

# MSc Building Services Engineering – E507 (Under Review)

## 1. Context and Objectives

The success of the building industry depends on its ability to meet the requirements on issues such as energy management, environment, emissions, optimisation as well as use of green energies and health & safety. This programme is aimed at engineers and provides a sound knowledge of the important engineering principles that are required in the Building Services/Integrated Resort Scheme (IRS) or Hospitality sectors.

People are often astounded by the intelligence and comfort available in modern buildings. But they often do not realize that the building is alive only because of the different services that interact together superbly due to the hard work and vision of designers with the help of engineers. What will be the most marvelous building be without the power supply, heating/cooling, indoor air quality control and ventilation, water supply, firefighting systems, lifts and escalators, surveillance system, energy management system and building networking.

All these building services have been designed and installed by engineers and engineers are needed to maintain them in good working order.

Building Services Engineering involves the specification, design, installation and management of all the engineering services associated with the built environment. This programme is specifically useful to develop technical understanding and expertise across the multi disciplines of building services engineering such as air conditioning, ventilation, hot and cold water reticulation, sewage reticulation, drainage system, firefighting, electrical installation, lifts, escalators, alarm systems and energy management systems among others. Environmental and safety issues related to each module are discussed.

## 2. Learning Outcomes

On successful completion of this programme, students should be able to;

- demonstrate a responsible and ethical approach as building services engineering professionals;
- understand the effects of improving building performance against the criteria of comfort, productivity and energy efficiency;
- apply problem solving capabilities to building services systems design;
- apply IT and specialist software to the analysis of sustainable building design;
- use International Standards and codes of practice in project and design tasks;
- take responsibility for building services and mechanical installations;
- understand the advances in the technological areas of designing, assessing and controlling the built environment;
- work effectively, both independently or in a team environment;
- manage workloads and time effectively;

## 3. Teaching and Learning Methods

The programme will be offered on a part time basis over a normal duration of 4 semesters (2 years). The teaching methods will include formal lectures, tutorials and task-based activities. Lecture and tutorial materials will be made available to the students in advance for them to prepare for the lecture sessions.

For each module, the learners are expected to conduct self-study twice the number of lecture hours and use this time to study the materials provided and prepare for the tutorials and case studies.

Under the other learning methods, guest lectures by resource persons (international and industry) and field visits would be organised, which will be mandatory for students. Students are expected to use this time to dedicate to the assignments or mini-projects provided by the respective resource persons and prepare for tests and examinations.

A six LCCS credit module will consist of 30 hours of lecture & tutorial, 60 hours of self-study and 90 hours of other learning activities.

#### 4. Entry Requirements

##### 4.1 General

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.

Preference will be given to candidates with relevant work experience.

##### 4.2 Programme Requirements

At least a second class honours degree in any **engineering** discipline with GPA not less than 2.5 or alternative qualifications acceptable to the University of Mauritius.

Preference will be given to candidates having at least two years of relevant work experience.

##### 4.3 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 requirements as per sections 4.1 and 4.2 above 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 requirements as per sections 4.1 and 4.2 above but who in the opinion of Senate submit satisfactory evidence of the capacity and attainments requisite to enable them to pursue the programme proposed.

(iii) Applicants who hold a full practicing professional engineering qualification obtained by examination.

#### 5. Programme Duration

The Programme will be offered on a part-time basis. The duration of the Graduate Programme should normally not exceed 4 years (8 semesters).

	<b>Normal</b>	<b>Maximum</b>
Master's Degree:	4 Semesters	8 Semesters
Postgraduate Diploma:	4 Semesters	8 Semesters
Postgraduate Certificate:	2 Semesters	8 Semesters

#### 6. Minimum LCCS Credits Required for the Award of

Master's Degree:	72
Postgraduate Diploma:	48
Postgraduate Certificate:	24

Students have to successfully complete ALL core taught modules, ANY two (2) electives and the project to be eligible for the award of the Master's Degree in Building Services Engineering.

