FACULTY OF ENGINEERING

DEPARTMENT OF ELECTRONIC AND ELECTRICAL ENGINEERING

ELECTRICAL AND MECHANICAL ENGINEERING

Master of Engineering in Electrical and Mechanical Engineering
Master of Engineering in Electrical and Mechanical Engineering with International Study
Bachelor of Engineering with Honours in Electrical and Mechanical Engineering
Bachelor of Engineering in Electrical and Mechanical Engineering
Diploma of Higher Education in Electrical and Mechanical Engineering
Certificate of Higher Education in Electrical and Mechanical Engineering

These regulations are to be read in conjunction with General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

Mode of Study

1. The programme is available by full-time study only.

Place of Study

2. The MEng in Electrical and Mechanical Engineering with International Study requires study at an approved institution abroad. Such study will normally extend over a minimum period of 30 weeks. Subject to availability of an approved curriculum (including any project), study abroad normally will be undertaken during fourth year of the programme. Study abroad may exceptionally comprise two exchanges with different institutions of one semester each.

3. **First Year** - All students shall undertake modules amounting to 120 credits as follows:

Compulsory Modules

Module Code	Module Title	Level	Credits
16132	Engineering Mechanics 1	1	20
EE107	Electronic and Electrical Principles 1	1	20
EM105	Electrical and Mechanical Techniques and Design 1	1	20
ME101	Heat and Flow 1	1	10
MM113	Engineering Mathematics 1E	1	20
MM114	Engineering Mathematics 2E	1	20
ME107	Experimental and Laboratory Skills	1	10

4. **Second Year** - All students shall undertake modules amounting to 130 credits as follows:

Compulsory Modules

Module Code	Module Title	Level	Credits
16232	Engineering Mechanics 2	2	20
19207	Electromagnetism	2	10
EE269	Electronic and Electrical Principles 2	2	20
EM270	Digital Electronics and Programming Design	2	20
EM271	Electronic and Mechanical Techniques and Design 2	2	10
ME203	Heat and Flow 2	2	20
ME214	Mechanical Engineering Design 2	2	10
MM213	Engineering Mathematics 3E	2	20

5. **Third Year** - All students shall undertake modules amounting to 130 credits as follows:

Compulsory Modules

Module Code	Module Title	Level	Credits
EE312	Instrumentation and Microcontrollers	3	20
EM301	Engineering Analysis	3	20
56324	Engineering Innovation and Management	3	10
EM310	Signals and Systems	3	10
ME305	Dynamics 3	3	10
EM304	Integrated Design	3	20
	Elective Modules		20

Optional Modules

20 credits chosen from:

Module Code	Module Title	Level	Credits
EE311	Electronic and Electrical Principles 3	3	20
ME301	Heat and Flow 3	3	20

Exceptionally, such other modules totalling no more than 20 credits as approved by the Programme Leader.
Not all optional modules on these lists will be available in each academic year. Please check your programme handbook for confirmation of which optional modules will run.

6. **Fourth Year** - All students shall undertake modules amounting to 120 credits as follows:

Compulsory Modules

Module Code	Module Title	Level	Credits
EM401	Individual Project	4	40
EM402	Systems Engineering	4	20

Optional Modules

Optional modules in Fourth Year must be approved by the Programme Leader and achieve an acceptable balance between the two disciplines. Normally no fewer than 40 credits at Level 4 or above must be taken from optional modules taught by each of the two associated Departments: Electronic and Electrical Engineering, and Mechanical and Aerospace Engineering.

10 credits chosen from:

Module Code	Module Title	Level	Credits
ME310	Professional Responsibilities	3	10
ME311	Business Analysis in Engineering	3	10

Plus 50 credits comprised from modules listed below.
Not all optional modules on these lists will be available in each academic year. Please check your programme handbook for confirmation of which optional modules will run.

Optional Modules:

Available from the Department of Electronic and Electrical Engineering:

Module Code	Module Title	Level	Credits
EE466	Power Electronics, Machines and Applications	4	20
EE467	Power System Design, Operation and Protection	4	20
EE468	Analogue Systems	4	20
EE469	Digital Signal Processing Principles	4	20
EE470	Information Transmission and Security	4	20
EE471	Communications Networks	4	20
EE472	Control Principles	4	20
EE473	Photonic Systems	4	20

Available from the Department of Mechanical and Aerospace Engineering:

Module Code	Module Title	Level	Credits
16402	Case Studies in Engineering	4	10
16415	Engineering Dynamics	4	10
16429	Computer Aided Engineering Design	4	20
ME403	Engineering Materials Selection	4	10
ME404	Energy Systems Modelling	4	10
ME405	Heat and Flow 4	4	10
ME414	Advanced Mechanics and Dynamics	4	20
ME425	Aerospace Propulsion	4	10

Exceptionally, such other modules totalling no more than 20 credits as approved by the Programme Leader.
Not all optional modules on these lists will be available in each academic year. Please check your programme handbook for confirmation of which optional modules will run.

