FACULTY OF ENGINEERING

DEPARTMENT OF BIOMEDICAL ENGINEERING

BIOMEDICAL ENGINEERING

Master of Engineering in Biomedical Engineering
Bachelor of Engineering with Honours in Biomedical Engineering
Bachelor of Engineering in Biomedical Engineering
Diploma of Higher Education in Biomedical Engineering
Certificate of Higher Education in Biomedical 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
The programmes are available by full-time study only.

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

Compulsory Modules

Module Code	Module Title	Level	Credits
BE100	Anatomy and Physiology for Biomedical Engineers	1	20
BE101	Biomedical Engineering	1	10
BE103	Analytical and Numerical Methods in Biomedical Engineering	1	20
BE105	Cell Biology	1	10
EE107	Electronic and Electrical Principles 1	1	20
EM105	Electrical and Mechanical techniques and design 1	1	20
ME108	Engineering Analysis and Numerical Methods	1	10
ME109	CAD for Biomedical Engineering	1	10

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

Compulsory Modules

Module Code	Module Title	Level	Credits
BE205	Fluid mechanics in Biomedical Engineering	2	10

BE208	Statics and Dynamics in Biomedical Engineering	2	20
BE210	Cell Biology 2	2	20
EE269	Electronic and Electrical Principles 2	2	20
EM270	Digital Electronics and Programming	2	20
BE211	Mathematical Modelling and Analysis	2	20
ME214	Mechanical Engineering Design 2	2	10

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

Compulsory Modules

Module Code	Module Title	Level	Credits
BE300	Biomedical Materials	3	20
BE301	Physiological Systems in Health and Disease	3	20
BE302	Practical Biomechanics	3	20
BE305	Cell Biology 3	3	10
BE306	Biomedical Imaging	3	10
EE312	Instrumentation and Microcontrollers	3	20
	Elective		20

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

Compulsory Modules

Module Code	Module Title	Level	Credits
BE401	Biomedical Electronics	4	10
BE404	Biomedical Instrumentation	4	10
BE406	Biomedical Engineering project	4	40
BE428	Professional Studies and Research Methods in BME	4	20

Optional Modules

40 credits chosen, with no more than two 10-credit modules, from:

Module Code	Module Title	Level	Credits
16429	Computer Aided Engineering Design	4	20
BE424	Practical Biomechanics 2	4	20
BE425	The Medical Device Regulatory Process	4	10
BE426	Medical Robotics	4	10
BE427	Numerical Modelling in Biomedical Engineering	4	10
BE431	Rehabilitation Technology	4	10
EE472	Control Principles	4	20
EE474	Robotics: systems and control	4	20
ME414	Advanced Mechanics and dynamics	4	20

Such other Level 4 modules as may be approved by the Programme Leader.

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

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

Compulsory Modules

Module Code	Module Title	Level	Credits
BE513	Biomedical Engineering group project	5	60
EF931	Project Management	5	10

Optional Modules

50 credits chosen from Lists A and B, of which no fewer than 30 credits must be taken from List A.

List A

Module Code	Module Title	Level	Credits
BE900	Tissue Mechanics	5	10
BE901	Regenerative Medicine & Tissue Engineering	5	10

BE902	Prosthetics and Orthotics	5	10
BE903	Cardiovascular Devices	5	10
BE904	Clinical and Sports Biomechanics	5	10
BE905	Bio-signal Processing and Analysis	5	10
BE906	Biomaterials and Biocompatibility	5	10

List B

Module Code	Module Title	Level	Credits
16565	Engineering composites	5	10
EE578	Advanced Digital Signal Processing	5	20
EE579	Advanced microcontroller applications	5	20
EE581	Image and video processing	5	20
EE972	Control Principles	5	20

Such other Level 5 modules as may be approved by the Programme Leader.

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

Progress

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

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

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

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

Final Assessment Classification

10. The final classification for the chosen degree will normally be based on the first assessed attempt at compulsory and specified optional modules in the second, third, fourth and fifth years.

Award

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

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

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

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

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