Programme Specification (Postgraduate) FOR ENTRY YEAR: 2023/24

Date created: Click or tap here to enter text. **Last amended:** 12/10/2023 **Version no.** 2

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

MSc in Aerospace Engineering
MSc in Aerospace Engineering with Industry
Postgraduate Diploma (PGDip) in Aerospace Engineering *
Postgraduate Diploma (PGDip) in Aerospace Engineering with Industry*
Postgraduate Certificate (PGCert) in 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.

HECOS Code

HECOS Code	%
100115	100

2. Awarding body or institution

University of Leicester

3. a) Mode of study

MSc in Aerospace Engineering: Full time
MSc in Aerospace Engineering with Industry: Full time.
With Industry: The taught modules would all be taken in the first two semesters.
This is followed by the industrial placement, which is between 3 and 12 months long, and would be taken following the end of the first-year exam period. This is followed by the in-house project for approximately 10 weeks.

b) Type of study

Campus-based

With Industry: The Industrial placement is off campus, on the site of the Placement Provider.

4. Registration periods

MSc in Aerospace Engineering (Full-time September Start)
The normal period of registration is 12 months.
The maximum period of registration is 24 months.

MSc in Aerospace Engineering with Industry: (September Start)
The normal period of registration is 24 months.
The maximum period of registration is 36 months.

MSc in Aerospace Engineering (Full- time January start)
The normal period of registration is 16 months.
The maximum period of registration is 28 months.

MSc in Aerospace Engineering with Industry (January start):
The normal period of registration is 28 months.
The maximum period of registration is 40 months.

5. Typical entry requirements

Candidates should normally have at least a good second-class honours degree in Aerospace Engineering, Mechanical Engineering, or a related Engineering subject, from a British University or its equivalent; or a qualification recognised by the University as equivalent.

Candidates whose first language is not English will be required to provide evidence of appropr iate language skills according to the current university language requirements for Engineering:

https://le.ac.uk/study/research-degrees/entry-reqs/eng-lang-reqs

6. Accreditation of Prior Learning

No accreditation of Prior Learning is expected

7. Programme aims

This course will provide the knowledge and skills required of a professional engineer to work in aerospace technology. The content is organized in four themes: “Control Engineering”, “Fluid Dynamics”, and “Mechanics of Materials” and “Spacecraft Systems”.

For the aims, learning outcomes and special features of the Year in Industry, please see https://le.ac.uk/study/postgraduates/courses/industry

8. Reference points used to inform the programme specification

- QAA Benchmarking Statement
- Framework for Higher Education Qualifications (FHEQ)
- UK Quality Code for Higher Education
- 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
- Engineering Accreditation Board (EAB) Masters Degree other than Integrated Masters, and EngD Learning Outcomes (AHEP 3rd Edition)
- UK-SPEC (UK Standard for Professional Engineering Competence)
- Engineering Council Compensation and Condonement requirements November 2018.

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) Knowledge

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Recall and describe fundamental tools in Control Engineering, Fluid Dynamics, Mechanics of Materials, and Systems Engineering and their role in Aerospace Engineering.	Lectures, specified reading, lab classes, design exercises, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.

ii) Concepts & Techniques

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Explain and apply robust control concepts and linear and nonlinear techniques to solve control design problems.	Lectures, specified reading, lab classes, design exercises, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.
Explain computational design concepts and implement simulations of flows.	Lectures, specified reading, lab classes, design exercises, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.
Explain materials design concepts and implement selection and testing of materials.	Lectures, specified reading, lab classes, design exercises, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.
Explain and apply systems engineering concepts to aerospace engineering design problems.	Lectures, specified reading, lab classes, design exercises, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.
Apply state-of-the-art design and simulation for control system design and simulation of flows. Apply of a variety of materials and engineering design tools.	Lectures, specified reading, lab classes, design exercises, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.

iii) Critical analysis

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Analyse typical problems and requirements in Aerospace Engineering and identify the appropriate concepts and techniques among those acquired in the course.	Lectures, specified reading, lab classes, design exercises, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.
Critically appraise solutions to different aerospace design problems.	Lectures, specified reading, lab classes, design exercises, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.
Asses and evaluate critically results presented in the technical literature.	Lectures, specified reading, lab classes, design exercises, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.

