

MSc Renewable Energy and Smart Electrical Systems – E537 (Part-Time) (Under Review)

1. Context and Objectives

Renewable energy technologies are changing the energy infrastructure at a rapid pace. Electrical systems are becoming more intelligent as they have the ability to shape the way electricity is generated and consumed, leading to opportunities for new technologies, new businesses and new ideas. This MSc programme is targeted at students with general engineering/science backgrounds. It provides an in-depth knowledge of the major renewable energy technologies as well as the state-of-the-art components of a smart electrical system. Some modules have been designed to enable renewable energy professionals, entrepreneurs and innovators of the future to develop their management, communication, team work and research skills. The programme has been designed to facilitate the professional development of working people through the virtual classroom mode.

This programme has been specifically designed to equip students with the essential knowhow related to Renewable Energy and Smart Electrical Systems and prepare them for a professional career in the field.

The objectives of the Online MSc Programme are:

- (i) to provide a comprehensive understanding of renewable energy technologies and intelligent electrical systems;
- (ii) to provide advanced educational opportunities for enhanced understanding and practice in the field of Renewable Energy and Smart Electrical Systems;
- (iii) to provide mastery of principles to enable tackling of real-life technological, financial, managerial and ethical problems in the electrical energy and power profession.

2. Learning outcomes

After completion of this programme, graduates should be able to:

- (i) Evaluate problem solving strategies and develop solutions for renewable energy and smart electrical systems;
- (ii) Integrate and apply knowledge acquired from various sources to propose design concepts;
- (iii) Demonstrate competence to engage in independent learning through well-developed learning skills;
- (iv) Demonstrate critical awareness of the need to act professionally and ethically and to exercise judgment and take responsibility within own limits of competence

3. Teaching and Learning Methods

Modules shall be taught over 10 weeks and shall include 3 hours of contact per week, involve 6 hours of self-study per week and 9 hours of other learning activities per week for each semester. The 30 hours of contact shall include class hours and tutorials.

Details of the teaching and learning methods:

- Teaching and learning environment, which allows participants to view and discuss presentations or videos and engage with learning resources.
- Case studies
- Self-evaluation exercises
- Guest lectures
- Experiential Learning

4. Entry Requirements

- **General**

A 2nd class honours degree 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. International students will be required to pass IELTS exams with an overall score of 6.5 with a minimum score of 5.5 in each component, OR have an equivalent English language proficiency qualification by recognized exam boards acceptable to the University of Mauritius.

- **Programme (Specific)**

At least a Second Class Honours Degree in an Engineering/Science field or an equivalent qualification acceptable to the University of Mauritius.

Preference will be given to candidates with relevant work experience.

- **Special Cases**

The following may be deemed to have satisfied the General and Programme requirements for admission:

- (i) Applicants who do not satisfy any of the above requirements but who submit satisfactory evidence of having passed examinations which are deemed by the Senate to be equivalent to any of those listed;
- (ii) Applicants who do not satisfy any of the above requirements but who in the opinion of the Senate submit satisfactory evidence of the capacity and attainments requisite to enable them to pursue the programme proposed;
- (iii) Applicants who hold a full practising professional qualification obtained by examination.

5. Programme Duration

	Normal	Maximum
Master's Degree:	4 Semesters	8 Semesters
Postgraduate Diploma:	4 Semesters	8 Semesters

6. Minimum LCCS Credits Required:

Minimum No. of credits per year: 12

Maximum No. of credits per year: 48

For Degree Award

Master's Degree: 72 LCCS credits (including dissertation)

Postgraduate Diploma: 48 LCCS credits (without dissertation)

For each Academic Year

Year 1 36 LCCS credits

Year 2 36 LCCS credits (including dissertation)

7. Assessment and Deadlines

Students are required to register for modules which they intend to follow in a given semester on date(s) specified by the Faculty.

Each module will carry 100 marks and will be assessed through continuous assessments carrying 100% of the total marks. Continuous assessment will comprise assignment(s) and online tests.

