# PROSPECTUS

## 2018/2019

### INTAKE

**FACULTY OF TECHNOLOGY**
**RAJARATA UNIVERSITY OF SRI LANKA**
**MIHINTALE**

# THE UNIVERSITY

The Rajarata University of Sri Lanka (RUSL) was established in November 1995 by the Gazette Notification No: 896/2 dated 7th November 1995 in Anuradhapura. At present the university comprises of six faculties, namely,

♦ Faculty of Agriculture
♦ Faculty of Applied Sciences
♦ Faculty of Management Studies
♦ Faculty of Medicine and Allied Sciences
♦ Faculty of Social Sciences and Humanities
♦ Faculty of Technology.

The Faculty of Technology (FOT) was the latest addition to the University and established on 30th June 2017 by the Gazette Notification 2037/15 dated 21/09/2017 in Mihintale.

# ABOUT OUR FACULTY

The Technology Programme was inaugurated on January 2017, with an annual intake of 235 students. Currently, the Faculty consists of five departments, namely,

♦ Department of Bioprocess Technology
♦ Department of Food Technology
♦ Department of Electrical & Electronic Technology
♦ Department of Materials Technology
♦ Department of Information and Communication Technology.

The faculty offers five degree programmes under
♦ Biosystems Technology (BST),
♦ Engineering Technology (ENT) and
♦ Information and Communication Technology (ICT).

At present, the faculty enrols 275 students annually and planning to expand it to 450 by year 2024.

# OFFICERS OF THE UNIVERSITY

**Vice-Chancellor:**          Prof. G.A.S. Ginigaddara

**Deans of Faculties:**

Agriculture:                  Prof. A.M.J.B. Adikari

Applied Sciences:             Prof. E.M.R.K.B. Edirisinghe

Management Studies:           Prof. W.P. Wijewardhena

Medicine & Allied Sciences:   Prof. S.B. Agampodi

Social Sciences & Humanities:  Prof. D. T. Mendis


**Registrar:**  Mr. A.M.G.B. Abeysinghe

**Librarian:**  Mrs. A.S. Siriwardena

**Bursar:**     Mr. S. Upananda


# STAFF OF THE FACULTY

## *ACADEMIC STAFF OF THE FACULTY*

**Dean:**       Prof. K.G.P.B. Jayathilaka

## Heads of the Departments

**Department of Bioprocess Technology:**

　　　Dr. T.C. Bamunuarachchige

**Department of Electrical and Electronic Technology :**

　　　Dr. P. Kumarage

**Department of Food Technology (Lecturer In-charge)::**

　　　Mrs. K.H.I. Gimhani

**Department of Information Communication Technology (Lecturer In-charge):**

　　　Mr. H. Hikkaduwa

**Department of Materials Technology:**

　　　Dr. H.A.N. Dharmagunawardhane

# Staff of the Faculty

## Foreign Consultants

**Prof. Bengt-Erik Mellander,**
Chalmers University of Technology, Gothenburg, Sweden

**Prof. Brad Day,**
Michigan State University, USA

**Prof. David Kramer,**
Michigan State University, USA

**Prof. Tomonori Kawakami,**
Toyama Prefectural University, Japan

**Prof. Dr. Peter Heck,**
Trier University of Applied Sciences, Germany

**Prof. J.M.R.S. Bandara,**

Faculty of Agriculture, University of Peradeniya (Retired)

**Dr. Ingvar Albinsson,**

Chalmers University of Technology, Gothenburg, Sweden

**Dr. Upali Karunasiri**

Assistant Professor,  California State University, Northridge, USA

**Prof. Kim Gi-Young**

Professor, Jeju National University, Jeju, SK

## Local Consultants

**Dr. C.L. Ranatunga,** Department of Physics, USJP (Retired)

**Dr. A.A.S. Perera,** Department of Mathematics, UoP (Retired)

# STAFF OF THE FACULTY

## ADMINISTRATIVE STAFF OF THE FACULTY

**Assistant Registrar:**         Mrs. K.H.W.K.G. Kahawala
                                 BIT (SLIIT)

**Senior Assistant Librarian:**  Dr. S.K. Illangarathne
                                 BA (Hons) (Kelaniya), MSc (Kelaniya). PhD
                                 (China)

# DEGREE PROGRAMMES

1. **Bachelor of Biosystems Technology Honours [BBST (Hons)] in Bioprocess Technology**

2. **Bachelor of Biosystems Technology Honours [BBST( Hons)] in Food Technology**

3. **Bachelor of Engineering Technology Honours [BET (Hons)] in Electrical and Electronic  Technology**

4. **Bachelor of Engineering Technology Honours [BET (Hons)] in Materials Technology**

5. **Bachelor of Information Communication Technology Honours [BICT (Hons)]**

# CREDIT RATING

Credit rating is an expression which is used to denote the "academic value" of a course.

According to the Sri Lanka Qualification Framework (SLQF), fifty notional learning hours for a taught course, laboratory studies course or field studies is equivalent to one credit. A norm of one hundred notional hours for Industrial Training and Research also have the same credit rating.