iv) Presentation

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Present clearly and analyse results concisely	Lab classes, supervision of design exercises, project supervision and execution. Optional in-sessional English classes.	Lab reports, design exercises and course work reports, project dissertation.
Participate in discussion in a constructive manner.	Lab classes, supervision of design exercises, project supervision and execution. Optional in-sessional English classes.	Lab reports, design exercises and course work reports, project dissertation.

v) Appraisal of evidence

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Evaluate the results of design cases in each of the course disciplines and judge if the results met the initial requirements.	Lab classes, supervision of design exercises, project supervision and execution.	Lab reports, design exercises and course work reports, project dissertation.

b) Transferable skills

i) Research skills

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Perform reviews of the technical literature. Demonstrate laboratory skills. Perform data analysis.	Lab classes, supervision of design exercises, project supervision and execution.	Lab reports, design exercises and course work reports, project dissertation.

ii) Communication skills

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Write concise and accurate reports. Participate to discussion in a constructive manner.	Lab classes, supervision of design exercises, project supervision and execution. Optional in-sessional English classes.	Lab reports, design exercises and course work reports, project dissertation.

iii) Data presentation & Information technology

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Use effectively a variety of IT tools for design, and data analysis and presentation.	Lab classes, supervision of design exercises, project supervision and execution.	Lab reports, design exercises and course work reports, project dissertation.

iv) Working relationships

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Manage and present progress on a project.	Project supervision and execution.	Project dissertation.
Participate to teamwork in a constructive manner.	Lab classes.	Lab reports.

v) Managing learning

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Manage time and work independently	Tutorials, Induction sessions, project supervision and execution.	Modules examinations, lab reports, design exercises and course work reports, project dissertation.

vi) Career management

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Write a professional curriculum and exploit networking opportunities.	Tutorials. Optional university career development events	Tutorial feedback and interactions with career development services.

10. Special features

This course is not accredited yet. The course will be submitted for accreditation, with a retroactive effect, at the first available opportunity, after the first cohort of students has completed the course. All modules of the MSc in Aerospace belong also to other MSc courses which are currently accredited, and award rules are consistent with other MSc programmes and the accreditation requirements in preparation for seeking accreditation.

11. Indicators of programme quality

The programme is subject to all normal departmental, college and institutional academic quality assurance processes.

12. Criteria for award and classification

This programme follows the standard scheme of taught postgraduate award and classification set out in Senate Regulations – see the version of *Senate Regulation 6 governing taught postgraduate programmes of study* relevant to year of entry.

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

- This programme follows the Scheme of Assessment for Master degree programmes with a structure of 120 credits of taught modules and a project of 60 credits, with the variation (required by the Engineering Council for accreditation purposes) that a maximum of 15 credits may be failed at grade D (40-49%) and no credits failed at grade F (0-39%). Students who fail to meet this criterion will be considered for an interim award based on the taught component of the programme.
- A student who successfully completes an industry placement but does not meet the award requirements for an MSc may be considered for the exit award of PGDip with industry.

13. Progression points

As defined in Senate Regulations - refer to the version of *Senate Regulation 6 governing taught postgraduate programmes of study* relevant to year of entry.

The following additional award requirements for this programme have been approved:
A Placement Student will revert back to the degree without Year in Industry if:

1. At the semester 1 exam board, they have less than one module at merit level and any failed modules at <50%. No progression rule is applied at the semester 2 exam board. In the case of failed modules with mitigating circumstances, the semester 1 board will use its discretion.
2. They fail to secure an industrial placement role.
3. They fail to pass the assessment related to the industrial placement.
4. The industrial placement 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 return to the University and carry out an in-house project in the School or Department, as per the normal non-Industry MSc. To prevent such an incident from happening, processes are in place to identify any possible issues or concerns early in the industrial placement 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.

5. They discontinue their industrial placement and carry out an in-house project in the School or Department, as per the normal non-Industry MSc.

In the event that a Placement Student is moved to the standard campus-based MSc, the Placement Provider will be notified immediately. For overseas students, the UKBA will also be informed immediately. Placement Provider's will be made that any contract of employment shall be made subject to satisfactory completion of the taught part of the MSc.

Three months is the minimum time required for an industrial placement to be formally recognised. If the industrial placement is terminated earlier than 3 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 less than 2 months, they will be supported to search for another placement to take them up to the required minimum of 3 months for the industrial placement 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 industry.
2. If the Placement Student has completed 2 months, they will be supported to search for another placement to take them up to the 3 months required for the industrial placement to be formally recognised. If the Placement Student cannot source an additional placement to take them to 3 months, assessments related to the industrial placement will be set for the student to make it possible for the individual learning objectives for the industrial placement to be met. This will allow with industry to be recognised in the degree certificate.
3. The duration of time between the two Placement Providers to meet the minimum 3 months of an industrial placement must not exceed the period of time required to comply with visa requirements.
4. A Placement Student is permitted to undertake an industrial 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 and a recommendation will be made to the Board of Examiners for an intermediate/exit award where appropriate.

