



UNIVERSITY
of
TECHNOLOGY,
MAURITIUS

School of Innovative Technologies and Engineering

Department of Industrial Systems Engineering

BEng (Hons) Electronic Engineering

PROGRAMME DOCUMENT

VERSION 3.0
BEE v3.0
September 2021

A. PROGRAMME INFORMATION

By far, the 21st Century has witnessed the fusion of electronics and computers in so much as it is almost impossible nowadays to find a modern device which is devoid of a microprocessor or micro-controller of some kind inside, giving rise to a new breed of smart and ubiquitous devices that will shape our lives in the future. In the first year of the programme, the fundamentals of electronics, mathematics, as well as the underlying principles and theory of computing are introduced. The second and third years build on the first with core modules in electronics, computing and communication systems.

Moreover, in their last level, students will have one Professional Work Placement for one full semester so that they can apply their theoretical knowledge to solve real-world problems in electronic engineering. Students will have to complete a final year individual project to be qualified for the BEng programme.

APPROVAL OF CURRICULUM

This BEng (Hons) Electronic Engineering programme meets the academic requirements set by the **Council of Registered Professional Engineers (CRPE)** of Mauritius.

B. PROGRAMME AIMS

This programme aims to produce engineering graduates equipped to play valuable roles in the Electronics and ICT industry both locally as well as overseas. Successful graduands are expected to become registered professional engineers.

JOB PROSPECTS

Electronic engineering graduates are naturally expected to find employment in the electronics-related sector such as Power Generation, Automotive, Construction, FMCG, Pharmaceutical, Marine, Rail, and Utility industries. However, non-engineering careers, such as, in Consulting, Law, Financial Services, Sales and Pre-sales, IT and Education where analytical skills and high levels of numeracy are expected, are also possible.

C. PROGRAMME OBJECTIVES

To provide an understanding of technical and intellectual skills so that students can:

- Analyse and solve engineering problems
- Design a system, component, or process to meet a need
- Evaluate designs, processes and products, and make improvements
- Take a holistic approach in solving problems and designing systems, applying professional judgments to balance risks, costs, benefits, safety, reliability, aesthetics and environmental impact

PART I REGULATIONS

D. GENERAL ENTRY REQUIREMENTS

As per UTM'S Admission Regulations, and 'Admission to Programmes of Study at First Degree Level'.

E. PROGRAMME ENTRY REQUIREMENTS

Pass at Principal Level in Mathematics AND Physics at HSC/GCE A-Level or Equivalent, or Baccalaureate Level.

Note:

As per the recommendation of CRPE of Mauritius, the Brevet de Technicien (Scientifique) or any other higher technical qualifications are no longer admissible in lieu of the requirements above.

F. PROGRAMME MODE AND DURATION

Full Time: Minimum 4 years (8 semesters) and Maximum 7 years (14 semesters)

G. TEACHING AND LEARNING STRATEGIES

Teaching and learning activities may include

- Lectures (L), Tutorials (T) and Practical (P) sessions
- Class Tests and Assignments
- Participating in quiz-based exercises
- Professional Work Placement (in-house training and outside the University)
- Workshops / Seminars / Lab Sessions
- Industry visits so that students may observe company cultures and may network with industry professionals
- Structured Discussions & Self Development Study (SD)
- Case Study materials & scenarios centred on real-world problems.

H. STUDENT SUPPORT AND GUIDANCE

- Academic tutoring and Counseling: Group tutorials or individual tutorials are arranged for students upon request.
- Supervision of mini-projects, placement, and final year projects.

I. ATTENDANCE REQUIREMENTS

- As per UTM's Regulations and Policy.

J. CREDIT SYSTEM

This programme is aligned with the European Credit and Transfer System (ECTS). The programme promotes a unified procedure for academic recognition of study periods performed. The system introduces standards for assessment and comparison of study levels in various academic institutions and enables to recognition of diplomas at the European job market.