**For courses with lectures only**

> 15 hours of lectures = 1 credit

**For courses with laboratory work only**

> $30 - 45$  hours of laboratory work  = 1 credit
> $60 - 75$  hours of laboratory work  = 2 credit

**For courses with both lectures and laboratory work only**

> 10 hours of lectures + 10 or15 hours of laboratory work = 1 credit

**For courses with field work only**

> 45  hours of field  work  = 1 credit

**Industrial training**

> 2 weeks of industrial training = 1 credit

**Research project**

> $1 - 2$ weeks of research = 1 credit

# DESCRIPTION OF COURSE CODES

| Subject / Discipline | Code |
|---|---|
| Bioprocess Technology | BPT |
| Food Technology | FDT |
| Electrical and Electronic Technology | EET |
| Engineering Technology | ENT |
| Materials Technology | MTT |
| Information Communication Technology | ICT |
| Common for Technology | CMT |
| Complimentary | CML |

Each course is assigned with a course code which consists of seven alphanumeric characters as follows:

**First three letters:**  Field of study / Subject

**First digit:**  Year of study within the Degree Programme

**Second digit:**  The credit rating

**Last two-digits:**  The serial number of the course

e.g. The course code BPT 1201 would mean:

**BPT** = Bioprocess Technology;
**1** = 1ˢᵗ year;
**2** = Credit rating of two;
**01**= Serial number of the course

# GRADING SYSTEM

**For GPA Modules**

| Grade | Grade Point Value |
|-------|-------------------|
| A+    | 4.0               |
| A     | 4.0               |
| A-    | 3.7               |
| B+    | 3.3               |
| B     | 3.0               |
| B -   | 2.7               |
| C+    | 2.3               |
| C     | 2.0               |
| C -   | 1.7               |
| D+    | 1.3               |
| D     | 1.0               |
| E     | 0.0               |

**For Non-GPA Modules***

| Grade | Note           |
|-------|----------------|
| S     | Satisfactory   |
| U     | Unsatisfactory |

**Grade point average**

Grade point average (GPA) is the credit-weighted arithmetic mean of the grade point values. The GPA is determined by dividing the total credit-weighted Grade Point Value by the total number of credits.

*i.e.* **GPA = $\sum G_i C_i / \sum C_i$**

Where,      $G_i$ = grade point of the $i^{th}$ course
                $C_i$ = number of credits of the $i^{th}$ course

*Students must obtain a grade of S to complete non GPA course modules.

**Bachelor of Biosystems Technology**

To be eligible for the award of the Bachelor of Biosystems Technology Degree, a student must have completed

- a minimum of 120 credits,

- all the compulsory courses of the programme

- other minimum credit requirements shown below

| Subject Category | Minimum Credit Requirement |
| --- | --- |
| Mathematics, Basic Sciences and Computing | 20 |
| Biosystems Technology Sciences | 60 |
| Complementary Subjects | 15 |

**Bachelor of Engineering Technology**

To be eligible for the award of the Bachelor of Engineering Technology Degree, a student must have completed

- a minimum of 120 credits,

- all the compulsory courses of the programme

- other minimum credit requirements shown below

| Subject Category | Minimum Credit Requirement |
| --- | --- |
| Mathematics, Basic Sciences and Computing | 18 |
| Technology Subjects | 72 |
| Complementary Subjects | 18 |

# DEGREE AWARDING CRITERIA

**Bachelor of Information and Communication Technology**

To be eligible for the award of the Bachelor of Biosystems Technology Degree, a student must have completed

- a minimum of 120 credits,

- all the compulsory courses of the programme

- other minimum credit requirements shown below

| Subject Category | Minimum Credit Requirement |
|---|:---:|
| Mathematics | 06 |
| Management, Commerce, and Accounting | 06 |
| Professional Practice | 06 |
| English and Communication Skills | 06 |
| Industrial Training | 05 |
| Final Year Project | 06 |

***N.B. For all the programmes, courses specified as compulsory in the field of study are included in the 120 credits.***

Furthermore, a student should have

a. a minimum GPA of 2.00,

b. obtained grades of C or better for courses adding up to a minimum of 108 credits and at least grades of D in the remaining credits.

c. complete the relevant requirements within a period of 8 academic years,

d. obtained a minimum GPA of 2.00 at the end of the first three semesters to proceed to the fifth semester,

e. obtained S (Satisfactory) grade for all the non GPA compulsory courses. (Credits of grade S shall not be considered for the final GPA computation, but shall be counted towards the minimum number of credits considered for the awarding of a degree),

f. fulfilled other requirements specified for each degree programme by the relevant department.

*N.B. The maximum number of repeated attempts of a course shall be two (02)*

*A student who obtains any grade less than C has the option to repeat the relevant course and upgrade to a maximum of C.*

*Courses with grades of E or U (Unsatisfactory) should not appear within the minimum number of credits (120) required.*

# AWARDING OF CLASSES

A student who has fulfilled the above Degree Awarding Criteria shall be awarded classes if he/she fulfils the following additional requirements:

*First Class*

i.    Minimum GPA of 3.70

ii.   Complete the degree programme within four academic years

iii.  Obtain grades of C or better in the first attempt aggregating to at least 120 credits

*Second Class (Upper Division)*

i.    GPA of 3.30 - 3.69

ii.   Complete the degree programme within four academic years

*Second Class (Lower Division)*

i.    GPA of 3.00 - 3.29

ii.   Complete the degree programme within four academic years

# Biosystems Technology Degree Programme

Biosystems Technology offers an integrative degree program focusing on teaching and research in two overarching research areas. Namely,

1) Bioprocess Technology

2) Food Technology

The programmes are designed to comprise a hands-on approach, where students are expected to be equipped with the knowledge, skills and attitude to cater to the industry needs of the country as well as embark on successful careers.

Prospective students would have to qualify by following the GCE (A/L) technology stream under Biosystems Technology and following the selection criteria specified by the University Grant Commission Handbook for the relevant intake.

## Selection Procedure

The selections of students to these two areas are based on their preferences and performances following the completion of the first two semesters. In the event, where the applying number of students for a certain programme exceed 40 the GPA of compulsory courses would be strictly taken into account.

