Honours Degree may be awarded Second Class (Upper Division) provided, if he/she

i.   obtains grades of C or better in all course units aggregating to at least 110 credits, and grades D or better in the remaining course units considered for the GPA calculation, and
ii. obtains a GPA of 3.30 or greater, and
iii. obtains grades of B or better aggregating to at least half the number of credits in level 3 and 4 course units, and
iv. obtains grades of B or better aggregating to at least half the number of credits in level 1, level 2, level 3 and level 4 course units, and
v.   completes the relevant requirements within four (04) consecutive academic years.

Second Class (Lower Division)

A student who is eligible for the Bachelor of Engineering Technology Honours Degree may be awarded Second Class (Lower Division) provided, if he/she

i. obtains grades of C or better in all course units, aggregating to at least 110 credits, and grades D or better in the remaining course units considered for the GPA calculation, and

ii. obtains a GPA of 3.00 or greater, and

iii. obtains grades of B or better in level 3 and 4 course units, aggregating to at least half the number of credits accumulated in such course units, and

iv. obtains grades of B or better in level 1, level 2, level 3 and 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 consecutive academic years.

Course Structure for the B.Sc. Honours in Computer Science Degree Programme

The pathways for the B.Sc. Honours in Computer Science Degree Programme is designed by retaining all the globally accepted core modules of computer science.

The course structure of this B.Sc. Honours in Computer Science Degree programme is designed to align with the recommendations of the Standing Committee on Computing of the UGC, and the guidelines of the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics Engineers (IEEE).

Course Structure for the B.Sc. Honours in Computer Science Degree Programme

The common course structure for all the pathways in year 1 and year 2 (SLQL 3 and 4) is given below:

Semester		Course Code	Course Title	Type	Credits	Pre-requisite	Counted for GPA
Year 1	Semester 1	CSCI 11014	Mathematics for Computer Science – I	C	4	G.C.E. (A/L)	YES
		CSCI 11023	Fundamentals of Statistics	C	3	G.C.E. (A/L)	YES
		CSCI 11032	Structured Programming – I	C	2	G.C.E. (A/L)	YES
		CSCI 11042	Fundamentals of Digital Electronics	C	2	G.C.E. (A/L)	YES
		CSCI 11052	Web Fundamentals	C	2	G.C.E. (A/L)	YES
		CSCI 11062	Introduction to Database Management Systems	C	2	G.C.E. (A/L)	YES
		CSCI 11072	Foundations in Computer Science	O	2	G.C.E. (A/L)	NO*
		DELT 13302	English for Computing and Technology	C	2	G.C.E. (A/L)	NO*
	Semester 2	CSCI 12013	Mathematics for Computer Science – II	C	3	CSCI 11014	YES
		CSCI 12022	Probability Distribution and Applications	C	2	CSCI 11023	YES
		CSCI 12033	Computer Architecture & Design	C	3	CSCI 11014	YES
		CSCI 12042	Structured Programming – II	C	2	CSCI 11032	YES
		CSCI 12052	Fundamentals of Operating Systems	C	2	CSCI 11014	YES
		CSCI 12063	Web Programming	C	3	CSCI 11052	YES
Year 2	Semester 1	CSCI 21013	Statistical Inference	C	3	CSCI 12022	YES
		CSCI 21023	Data Communication and Networks	C	3	CSCI 11014/CSCI 11032	YES
		CSCI 21033	Data Structures and Algorithms	C	3	CSCI 12042	YES
		CSCI 21042	Software Engineering	C	2	CSCI 12042	YES
		CSCI 21052	Object-Oriented Programming – I	C	2	CSCI 12042	YES
		CSCI 21062	Advanced Database Management Systems	C	2	CSCI 11062	YES
		CSCI 23072	Group Project	C	2	Compulsory units in Year I	YES
		DELT 21212	English for the World	C	2	DELT 13302	NO*
		MGMT 21012	Principles of Management	C	2	G.C.E. (A/L)	NO*
	Semester 2	CSCI 22012	Statistics for Decision Making	C	2	CSCI 21013	YES
		CSCI 22022	Advanced Operating Systems	C	2	CSCI 12052	YES
		CSCI 22032	Object-Oriented Analysis and Design	C	2	CSCI 21042	YES
		CSCI 22042	Visual Programming	C	2	CSCI 21052	YES
		CSCI 22052	Introduction to Artificial Intelligence	C	2	CSCI 12013	YES
		CSCI 22062	Introduction to Cyber Security	C	2	CSCI 21023	YES
		CSCI 22072	TMobile Application Development	O	2	CSCI 21052/CSCI 12063	YES
		CSCI 22082	Object-Oriented Programming – II	C	2	CSCI 21052	YES
		MGMT 22012	Human Resource Management	C	2	MGMT 21012	NO*