Breakdown as follows:

	<b>Core Taught (Minimum) LCCS Credits</b>	<b>Project LCCS Credits</b>	<b>Elective/Optional Modules LCCS Credits</b>
Master's Degree:	42	18	12
Postgraduate Diploma:	42		6
Postgraduate Certificate:	24		

### **Minimum and maximum number of credits registered in an academic year**

Minimum No. of credits per year: 12

Maximum No. of credits per year: 48

## **7. Assessment and Deadlines**

**7.1 Assessment** : Each module will carry 100 marks and will be assessed by one of the following:

### **7.1.1 Written Examinations and Continuous Assessments**

A written examination of 2-hour duration at the end of the Semester and continuous assessment which will consist of at least one compulsory class test and may also include laboratory work, assignments, mini projects and case studies.

- *Assessment*

- Continuous Assessment: 40%
- Examinations: 60%

An overall of 40% for combined Continuous Assessment and written Examination components would be required to pass the module. All modules carry equal weighting.

### **7.1.2 Continuous Assessments only**

Some modules may be based only on continuous assessment, which should consist of at least a class test and industry based project.

## **7.2 Submission Deadlines for Dissertation**

The Project will involve an equivalent of 540 working hours under direct supervision of a member of academic staff and/or an external supervisor. The student is expected to submit the reports as follows;

- First Draft: End of July of Final Year.
- Final Copy: Last working day of August of Final Year.

## **7.3 Plan of Study**

Students are required to submit at the end of Semester 1 a Plan of Study for their whole Programme of Studies, indicating the list of elective modules and in which semester, each of them will be taken.

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.

Each 6 LCCS credit module will consist of 30 hours of lecture + tutorial. Students are expected to spend 60 hours in self-study and 90 hours in other learning activities for each module.

Other Learning Activities may comprise of the following:

- Assignments and miniprojects;
- Sitting for Class Tests and preparation time for same;
- Sitting for Examinations and preparation time for same;
- Attending Workshops/Conferences/Seminars recommended by the /Faculty;
- Fieldwork;
- Industrial Visits;
- Guest lectures.

## 8. List of Modules

Code	Module Name	Contact Hours (L/T)	Self Study	Other learning hrs	LCCS Credits
<b><u>CORE MODULES</u></b>					
MECH 6202	Fluid Systems Engineering	30	60	90	6
ELEC 6104	Electrical Services for Building	30	60	90	6
MECH 6105	Heating, Ventilation and Air conditioning(HVAC)	30	60	90	6
ENGG 6101	Principle of Project Management	30	60	90	6
ENGG 6410	Asset Management	30	60	90	6
MECH 6410	Sustainable Energy Management	30	60	90	6
MECH 6106	Legal aspects of Building Services Engineering	30	60	90	6
<b><u>PROJECT</u></b>					
ENGG 6000	Project				18
<b><u>ELECTIVES</u></b>					
MECH 6204	Occupational Health & Safety	30	60	90	6
MECH 6205	Managing People in Engineering Activities	30	60	90	6
ENGG 6305	Procurement Management	30	60	90	6

## 9. Programme Plan

YEAR 1								
Semester 1				Semester 2				
Code	Module Name	Contact hours	LCCS Credits	Code	Module Name	Contact hours	LCCS Credits	
<b>CORE</b>				<b>CORE</b>				
ENGG 6101	Principles of Project Management	30	6	*MECH 6202	Fluid Systems Engineering	30	6	
*ELEC 6104	Electrical Services for Building	30	6	ENGG 6410	Asset Management	30	6	
<b>Sub-Total</b>			<b>12</b>	<b>Sub-Total</b>			<b>12</b>	
<b>Total = 24</b>								
YEAR 2								
Semester 1				Semester 2				
Code	Module Name	Contact hours	LCCS Credits	Code	Module Name	Contact hours	LCCS Credits	
<b>CORE</b>				<b>Two Elective Modules from</b>				<b>12</b>
MECH 6106	Legal aspects of Building Services Engineering	30	6	MECH 6204	Occupational Health & Safety	30	6	
*MECH 6105	HVAC	30	6	MECH 6205	Managing People in Engineering Activities	30	6	
MECH 6410	Sustainable Energy Management	30	6	ENGG 6305	Procurement Management	30	6	
<b>Sub-Total</b>			<b>18</b>	<b>Sub-Total</b>			<b>12</b>	
<b>Total = 30</b>								
YEAR 2 – YEARLY MODULE								
Code	Module Name	LCCS Credits						
ENGG 6000	Project	18						

**Grand Total number of LCCS Credits = 72**

\*Assessed by continuous assessment only