Programme Specification (Undergraduate) FOR ENTRY YEAR: 2021/22

Date created: 31/03/2021 **Last amended:** 09/03/2023 **Version no.** 3

1. Programme title(s) and code(s):

Master of Engineering (Aerospace)

Master of Engineering (Aerospace) with Industry

Master of Engineering (Aerospace) with a Year Abroad

Bachelor of Engineering (Aerospace)

Bachelor of Engineering (Aerospace) with Industry

Bachelor of Engineering (Aerospace) with a Year Abroad

Bachelor of Science (Aerospace Engineering)*

Bachelor of Science (Aerospace Engineering) with Industry*

Bachelor of Science (Aerospace Engineering) with a Year Abroad*

Diploma of Higher Education (Aerospace Engineering)*

Certificate of Higher Education (Aerospace Engineering)*

Notes

* An award marked with an asterisk is only available as an exit award and is not available for students to register onto and are not accredited with the Engineering Council.

a) HECOS Code

HECOS Code	%
100115	100%

b) UCAS Code (where required)

Variant	UCAS code	Engineering Council ACAD
MEng (4yrs)	H401	9569
MEng with industry (5yrs)	H405	9570
MEng with Year Abroad (5yrs)	H402	9571
BEng (3yrs)	H400	9853
BEng with industry (4yrs)	H404	9854
BEng with Year Abroad (4yrs)	H403	9855

There is a foundation year option nominally for the General Engineering programme (H199) which gives students the option to switch to the other programmes.

2. Awarding body or institution:

University of Leicester

3. a) Mode of study

Full-time

b) Type of study

Campus-based

4. Registration periods:

MEng
Full-time
The normal period of registration for is four years
The maximum period of registration is six years

BEng
Full-time
The normal period of registration is three years
The maximum period of registration is five years

The 'with a Year in Industry' and 'with a Year Abroad' options of each degree would add one year to the normal and maximum periods of registration listed above.

For Foundation Year Variant:
The normal period of registration is four years (one year for the Foundation Year, with three years for the BEng)
The maximum period of registration is six years (one year for the Foundation Year, and five years for the BEng)

5. Typical entry requirements

MEng. Typical offer: AAB normally including Mathematics and a physical science or equivalent non- A- level qualifications.

BEng. Typical offer: ABB normally including Mathematics and a Physical science or equivalent non- A-level qualifications.

6. Accreditation of Prior Learning

APL will not be accepted for exemptions from individual modules, however may be considered for direct entry to year 2, on a case by case and subject to the general provisions of the University APL policy.

For Foundation Year Variant:
n/a

7. Programme aims

All the variants of the programmes aim to satisfy the criteria of the accrediting engineering institutions. These are based on the Engineering Council's Accreditation of Higher Education Programmes (AHEP) learning outcomes. These are defined in 6 overarching outcomes:

- Science and Mathematics (SM),
- Engineering Analysis (EA),
- Design (D),
- Economic, Legal, social, ethical and environmental context (EL)
- Engineering Practice (P)
- Additional General Skills (G).

Programme-level Intended Learning Outcomes for the degrees programmes are mapped, using the shorthand codes above, to these overarching outcomes in section 9 - Programme Outcomes below. Each of these overarching outcomes is divided into a maximum of 11 specific outcomes (e.g. P1 –

P11). These are mapped to module-level Intended Learning Outcomes and assessment elements, and are detailed in the module specifications.

The BEng programmes aim to:

1. provide a curriculum that is enjoyable and motivating and which creates enthusiasm for engineering through the challenge of responding to interesting engineering problems;
2. provide students with the breadth of understanding in relevant science and mathematics to allow analysis and design of Aerospace Engineering systems that improve quality of life through being able to integrate knowledge from other engineering disciplines.
3. develop students' knowledge and understanding of the tools and techniques used for modelling, analysis, design and control of complex Aerospace engineering systems;
4. develop students' detailed knowledge and understanding of engineering applications used in research and the Aerospace industry;
5. cultivate the synergy between teaching and research; and
6. foster students' independent learning and organisational skills.