Reference

* Minimum grade D required for Graduation

CSCI – Computer Science   DELT – English for Professionals   MGMT – Management
C – Compulsory   O – Optional

Course units for the Year III and IV (SLQF 5 and 6):
Course units for Year III (SLQF 5)

Year III	Credits for Compulsory Courses	Credits for Optional Courses	Minimum Required Credits
Pathway 1	26	21	30
Pathway 2	25	20	30
Pathway 3	24	28	30
Pathway 4	27	30	30
Pathway 5	22	38	30

Pathway 1 – Cyber Security

Pathway 2 – Data Science

Pathway 3 – Artificial Intelligence

Pathway 4 – Scientific Computing

Pathway 5 – Standard Pathway

Course Structure for the B.Sc. Honours in Computer Science Degree Programme

	Course Code	Course Title	Pre-requisite	Credits	Pathway 1	Pathway 2	Pathway 3	Pathway 4	Pathway 5	Counted for GPA
Year 3 — Semester 1	CSCI 31014	Mathematics for Computer Science III	CSCI 12013	4	C	C	C	C	C	YES
	CSCI 31022	Machine Learning and Pattern Recognition	CSCI 22052	2	O	C	C	C	C	YES
	CSCI 31032	Theory of Programming Languages	CSCI 21033	2	O	O	O	O	C	YES
	CSCI 31042	Advanced Data Structures and Algorithms	CSCI 21033	2	O	C	O	O	O	YES
	CSCI 31052	Project Management	CSCI 21042	2	O	O	O	O	O	YES
	CSCI 31062	Semantic Web and Ontological Modeling	CSCI 12063	2	-	O	O	O	O	YES
	CSCI 31072	Python Programming	CSCI 12042	2	O	C	O	O	O	YES
	CSCI 31082	Systems and Network Administration	CSCI 21023, CSCI 22022	2	C	O	O	O	O	YES
	CSEC 31012	Applied Cryptography	CSCI 12013	2	C	-	-	-	O	YES
	CSEC 31022	Data and Systems Security	CSCI 22022, CSCI 21062	2	C	-	-	-	O	YES
	AINT 31012	Natural Language Processing	CSCI 22052	2	-	O	C	-	O	YES
	AINT 31022	Deductive Reasoning and Logic Programming	CSCI 12013	2	-	-	C	O	C	YES
	SCOM 31013	Numerical Analysis and Scientific Programming	CSCI 12013, CSCI 12042	3	-	-	-	C	-	YES
	SCOM 31022	Scientific Visualization	CSCI 12013, CSCI 12042	2	-	-	-	C	-	YES
	SCOM 31032	Mathematical Modeling	CSCI 12013, CSCI 12042	2	-	-	-	C	-	YES
	DELT 33212*	English for Professional Purposes	DELT 21212	2	C	C	C	C	C	NO*
	MGMT 31012*	Introduction to Entrepreneurship	MGMT 22012	2	C	C	C	C	C	NO*