For **MEng in Electrical and Mechanical Engineering with International Study**, students who undertake study abroad during fourth year shall follow an approved curriculum which is equivalent to that specified in these regulations.

7. **Fifth Year** - All students shall undertake modules amounting to 120 credits as follows:

Compulsory Modules

Module Code	Module Title	Level	Credits
EM501	Group Project	5	40
EM502	Advanced Systems Engineering	5	20

Optional Modules

Optional modules in Fifth Year must be approved by the Programme Leader and achieve an acceptable balance between the two disciplines.

60 credits comprised from modules listed below.

Available from the Department of Electronic and Electrical Engineering:

Module Code	Module Title	Level	Credits
EE573	Advanced Power System Analysis and Protection	5	20
EE574	High Voltage Technology and Electromagnetic Compatibility	5	20
EE575	Power Electronics for Energy and Drive Control	5	20

EE576	Power System Economics, Markets and Asset Management	5	20
EE577	Wind Energy and Distributed Energy Resources	5	20
EE578	Advanced Digital Signal Processing	5	20
EE579	Advanced Microcontroller Applications	5	20
EE580	DSP and FPGA-based Embedded System Design	5	20
EE581	Image and Video Processing	5	20

Available from the Department of Mechanical and Aerospace Engineering:

Module Code	Module Title	Level	Credits
16565	Engineering Composites	5	10
16587	Pressurised Systems	5	10
16599	Aerodynamic Propulsion Systems	5	10
ME507	Machinery Diagnosis and Condition Monitoring	5	10
ME512	Spaceflight Mechanics	5	10
ME514	Advanced Topics in Fluid Systems Engineering	5	10
ME517	Spaceflight Systems	5	10
ME526	Engineering Plasticity	5	10
ME527	Introduction to Engineering Optimisation	5	10
ME528	Control Systems Design	5	10
ME529**	Aerodynamics in C	5	10
ME923**	Gas and Steam Turbines	5	10
ME926**	Nuclear Power Systems	5	10
ME927	Energy Resources and Policy	5	10
ME953	Engineering Artificial Environments	5	10
ME975	Satellite Data Assimilation and Analysis	5	10
ME978	Advanced Materials Processing and Manufacturing	5	10

**denotes those modules delivered by online learning. A maximum of 20 credits spread over two semesters by online learning may be selected.

Exceptionally, such other modules totalling no more than 20 credits as approved by the Programme Leader.

Not all optional modules on these lists will be available in each academic year. Please check your programme handbook for confirmation of which optional modules will run.

Progression

8. To progress to the second year of the programme, see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

9. To progress to the third year of the programme, see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

10. To progress to the fourth year of the programme, see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

11. To progress to the fifth year of the programme, see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level; and must include the Individual Project.

12. MEng in Electrical and Mechanical Engineering with International Study: In order to progress to a period of study abroad, a student must normally have passed all modules from the programme curriculum. Any student who does not meet this requirement may be required to transfer to another programme not requiring study abroad.

Final Assessment and Classification

13. The final classification for the chosen degree in Electrical and Mechanical Engineering will normally be based on the first assessed attempt at compulsory and optional modules taken in the third, fourth and fifth years.

Award

14. **MEng:** In order to qualify for the award of the degree of MEng in Electrical and Mechanical Engineering, a candidate must have accumulated no fewer than 620 credits from the programme curriculum including those for the Individual Project EM401 and the Group Project EM501.

15. **MEng in Electrical and Mechanical Engineering with International Study:** In order to qualify for the award of the degree of MEng in Electrical and Mechanical Engineering with International Study, a candidate must have accumulated no fewer than 620 credits from the programme curriculum and must normally have undertaken successfully no fewer than 30 weeks of approved study abroad.

16. **BEng with Honours:** In order to qualify for the award of the degree of BEng with Honours in Electrical and Mechanical Engineering, a candidate must have accumulated no fewer than 500 credits from the programme curriculum including those for the Individual Project EM401.

17. **BEng:** In order to qualify for the award of the degree of BEng in Electrical and Mechanical Engineering, see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

18. **Diploma of Higher Education:** In order to qualify for the award of a Diploma of Higher Education in Electrical and Mechanical Engineering, see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

19. **Certificate of Higher Education:** In order to qualify for the award of a Certificate of Higher Education in Electrical and Mechanical Engineering, see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.