*Students will be selected to respective degree programmes based on their preference and performance of the compulsory courses excluding complementary courses at the end of the first two semesters.*

## 1) Bioprocess Technology

The objective of the Bioprocess Technology programme is to transform research into innovative manufacturing processes and commercial products. This programme offers courses in the fields of Bioprocess technology, Molecular Biology, Microbiology, Immunology, Pharmacology and Bioinformatics. With this unparalleled knowledge and experience, we envision to produce highly qualified graduates, who would contribute to the advancement of research and development in the field of Bioprocess Technology.

## Academic Staff

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# Bioprocess Technology  Modules

| Year | Semester | Course code | Title | Credits | Status |
|------|----------|-------------|-------|---------|--------|
| 1 | 1 | CMT 1301 | Fundamentals of Physics for Technology | 3 | C |
| | | CMT 1302 | Fundamentals of  Chemistry for Technology | 3 | C |
| | | CMT 1303 | Fundamentals of Mathematics for technology | 3 | C |
| | | CMT 1304 | Fundamentals of  Computer for Technology | 3 | C |
| | | CMT 1005 | Communication Skills I (English) | 0 | C |
| | | CMT 1306 | Fundamentals of Biology for Technology | 3 | C |
| | | CML 1201 | Personality Development | 2 | C |
| | | CML 1202 | Presentation Skills | 2 | C |
| | | | 1 - 1 Total | C-19 | |
| | 2 | BPT 1201 | General Microbiology | 2 | C |
| | | BPT 1202 | Cell Biology | 2 | C |
| | | CMT 1307 | Mathematics for  Technology I | 3 | C |
| | | CMT 1208 | Computer Programming for Technology | 2 | C |
| | | CMT 1009 | Communication Skills II | 0 | C |
| | | FDT 1201 | Organic Chemistry | 2 | C |
| | | CML 1203 | Principles of Management | 2 | C |
| | | CML 1204 | Health and Wellbeing | 2 | C |
| | | | 1 - 2 Total | C-15 | |

| Year | Semester | Course code | Title | Credits | Status |
|------|----------|-------------|-------|---------|--------|
| 2 | 1 | BPT 2201 | Quality Management | 2 | C |
| | | BPT 2202 | Introduction to Bioprocess Technology | 2 | C |
| | | BPT 2203 | Genetics and Evolution | 2 | O |
| | | BPT 2204 | Plant Tissue Culture | 2 | C |
| | | BPT 2205 | Molecular Biology | 2 | C |
| | | FDT 2202 | Basic Biochemistry | 2 | C |
| | | CMT 2301 | Fundamentals of Statistics for Technology | 3 | C |
| | | CMT 2002 | Communication Skills III | 0 | C |
| | | CMT 2306 | Mathematics for Technology II | 3 | O |
| | | CML 2201 | Social Sciences and Humanities | 2 | O |
| | | CML 2202 | Engineering Economics | 2 | O |
| | | CML 2206 | Indigenous Technology | 2 | O |
| | | | 2 - 1 Total | C-13 O –11 | |
| | 2 | BPT 2206 | Bioreactor Operation and Design | 2 | C |
| | | BPT 2207 | Basic Immunology | 2 | C |
| | | BPT 2108 | Quality Assurance and Safety of Bioprocessed Products | 1 | C |
| | | BPT 2209 | Molecular Biotechnology | 2 | C |
| | | FDT 2305 | Analytical Chemistry | 3 | C |
| | | CMT 2203 | Computational Mathematics | 2 | O |
| | | CML 2204 | Foreign Language | 2 | O |
| | | CML 2205 | Ethics in Science and Technology | 2 | C |
| | | CML 2208 | Introduction to Marketing | 2 | O |
| | | | 2 - 2 Total | C-12 O– 6 | |

| Year | Semester | Course code | Title | Credits | Status |
|------|----------|-------------|-------|---------|--------|
| 3 | 1 | BPT 3201 | Molecular Microbiology | 2 | C |
| | | BPT 3302 | Bioinformatics | 3 | C |
| | | BPT 3203 | Bioprocess Instrumentation and Control | 2 | C |
| | | BPT 3304 | Molecular Modeling | 3 | C |
| | | BPT 3205 | Bioprocess Optimization and Simulation | 2 | C |
| | | BPT 3206 | Molecular Immunology and Current Applications | 2 | C |
| | | BPT 3207 | Enzyme Technology | 2 | C |
| | | BPT 3208 | Industrial Microbiology | 2 | C |
| | | CML 3101 | Legal and Patent Aspects | 1 | C |
| | | | 3 - 1 Total | C-19 | |
| | 2 | BPT 3108 | Seminar | 1 | C |
| | | BPT 3209 | Scientific Writing | 2 | C |
| | | BPT 3610 | Internship | 6 | C |
| | | CML 3102 | Industrial Safety | 1 | C |
| | | | 3 - 2 Total | C-10 | |
| 4 | 1 | BPT 4301 | Drug Designing | 3 | C |
| | | BPT 4302 | Downstream Process Technology | 3 | C |
| | | BPT 4303 | Bioremediation and Waste Management | 3 | C |
| | | BPT 4204 | Molecular Virology | 2 | C |
| | | BPT 4205 | Plant Cell Culture | 2 | C |
| | | BPT 4206 | Pharmaceutical Biotechnology | 2 | C |
| | | BPT 4207 | Bioproduct Development | 2 | C |
| | | CML 4201 | Entrepreneurship | 2 | C |
| | | CML 4202 | Human Resource Management | 2 | O |
| | | | 4 - 1 Total | C-19 O-2 | |
| | 2 | BPT 4808 | Bioprocess Technology Project | 8 | C |
| | | | 4 - 2 Total | C-8 | |

