

1. Programme Title(s):

MSc, PGDip /PGCert* in Space Exploration
Systems

* Exit award only

2. Awarding body or institution:

University of Leicester

3. a) Mode of study

Full time or part time

b) Type of study

Campus-based

4. Registration periods:

MSc

The normal period of registration is 12 months (October to September) for a full-time programme or 24 months for a part-time programme. The maximum period of registration is 24 months to accommodate final presentations in the case of the full-time programme and reassessment. This period for the part-time programme is 28 months.

PGDip

The normal period of registration is 6 months for a full-time programme. The maximum period of registration is 12 months for full time.

5. Typical entry requirements:

The entry requirements will be based on the standard requirements applied to MSc courses in general at the University of Leicester. A first or 2:1 BSc, BEng, honours degree, MPhys, MEng or Master's degree in a relevant subject or a qualification recognised by the University of Leicester as equivalent. Graduates with a 2:2 or equivalent degree classification applying for the course will be considered on a case-by-case basis. The course is aimed at graduate students with Physics or Engineering backgrounds. Students with degrees in other scientific disciplines (e.g. Mathematics, Chemistry, Biology, etc.) wishing to register for this course would need to be assessed on a case-by-case basis to determine if their background were suitable for the course. This will be done should the need arise and only if the necessary information cannot be obtained from the application form provided. Applicants without English as a first language will be required to meet the University English Language requirements. This will require applicants to demonstrate IELTS 6.0 or equivalent. Further details of acceptable English requirements can be found on the University of Leicester website: www.le.ac.uk/englishskills.

6. Accreditation of Prior Learning:

Accreditation of prior learning will be assessed on a case-by-case basis, within an overall requirement that, at the time of application any prior learning which is more than five years old will not normally be considered current for this purpose. Certificated or experiential learning for the purpose of exemption from the requirement of programmes of study and assessment will be determined on a case-by-case basis, whether it has been undertaken at the University or elsewhere.

7. Programme aims

The programme is aimed at equipping physicists and engineers with in-depth knowledge of space systems engineering, space instrumentation, space mission design and the core engineering required to develop a mission through each phase from initial concept, through design, to launch and operations. In addition the course will provide physicists with systems engineering knowledge, required to work in industry, and engineers with an appreciation for space science and instrumentation in order to bridge the divide between systems engineering and space science.

The training provided should result in graduates that are trained to work in an industrial environment using modern and company-oriented engineering methods. The course blends project work, workshops, experimental studies, traditional teaching methods, seminars in a teaching environment that is aimed at duplicating industrial settings. Innovative use of teaching space will be developed for the course. Existing collaborative links with industry will be integrated into course by exploring ideas for MSc projects, targeting project mentoring schemes as well as seminars and workshops. An international group of honorary lecturers and guest lecturers will be invited to deliver part of the programme and will provide additional expertise, which will strengthen the course.

8. Reference points used to inform the programme specification:

- [External accreditation¹](#)
- QAA Framework for Higher Education Qualifications in England, Wales and Northern Ireland
- QAA [Master's Degree Characteristics](#)
- QAA Benchmarking Statement [Physics Astronomy and Astrophysics \(2008\)](#)
- PDR report (May 2008)
- [University Learning Strategy](#)
- University Employability Strategy
- Graduate Survey (2014)
- First Destination Survey
- External Examiner's Reports

9. Programme Outcomes:

A complete set of module specifications, learning outcomes and skills matrix are provided in Appendix 2.

All students (MSc and PGDip) will be required to complete the same elements of the taught component of the course.

The module descriptions, skills matrix and learning outcomes for the taught component of the course are the same for all MSc and PGDip students

The skills matrix and learning outcomes are the same for all MSc students. There are no distinctions between the learning outcomes associated with the Major Project component of the course and the optional International Project Placement.

The same MSc degree is awarded to students successfully completing the taught component and either the Major Project component or the optional International Project Placement. A certificate of participation in the International Project Placement will be offered to students who have elected to participate in this placement option.

¹ http://www.iop.org/education/higher_education/accreditation/page_43310.html

10. Special features:

- a) The University of Leicester Departments of Physics and Astronomy and Department of Engineering will be sharing a number of modules as part of the cross disciplinary nature of the course.
- b) An optional International Project Placement is offered as a Major Project. The International Project Placement is in Space Exploration and Development Systems (SEEDS). The theme for the International Project is selected by a project committee that includes industry.
- c) The programme includes a collaboration between University of Leicester and international partners, Politecnico di Torino, Italy and Institut Supérieur de l'Aéronautique et de l'Espace, Toulouse, France. All three partners will be involved in delivering the International Project Placement. Students electing to participate in this programme will be required to spend 2 months at each of the three institutes to complete the project, which will be selected by the international placement programme committee and industry.
- d) Students wishing to participate in the International Project Placement will be required to decide by the 31st of January and additional requirements that need to be met in order to be eligible to participate are highlighted in Section 13 below.