Additionally, the MEng programmes aim to meet the needs of the appropriate professional institutions and satisfy the educational requirements for registration by the Engineering Council at CEng level. The MEng programmes aim to develop greater depth and breadth of knowledge and the ability to apply methods critically and in ambiguous situations, to optimise new and developing Aerospace Engineering technology, to identify projects and technical potential and to lead engineering activities and teams by managing technical and commercial risks and through change.

For the "with Industry" variant only, these additional programme aims apply:

- Prepare students for career and training opportunities which relates to their degree – in both the private and public sectors, and voluntary organisations.
- Construct effective applications for placement opportunities
- Provide students the opportunity to recognise suitable plans for transitioning into the workplace

For the "with Year Abroad" variant only, these additional programme aims apply:

provide students with the opportunity to spend one year studying out of the UK to gain an international perspective on their discipline and experience of living and study in a different culture and possibly improve their language skills.

8. Reference points used to inform the programme specification

- QAA Benchmarking Statement
- Framework for Higher Education Qualifications (FHEQ)
- UK Quality Code for Higher Education
- Engineering Accreditation Board (EAB) Bachelors and Integrated Masters Degree Learning Outcomes (AHEP 3rd Edition)
- UK-SPEC (UK Standard for Professional Engineering Competence)
- Engineering Council Compensation and Condonement requirements November 2018.
- Royal Aeronautical Society Accreditation Handbook Version 8.2 June 2018.
- University Learning Strategy
- University Assessment Strategy
- University of Leicester Periodic Developmental Review Report
- External Examiners' reports (annual)
- United Nations Education for Sustainable Development Goals

- Student Destinations Data

9. Programme Outcomes

Unless otherwise stated, programme outcomes apply to all awards specified in 1. Programme title(s).

a) Discipline specific knowledge and competencies

i) Mastery of an appropriate body of knowledge

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(a) Discipline specific knowledge and competencies		
(i) Mastery of an appropriate body of knowledge		
Demonstrate knowledge of the scientific and mathematical principles and techniques necessary for an Aerospace Engineer, including aerodynamics, aircraft performance, flight dynamics, aircraft systems and avionics, structural analysis, materials and propulsion technologies (SM). [MEng only] Demonstrate a comprehensive and critical knowledge of current and developing scientific and mathematical principles in Aerospace Engineering and related disciplines, including specific advanced level knowledge of gas turbines and spacecraft systems (SM).	Lectures, tutorials, seminars, laboratory practicals, directed reading, independent research, resource-based learning.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.

ii) Understanding and application of key concepts and techniques

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(ii) Understanding and application of key concepts and techniques		
Demonstrate knowledge, understanding and application of appropriate mathematical, computational techniques and scientific principles and methods for modelling and analysing Aerospace and related engineering problems (SM, EA).	Lectures, tutorials, surgeries problem solving classes computer practical classes, example sheets.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.
Demonstrate knowledge and understanding of the design process and design methodologies used in the discipline (D).	Lectures, tutorials, surgeries problem solving classes, independent research, project supervision.	As above
Demonstrate knowledge and understanding of management, business practices and industrial standards that influence an engineer's work (EL).	Lectures, tutorials, independent research, project supervision, work placement.	As above
Demonstrate knowledge and understanding of manufacturing and/or operational practice (P).	Lectures, tutorials, independent research, project supervision.	As above
[MEng only] Apply knowledge and techniques critically with potential ambiguous, novel and/or changing and developing situations and technologies (EA, D, EL, P).	Lectures, independent research, major projects.	
Work as an engineer in an industrial [with Industry] or international setting [with Year Abroad] (G)	Work/International placement	Work placement report/International Year Assessments.

