

MSc Electrical Engineering (Specialisation: Communication Engineering/ Control Systems / Power Systems) - Full-time/Part-time- E532

1. Introduction

Electrical Engineering is a broad field of study encompassing Information and Communication Technologies, Control systems and Power systems, among others. Electrical Engineering is called nowadays to play a crucial role in the socio-economic development of Mauritius. With ongoing technological developments and the growing importance of research and development, there is an increasing need for post-graduates with specialization in Electrical Engineering in the above areas. Students will take taught core modules, and then specialize in either Communication Engineering, Control Systems or Power Systems, through taught elective modules and an MSc project.

2. Aims and Objectives

The MSc in Electrical Engineering programme is designed to provide instruction and training in the areas of communication engineering, control systems and power systems. The programme also aims at providing an adequate basis for those students who wish to subsequently pursue a career in research and or to undertake an MPhil/ PhD degree.

The Programme fulfils this aim by teaching students to:

- a) understand and apply theory and practice of Communication Engineering, Control Systems and Power Systems
- b) be able to analyse a particular communication, control or power system problem (depending on the field of specialisation) and use state of the art techniques to design and implement solution(s) to the problem; and
- c) demonstrate critical and analytical thinking in the application of knowledge and/or research in a particular system.

3. General Entry Requirements

Successful completion of an undergraduate degree with

- at least a Second Class or 50%, whichever is applicable or
- a GPA not less than 2.5 out of 4 or equivalent, from a recognised higher education institution.

OR alternative qualifications acceptable to the University of Mauritius.

4. Programme Requirements

At least a second class degree in Electrical and Electronic Engineering, Electronic and Communication Engineering, Information and Communication Technologies, Electronics and Computer Science, Mechatronics, Mechanical Engineering, Physics with Electronics, or any other Electrical Engineering related field from a recognised University.or GPA not less than 2.5 or alternative qualifications acceptable to the University of Mauritius.

5. Programme Duration

For full-time applicants, the normal duration of the Programme will be 1 year with a maximum of 2 years (4 semesters), and for part-time applicants, the normal duration of the Programme will be 2 years with a maximum of 4 years (8 semesters), subject to the approval of the Faculty. However, students wishing to exit before the end of the course may do so as follows:

- (a) After successfully completing **five (5)** modules for the award of a **Postgraduate Certificate**.

(b) After successful completion of **nine (9)** modules, for the award of a **Postgraduate Diploma**.

6. Credits per Semester

Minimum 3 credits subject to Regulation 5 and a maximum of 3 taught modules.

7. Minimum Credits Required for the Award of

Master's Degree:	36
Postgraduate Diploma:	27
Postgraduate Certificate:	15

Breakdown as follows:

	Minimum Core Taught Modules	Project	Electives/ Optional Modules
Master's Degree:	18 credits	9 credits	9 credits
Postgraduate Diploma:	18 credits		9 credits
Postgraduate Certificate:	15 credits		

8. Assessment

Each module will carry 100 marks and will be assessed as follows (unless otherwise specified):

Assessment will be based on a written examination of 3 hours and continuous assessment carrying a range of 30% to 40% of total marks. Continuous assessment may be based on laboratory works, and/or assignments and should include at least two (2) assignments/class tests.

An overall total of 40% for combined Continuous Assessment (CA) and Written Examination (WE) components would be required to pass the module, without minimum thresholds within the individual CA and WE components.

All modules carry equal weightage.

The Project carries 9 credits.

Submission Deadlines for Dissertation:

Full Time:	First Draft:	End of July of Year 1
	Final Copy:	Last working day of August of Year 1
Part Time:	First Draft:	End of July of Year 2
	Final Copy:	Last working day of August of Year 2

9. Plan of Study

Students should indicate their respective area of specialization in either (a) Communication Engineering, or (b) Control Engineering or (c) Power Systems, before being allowed to register for elective modules and the MSc project.

The University reserves the right not to offer a given elective module if the critical number of students is not attained and/or for reasons of resource constraints.

10. List of Modules

CORE MODULES

	Module	Hrs/Wk	Credits
		L+P	
ENGG 6101	Principles of Project Management	3+0	3
ELEC 6101	Instrumentation and Measurements	3+0	3
ELEC 6103	Advanced Signal Processing	3+0	3
ELEC 6201	Communication Engineering	3+0	3
ELEC 6202	Control Systems	3+0	3
ELEC 6203	Power Systems	3+0	3
ELEC 6000	Project	-	9

ELECTIVES

Communication Engineering Stream

ELEC 6301	Mobile Communications and Wireless Technologies	3+0	3
ELEC 6302	RF and Microwave Design for Wireless Systems	3+0	3
ELEC 6303	Satellite Communications	3+0	3
ELEC 6401	Telecommunication Networks	3+0	3
ELEC 6402	Applied Information Theory and Coding	3+0	3
ELEC 6407	Audio & Video Broadcasting Technologies	3+0	3
ELEC 6524	Nanotechnology	3+0	3