11. Indications of programme quality:

The University of Leicester quality assurance team, internal programme approval panels and external reviewers from industry and academia have assessed the course outline and programme outcomes and approved the addition of this new course to the range of postgraduate taught courses on offer at the University of Leicester. The course coordinating team have received an endorsement from the UK Space Agency.

12. Scheme of Assessment

The scheme of assessment is based on a balance between examinations and coursework. Coursework includes laboratory reports, assignments and presentations. The project component of the MSc will be assessed by dissertation. Core course modules will run in Semester 1 (October to January) and will be assessed by examinations in January. Optional modules will run in the Spring term (January to March) and will be assessed by coursework only. The taught component counts 120 credits and on its own is sufficient to qualify for a PGDip.

Board of Examiners meetings will be convened after the January examinations and in September at the end of the academic year

The project component will require students to submit a dissertation. The dissertation will provide the additional 60 credits required for the 180 credits associated with the MSc qualification.

Eligible students on international placement during the project phase will spend 4 out of the 6 months away from the UK.

The dissertation produced by students on placement and students based in the UK, will be assessed on the unique contribution made by individual students to a group project activity. The group report will also form part of the assessment. In order to effectively assess the unique contribution of each student to a project, the project teams will be subdivided into key roles (e.g. Systems engineering, mechanical engineering, instrument scientist etc.) and the contributions will be assessed during the project phase by holding reviews. This practice is used in industry. The contributions of individuals will also need to feature in the project reports or dissertations. The milestone reviews will provide a clear indication of the contributions individuals are making to the group projects and provide some indication of what will appear in the dissertation.

Senate Regulation 6: Regulations governing taught postgraduate programmes of study (See [Senate Regulations](#)).

Senate Regulation 7: Regulations governing the assessment of taught programmes (See [Senate Regulations](#))

13. Progression points

The course will be assessed by examinations and coursework, practical laboratory activities, presentations, and a dissertation. Mentoring and teamwork are also an inherent part of the programme. The aim is to ensure progression and the portfolio of assessment methods will allow students to maximise performance based on individual strengths. The continuous assessment elements of the course will need to be passed at the first attempt. Modules incorporating examinations will include the options of reassessment. Progression rules governing taught postgraduate programmes are provided in Senate Regulation 6 (See [Senate Regulations](#)).

A total of 75 credits include the option of reassessment via examination. Students wishing to progress to the Major Project will require to comply with the rules outlined in Senate Regulation 6 (See [Senate Regulations](#)). By enabling the maximum registration period to extend to 24 months students would be able to be reassessed during the examination period scheduled in the following academic year if necessary.

Progression rules for MSc students wishing to participate in the International Project Placement (SEEDS): students will not be able to carry any failed credits. Students selecting the International Project Placement (SEEDS) who do not meet this requirement will be able to participate in the Major Project as long as they meet the progression rules outlined in Senate Regulation 6 (See [Senate Regulations](#)).

Students selecting the PGDip route will only be required to complete the taught component of the course and will be required to meet the progression rules outlined in Senate Regulation 6 (See [Senate Regulations](#)).

A PGCert exit route as an intermediate award can be provided in cases where students fail to meet the PGDip or MSc requirements and progression rules. A PGCert can be awarded in the case of students having at least 60 core credits at 50%. Exam Board approval will be required in cases where an intermediate award or exit route is offered.

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

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

As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study (see [Senate Regulations](#))

15. Additional information

In summary to participate in the optional International Project Placement (SEEDS), which would be in place of the Major Project, students will be required to:

1. Meet the progression requirement of having no failed credits from the taught component of the course.
2. Meet the additional cost of accommodation and subsistence while on placement in Italy and France. Students will spend 2 months in Italy and 2 months in France with a final 2 months in the UK during the placement period.
3. If required, students should have appropriate visa documents in place well in advance of starting the International Project Placement.
4. Should a final project presentation opportunity be organised at the European Space Agency in the Netherlands students will be required to meet the additional cost of travel, subsistence and accommodation.

16. External Examiners

The External Examiner for this programme is Dr Simon Green from the Open University and the most recent External Examiners' reports can be found [here](#).

Appendix One

Module	Topic	Credits	Semester
Core			
PA7011	Foundations of Professional Space Science & Engineering	15	Semester 1
EG7010	Engineering Design Case Study	15	Semester 1
PA7412	Systems Engineering and Spacecraft Systems	15	Semester 1
PA7013	Spaceflight Dynamics and Propulsion	15	Semester 1
PA7014	Space, Planetary Environment, Planetary Surfaces	15	Semester 1 & 2
PA7015	Spacecraft Instrumentation for Space and Planetary Science	15	Semester 2
Options (Students Choose 2 Options)			
PA7051	Human Spaceflight and Nuclear Systems	15	Semester 1 & 2
PA7052	Advanced Spacecraft Engineering	15	Semester 2
PA7038 (EG7038)	Aerospace Materials	15	Semester 2
Major Project			
PA7091	Major research project	60	April to September
Optional International Project Placement – Space Exploration Development Systems (SEEDS)			
PA7092	Major research project	60	April to September