One module is worth 6 credits and will carry 150 hours of learning to comprise 45 hours of delivery which could be any combination of face-to-face, blended, online, seminar, workshop, or joint session. The remaining 105 hours will cover self-learning, self-study, guest lecture, etc. The final year project is assigned 12 credits.

K. STUDENT PROGRESS AND ASSESSMENT

The programme is delivered through lectures and seminars, and computer/practical sessions in computer & engineering labs. Self-study or self-development is also important and will include reading, designing and preparing presentations, academic tutoring, writing reports and theses, and investigating problems.

The importance of IT/simulation tools in modern telecommunication engineering practice is emphasized, and students will make use of the latest software to solve mathematical, control and signal-processing problems and to prepare electronic and systems designs.

For the award of the degree, all modules must be passed overall with passes in the examinations, coursework, and other forms of assessment. All modules will carry 100 marks and will be assessed as follows (unless otherwise specified):

- (i) Written examinations and/or practical examinations will normally carry a weightage of 60% unless otherwise specified.
- (ii) Continuous assessment will normally carry a weightage of 40% unless otherwise specified.
- (iii) Continuous assessment for the specific modules 'Communication workshop' and 'Research methodology' shall be 100% of the total marks. Continuous assessment can be based on a combination of assignments, field studies, workshops, and class tests.
- (iv) The overall pass mark for a module is 40%.

Grading

Grade	Marks x (%)
A	$x \geq 70$
B	$60 \leq x < 70$
C	$50 \leq x < 60$
D	$40 \leq x < 50$
F	$x < 40$
A - D	Pass
F	Referred

L. EVALUATION OF PERFORMANCE

- The % mark at Level 1 contributes a 20% weighting towards the degree classification.
- The % mark at Level 2 contributes a 20% weighting towards the degree classification.
- The % mark at Level 3 contributes a 30% weighting towards the degree classification.
- The % mark at Level 4 contributes a 30% weighting towards the degree classification.

M. AWARD CLASSIFICATION

Overall weighted mark y (%)	Classification
$y \geq 70$	1 st Class Honours
$60 \leq y < 70$	2 nd Class 1 st Division Honours
$50 \leq y < 60$	2 nd Class 2 nd Division Honours
$45 \leq y < 50$	3 rd Class Honours
$40 \leq y < 45$	Pass Degree
$y < 40$	No Award

For the award of an Honours Degree, a minimum of 252 credits is required.

Students who fail to qualify for the award of the degree may be awarded as follows:

1. Certificate in Electronic Engineering: a minimum of 72 credits
2. Diploma in Electronic Engineering: a minimum of 144 credits.

N. PROGRAMME ORGANISATION AND MANAGEMENT

Programme Director/Coordinator: Mr. Rishi HEERASING

Contact Details : Tel: 207-5250 Fax: 234-1767

Email: rheerasing@umail.utm.ac.mu

PART II

O. PROGRAMME STRUCTURE: Full-Time (Version 3.0)

YEAR 1 (Level 1)							
Semester 1				Semester 2			
Code	Module Title	Hrs/ Wk L/T/P+SD	ECTS Credits	Code	Module Title	Hrs/Wk L/T/P+SD	ECTS Credits
ASE1101c	<i>Principles of Engineering</i>	3+7	6	ELEC1102c	<i>Analogue Electronics</i>	3+7	6
MATH1145c	<i>Foundation Mathematics</i>	3+7	6	CAN1103c	<i>Data Communications</i>	3+7	6
MATH1112c	<i>Statistics for Engineers</i>	3+7	6	ASE1102c	<i>Materials Science & Engineering</i>	3+7	6
PROG1114c	<i>Programming for Engineers</i>	3+7	6	PROG1114c	<i>Programming for Engineers</i>	3+7	6
ASE1103c	<i>Measurement & Instrumentation</i>	3+7	6	ITE1104c	<i>Legal Issues & Professional Ethics for Engineers</i>	3+7	6
COMM1106c	<i>Communication Workshop</i>	3+7	6	ACCF1109c	<i>Financial & Management Accounting</i>	3+7	6