iii) Critical analysis of key issues

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(iii) Critical analysis of key issues		
Apply scientific principles to model and analyse engineering systems, processes and products (SM).	Lectures, tutorials, surgeries problem solving classes computer practical classes, example sheets.	Examinations, laboratory reports, seminar presentations, contributions to discussions, problem-based exercises, design tasks, simulation exercises, group projects, independent projects.
Analyse systems, processes or components as part of the design process (D).	As above	
Awareness of statistical methods to handle uncertainty (SM).	As above	As Above
Evaluate commercial risks and technical risks (EL) including [MEng only] in unfamiliar circumstances.	Problem solving exercises, independent research projects, group projects.	As Above

iv) Clear and concise presentation of material

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(iv) Clear and concise presentation of material		
Interpret and report results, presenting data in alternative forms suitable for a range of different audiences in order to create deeper understanding and/or greater impact (D, P, G).	Lectures, seminars, masterclasses.	Written assignments, exhibitions, poster displays, reports, independent research projects.

v) Critical appraisal of evidence with appropriate insight

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(v) Critical appraisal of evidence with appropriate insight		
Select and apply appropriate computer-based methods for modelling and analysing engineering problems (EA).	Computer practical classes, lectures, surgeries.	Computer-based exercises, simulation exercises, research projects.
Evaluate customer and user needs taking into account the wider engineering context (D)	Design tasks, laboratory practicals, simulation exercises, group projects, work placement	Problem solving exercises, simulations, exhibitions, independent research.
Create and design new processes or products to fulfil a specified requirement through synthesis of ideas from a wide range of sources (D).	Design tasks, laboratory practicals, simulation exercises, group projects, work placement	Problem solving exercises, simulations, exhibitions, independent research.
Perform practical testing, technical analysis and critical evaluation of design ideas in laboratory or through simulation (P).	Design tasks, laboratory practicals, simulation exercises, group projects, work placement.	Laboratory examinations, laboratory reports, simulation reports.
[MEng only] use pertinent data and methods, including original research, to tackle problems with ambiguity, involving incomplete data and new technology (EA, D).	Design task and research projects.	Major research and design project reports and presentations.

vi) Other discipline specific competencies

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(vi) Other discipline specific competencies		
Select and use appropriate test and measurement instrumentation (P).	Laboratory practicals, group research projects, independent research projects.	Laboratory reports, examinations, projects reports.
Select and conduct appropriate experimental procedures (P).	Laboratory practicals, design tasks, independent research.	Laboratory reports, examinations, project reports.
Demonstrate knowledge and understanding of manufacturing and/or operational practice (P).	Manufacturing skills programme, work placement.	Laboratory reports, written assignments, work placement report.
Apply understanding of codes of practice related to hazards and operational safety to ensure good working practices and effective risk management (EL).	Laboratory practicals, design tasks, independent research.	Laboratory reports, written assignments, work placement report.
[BSc, DipHE, CertHE only] Demonstrate partial achievement of the full set of Engineering Council learning outcomes by meeting the University award criteria, whilst falling short of demonstrating the more stringent minimum requirements specified by the Engineering Council.	All teaching and learning methods detailed above.	Assessments common with BEng/MEng programmes but with failures in individual modules.

b) Transferable skills

i) Oral communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(i) Oral communication		
Present technical and business information orally, in an appropriate form for a given audience (D, G).	Tutorials, group projects, independent research, project supervision.	Oral presentations, portfolio.

ii) Written communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(ii) Written communication		
Communicate business and technical information in an appropriate written form for a given audience (D).	Lectures, group projects, independent research, project supervision.	Written assignments, laboratory reports, essays, independent project reports.
Report on a practical or simulation test of a design solution including analysis and discussion of the results (D.	As above	As above

iii) Information technology

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(iii) Information technology		
Use standard and specialist engineering IT software confidently to conduct and report on engineering analysis and projects (G).	Lectures, group projects, independent research, project supervision.	Written assignments, laboratory reports, essays, independent project reports.

