FACULTY OF ENGINEERING

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

ADVANCED MECHANICAL ENGINEERING

Master of Science in Advanced Mechanical Engineering
Master of Science in Advanced Mechanical Engineering with Aerospace
Master of Science in Advanced Mechanical Engineering with Energy Systems
Master of Science in Advanced Mechanical Engineering with Materials
Postgraduate Diploma in Advanced Mechanical Engineering
Postgraduate Certificate in Advanced Mechanical Engineering

These regulations are to be read in conjunction with General Academic Regulations - Postgraduate Taught Degree Programme Level.

Admission

1. Notwithstanding the General Academic Regulations - Postgraduate Taught Degree Programme Level, applicants shall possess:

   i. a degree (or in the case of direct entry to the degree of MSc, a first or second class Honours degree) from a United Kingdom university in Science or Engineering; or
   ii. a qualification deemed by the Postgraduate (taught) Programme Director acting on behalf of Senate to be equivalent to i. above.

2. In all cases, applicants whose first language is not English, shall be required to demonstrate an appropriate level of competence.

Duration of Study

3. See General Academic Regulations - Postgraduate Taught Degree Programme Level.

Mode of Study

4. The programmes are available by full-time and part-time study.

Curriculum

5. All students shall undertake an approved curriculum as follows:

   i. for the Postgraduate Certificate no fewer than 60 credits
   ii. for the Postgraduate Diploma no fewer than 120 credits
   iii. for the degree of MSc no fewer than 180 credits including ME900 Project

MSc in Advanced Mechanical Engineering

Compulsory Modules

Module Code	Module Title	Level	Credits
ME538	Professional Skills for Senior Engineers	5	10
ME927	Energy Resources and Policy	5	10
ME978	Advanced Materials Processing and Manufacture	5	10

ME981	Research Methodology	5	10
ME514	Advanced Topics in Fluid Systems Engineering	5	10
ME534	Advanced Topics in Mechanics and Dynamics	5	10
Students for the degree of MSc only:			
ME900	Project	5	60

Optional Modules:
Students must choose 60 credits from List A and List B.

MSc in Advanced Mechanical Engineering with Aerospace

Compulsory Modules

Module Code	Module Title	Level	Credits
ME538	Professional Skills for Senior Engineers	5	10
ME927	Energy Resources and Policy	5	10
ME978	Advanced Materials Processing and Manufacture	5	10
ME981	Research Methodology	5	10
ME514	Advanced Topics in Fluid Systems Engineering	5	10
ME534	Advanced Topics in Mechanics and Dynamics	5	10
ME537	Atmospheric Flight Dynamics and Control	5	10
ME533	Lightweight Structures	5	10
ME532	Aerodynamics of Supersonic Aircraft	5	10
Students for the degree of MSc only:			
ME900	Project	5	60

Optional Modules
Students must choose 30 credits of optional modules from Lists A or B.

MSc Advanced Mechanical Engineering with Energy Systems

Compulsory Modules

Module Code	Module Title	Level	Credits
ME538	Professional Skills for Senior Engineers	5	10
ME927	Energy Resources and Policy	5	10

ME929	Electrical Power Systems	5	10
ME930	Energy Modelling and Monitoring	5	10
ME978	Advanced Materials Processing and Manufacture	5	10
ME981	Research Methodology	5	10
ME514	Advanced Topics in Fluid Systems Engineering	5	10
ME5XX	Advanced Topics in Mechanics and Dynamics	5	10
Students for the degree of MSc only:			
ME900	Project	5	60

Optional Modules
Students must choose 40 credits of optional modules from Lists A or B.

MSc in Advanced Mechanical Engineering with Materials

Compulsory Modules

Module Code	Module Title	Level	Credits
ME538	Professional Skills for Senior Engineers	5	10
ME927	Energy Resources and Policy	5	10
ME981	Research Methodology	5	10
ME514	Advanced Topics in Fluid Systems Engineering	5	10
ME534	Advanced Topics in Mechanics and Dynamics	5	10
16565	Engineering Composites	5	10
ME931	Industrial Metallurgy	5	10
ME978	Advanced Materials Processing and Manufacturing	5	10
Students for the degree of MSc only:			
ME900	Project	5	60

Optional Modules
Students must choose 40 credits of optional modules from Lists A or B.

List A

Module Code	Module Title	Level	Credits
EFXXX	Design Methods and Management	5	10

EF931	Project Management	5	10
EF932	Risk Management	5	10
EF929	Financial Engineering	5	10
AB975	Sustainability	5	10
EV939	Environmental Impact Assessment	5	10
SU902	Concepts and Theories of Sustainability	5	10
SU904	Knowledge systems for sustainability	5	10

List B

Module Code	Module Title	Level	Credits
ME926**	Nuclear Power Systems	5	10
ME927	Energy Resources and Policy	5	10
ME928	Energy Systems Analysis	5	10
ME929	Electrical Power Systems	5	10
ME930	Energy Modelling and Monitoring	5	10
ME931	Industrial Metallurgy	5	10
ME945**	Introduction to Open Source Computational Fluid Dynamics	5	10
ME948**	Hydraulics	5	10
ME953	Engineering Artificial Environments	5	10
ME962**	Degradation of Metals and Alloys	5	10
ME963**	Structural Integrity	5	10
ME965**	FEA in Mechanical Engineering Design	5	10
ME966**	Fundamentals of Materials Science	5	10
ME975	Satellite Data Assimilation and Analysis	5	10
ME978	Advanced Materials Processing and Manufacture	5	10
ME979**	Fundamentals of Aeronautical Engineering	5	10
Additional Level 5 modules offered by the Department of Mechanical and Aerospace Engineering, listed in the Mechanical Engineering Undergraduate Regulations.			

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

Not all optional modules on this list will be available in each academic year.
Exceptionally, such other Level 5 modules as may be approved by the Programme Adviser.

Students for the Postgraduate Diploma only
In addition will have the optional module:

Module Code	Module Title	Level	Credits
ME973	Mechanical and Aerospace Engineering PGDip Dissertation	5	20

Examination, Progress and Final Assessment

6. See General Academic Regulations - Postgraduate Taught Degree Programme Level.

7. The final award will be based on performance in the examinations, coursework and the project where undertaken.

Award

8. **Degree of MSc:** In order to qualify for the award of the degree of MSc in Advanced Mechanical Engineering, a candidate must have performed to the satisfaction of the Board of Examiners and must have accumulated no fewer than 180 credits, of which 60 must have been awarded in respect of the project ME900.

9. For the degrees of MSc in Advanced Mechanical Engineering with Aerospace, MSc in Advanced Mechanical Engineering with Energy Systems, Advanced Mechanical Engineering with Materials and Advanced Mechanical Engineering with Power Plant Technologies the candidate must have attained the credits in the appropriate compulsory modules. Candidates may only choose one specialism.

10. **Postgraduate Diploma:** In order to qualify for the award of the Postgraduate Diploma in Advanced Mechanical Engineering, a candidate must have accumulated no fewer than 120 credits from the taught modules of the programme.

11. **Postgraduate Certificate:** In order to qualify for the award of the Postgraduate Certificate in Advanced Mechanical Engineering, a candidate must have accumulated no fewer than 60 credits from the taught modules of the programme.