YEAR 2 (Level 2)							
Semester 3				Semester 4			
Code	Module Title	Hrs/ Wk L/T/P+SD	ECTS Credits	Code	Module Title	Hrs/ Wk L/T/P+SD	ECTS Credits
MATH2147c	<i>Engineering Mathematics</i>	3+7	6	TELC2104c	<i>Antenna & Radio Wave Propagation</i>	3+7	6
ELEC2102c	<i>Digital Electronics</i>	3+7	6	HCA2101c	<i>Microprogramming</i>	3+7	6
ASE2101c	<i>Health, Safety & Risk in Engineering</i>	3+7	6	MKTG1109c	<i>Innovation & Marketing</i>	3+7	6
ELEC2103c	<i>Electronic Circuits & Design</i>	3+7	6	ELEC2103c	<i>Electronic Circuits & Design</i>	3+7	6
ELEC2104c	<i>Signal & Systems Analysis</i>	3+7	6	ELEC2104c	<i>Signal & Systems Analysis</i>	3+7	6
HCA2102c	<i>Microprocessor Design & Organisation</i>	3+7	6	MATH2148c	<i>Advanced Engineering Mathematics</i>	3+7	6

Year 3 (Level 3)							
Semester 5				Semester 6			
Code	Module Title	Hrs/ Wk L/T/P+SD	ECTS Credits	Code	Module Title	Hrs/ Wk L/T/P+SD	ECTS Credits
HCA3110c	<i>Embedded Systems & Design</i>	3+7	6	HCA3110c	<i>Embedded Systems & Design</i>	3+7	6
SEM3107c	<i>Project Management for Engineers</i>	3+7	6	MATH3149c	<i>Scientific Computing</i>	3+7	6
TLEC3110c	<i>Electromagnetic Compatibility</i>	3+7	6	SCG3112c	<i>Artificial Intelligence</i>	3+7	6
ELEC3103c	<i>Human Machine Interface</i>	3+7	6	ELEC3102c	<i>Feedback Control</i>	3+7	6
SECU2109c	<i>Cryptography & Network Security</i>	3+7	6	SEM4107c	<i>Quality Assurance & Management Principles</i>	3+7	6
ASE3101c	<i>Research Methodology</i>	3+7	6	TELC3111c	<i>RF Systems and Design</i>	3+7	6

YEAR 4 (Level 4)							
Semester 7				Semester 8			
Code	Module Title	Hrs/ Wk L/T/P+SD	ECTS Credits	Code	Module Title	Hrs/ Wk L/T/P+SD	ECTS Credits
PROJ4201c	<i>Professional Placement</i>	-	6		<i>Elective 2</i>	3+7	6
	<i>Elective 1</i>	3+7	6		<i>Elective 3</i>	3+7	6
PROJ4113c	<i>Individual Project</i>	-	-	PROJ4113c	<i>Individual Project</i>	-	12

List of Electives			
Code	Module Title	Hrs/ Wk L/T/P+SD	ECTS Credits
ELEC4104c	<i>VLSI Design & Technology</i>	3+7	6
ELEC4105c	<i>Optoelectronics</i>	3+7	6
SCG4101c	<i>Digital Image Processing</i>	3+7	6
TELC3108c	<i>Mobile Communication Engineering</i>	3+7	6
CAN4101c	<i>Advanced Network Processing</i>	3+7	6

P. PROGRAMME STRUCTURE (Part-Time)

Not Applicable to the BEng (Hons) Electronic Engineering programme

Total Number of ECTS Credits = 252.

Total Number of ECTS Hours = 5850 (excluding the number of hours spent to complete the one-semester Professional Placement and the Final Year project).

Version 3.0 was approved in September 2021.