* Minimum grade D required for Graduation

Course Structure for the B.Sc. Honours in Computer Science Degree Programme

Course Code	Course Title	Pre-requisite	Credits	Pathway 1	Pathway 2	Pathway 3	Pathway 4	Pathway 5	Counted for GPA
CSCI 32012	Theory of Automation	CSCI 12013	2	C	C	C	C	C	YES
CSCI 32022	Human Computer Interaction	CSCI 21042	2	C	C	C	C	C	YES
CSCI 32032	Research Methodology and Scientific Communication	CSCI 22012	2	C	C	C	C	C	YES
CSCI 32042	Social and Professional Issues	CSCI 21042	2	C	C	C	C	C	YES
CSCI 32052	Distributed Systems & Cloud Computing	CSCI 12063	2	C	O	O	C	O	YES
CSCI 32062	Computer Graphics	CSCI 12013	2	O	O	C	C	C	YES
CSCI 32073	Introduction to Game Development	CSCI 21033	3	–	–	O	O	O	YES
CSCI 32083	Stochastic Processes	CSCI 21013	3	O	C	O	O	O	YES
CSCI 32092	Data Mining and Warehousing	CSCI 21062	2	O	C	O	O	O	YES
CSEC 32012	Wireless Communications and Networking	CSCI 21023	2	C	O	O	O	O	YES
CSEC 32022	Advanced Computer Communication and Networking	CSCI 21023	2	C	–	–	O	O	YES
CSEC 32032	Network Security	CSEC 31022	2	C				O	YES
DSCI 32012	Advanced Database Applications	CSCI 21062	2	O	C	O	O	C	YES
AINT 32012	Digital Image Processing and Computer Vision	CSCI 12013	2	–	–	C	O	O	YES
AINT 32022	Complex Systems & Agent Technology	CSCI 22052	2	–	O	C	–	O	YES
SCOM 32012	Parallel Computing	CSCI 21023	2	O	O	O	C	O	YES

Year 3 — Semester 2

CSCI	–	Computer Science	Pathway 1 – Cyber Security
CSEC	–	Cyber Security	Pathway 2 – Data Science
AINT	–	Artificial Intelligence	Pathway 3 – Artificial Intelligence
DSCI	–	Data Science	Pathway 4 – Scientific Computing
SCOM	–	Scientific Computing	Pathway 5 – Standard Pathway
DELT	–	English for Professionals	
MGMT	–	Management	

C – Compulsory   O – Optional

Course units for Year IV (SLQF 6):

Year 1V	Credits for Compulsory Courses	Credits for Optional Courses	Minimum Required Credits
Pathway 1	26	22	30
Pathway 2	23	28	30
Pathway 3	24	26	30
Pathway 4	18	41	30
Pathway 5	14	49	30