iv) Numeracy

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(iv) Numeracy		
Manipulate and sort data to generate new data sets (SM, EA). Manipulate and present data in alternative formats to create deeper understanding or greater impact (EA, D).	Problem-solving classes, research projects. Problem-solving classes, research projects.	Computer-based exercises, written assignments, poster displays, oral presentations.

v) Team working

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(v) Team working		
Work collaboratively as part of an engineering team undertaking a range of different team roles (P). [MEng only] Lead engineering activities and teams by managing technical and commercial risks, including through change (P).	Tutorials, masterclasses, project supervision, induction programmes. Major design and research projects.	Learning logs/diaries, learning portfolios, group projects, simulation exercises. Reports, design reviews and presentations.

vi) Problem solving

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(vi) Problem solving		
Solve problems through the integration of knowledge of mathematics, science, information technology, design, business context and engineering practice (SM, EA).	Project supervision, lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer- based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.
Select and analyse appropriate evidence to solve non-routine problems (EA, D).	As above	As above
Use systematic analysis and design methods to solve problems in unfamiliar situations (D).	As above	As above
Use creativity and innovation to solve problems (D).	As above	As above
Apply standard management techniques to plan and allocate resources to projects (EL).	As above	As above

vii) Information handling

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(vii) Information handling		
Select and apply scientific evidence based methods in the solution of problems (SM).	Lectures, tutorials, example sheets, simulation exercises, laboratory based exercises, computer-based exercises, independent research projects, group projects.	Individual research projects, oral presentations, project reports, problem-based examinations, practical demonstrations.
Search for information related to design solution, evaluate it and suggest requirements for additional information (D).	As above	As above
Plan and manage the design process, including cost drivers and evaluate outcomes (D)	As above	As above
[MEng only] Work with limited, incomplete, or contradictory information (D, P).	As above	As above

viii) Skills for lifelong learning

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(viii) Skills for lifelong learning		
Demonstrate knowledge and understanding of the professional and ethical conduct of an engineer and legal requirements (EL) Learn independently and understand new concepts in the discipline readily (G). Develop and implement personal plan of work to meet a deadline and identify the critical activities (G). Exercise initiative and personal responsibility, which may be as a team member or as a leader (P, G). Explore career development opportunities (G).	Work placement, simulation exercises, independent research. Independent research projects, group research projects, work placement. Independent research projects, group research projects, work placement. Independent research projects, group research projects, work placement. Masterclasses, learning portfolios, work placement.	Work placement report, simulation exercises, reports, independent projects. Work placement report, independent project report, learning logs/diaries, learning portfolios. Work placement report, independent project report, learning logs/diaries, learning portfolios. Work placement report, independent project report, learning logs/diaries, learning portfolios. Learning portfolios
For the Year in industry variant only (G):		
Select appropriate resources for researching/securing placement opportunities Explain the process for applying for and securing a relevant placement Construct effective applications for placement opportunities Recognise suitable plans for transitioning into a placement.	Placement Preparation 1&2: Students are provided with dedicated and timetabled sessions to prepare to search and secure a year in industry. Problem solving classes, Masterclasses, Career development programmes, Independent research.	Formative module feedback through session tasks and exercises.
Apply the theoretical and practical aspects of the material studied at the University and demonstrate the personal and professional skills necessary for your role within the organisation. Compose a Professional Development Plan considering your strengths, development areas and motivations for your next step. Modify your CV to include the skills and experience you have gained through your significant experience gained in the past 12 months.	On placement: Students undertake a minimum of 9 months experience in the workplace. Project supervision, independent research	Completion of Monthly Reflective Journals to record skills development, major achievements, key areas of work, learning points and challenges overcome. Assessed by a Placement Portfolio, comprising of a Reflective Summary, Professional Development Plan, and Updated CV (excluded from word count) to formally assess on a pass or fail basis. Formative feedback during a Placement Visit (in person or via Skype) from Placement Provider and Placement Tutor regarding reflection on skills development, areas of strength and weakness and contribution to the workplace.