***BPT:** courses offered by Bio Process Technology, **CMT:** common courses for all Technology programs, **CML**: complementary courses, **EET**: courses offered by Electrical and Electronic Technology program, **ENT:** common courses for all Engineering Technology programs, **FDT:** Food Technology, **C:** Compulsory,

# B) Food Technology

The Bachelor of Biosystems Technology in Food Technology degree program has been designed with the objective of producing graduates with a sound theoretical and practical knowledge in food technology along with professionalism, ethics and critical thinking for the new millennium. The Department of Food Technology offers a unique academic package which provides the essential knowledge required to work in the field of food technology. The curriculum of the food technology degree programme encompasses the subjects primarily focusing on food processing and product development, food engineering and physics, food analysis and food chemistry, food microbiology and biotechnology, food nutrition, sensory evaluation and food safety and quality. Additionally, the undergraduates are exposed to a carefully tailored internship programme and to the research activities during their degree programme to give them a real-world industrial exposure and to gain the experiences on technological implementations by applying the theory concepts into practices and research which finally, shape their capabilities to be employed in both local and international contexts.

## Academic Staff

**Mrs. K. H. I. Gimhani**
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# Food Technology Modules

| Year | Semester | Course code | Subject | Credits | Status |
|------|----------|-------------|---------|---------|--------|
| 1 | 1 | CMT 1301 | Fundamentals of Physics for Technology | 3 | C |
| | | CMT 1302 | Fundamentals of Chemistry for Technology | 3 | C |
| | | CMT 1303 | Fundamentals of Mathematics for Technology | 3 | C |
| | | CMT 1304 | Fundamentals of Computer for Technology | 3 | C |
| | | CMT 1306 | Fundamentals of Biology for Technology | 3 | C |
| | | CMT 1005 | Communication Skills I (English) | 0 | C |
| | | CML 1201 | Personality Development (Soft Skills) | 2 | C |
| | | CML 1202 | Presentation Skills | 2 | C |
| | | 1 - 1 Total | | C-19 | |
| | 2 | BPT 1201 | General Microbiology | 2 | C |
| | | BPT 1202 | Cell Biology | 2 | C |
| | | FDT 1201 | Organic Chemistry | 2 | C |
| | | CMT 1307 | Mathematics for Technology I | 3 | C |
| | | CMT 1208 | Computer Programming for Technology | 2 | C |
| | | CMT 1009 | Communication Skills II | 0 | C |
| | | CML 1203 | Principles of Management | 2 | C |
| | | CML 1204 | Health and Wellbeing | 2 | C |
| | | 1 - 2 Total | | C-15 | |

| Year | Semester | Course code | Subject | Credits | Status |
|------|----------|-------------|---------|---------|--------|
| 2 | 1 | FDT 2201 | Physical Chemistry | 2 | C |
| | | FDT 2202 | Basic Biochemistry | 2 | C |
| | | FDT 2203 | Introduction to Food Industry | 2 | C |
| | | FDT 2204 | Food Preservation | 2 | C |
| | | CMT 2301 | Fundamental of Statistics for Technology | 3 | C |
| | | CMT 2306 | Mathematics for Technology II | 3 | O |
| | | CMT 2002 | Communication Skills III | 0 | C |
| | | CML 2201 | Social Sciences and Humanities | 2 | C |
| | | CML 2206 | Indigenous Technology | 2 | O |
| | | 2 - 1 Total | | C-13 O-5 | |
| | 2 | FDT 2305 | Analytical Chemistry | 3 | C |
| | | FDT 2206 | Food Physics | 2 | C |
| | | FDT 2207 | Food Chemistry | 2 | C |
| | | FDT 2208 | Food Microbiology | 2 | C |
| | | FDT 2209 | Introduction to Human Nutrition | 2 | C |
| | | FDT 2210 | Food Biotechnology | 2 | C |
| | | CMT 2203 | Computational Mathematics | 2 | C |
| | | CML 2204 | Foreign Language | 2 | O |
| | | CML 2205 | Ethics in Science and Technology | 2 | C |
| | | 2 - 2 Total | | C-17 O-2 | |

| Year | Semester | Course code | Subject | Credits | Status |
|------|----------|-------------|---------|---------|--------|
| 3 | 1 | FDT 3201 | Fruits & Vegetables Processing Technology | 2 | C |
| | | FDT 3202 | Food Engineering | 2 | C |
| | | FDT 3203 | Food Analysis | 2 | C |
| | | FDT 3204 | Meat and Fish Processing Technology | 2 | C |
| | | FDT 3205 | Functional Food and Food Toxicology | 2 | C |
| | | FDT 3206 | Dairy Product Technology | 2 | C |
| | | FDT 3207 | Confectionary and Beverage Technology | 2 | O |
| | | FDT 3108 | Current Topics in Food Industry | 1 | C |
| | | FDT 3209 | Cereals and Pulses Processing Technology | 2 | C |
| | | CML 3101 | Legal and Patent Aspects | 1 | C |
| | | BPT 3207 | Enzyme Technology | 2 | O |
| | 2 | 3 - 1 Total | | C-16 O-4 | |
| | | FDT 3212 | Spices and Oil Processing Technology | 2 | O |
| | | FDT 3614 | Industrial Training | 6 | C |
| | | FDT 3215 | Food Packaging Technology | 2 | C |
| | | CML 3102 | Industrial Safety | 1 | C |
| | | 3 - 2 Total | | C-9 O-2 | |