Pathway 1 – Cyber Security

Pathway 2 – Data Science

Pathway 3 – Artificial Intelligence

Pathway 4 – Scientific Computing

Pathway 5 – Standard Pathway

Course Structure for the B.Sc. Honours in Computer Science Degree Programme

Course Code	Course Title	Pre-requisite	Credits	Pathway 1	Pathway 2	Pathway 3	Pathway 4	Pathway 5	Counted for GPA
CSCI 43018	Research Project	All compulsory course units	8	C	C	C	C	C	YES
CSCI 44026	Industrial Training	All compulsory course units	6	C	C	C	C	C	YES
CSCI 44032	Mobile Computing	CSEC 32012	2	O	O	O	O	O	YES
CSCI 44042	Theory of Computability and Complexity	CSCI 32012	2	-	-	O	O	O	YES
CSCI 44052	Software Quality and Automation	CSCI 21042	2	-	-	-	-	O	YES
CSCI 44062	Software Architecture and Design	CSCI 21042	2	-	-	-	-	O	YES
CSCI 44072	Computer Modelling and Simulation	CSCI 32062	2	-	-	O	O	O	YES
CSCI 44082	Emerging Technologies in Computing	All compulsory course units	2	O	O	O	O	O	YES
CSCI 44092	Enterprise Application Development	CSCI 21042	2	O	O	O	O	O	YES
CSCI 44103	Advanced Compilers	CSCI 31032	3	-	-	-	O	O	YES
CSCI 44112	Introduction to Quantum Computing	CSCI 22052	2	O	O	O	O	O	YES
CSEC 44012	Internet of Things	CSCI 21023	2	C	O	O	O	O	YES
CSEC 44022	Information Security Management and Auditing	CSCI 22062	2	C	-	-	-	O	YES
CSEC 44032	Cyber Crime and Forensics	CSCI 22062	2	C	O	-	O	O	YES
CSEC 44042	Security Analytics	CSEC 31012	2	C	-	-	-	-	YES
CSEC 44052	Cyber Laws and Standards	CSCI 22062	2	O	O	-	O	O	YES
CSEC 44062	Ethical Hacking and Vulnerability Analysis	CSEC 31022 CSEC 32032	2	C	-	-	-	-	YES
CSEC 44072	Secure Software Engineering	CSEC 31022	2	C	-	-	-	O	YES
CSEC 44082	Information & Coding Theory	CSCI 22062	2	O	-	-	O	-	YES
CSEC 44092	Mobile & IOT Security	CSEC 31012	2	O	-	-	-	-	YES
CSEC 44102	Advanced Cryptography	CSEC 31012	2	O	-	-	-	-	YES
DSCI 44012	Python for Data Science	CSCI 31072	2	-	C	O	-	O	YES
DSCI 44022	Data Visualization	CSCI 32092	2	-	C	-	-	-	YES
DSCI 44033	Big Data Analytics	CSCI 32092	3	-	C	-	-	-	YES
DSCI 44042	NoSQL Databases	DSCI 32012	2	-	O	-	-	O	YES
DSCI 44052	Time Series Analysis for Data Science	CSCI 21013	2	-	C	O	O	O	YES
DSCI 44062	Big data Architecture & Management	CSCI 32052	2	-	O	O	-	O	YES
DSCI 44072	Geographical Information Systems	CSCI 31042	2	-	O	-	-	-	YES
AINT 44012	Artificial Neural Networks	CSCI 31022	2	O	O	C	O	O	YES
AINT 44022	Fuzzy Logic	CSCI 31014	2	O	O	C	O	O	YES
AINT 44032	Deep Learning	CSCI 31022	2	-	O	C	-	O	YES
AINT 44042	Machine Translation	AINT 31012	2	-	-	C	-	-	YES

Year 4

Course Structure for the B.Sc. Honours in Computer Science Degree Programme

	Course Code	Course Title	Pre-requisite	Credits	Pathway 1	Pathway 2	Pathway 3	Pathway 4	Pathway 5	Counted for GPA
Year 4	AINT 44052	Intelligent Autonomous Robotics	CSCI 32022	2	-	-	C	O	O	YES
	AINT 44062	Computational Cognitive Science	AINT 31022	2	-	-	O	-	-	YES
	AINT 44072	Introduction to Virtual Reality	CSCI 32062	2	-	-	O	O	O	YES
	SCOM 44012	High Performance Computing	SCOM 32012	2	O	O	O	C	O	YES
	SCOM 44022	Advanced Numerical Analysis and Scientific Programming	SCOM 31013	2	-	-	-	C	-	YES
	SCOM 44033	Survey of Materials Simulation Methods	CSCI 12042, CSCI 31014	3	-	-	-	O	-	YES
	SCOM 44043	Finite Element Methods in Scientific Computing	CSCI 12042, CSCI 31014	3	-	-	-	O	-	YES
	SCOM 44052	Graphics Processing Unit programming	CSCI 32062	2	-	-	-	O	-	YES

CSCI — Computer Science   Pathway 1 – Cyber Security

CSEC — Cyber Security   Pathway 2 – Data Science

AINT — Artificial Intelligence   Pathway 3 – Artificial Intelligence

DSCI — Data Science   Pathway 4 – Scientific Computing

SCOM — Scientific Computing   Pathway 5 – Standard Pathway

DELT — English for Professionals

C – Compulsory   O – Optional

Selection Criteria for a Pathway

Any student can select the pathway 5 without any restriction (default pathway). A student with at least C grade for all course units in Year 1 and 2 are eligible for applying for a pathway 1, 2, 3 and 4. Applicants will be selected for the applied pathway on merit basis. A pathway will be offered only if at least ten (10) applicants are eligible for that pathway. Maximum number of students selected for a pathway is fifteen (15) and this number will be increased according to the student demand, national need or if the intake for the B.Sc. Honours in Computer Science Degree is increased.