10. Progression points

This programme follows the standard Scheme of Progression set out in Senate Regulations – see the version of Senate Regulation 5 governing undergraduate programmes relevant to the year of entry.

The following additional progression requirements for this programme have been approved:

- *For Foundation Year Variant:* Reference should be made to the Foundation Year Programme Specification.
- EG2006 has no resit option so must be passed at the first attempt because to provide one is impractical given the combination of practical and team-working.
- Major individual or group projects modules and/or those covering AHEP3 learning outcomes that are not assessed in other modules are designated as being required to be passed at Honours level and cannot be treated as compensated fails for progression. These are indicated in the relevant module specifications: EG1006, EG2004 and EG2006.
- No failed credits (i.e. those for which assessment opportunities have been exhausted) may be carried from 1st year (level 4) to 2nd year (level 5), or from 2nd year (level 5) to 3rd year (level 6) because this would prevent students from being eligible for the award of an accredited degree at the end of their 3rd or 4th year.
- For MEng students, in addition to the standard regulations governing undergraduate programmes, for progression from 2nd year to 3rd year a credit weighted average mark of 55% or more is required. Failure to progress will result in a change in programme from MEng to the equivalent BEng programme. Third year BEng students with a 2nd year credit-weighted average below 55% will not be permitted to transfer to an MEng programme during their 3rd year, others may be permitted to do this.
- For MEng students, in addition to the standard regulations governing undergraduate programmes, for progression from 3rd year to 4th year, a credit weighted average of 55% or more is required and EG3005 and EG3008 must be passed at Honours level. Candidates who do not meet these criteria will be considered for the award of a BEng or non-accredited BSc degree in their discipline, after one further resit attempt for any failed modules if necessary.
- An MEng student who entered into the 3rd year on the basis of Accreditation of Prior Learning (APL) but fails to achieve the requirements above to progress from 3rd to 4th year will be permitted one further attempt to resit any failed modules for which they have remaining attempts. They will be considered against the University's criteria for the award of a Top Up degree and, if they meet these requirements, be awarded a non-accredited BSc degree in Aerospace Engineering.

The following additional progression requirements apply for the with Industry version of the programme:

A Placement Student will revert back to the degree without Year in Industry if:

1. They fail to secure a year in industry role.
2. They fail to pass the assessment related to the year in industry.
3. The year in industry ends early due to the behaviour of the Placement Student not being in accordance with the University's Regulations for Students, Student Responsibilities. The Placement Student will need to suspend for the remainder of the academic year. To prevent such an incident from happening, processes are in place to identify any possible issues or concerns early in the year in industry role. This includes a start check, regular communications, visits to the workplace (physical and/or virtual) and evaluation. Communication and contact between the Placement Student, Placement Provider and University provides support should issues arise.

4. They discontinue their Year in Industry. A student can return to their campus-based studies no later than the end of teaching week 2 at the start of the academic year should they decide to discontinue their Year in Industry they should complete a Course Transfer From. If a Placement Student decides to discontinue their Year in Industry after this point they will need to suspend their studies for the remainder of the academic year.

Nine months is the minimum time required for a year in industry to be formally recognised. If the year in industry is terminated earlier than 9 months as a result of event outside of the Placement Students control (for example redundancy, or company liquidation), the following process will be adopted:

1. If the Placement Student has completed 1 – 6 months, they will be supported to search for another placement to take them up to the 9 months required for the year in industry to be formally recognised. If the Placement Student does not find a placement to meet this criteria they will be required to suspend and transferred onto the degree without Year in Industry.
2. If the Placement Student has completed 7-8 months, they will be supported to search for another placement to take them up to the 9 months required for the year in industry to be formally recognised. If the Placement Student cannot source an additional placement to take them to 9 months, assessments related to the year in industry will be set for the student to make it possible for the individual learning objectives for the year in industry to be met. This will allow the Year in Industry to be recognised in the degree certificate.