| Year | Semester | Course code | Subject | Credits | Status |
|---|---|---|---|---|---|
| 4 | 1 | FDT 4302 | Food Product Development | 3 | C |
| | | FDT 4203 | Water Science and Technology | 2 | O |
| | | FDT 4206 | Supply Chain Analysis | 2 | C |
| | | FDT 4107 | Scientific Writing | 1 | C |
| | | FDT 4208 | Cleaner Production | 2 | O |
| | | FDT 4209 | Sensory Evaluation | 2 | C |
| | | CML 4201 | Entrepreneurship | 2 | C |
| | | CML 4202 | Human Resource Management | 2 | O |
| | | 4 - 1 Total | | C-10 O-6 | |
| | 2 | FDT 4801 | Research Project | 8 | C |
| | | FDT 4204 | Quality Assurance, Safety and Standards in Food Industry | 2 | C |
| | | FDT 4205 | Food Marketing | 2 | C |
| | | FDT 4207 | Nanotechnology | 2 | O |
| | | 4 - 2 Total | | C-12 O-2 | |

***BPT:** courses offered by Bio Process Technology, **CMT:** common courses for all Technology programs, **CML**: complementary courses, **EET**: courses offered by Electrical and Electronic Technology program, **ENT:** common courses for all Engineering Technology programs, **FDT:** Food Technology, **C:** Compulsory, **O:** Optional

# Engineering Technology Degree Programme

Engineering Technology degree program at Rajarata University of Sri Lanka offers Bachelor of Engineering Technology (BET) degree. This is a four year professional degree programme designed under the guidelines of Sydney Accord. Students who wish to follow this degree programme should pass the Science for Technology and Engineering Technology subjects at G.C.E. A/L examination. The main objective of this degree programme is to produce high quality skilled graduates who can directly fulfill the requirement in the local and international job market.

## Selection Procedure

Students, who enter the Engineering Technology degree programme will be following common subjects in their first two semesters. Upon completion of the first two semesters they can apply for specialization. Selection will be solely based on their preference and the performances in the first two semesters.

In the event, where the applying number of students for a certain programme exceed 50 the GPA of compulsory courses would be strictly taken into account.

To be eligible for the selection procedure students should obtain at least C passes for all the compulsory modules at the first two semesters.

*Students will be selected to respective degree programmes based on their preference and performance of the compulsory courses excluding complementary courses at the end of the first two semesters.*

# A) Electrical & Electronics Technology

This degree program provides a solid foundation on both theoretical and practical aspects of the Electrical & Electronic Technology and prepares students for the diverse and dynamic careers in the local and international job market. While covering all the fundamental areas of Electrical & Electronics through core course modules students also have the opportunity to learn and have hands on experience on latest technologies and trends through technical electives. For the benefit of the students to target an occupation and select courses accordingly, the department has identified four major divisions in the curriculum of Electrical and Electronic Technology.

* Electrical and Power Technology

* Electronic Technology

* Telecommunication Technology

* Automation Technology

To gain proficiency in one of the areas, students have to enroll for a minimum number of courses offered under the respective category as specified by the department.

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# Electrical and Electronic Technology Course Modules

| Year | Semester | Course code | Subject | Credits | Status |
|------|----------|-------------|---------|---------|--------|
| 1 | 1 | CMT 1301 | Fundamentals of Physics for Technology | 3 | C |
| | | CMT 1302 | Fundamentals of Chemistry for Technology | 3 | C |
| | | CMT 1303 | Fundamentals of Mathematics for Technology | 3 | C |
| | | CMT 1304 | Fundamentals of Computer for Technology | 3 | C |
| | | CML 1201 | Personality Development (Soft Skills) | 2 | C |
| | | CML 1202 | Presentation Skills | 2 | C |
| | | CMT 1005 | Communication Skills I (English) | 0 | C |
| | | | **1 - 1 Total** | **C-16** | |
| | 2 | ENT 1301 | Introduction to Basic Electronics | 3 | C |
| | | ENT 1302 | Fundamentals of Electricity and Magnetism | 3 | C |
| | | CMT 1307 | Mathematics for Technology I | 3 | C |
| | | CMT 1208 | Computer Programming for Technology | 2 | C |
| | | ENT 1204 | Workshop Technology I | 2 | C |
| | | CML 1203 | Principles of Management | 2 | C |
| | | CML 1204 | Health and Wellbeing | 2 | C |
| | | CMT 1009 | Communication Skills II | 0 | C |
| | | ENT 1203 | Engineering Drawing | 2 | O |
| | | | **1 - 2 Total** | **C-17** **O-2** | |

| Year | Semester | Course code | Subject | Credits | Status |
|---|---|---|---|---|---|
| 2 | 1 | EET 2301 | Digital & Analog Electronics | 3 | C |
| | | EET 2202 | Electricity Network | 2 | C |
| | | EET 2208 | Introduction to Electrical Power | 2 | C |
| | | MTT 2204 | Computer Aided Design (CAD) | 2 | O |
| | | ICT 2304 | Object Oriented Programming | 3 | O |
| | | ICT 2202 | Operating Systems | 2 | O |
| | | ICT 2303 | Data Structures and Algorithms | 3 | O |
| | | CMT 2306 | Mathematics for Technology II | 3 | C |
| | | CMT 2301 | Fundamentals of Statistics for Technology | 3 | C |
| | | CMT 2002 | Communication Skills III | 0 | C |
| | | CML 2202 | Engineering Economics | 2 | C |
| | | CML 2201 | Social Sciences and Humanity | 2 | C |
| | | CML 2206 | Indigenous Technology | 2 | O |
| | | | 2 - 1 Total | C-17 O-12 | |
| | 2 | EET 2203 | Electronic Devices and Circuits | 2 | C |
| | | EET 2204 | Electrical Measurements and Instrumentation | 2 | C |
| | | EET 2305 | Electrical Machines | 3 | C |
| | | EET 2206 | Signals and Systems | 2 | C |
| | | CMT 2203 | Computational Mathematics | 2 | C |
| | | CML 2204 | Foreign Language | 2 | O |
| | | CML 2205 | Ethics in Science and Technology | 2 | C |