Eligibility to Award the B.Sc. Honours in Computer Science Degree Programme

Eligibility for the Award of the B.Sc. Honours in Computer Science Degree

To be eligible for the B.Sc. Honours in Computer Science Degree, a student must
   i.   accumulate grades of D or better, in course units aggregating to at least 30 credits, including all compulsory course units considered for the calculation of the GPA in each academic year, totalling to minimum of 120 credits, and
   ii. obtain grades of C or better aggregating to at least 104 credits of which at least 52 credits should be from level 3 and 4 course units, and at least grades of D for the remaining course units considered in section (i) above, and
   iii. obtain grade C or better for the course unit CSCI 43018, and
   iv. obtain grades of D or better for the MGMT course units, and
   v.   obtain grades of D or better for professional course unit (DELT course units), and
   vi. obtain a minimum GPA of 2.00 or greater, and
   vii. completes the relevant requirements within a period of six (06) consecutive academic years.

First Class

A student who is eligible for the B.Sc. Honours in Computer Science Degree may be awarded First Class, if he/she
   i.   accumulates grades of C or better in course units considered for the calculation of the GPA under eligibility criteria for the award of the degree above, and
   ii. obtains a minimum GPA of 3.70, and
   iii. 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 eligibility criteria for the award of the degree above, and
   iv. obtains grades of A or better in course units aggregating to at least half the number of total credits for the course units in year 3 and year 4 considered under eligibility criteria for the award of the degree above, and
   v.   completes the relevant requirements within four (04) consecutive academic years.

Second Class (Upper Division)

A student who is eligible for the B.Sc. Honours in Computer Science Degree may be awarded Second Class (Upper Division), if he/she
   i.   accumulates grades of C or better in course units aggregating to at least 112 credits and grades D or better in the remaining course units considered for the calculation of the GPA under eligibility criteria for the award of the degree above, and
   ii. obtains a minimum GPA of 3.30, and
   iii. 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 eligibility criteria for the award of the degree above, and
   iv. obtains grades of B or better in course units aggregating to at least half the number of total credits for the course units in year 3 and year 4 considered under eligibility criteria for the award of the degree above, and
   v.   completes the relevant requirements within four (04) consecutive academic years.

Second Class (Lower Division)

A student who is eligible for the B.Sc. Honours in Computer Science Degree may be awarded Second Class (Lower Division), if he/she

i. accumulates grades of C or better in course units aggregating to at least 112 credits and grades D or better in the remaining course units considered for the calculation of the GPA under eligibility criteria for the award of the degree above, and

ii. obtains a minimum GPA of 3.00, and

iii. 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 eligibility criteria for the award of the degree above, and

iv. obtains grades of B or better in course units aggregating to at least half the number of total credits for the course units in year 3 and year 4 considered under eligibility criteria for the award of the degree above, and

v. completes the relevant requirements within four (04) consecutive academic

FCT has adopted the Learning Centred Education (LCE) pedagogy for its programme design and delivery for the first time in Sri Lanka. A series of workshops were conducted both in Sri Lanka and at the University of Oxford, UK under the guidance of Prof. Lynn McAlpine, Professor Emerita of University Education Development, Oxford Learning Institute, University of Oxford to train the staff and adopt the curriculum to reflect learning-centeredness.

The LCE approach promotes active learning where the emphasis is placed on creating and managing tasks and activities which will empower student learning, both inside and outside the class. The pedagogical style required to enable active learning is different to traditional lecturing.

A different set of instructional and assessment strategies are adopted in the LCE approach to facilitate independent learning by the students. This approach places less importance on the traditional end of the semester exams, and a considerable percentage of marks will be earned by the students through in-class and outside the class activities which are spread throughout the module.

The Faculty of Computing and Technology has established an Industry Advisory Board composed of eminent professionals from the industry, representatives from industry associations as well as representatives from professional associations.

The role of the Industry Advisory Board (IAB) of the Faculty of Computing and Technology (FCT) is to serve as a liaison between the FCT and the industry as well as other institutional stakeholders in order to support the FCT in the formulation and attainment of its Mission and Strategic Objectives. It plays a key role in providing inputs and recommendations to the FCT from an industry perspective and guiding the strategic directions of the FCT in terms of academic programs, research and partnerships.