A Placement Student will not be permitted to undertake a placement which runs across two academic years.

In cases where a student has failed to meet a requirement to progress he or she will be required to withdraw from the course.

a) Course transfers

Students who do not achieve the standard required for MEng, including those who have an average 2nd year mark of less than 55%, will be transferred to the BEng degree course

11. Criteria for award and classification

This programme follows the standard scheme of undergraduate award and classification set out in Senate Regulations – see the version of *Senate Regulation 5 governing undergraduate programmes* relevant to the year of entry.

The following additional award requirements for this programme have been approved as conditions of professional body accreditation:

- Major individual or group project modules and/or those covering AHEP3 learning outcomes that are not assessed in other modules are designated as being required to be passed at Honours level and cannot be treated as compensated fails for the purpose of award. For BEng these are EG3005 and EG3008. For MEng these are EG4007 and EG4009.
- EG4007 and EG4009 have no resit option so must be passed at the first attempt because to provide one is impractical given the combination of practical and team-working.
- For accreditation purposes, the Engineering Council requires that finalists on accredited BEng and MEng programmes:
    1. Must have no more than 30 credits of "compensated fail" in levels 4-6 (BEng) or levels 4-7 (MEng). Compensated fails must have marks no lower than 35% in levels 4-6 or 40% at level 7.
    2. Must not have any failed modules in levels 4-6 (BEng) or levels 4-7 (MEng) with marks below the "compensated fail" level.

Finalists who do not meet both these criteria will be permitted one further attempt to resit any failed modules for which they have remaining attempts. If after resit they do not achieve the requirements above but do meet the University's criteria for the award of a bachelor's degree, they will be awarded the non-accredited degree of BSc in Aerospace Engineering.

12. Special features

Students receive a broad education in engineering which also provides the flexibility for more specialist focus later in the degree. Opportunities are available to undertake industrial placement with a sponsoring company (with Industry). Students following "with a Year Abroad" programmes study for year out of the UK. The year abroad does not replace any of the Leicester course material, rather it provides an opportunity for the students' to broaden their experience.

The four undergraduate degree streams of Aerospace, Mechanical, Electronic & Electrical and General are highly integrated. Students may switch between Aerospace, Mechanical and General programmes during their first year. This derives from the General Engineering ethos of the Department, ensures all engineering students benefit from a solid foundation in the fundamentals of all engineering disciplines. This features is used to maximise opportunities for interdisciplinary working and integrated projects teams that are so important to modern professional engineering careers.

For students on the with Industry programme, It is the student's responsibility to secure a year in industry role. Students are invited to attended Placement Preparation modules, additional support workshops and 1-2-1 appointments with the Career Development Service. Employer led activities provide a platform for students to engage with organisations who are recruiting students for year in industry roles. When a Placement Student starts a year in industry, they will be required to complete health and safety documents and confirm they have completed a formal induction process no later than the 2nd week of placement.

13. Indications of programme quality

Normal University academic quality assurance processes are used to continuously review and improve the programmes. The last major review and re-structure of the programmes was during institutional Curriculum Transformation process, resulting in the current programmes structures being applied to students entering from academic year 2018/2019.

All of the current programmes are accredited by the appropriate professional engineering institutions (PEIs) and the MEng programmes offer direct route to Chartered Engineer status (CEng) (further learning following graduation is required to obtain CEng with a BEng degree).

Currently, accreditation of programmes within the Department of Engineering are maintained through the Institution of Mechanical Engineers (IMechE), Institution of Engineering and Technology (IET) and Institute of Measurement and Control (InstMC). The Department keeps the professional engineering institutions whom we seek accreditation from under review and the 5 yearly accreditation visits are key events in continuously improving the programmes and evolving them to meet the needs of future graduates and employers.