| Year | Semester | Course code | Subject | Credits | Status |
|------|----------|-------------|---------|---------|--------|
| | | CML 2208 | Introduction to Marketing | 2 | O |
| | | EET 2207 | Computer Aided Machine Design | 2 | O |
| | | ICT 2213 | Data Communication and Networking | 2 | O |
| | | 2 - 2 Total | | C-13 O-08 | |
| 3 | 1 | EET 3301 | Electrical Power Systems | 3 | C |
| | | EET 3202 | Communication Systems | 2 | C |
| | | EET 3203 | Computer Systems | 2 | C |
| | | EET 3304 | Digital Signal Processing | 3 | C |
| | | EET 3305 | Control Systems | 3 | C |
| | | CML 3101 | Legal and Patent Aspects | 1 | C |
| | | EET 3206 | Automation Technology I | 2 | O |
| | | EET 3209 | Automobile Electrical Systems | 2 | O |
| | | EET 3210 | Electrical Installations | 2 | O |
| | | EET 3211 | Machine Element Design | 2 | O |
| | | ICT 3217 | Advanced Computer Networking | 2 | O |
| | | 3 - 1 Total | | C-14 O-10 | |
| | 2 | EET 3607 | Industrial Training | 6 | C |
| | | CML 3102 | Industrial Safety | 1 | C |
| | | 3 - 2 Total | | C-07 | |

| Year | Semester | Course code | Subject | Credits | Status |
|---|---|---|---|---|---|
| 4 | 1 | EET 4301 | Electronic Circuit Design and Simulations | 3 | C |
| | | EET 4303 | Electrical Energy Utilization | 3 | O |
| | | EET 4304 | Power Electronics | 3 | C |
| | | EET 4818 | Undergraduate Project | 4 | C |
| | | EET 4202 | Embedded System Design | 2 | O |
| | | EET 4305 | Digital Communication | 3 | O |
| | | EET 4206 | Automation Technology II | 2 | O |
| | | EET 4207 | Telecommunication Systems | 2 | O |
| | | EET 4208 | Fiber Optics Techniques | 2 | O |
| | | EET 4216 | Energy and Environment | 2 | O |
| | | CML 4201 | Entrepreneurship | 2 | O |
| | | CML 4202 | Human Resources Management | 2 | O |
| | | | 4 - 1 Total | C-10 O-20 | |
| | 2 | EET 4818 | Undergraduate Project | 4 | C |
| | | EET 4210 | Electronic Product Design | 2 | C |
| | | EET 4217 | Electrical Machines and Drives | 2 | O |
| | | EET 4209 | High Voltage Engineering | 2 | O |
| | | EET 4311 | Internet Technology and Appli- | 3 | O |
| | | EET 4312 | Power System Analysis | 3 | O |
| | | EET 4213 | Antenna and Propagation | 2 | O |
| | | EET 4214 | Wireless Communication | 2 | O |
| | | EET 4215 | Mechatronics | 2 | O |
| | | EET 4219 | Green Energy and Zero Emission Concepts | 2 | O |
| | | EET 4220 | Graphical Programming and Data Acquisition | 2 | O |
| | | | 4 - 2 Total | C-06 O-16 | |

# B) Materials Technology

Materials Technology degree programme offers a syllabus comprising processing, manufacturing and fabrication of materials and opens doors to employment in a range of industries. The applications and implementations related to metals, ceramics, glass, polymers and their versatile outcome composites will be extensively studied. The programme is equipped with modern and advanced material testing apparatus and also with a Pilot Plant (mini factory) for ceramic-based industrial applications. The technological and business skills gained from the course modules along with the industrial training will equip students with their first step towards the fulfilling industry requirements.

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# Materials Technology Modules

| Year | Semester | Course code | Subject | Credits | Status |
|------|----------|-------------|---------|---------|--------|
| 1 | 1 | CMT 1301 | Fundamentals of Physics for Technology | 3 | C |
| | | CMT 1302 | Fundamentals of Chemistry for Technology | 3 | C |
| | | CMT 1303 | Fundamentals of Mathematics for Technology | 3 | C |
| | | CMT 1304 | Fundamentals of Computer for Technology | 3 | C |
| | | CML 1201 | Personality Development | 2 | C |
| | | CML 1202 | Presentation Skills | 2 | C |
| | | CMT 1005 | Communication Skills I (English) | 0 | C |
| | | | 1 - 1 Total | C-16 | |
| | 2 | ENT 1301 | Introduction to Basic Electronics | 3 | C |
| | | ENT 1302 | Fundamentals of Electricity and Magnetism | 3 | C |
| | | CMT 1307 | Mathematics for Technology I | 3 | C |
| | | CMT 1208 | Computer Programming for Technology | 2 | C |
| | | ENT 1204 | Workshop Technology I | 2 | C |
| | | CML 1203 | Principles of Management | 2 | C |
| | | CML 1204 | Health and Wellbeing | 2 | C |
| | | CMT 1009 | Communication Skills II | 0 | C |
| | | ENT 1203 | Engineering Drawing | 2 | O |
| | | | 1 - 2 Total | C-17 O-2 | |