Mr. Anuradha Tennakoon who is currently a Group Director at Informatics Group of Companies was elected as the Chairman of the IAB at the inaugural meeting held on 29th September 2016.

Science and Technology Human Resources Development Project

The Science and Technology Human Resource Development Project funded by the Asian Development Bank (ADB) supports the government to develop technology faculties in three universities viz. University of Kelaniya, Rajarata University of Sri Lanka and Sabaragamuwa University of Sri Lanka, and the Faculty of Engineering at the University of Sri Jayewardenepura to nurture a new breed of technology-oriented graduates equipped with market-relevant skills and entrepreneurial spirit. The total contribution for the project from the Asian Development Bank is USD 145 Million while the government contribution is USD 20 Million.

The project has five key outputs planned: (1). Innovative technology learning and research environment established, (2). Quality and industry-relevant higher technology education programs implemented, (3). Industry linkages and international collaborations strengthened, (4). Faculty management capacity strengthened, and (5). New higher education project preparation supported.

The Faculty of Computing and Technology of the University of Kelaniya has been allocated a total sum of USD 29.2 Million under this project and a further sum of USD 10 Million is available for the four universities to be utilised under competitive proposal basis.

The formal approval for the project was received on 30th August 2018 and the faculty will receive funding under this project until 30th June 2024 for its development activities.

The Faculty of Computing and Technology will utilise the above funding to construct a building complex at the proposed Mudun Ela premises, procure books, software & equipment, train the staff, establish partnership programmes with reputed international universities and develop collaborative programmes with the industry.

Several key laboratory facilities including a modern chemistry lab, a modern physics lab, an advanced network security lab and a virtual reality lab have already been established at the current premises at Peliyagoda.

The proposed building complex, constructed at a total cost of LKR 4350 million, will comprise of state-of-the-art laboratory facilities, lecture rooms and all other necessary amenities at an international standard. A total floor area of over 34,000 square meters spread in 6 buildings will be added to the faculty complex under this project. The 11-storey laboratory building is expected to be completed by February 2022, while the rest of the buildings will be completed by end 2023. These environmentally friendly buildings are expected to receive Platinum ratings under both UDA Blue Green building rating system as well as the green building rating system of the Green Building Council of Sri Lanka.

The National E-learning Resource Center (NELRC) is established at the University of Kelaniya under the Faculty of Computing and Technology in the year 2017 with approval of Rs.250 million from the government budget of Sri Lanka.

The mission of NELRC is:

"Providing an effective e-learning environment through advanced information and communication technologies to allow the learner to be the center of the education process and to foster necessary employable skilled human resources to the nation".

The objectives of NELRC is:

- Disseminating e-culture through awareness and media campaigns to prepare the community to accept and interact with e-learning.
- Creating a public and private sector partnership for professional and career development
- To promote anywhere, anytime learning in Sri Lanka
- To provide knowledge at the doorstep for rural areas in Sri Lanka
- To promote blended teaching and learning in Sri Lanka
- To act as a professional certification and accreditation authority
- To increase the employability of young people
- To attract overseas investors and outsourcing jobs by creating a national knowledge workforce

In order to accomplish the said objectives, NELRC is engaging in developing e-learning content, provide consultation on e-learning, and training on e-learning and introduced quality assurance for digital contents.

Through it operations of three years' time, NELRC has successfully achieved the major objectives it set at the beginning as follows.

1. Disseminating e-culture through awareness and media campaigns to prepare the community to accept and interact with e-learning.

Introduced Sri Lanka's first interactive online multimedia e-learning production, E-Lankapura. E-Lankapura was aimed to fulfill the requirement of e-citizens of Sri Lanka by educating them on essential digital skills. Further, this product is now being used by the school teachers and students for ICT teaching purposes and also can be used as reference material in ICT courses.

Successfully conducted a National blended learning workshop in 2018 for school teachers and university academics. It's a long-felt need to change the teacher-centered learning system to a student-centered teaching and learning system. It is required to change the mindset of teachers and lecturers' in Sri Lanka and also the teaching pedagogy. Blended learning is an essential ingredient in this process. These trained teachers are now using ICT tools for teaching in the classroom and their feedback shows that the training is successful.