Control Systems Stream

ELEC 6304	Advanced Control Systems	3+0	3
ELEC 6305	Modern Control Engineering	3+0	3
ELEC 6306	Optimal Control	3+0	3
ELEC 6403	Power Electronics and Motor drives	3+0	3
ELEC 6404	Digital Control	3+0	3
ELEC 6524	Nanotechnology	3+0	3

Power Systems Stream

ELEC 6307	Power Systems Optimization	3+0	3
ELEC 6308	Power System Dynamics and Stability	3+0	3
ELEC 6309	Power System Reliability	3+0	3
ELEC 6310	High Voltage Engineering	3+0	3
ELEC 6405	Power Station Design	3+0	3
ELEC 6406	Intelligent Tools for Power Systems	3+0	3
ELEC 6524	Nanotechnology	3+0	3

11. Programme Plan - MSc Electrical Engineering (Specialisation: Communication Engineering /Control Systems/ Power Systems)

FULL TIME

Semester 1				Semester 2			
Code	Module	Hrs/Wk L+P	Credits	Code	Module	Hrs/Wk L+P	Credits
CORE				ELECTIVES			
ENGG 6101	Principles of Project Management	3+0	3	ELEC 6000	Project	-	9
ELEC 6101	Instrumentation and Measurements	3+0	3		Elective 1	3+0	3
ELEC 6103	Advanced Signal Processing	3+0	3		Elective 2	3+0	3
ELEC 6201	Communication Engineering	3+0	3		Elective 3	3+0	3
ELEC 6202	Control Systems	3+0	3				
ELEC 6203	Power Systems	3+0	3				

PART TIME

Semester 1				Semester 2			
Code	Module	Hrs/Wk L+P	Credits	Code	Module	Hrs/Wk L+P	Credits
CORE				ELECTIVES			
ENGG 6101	Principles of Project Management	3+0	3	ELEC 6201	Communication Engineering	3+0	3
ELEC 6101	Instrumentation and Measurements	3+0	3	ELEC 6202	Control Systems	3+0	3
ELEC 6103	Advanced Signal Processing	3+0	3	ELEC 6203	Power Systems	3+0	3

Semester 3				Semester 4			
Code	Module	Hrs/Wk L+P	Credits	Code	Module	Hrs/Wk L+P	Credits
CORE				ELECTIVES			
ELEC 6000	Project	-	-	ELEC 6000	Project	-	9
	Elective 1	3+0	3		Elective 3	3+0	3
	Elective 2	3+0	3				
ELECTIVES							
(a) Communication Engineering stream							
ELEC 6301	Mobile Communications and Wireless Technologies	3+0	3	ELEC 6401	Telecommunication Networks	3+0	3
ELEC 6302	RF and Microwave design for wireless systems	3+0	3	ELEC 6402	Applied Information Theory and Coding	3+0	3
ELEC 6303	Satellite Communication	3+0	3	ELEC 6407	Audio & Video Broadcasting Technologies	3+0	3
				ELEC 6524	Nanotechnology	3+0	3
(b) Control Systems stream							
ELEC 6304	Advanced Control Systems	3+0	3	ELEC 6403	Power Electronics and Motor Drives	3+0	3
ELEC 6305	Modern Control Engineering	3+0	3	ELEC 6404	Digital Control	3+0	3
ELEC 6306	Optimal Control	3+0	3	ELEC 6524	Nanotechnology	3+0	3
(c) Power Systems stream							
ELEC 6307	Power Systems Optimisation	3+0	3	ELEC 6405	Power Station Design	3+0	3
ELEC 6308	Power Systems Dynamics and Stability	3+0	3	ELEC 6406	Intelligent Tools for Power Systems	3+0	3
ELEC 6309	Power System Reliability	3+0	3	ELEC 6524	Nanotechnology	3+0	3
ELEC 6310	High Voltage Engineering	3+0	3				

Note 1: A limited number of seats will be available for each stream.

Note 2: Students will opt for a field of specialization before being allowed to register for electives and the MSc project. Once a stream has been selected, students will not be allowed to change stream up to the completion of the Programme of Studies.

Note 3: Students are required to register at the Faculty for modules that they intend to follow in a given semester on a date specified by the Faculty. However, students will be allowed to withdraw from a module without penalty within 4 weeks from the first day of the semester.

Note 4: An elective will be provided only if sufficient number of students have opted for it and depending on availability of resource persons.

Note 5: For full time students, all core modules will be run in semester 1 and electives in semester 2.

September 2010