Revisions to the programme and module ILOs, and the introduction of new Engineering Council criteria for awarding accredited degrees were implemented in the latest revision of these programmes in response to the accreditation visit in December 2018.

14. External Examiner(s) reports

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports for this programme can be found at exampapers@Leicester [log-in required]

UNIVERSITY OF LEICESTER

Programme Specification (Undergraduate) FOR ENTRY YEAR: 2021/22

Date created: 31/03/2021 **Last amended:** 09/03/2023 **Version no.** 3

Appendix 1: Programme structure (programme regulations)

The University regularly reviews its programmes and modules to ensure that they reflect the current status of the discipline and offer the best learning experience to students. On occasion, it may be necessary to alter particular aspects of a course or module.

BEng/MEng AEROSPACE ENGINEERING

Level 4/Year 1 2021/22

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	90 credits	15 credits	15 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Year long	EG1006*	ENGINEERING DESIGN & EXPERIMENTATION	30 credits
Year long	EG1101	MECHANICAL ENGINEERING	30 credits
Year long	EG1201*	ELECTRICAL AND ELECTRONIC ENGINEERING	30 credits
Sem 1	EG1016*	ENGINEERING MATHEMATICS 1	15 credits
Sem 2	EG1026*	ENGINEERING MATHEMATICS 2	15 credits

Notes

Modules marked with an asterisk are common to all engineering UG programmes

Level 5/Year 2 2022/23

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	60 credits	30 credits	30 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Year long	EG2004*	ENGINEERING EXPERIMENTATION & ANALYSIS	15 credits
Year long	EG2006*	INTEGRATED ENGINEERING DESIGN	30 credits
Year long	EG2302*	SYSTEM DYNAMICS & CONTROL	15 credits
Sem 1	EG2111	MATERIALS & STRUCTURES	15 credits
Sem 1	EG2112	DYNAMICS & THERMOFLUIDS	15 credits
Sem 2	EG2421	AIRCRAFT PERFORMANCE & NAVIGATION	15 credits
Sem 2	EG2422	AERODYNAMICS & AIRCRAFT SYSTEMS	15 credits

Notes

Modules marked with an asterisk are common to all engineering UG programmes.

Level 6/Year 3 2023/24

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	45 credits	45 credits	n/a
Optional	n/a	n/a	30 credits

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Year long	EG3005	INDIVIDUAL PROJECT	30 credits
Year long	EG3008	ENGINEERING MANAGEMENT	15 credits
Sem 1	EG3111	FINITE ELEMENT ANALYSIS AND DESIGN	15 credits
Sem 1	EG3313	STATE VARIABLE CONTROL	15 credits
Sem 1	EG3411	COMPRESSIBLE AND APPLIED AERODYNAMICS	15 credits

Option modules

Delivery period	Code	Title	Credits
Semester 2	EG3125	RIGID-BODY AND STRUCTURAL DYNAMICS	15 credits
Semester 2	EG3323	DIGITAL CONTROL AND ACTUATORS	15 credits
Semester 2	EG3215	MACHINE LEARNING FOR ENGINEERS	15 credits
Semester 2	EG3421	FLIGHT DYNAMICS, CONTROL AND AVIONICS	15 credits
Semester 2	EG3422	AEROSPACE MATERIALS AND STRUCTURES	15 credits

Notes

Choose 30 credits of options, including at least one of the underlined aerospace specialist options.