Trained university academics on game development, digital teaching, and using software engineering for e-learning. Game and animation have a huge market share in countries like Japan, Korea, and China. There is a potential market for digital games and animation in Sri Lanka too. However, the education system in Sri Lanka has not yet produced the necessary human resources to boost the game and animation industry in Sri Lanka. Sri Lanka Rupavahini Corporation like institutes use digital animations in their education programs and advertisements. There are a lot of challenges faced by them since the Sri Lankan university system has not yet ready to support them. As a result of the above training, NELRC introduced game development as a specialization area for the BICT degree program for the first time in Sri Lanka and the first batch will be passed out in 2021.

NELRC has been invited by prominent electronic media institutes such as ITN and Rupavahini to conduct e-learning and ICT related programs targeting children to adults. Three programs have already been recorded at ITN and four of them telecasted. This promotes the name of the University of Kelaniya in Sri Lanka while providing ICT education to the children.

2. To promote anywhere, anytime learning in Sri Lanka

3. To provide knowledge at the doorstep for rural areas in Sri Lanka

4. To promote blended teaching and learning in Sri Lanka

In Sri Lanka, the term "e-learning" is widely used for smart classrooms, hardware, and tools. However, effective and interactive learning materials play an important role in e-learning. However, a lack of attention in content development hinders the effectiveness of e-learning in Sri Lanka. NELRC has realized this need and takes the initiative to promote digital content development. At the moment, content development is limited to a few institutes or organizations. This limits the use of knowledge and experience of teachers and lecturers in content production. Therefore, NELRC has taken the necessary steps to empower teachers and lecturers to develop their own digital content.

In order to achieve the above three objectives, NELRC has developed an e-learning content development tool called NeLCon Studio. NeLCon studio can be learned after a few hours of training, thus the less complexity of the tool enables the teachers to develop their own e-learning contents easily while giving much consideration to lesson planning.

Teachers are now developing their own e-learning materials and distributing them to their students. Also, NELRC received very positive feedback from teachers, students as well as parents. Therefore, NELRC was able to achieve objectives 2, 3, and 4 successfully.

5.To act as a professional certification and accreditation authority

For the first time in Sri Lanka, NELRC has developed a quality assurance guideline for digital learning resources. This is the very first attempt made by any organization in Sri Lanka to develop quality assurance guidelines for digital content.

Though NELRC has achieved many of its objectives set at the inception, we are looking forward to strengthening the e-learning industry by conducting more research in the field of e-learning, especially related to the e-learning content tool developed by NELRC, the NeLCon Studio.

The International Conference on Advances in Technology and Computing (ICATC) organized by the Faculty of Computing and Technology was inaugurated in 2016 and the sixth of this annual event was held virtually on the 18th of December 2021.

This conference is expected to bring together researchers, educators, students, practitioners, technocrats, and policymakers from across academia, government, industry, and non-governmental organizations to discuss, share and promote current work and recent accomplishments across all aspects of Computing, Nano Technology, Materials, and Process Engineering, Robotics and Automation.

Parallel to the conference the 1st Faculty Research Symposium (FCT-FRS) was also held in 2021. Research Symposium is the platform that was introduced to showcase the final year students' research work. It has also been used to take the high-quality work to the international level.

