

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

Master of Science in Advanced Mechanical Engineering with Power Plant Technologies

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 the project

MSc in Advanced Mechanical Engineering

Compulsory Modules

Students for the degree of MSc only:

Module Code	Module Title	Level	Credits
ME900	Project	5	60

Optional Modules:

Students must choose 120 credits from List A and List B (including no fewer than 30 credits from List A and no fewer than 80 credits from List B).

MSc in Advanced Mechanical Engineering with Aerospace**Compulsory Modules**

Module Code	Module Title	Level	Credits
16599	Aerodynamic Propulsion Systems	5	10
ME512	Spaceflight Mechanics	5	10
ME979**	Fundamentals of Aeronautical Engineering	5	10
Students for the degree of MSc only:			
ME900	Project	5	60

Optional Modules

Students must choose 90 credits of optional modules from Lists A or B. Including compulsory modules, students must have taken no fewer than 30 credits from List A and no fewer than 80 credits from List B.

MSc Advanced Mechanical Engineering with Energy Systems**Compulsory Modules**

Module Code	Module Title	Level	Credits
ME927	Energy Resources and Policy	5	10
ME929	Electrical Power Systems	5	10
ME930	Energy Modelling and Monitoring	5	10
Students for the degree of MSc only:			
ME900	Project	5	60

Optional Modules

Students must choose 90 credits of optional modules from Lists A or B. Including compulsory modules, students must have taken no fewer than 30 credits from List A and no fewer than 80 credits from List B.

MSc in Advanced Mechanical Engineering with Materials**Compulsory Modules**

Module Code	Module Title	Level	Credits
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 90 credits of optional modules from Lists A or B. Including compulsory modules, students must have taken no fewer than 30 credits from List A and no fewer than 80 credits from List B.

MSc in Advanced Mechanical Engineering with Power Plant Technologies

Compulsory Modules

Module Code	Module Title	Level	Credits
ME929	Electrical Power Systems	5	10
ME923**	Gas and Steam Turbines	5	10
ME950**	Boiler Thermal Hydraulics	5	10
Students for the degree of MSc only:			
ME900	Project	5	60

Optional Modules

Students must choose 90 credits of optional modules from Lists A or B. Including compulsory modules, students must have taken no fewer than 30 credits from List A and no fewer than 80 credits from List B.

List A

Module Code	Module Title	Level	Credits
EF927	Design 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
ME923**	Gas and Steam Turbines	5	10
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
ME950**	Boiler Thermal 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
ME976	Satellite Applications for Sustainable Development Goals	5	10
ME977	Machine Learning for Satellite Data	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 30 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

- See [General Academic Regulations - Postgraduate Taught Degree Programme Level.](#)
- The final award will be based on performance in the examinations, coursework and the project where undertaken.

Award

- 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.
- 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.
- 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.
- 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.