14. Rules relating to re-sits or re-submissions

As defined in Senate Regulations - refer to the version of *Senate Regulation 6 governing taught postgraduate programmes of study* relevant to year of entry.

15. External Examiners 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]

16. Additional features (e.g. timetable for admissions)

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Programme Specification (Postgraduate) **FOR ENTRY YEAR:** Choose an item.

Date created: Click or tap here to enter text. **Last amended:** 23/02/2023 **Version no.** 1

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.

Updates to the programme

Module	Update
EG7040 Attitude and Orbit Control Systems	Title changed from Robust and Nonlinear Control

MSc in Aerospace Engineering (with Industry)

Credit breakdown

Status	Year long	Semester 1	Semester 2	Other delivery period
Core taught	n/a	30 credits	60 credits	n/a
Optional	n/a	30 credits	n/a	n/a
Dissertation/project	n/a	n/a	n/a	60 credits

180 credits in total

Level 7/Year 1 September Start 2023/24

Core modules

Delivery period	Code	Title	Credits
Semester 1	EG7010	Engineering Design Case Study	15 credits
Semester 1	EG7115	Fluid Instability, Transition and Turbulence	15 credits
Semester 1	ADEG7221	Placement Preparation 1*	n/a
Semester 2	EG7125	Computational Fluid Dynamics	15 credits
Semester 2	EG7126	Advanced Composite Materials	15 credits
Semester 2	EG7422	Advanced Gas Turbines	15 credits
Semester 2	EG7040	Attitude & Orbit Control Systems	15 credits
Semester 2	ADEG7222	Placement Preparation 2*	n/a

Notes
(*) are only in the “with Industry” programme

Option modules

Delivery period	Code	Title	Credits
Semester 1	EG7015	Rotorcraft Mechanics and Control	15 credits
Semester 1	EG7116	Advanced Solid Mechanics	15 credits
Semester 1	EG7413	Spacecraft Systems Engineering	15 credits

Notes
This is an indicative list of option modules and not definitive of what will be available. Option module choice is also subject to availability, timetabling, student number restrictions and, where appropriate, students having taken appropriate pre-requisite modules.

Level 7/Year 2 September Start 2024/25

Core modules

Delivery period	Code	Title	Credits
Choose an item.	ADEG7223	On Placement*	n/a
Choose an item.	EG7020	Individual Project	60 credits

Level 7/Year 1 January Start 2023/24

Core modules

Delivery period	Code	Title	Credits
Semester 2	EG7125	Computational Fluid Dynamics	15 credits
Semester 2	EG7126	Advanced Composite Materials	15 credits
Semester 2	EG7422	Advanced Gas Turbines	15 credits
Semester 2	EG7040	Attitude & Orbit Control Systems	15 credits
Semester 2	ADEG7222	Placement Preparation 2*	N/A

Notes
(*) are only in the “with Industry” programme

Level 7/Year 2 January Start 2024/25

Core modules

Delivery period	Code	Title	Credits
Semester 1	EG7010	Engineering Design Case Study	15 credits
Semester 1	EG7115	Fluid Stability, Transition and Turbulence	15 credits
Semester 1	ADEG7221	Placement Preparation 1*	N/A
Choose an item.	ADEG7223	On Placement*	n/a
Choose an item.	EG7020	Individual Project	60 credits

Notes
(*) are only in the “with Industry” programme

Option modules

Delivery period	Code	Title	Credits
Semester 1	EG7015	Rotorcraft Mechanics and Control	15 credits
Semester 1	EG7116	Advanced Solid Mechanics	15 credits
Semester 1	EG7413	Spacecraft Systems Engineering	15 credits

Notes
This is an indicative list of option modules and not definitive of what will be available. Option module choice is also subject to availability, timetabling, student number restrictions and, where appropriate, students having taken appropriate pre-requisite modules.

(*) are only in the “with Industry” programme
The ”with industry” programme includes an industrial placement of 3-12 months, following the end of the final exam period of the taught phase of the programme, with students returning to UoL to complete the project/dissertation after their placement.

Appendix 2: Module specifications

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