Pitch Tech-90 was introduced at the 6th ICATC to recognize the Technology stream students in the Sri Lankan Technology A/L Stream. Student associations of the faculty (Legions, ETSA, CTSA) actively participated in all of the 3 events.
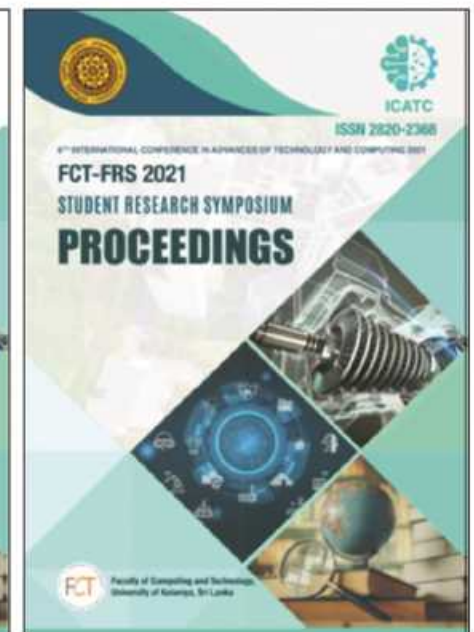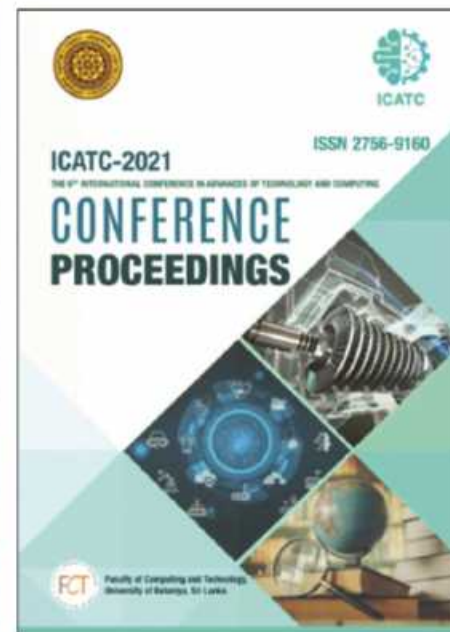
# Industry Interaction Cell for Computing and Technology (IICfCT)

The Faculty of Computing and Technology ensures that you learn from the very best academics and gain valuable inputs, skills and knowledge during the lectures at the classrooms. To make it a more unique learning environment and to provide a more experiential learning during your stay with us at the faculty, FCT is giving you the opportunity to actively collaborate with the industry and learn from the active practitioners in the business and industry. The Industry Interaction is an essential requirement for the 21st century undergraduates and that will provide you with a better prospect when entering in to the professional career at the end of your degree program.

To facilitate the need of Industry Interaction, the faculty has launched the Industry Interaction Cell for Computing and Technology (IICfCT) in 2016, with the aim of enabling regular associations and meetings with corporate and to provide industry exposure to the students and enable them to pick up skills besides what is being imparted in the classrooms. IICFCT is envisioned to be the industry arm of the FCT to the industry. The Cell aims to facilitate the process of effective faculty-industry interaction with the private and public partner industries, by providing reliable and cost-effective solutions to the industries while facilitating a learning experience to the faculty undergraduates and postgraduates, and collaborative research opportunities to the staff members. The Cell coordinates the professional activities and employability enhancement programs for the students to improve the soft skills, knowledge, and understanding of the corporate sector, and continuously aiming for career growth of every undergraduate through various industries based programs.
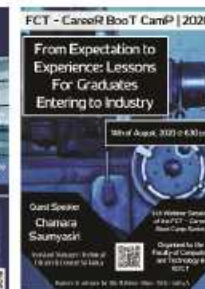
The outbound training program for the young leaders of the Faculty of Computing and Technology at University of   Kelaniya was held successfully for two consecutive years at the Police Training College – Kalutara. The two-day interactive program was organized by the faculty to improve the group dynamics and facilitate personality development of the freshman undergraduates of the faculty.

The Faculty of Computing and Technology is adopting the Learning-Centred   Education paradigm in its degree programs which focuses on skills and practices that improves lifelong learning and independent problem-solving ability of the students. Through the OBT program, the faulty has taken another step towards changing the attitudes and mindset of students from the traditional class room environment, and providing a valuable learning experience for accomplishing the life challenges and making a positive impact on their work performance. The event was geared towards enhancing the skills in competent leadership, team building, trust-building, personality and self-confidence building, effective and efficient decision making, and other important skills that are necessary in improving the quality of student's academic and personal lives. The program was structured as a series of fun-filled, yet challenging activities including, rappelling, aerial roping, boating, hiking, and many mind-challenging activities and with motivational seminars. The activities assisted the students to overcome their fears and face the challenges with courage and fortitude. The residential program was conducted by the officers and the training staff of the Operational and In-service Training division of the Sri Lanka Police Training College.

Faculty of Computing and Technology
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Sri Lanka