Level 7/Year 4 2024/25

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	60 credits	15 credits	15 credits
Optional	n/a	15 credits	15 credits

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Year long	EG4007	GROUP PROJECT	30 credits
Year long	EG4009	LEADERSHIP AND PROJECT MANAGEMENT	30 credits
Sem 1	EG4413	SYSTEMS ENGINEERING AND SPACECRAFT SYSTEMS	15 credits
Sem 2	EG4422	ADVANCED GAS TURBINES	15 credits

Option modules

Delivery period	Code	Title	Credits
Semester 1	EG4115	FLUID INSTABILITY, TRANSITION AND TURBULENCE	15 credits
Semester 1	EG4116	ADVANCED SOLID MECHANICS	15 credits
Semester 1	EG4313	ROTORCRAFT MECHANICS AND CONTROL	15 credits
Semester 2	EG4125	COMPUTATIONAL FLUID DYNAMICS	15 credits
Semester 2	EG4126	ADVANCED COMPOSITE MATERIALS	15 credits
Semester 2	EG4323	Attitude & Orbit Control Systems	15 credits
Semester 2	EG4324	SIGNAL PROCESSING	15 credits

Notes

Choose one optional module from semester 1 and one optional module from semester 2.

BEng/MEng degrees WITH INDUSTRY

For BEng students, the year in industry must be taken in the third year of their course. The schedule for this programme is given below.

For MEng students, a single year in industry can be taken either in the third year or the fourth year of their course. The schedule for MEng students taking a year in industry in their third year is given below. The schedule is similar for MEng students taking the year in industry in their fourth year, with the third year and fourth years interchanged.

BSc with Industry degrees may be awarded as an exit award if students have successfully completed the requirements of the with industry and the University's standard requirements for a Bachelor's degree but have not achieved the Engineering Council's award requirements for accredited engineering degrees codified in sections 10 and 11 above.

FIRST YEAR MODULES

As the first year of degree programme.

ADDITIONAL SECOND YEAR MODULES

SEMESTER 1

Core Modules

ADEG221	Placement Preparation 1	0

SEMESTER 2

Core Modules

ADEG222	Placement Preparation 2	0

ADDITIONAL THIRD YEAR MODULES

Year in Industry

ADEG223	On Placement	0

FOURTH YEAR MODULES

As the third year of degree programme.

FIFTH YEAR MODULES (MEng with Industry only)

As the fourth year of degree programme.

BEng/MEng degrees WITH A YEAR ABROAD

FIRST AND SECOND YEAR MODULES

As for the first and second years of BEng Aerospace Engineering/ BEng Electronic and Electrical Engineering/ BEng General Engineering/ BEng Mechanical Engineering respectively.

THIRD YEAR MODULES (Year Abroad)

Students spend the third year taking approved modules at one of the institutions associated with the Department of Engineering. Students will normally be assessed according to the criteria of the host institution, but if it is not practicable to retake failed modules there, they may be allowed to submit a report demonstrating how they have nevertheless achieved the learning outcomes for the year. Marks from the year will not count towards the degree class.

BEng: Students who do not satisfactorily complete the year will be transferred to the standard BEng of their respective degree strand (e.g. BEng Aerospace Engineering, BEng General Engineering etc.).

MEng: Students who do not satisfactorily complete the year will be transferred to the standard MEng of their respective degree strand (e.g. MEng Aerospace Engineering, MEng General Engineering etc.).

FOURTH YEAR MODULES

BEng: As 3rd year of the BEng Aerospace Engineering/ BEng Electronic and Electrical Engineering/ BEng General Engineering/ BEng Mechanical Engineering respectively.

MEng: As 3rd year of the MEng Aerospace Engineering/ MEng Electronic and Electrical Engineering/ MEng General Engineering/ MEng Mechanical Engineering respectively.

FIFTH YEAR MODULES (MEng degrees with a Year Abroad only)

MEng: As 4th year of the MEng Aerospace Engineering/ MEng Electronic and Electrical Engineering/ MEng General Engineering/ MEng Mechanical Engineering respectively.

BSc with Year Abroad degrees may be awarded as an exit award if students have successfully completed the requirements of the Year Abroad and the University's standard requirements for a Bachelor's degree but have not achieved the Engineering Council's award requirements for accredited engineering degrees codified in sections 10 and 11 above.

Appendix 2: Module specifications

See undergraduate module specification database (Note - modules are organized by year of delivery).

Appendix 3: Skills matrix