An online viva-voce will be carried out for the Dissertation/Project.

For a student to pass a module, at least 50% of the total marks would be required without minimum threshold within the individual continuous assessments. If CPA < 40 at the end of 2 consecutive semesters, the registration of the student will be terminated.

All modules carry equal weighting.

The MSc project carries 18 LCCS Credits.

Submission deadlines for Dissertation/Project: As per UoM Regulations.

Students are required to submit at the end of Semester I a Plan of Study for their whole Programme of Studies.

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.

The Faculty reserves the right to change the order in which the modules are offered.

The programme is offered through the virtual classroom mode.

8. List of Modules

Code	Module Name	L*/T* hrs	Self-study hrs	Other learning hrs	LCCS credits
ELEC 5100	Introduction to Electrical Energy Systems	30	60	90	6
ELEC 5202	Smart Electrical Networks and Systems	30	60	90	6
ELEC 6100	Internet of Things in Smart Grids	30	60	90	6
CHE 5201	Energy from Biomass and Waste	30	60	90	6
ELEC 5103	Energy Management, Economics and Policy	30	60	90	6
ELEC 5104	Wind and Water Power	30	60	90	6
ELEC 5201	Solar Power and Energy Storage	30	60	90	6
ELEC 6000	Project	15	525	0	18
<u>ELECTIVES</u>					
ENGG 6203	Research Method	30	60	90	6
MECH 6204	Occupational Health and Safety	30	60	90	6
MECH 5103	Business Strategy and Operations Management	30	60	90	6
ENGG 6101	Principles of Project Management	30	60	90	6
ELEC 6208	Engineering Innovation and Entrepreneurship	30	60	90	6
ELEC 6206	Regulation for Universal Access to Energy	30	60	90	6
ELEC 6207	The Regulation of the Power Sector	30	60	90	6

NOTE:

1. Learning hours are the total number of hours each student is expected to spend on the module.
2. For each module excluding the project, the total number of contact hours for the lecture and tutorial sessions will be 30 hours. The number of self-study hours will be 60 hours. The remaining 90 hours will be devoted to other learning activities.
3. For the project, there shall be about 15 contact hours and the remaining 525 hours will be self-study hours.
4. Students have to complete ALL core taught modules, the project module and ANY two (2) electives.
5. The Department reserves the right not to run an elective and may shift modules from semester 1 to semester 2 or vice versa, depending on availability of resources.

9. Programme Plan

YEAR 1			
Semester 1			
CORE			
Code	Module Name	L*/T* hrs (per week)	LCCS credits
ELEC 5100	Introduction to Electrical Energy Systems	2+1	6
ELEC 5103	Energy Management, Economics and Policy	2+1	6
ELEC 5104	Wind and Water Power	2+1	6
Sub Total			18
Semester 2			
CORE			
Code	Module Name		LCCS credits
CHE 5201	Energy from Biomass and Waste	2+1	6
ELEC 5201	Solar Power and Energy Storage	2+1	6
ELEC 5202	Smart Electrical Networks and Systems	2+1	6
Sub Total			18
Total for Year 1			36
YEAR 2			
Semester 1			
CORE			
Code	Module Name		LCCS credits
ELEC 6000	Project	0.5	18
ELEC 6100	Internet of Things in Smart grids	2+1	6
Sub Total			24
Semester 2			
CHOOSE ANY TWO ELECTIVES of six (6) credits from			
Code	Module Name		LCCS credits
ENGG 6203	Research Method	2+1	6
MECH 6204	Occupational Health and Safety	2+1	6
MECH 5103	Business Strategy and Operations Management	2+1	6
ENGG 6101	Principles of Project Management	2+1	6
ELEC 6208	Engineering Innovation and Entrepreneurship	2+1	6
ELEC 6206	Regulation for Universal Access to Energy	2+1	6
ELEC 6207	The Regulation of the Power Sector	2+1	6
Sub Total			12
Total for Year 2			36
Grand Total			72