2018/2019

| Year | Semester | Course code | Subject | Credits | Status |
|------|----------|-------------|---------|---------|--------|
| 2 | 1 | MTT 2201 | Fundamentals of Solid State Physics | 2 | C |
| | | MTT 2202 | Chemistry for Materials Technology | 2 | C |
| | | MTT 2203 | Introduction to Ceramic Technology | 2 | C |
| | | MTT 2204 | Computer Aided Design (CAD) | 2 | C |
| | | CMT 2306 | Mathematics for Technology II | 3 | C |
| | | CMT 2301 | Fundamentals of Statistics for Technology | 3 | C |
| | | CML 2201 | Social Sciences and Humanities | 2 | C |
| | | CML 2206 | Indigenous Technology | 2 | O |
| | | CML 2202 | Engineering Economics | 2 | C |
| | | CMT 2002 | Communication Skills III | 0 | C |
| | | ICT 2304 | Object Oriented Programming | 3 | O |
| | | MTT 2206 | Graphical Programming | 2 | O |
| | | | 2 - 1 Total | C-18 O-07 | |
| | 2 | MTT 2210 | Mechanical Behavior of Materials | 2 | C |
| | | MTT 2311 | Ceramic Technology I | 3 | C |
| | | MTT 2205 | Introduction to Metallurgy | 2 | C |
| | | MTT 2207 | Measurements, Error Analysis and Instrumentation | 2 | C |
| | | MTT 2108 | Chemical Engineering Sciences | 1 | C |
| | | MTT 2209 | Introduction to Polymer Technology | 2 | C |
| | | MTT 2112 | Introduction to Thermodynamics | 1 | C |
| | | CMT 2203 | Computational Mathematics | 2 | C |
| | | CML 2204 | Foreign Language | 2 | O |
| | | CML 2208 | Introduction to Marketing | 2 | O |
| | | CML 2205 | Ethics in Science and Technology | 2 | O |
| | | ICT 2206 | Multimedia and Web Technology | 2 | O |
| | | | 2 - 2 Total | C-15 O-08 | |

| Year | Semester | Course code | Subject | Credits | Status |
|---|---|---|---|---|---|
| 3 | 1 | MTT 3308 | Polymer Technology I | 3 | C |
| | | MTT 3307 | Metallurgy I | 3 | C |
| | | MTT 3306 | Ceramic Technology II | 3 | C |
| | | MTT 3202 | Degradation of Materials | 2 | C |
| | | MTT 3103 | Ceramic Pilot Plant Practices | 1 | O |
| | | MTT 3204 | Workshop Technology II | 2 | C |
| | | MTT 3212 | Non Destructive Testing of Materials | 2 | C |
| | | MTT 3111 | Thermodynamics for Materials Technology | 1 | C |
| | | CML 3101 | Legal and Patent aspects | 1 | O |
| | | 3 - 1 Total | | C-16 O-02 | |
| | 2 | CML 3102 | Industrial Safety | 1 | C |
| | | MTT 3609 | Industrial Training | 6 | C |
| | | 3 - 2 Total | | C-07 | |
| 4 | 1 | MTT 4201 | Fluid Mechanics | 2 | C |
| | | MTT 4121 | Research Methodology and Scientific Writing | 1 | C |
| | | MTT 4303 | Ceramic Technology III | 3 | O† |
| | | MTT 4219 | Applied Mechanics | 2 | C |
| | | MTT 4104 | Glass Technology | 1 | O |
| | | MTT 4305 | Polymer Technology II | 3 | O† |
| | | MTT 4106 | Mineral Processing | 1 | O |
| | | MTT 4307 | Metallurgy II | 3 | O† |
| | | MTT 4820 | Research Project (Continue in 4-2) | | C |
| | | MTT 4108 | Directed Reading | 1 | O |
| | | MTT 4109 | Seminar | 1 | O |
| | | MTT 4210 | Work Shadowing | 2 | O |
| | | CML 4201 | Entrepreneurship | 2 | C |
| | | CML4202 | Human Resource Management | 2 | O |
| | | 4 - 1 Total | | C-07 O-14 | |

| Year | Semester | Course code | Subject | Credits | Status |
|---|---|---|---|---|---|
| 4 | 2 | MTT 4820 | Research Project | 8 | C |
| | | MTT 4311 | Advanced Materials | 3 | O |
| | | MTT 4312 | Advanced Instrumental Techniques and Characterization of Materials | 3 | O |
| | | MTT 4213 | Manufacturing Systems | 2 | O |
| | | MTT 4114 | Quality Management | 1 | C |
| | | MTT 4215 | Cleaner Production | 2 | C |
| | | MTT 4216 | Industrial Metrology | 2 | O |
| | | MTT 4217 | Composite Materials | 2 | O |
| | | MTT 4218 | Paint Technology | 2 | O |
| | | 4 - 2 Total | | C-11 O-14 | |

*CMT: Common Courses for all Technology Programs, CML: Complementary Courses, EET: Courses offered by Electrical and Electronic Technology Program, ENT: Common Courses for all Engineering Technology Programs, ICT: Courses offered by Information and Communication Technology Program, MTT: Courses offered by Materials Technology Program, C: Compulsory, O: Optional

# Information and Communication Technology

The Information and Communication Technology degree program at Rajarata University of Sri Lanka offers a 4-year degree program leading to Bachelor of Information and Communication Technology (BICT). This program is designed under the guidelines of Institute of Computer Society of Sri Lanka (CSSL). Students who wish to follow this degree program should pass the Science for Technology and Information and Communication Technology subjects at the G.C.E. A/L examination.

The main objective of this degree program is to produce high quality skilled graduates who can directly fulfill the requirements in both the local and international IT industries.

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# Information and Communication Technology Modules

| Year | Semester | Course code | Subject | Credits | Status |
|------|----------|-------------|---------|---------|--------|
| 1 | 1 | ICT 1101 | Productivity Tools | 1 | C |
| | | ICT 1202 | Electronic circuits | 2 | C |
| | | ICT 1305 | Program Designing and Programming | 3 | C |
| | | CMT 1301 | Fundamentals of Physics for Technology | 3 | C |
| | | CMT 1303 | Fundamentals of Mathematics for Technology | 3 | C |
| | | CML 1301 | Personality Development | 3 | C |
| | | CMT 1005 | Communication Skills I | 0 | C-NGP |
| | | **1 - 1 Total** | | **C -15** | |
| | 2 | ICT 1110 | Introduction to Multimedia | 1 | C |
| | | ICT 1108 | Skill Development Project I | 1 | C |
| | | ICT 1209 | Web Technologies | 2 | C |
| | | ICT 1207 | Human Computer Interaction | 2 | C |
| | | ENT 1302 | Fundamentals of Electricity and Magnetism | 3 | O |
| | | CML 1203 | Principles of Management | 2 | C |
| | | CML 1204 | Health and Wellbeing | 2 | C |
| | | CMT 1009 | Communication Skills II | 0 | C-NGP |
| | | CMT 1307 | Mathematics For Technology  1 | 3 | C |
| | | **1 - 2 Total** | | **C-13** **O - 3** | |

| Year | Semes-ter | Course code | Subject | Credits | Status |
|---|---|---|---|---|---|
| 2 | 1 | ICT 2101 | Advanced applications | 1 | C |
| | | ICT 2202 | Operating Systems | 2 | C |
| | | ICT 2303 | Data Structures and Algorithms | 3 | C |
| | | ICT 2304 | Object Oriented Programming | 3 | C |
| | | ICT 2207 | Software System Design | 2 | C |
| | | ICT 2212 | Skill Development Project II | 2 | C |
| | | CML 2202 | Engineering Economics | 2 | C |
| | | CMT 2002 | Communication Skills III | 0 | C-NGP |
| | | EET 2207 | Mathematics for Technology II | 2 | O |
| | | **2 - 1 Total** | | **C -15** **O-2** | |
| | 2 | ICT 2305 | Computational Mathematics | 3 | C |
| | | ICT 2314 | Introduction to the Information Systems | 3 | C |
| | | ICT 2211 | Fundamentals of Statistics | 2 | C |
| | | ICT 2213 | Data Communication and Networking | 2 | C |
| | | ICT 2308 | Database Systems | 3 | C |
| | | ICT 2109 | Communication and Learning Skills | 1 | C |
| | | CML 2204 | Foreign Language | 2 | C |
| | | CML 2205 | Ethics for Science and Technology | 2 | C |
| | | **2 - 2 Total** | | **C-18** | |

| Year | Semester | Course code | Subject | Credits | Status |
|------|----------|-------------|---------|---------|--------|
| 3 | 1 | ICT 3201 | Project Management | 2 | C |
| | | ICT 3217 | Advance Computer Networks | 2 | O |
| | | ICT 3203 | Scientific Computer Applications | 2 | C |
| | | CML 3101 | Legal and Patent aspects | 1 | C |
| | | ICT 3312 | Software Verification and Validation | 3 | C |
| | | ICT 3206 | Skills Development Project III | 2 | C |
| | | ICT 3307 | Computational Statistics | 3 | O |
| | | ICT 3314 | Embedded Systems | 3 | C |
| | | ICT 3208 | Design and Analysis of Algorithms | 2 | C |
| | | **3 - 1 Total** | | **C-15** **O - 5** | |
| | 2 | ICT 3209 | Computer Organization and Architecture | 2 | C |
| | | ICT 3310 | Information Security | 3 | C |
| | | ICT 3311 | Robotics | 3 | O |
| | | ICT 3315 | Internet of Things | 3 | O |
| | | ICT 3213 | Advanced SW System Design | 2 | C |
| | | ICT 3216 | Research Methodology | 2 | C |
| | | ICT 3204 | E-Commerce | 2 | C |
| | | CML 3203 | Basics of Accountancy | 2 | C |
| | | **3 - 2 Total** | | **C -13** **O-6** | |

**2018/2019**

| Year | Semester | Course code | Subject | Credits | Status |
|---|---|---|---|---|---|
| 4 | 1 | ICT 4301 | Mobile Computing | 3 | C |
| | | ICT 4302 | Internet Applications | 3 | C |
| | | ICT 4103 | Software Engineering | 1 | C |
| | | ICT 4204 | Graphics and Image Processing | 2 | O |
| | | ICT 4205 | Current Topics in Information Technology | 2 | C |
| | | ICT 4306 | Data Science | 3 | O |
| | | ICT 4207 | Artificial Intelligence | 2 | O |
| | | CML 4201 | Entrepreneurship | 2 | C |
| | | CML 4202 | Human Resource Management | 2 | O |
| | | 4 - 1 Total | | C – 11 O - 09 | |
| | 2 | ICT 4808 | Project | 8 | C |
| | | ICT 4609 | Industrial Training | 6 | C |
| | | 4 - 2 Total | | C – 14 | |

***CMT:** common courses for all Technology programs, **CML**: complementary courses, **ENT:** common courses for all Engineering Technology programs, **ICT:** courses offered by Information and Communication Technology program, **C:** Compulsory, **O:** Optional