Programme Specification (Postgraduate)

FOR ENTRY YEAR: 2021/22

Date created: 14/12/2020 **Last amended:** 31/03/2021 **Version no.** 1

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

MSc/PG Dip/PG Cert[1]Geographical Information Science
MSc Geographical Information Science with Industry

HECOS Code

HECOS Code	%
100369	100%

2. Awarding body or institution

University of Leicester

3. a) Mode of study

Full-time or part-time

The taught modules would all be taken in the first two semesters. This is followed by the industrial placement, which is either 3, 6, 9 or 12 months long. This is followed by the in-house project, taking 10 weeks.

b) Type of study

Campus-based

4. Registration periods

The normal period of registration for the MSc in Geographic information Science is 12 months (full time) and 24 months (part time).

The maximum period of registration for the MSc in Geographic information Science is 24 months (full time) and 48 months (part time).

Note: Normal and maximum periods of registration for the 'with industry' variant accommodate an extra period of registration corresponding to the placement duration, such that normal period is between 18-24 months (dependent on length of placement obtained) and the maximum period is 36 months

5. Typical entry requirements

Students are required to have a first, upper second or lower second class honours degree (or equivalent) in any subject and/or ii) several years appropriate professional experience. However, students with nonstandard qualifications are expressly encouraged to apply. In particular we give due consideration to prior professional experience gained by mature students in relevant areas of work. In such cases applicants would be expected to provide detailed information on work experience to enable its full evaluation by admissions staff. We also consider alternative qualifications, for example in different subject areas, where these are supported by relevant

experience within the field of the MSc programme. Students for whom English is not their first language are required to achieve a minimum IELTS score of 6.5 with at least 6 in all four categories.

6. Accreditation of Prior Learning

No accredited prior learning would be accepted for exemption from modules on the programme.

7. Programme aims

The programme aims to provide students with a broad-based education in geographical information science and systems suitable for careers ranging from the commercial GIS industry, or to further academic research. Specifically, the objectives of this course are:

- To develop comprehensive understanding in both the geographical and computational aspects of geographical information science.
- To develop systematic understanding regarding the concepts and algorithms associated with the collection, manipulation and representation of spatial data.
- To develop practical analytical skills in geographic information science.
- To ensure students are familiar with typical GIS applications and have the capacity to translate geospatial inquiry into a GIS framework.
- To ensure students can evaluate/critique both the potential and the limitations of current software, spatial data sources, and information quality.
- To develop a critical perspective on GIS.
- To expose students to the frontiers of current GIS research.
- To build a high level of competence in independent learning skills; original research methodology; original research implementation; oral presentations; report writing; web-based and multimedia communication.

For the withindustry 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

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

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?
Systematic understanding of GIScience and GIS; the spatial database and principles of spatial data analysis and spatial data display.	Lectures, targeted reading, practical classes, self-directed project work, self-directed research work, field-work.	Essays, project reports, practical exercises, oral presentations (where module choice allows), dissertation
Understand how GIS operates in an industrial setting ('with industry')	Work placementt	Work placement report

ii) Concepts

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Understand and explain Geographical Information Systems and Geospatial Data Analytics including practical approaches within GIS to enable advanced scholarship.	Lectures, targeted reading, practical classes, self-directed project work, self-directed research work, field-work	Essays, project reports, practical exercises, oral presentations (in optional modules), dissertation

iii) Techniques

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate a comprehensive understanding and practical application of GIScience and GIS techniques; development and execution of spatial data management strategies; GIS-based analysis of spatial data including skills such as programming	Lectures, targeted reading, practical classes, self-directed project work, self-directed research, field-work	Practical exercises, project reports, essays, oral presentations (in optional modules), dissertation
Work as a GIS specialist in and industrial setting (where 'with industry')	Work placement	Work placement report

iv) Critical analysis

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Critical appraisal of published material. Ability to apply understanding of concepts with independence, rigour and self-reflexivity	Lectures, targeted reading, practical classes, self-directed project work, self-directed research work, work placement (where 'with industry')	Essays, project reports, oral presentations (oral presentations (in optional modules), dissertation, work placement report (where 'with industry')

v) Presentation

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Presentation of: project results to professional standard; thematic data analyses and maps to a professional standard. Ability to organise and structure research material; ability to deliver written and oral seminar reports and summaries	Self-directed project work, self-directed research work, work placement (where 'with industry')	Essays, project reports, oral presentations (oral presentations (in optional modules), dissertation, work placement report (where 'with industry')

vi) Appraisal of evidence

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Ability to analyse and evaluate a variety of complex geographical issues. Ability to assess the relevance and quality of a substantial range of primary and secondary literatures and materials. Ability to mount and sustain an independent level of inquiry at an advanced level. Ability to identify, assemble, analyse and manage complex datasets; ability to analyse and assess a body of thematic data using appropriate techniques and data models	Targeted reading, practical classes, self-directed project work, self-directed research work	Essays, project reports, oral presentation, oral presentations (in optional modules), dissertation, work placement report (where 'with industry')

b) Transferable skills

i) Research skills

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Ability to: independently analyse complex ideas and construct sophisticated critical arguments; plan and manage projects using spatial data; locate, organise and analyse evidence; report on findings; demonstrate GIS and data analytical skills.	Essays, practicals, project work	Project reports, practical exercises, oral presentations (in optional modules), dissertation

ii) Communication skills

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Ability to: communicate clearly and effectively to a high level; write clearly and concisely; make effective use of graphical summaries	Essays, practicals, project work	Project reports, practical exercises, oral presentations (in optional modules), exams, dissertation

iii) Data presentation

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Ability to: present results clearly and effectively to a high level; use appropriate IT resources; to undertake basic statistical summaries and analysis; employ appropriate and effective graphical representations including maps and summaries	Essays, practicals, project work	Project reports, practical exercises, oral presentations (in optional modules), dissertation

iv) Information technology

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
The whole course is centered around information technology Confident and informed use of personal computer hardware and associated software including programming	Computer-based practical classes; project/dissertation work using computers/computer software	Project reports, practical exercises, oral presentations (in optional modules), dissertation
Ability to: collect and process geospatial digital data from a variety of sources	Computer-based practical classes; project/dissertation work using computers/computer software	Project reports, practical exercises, oral presentations (in optional modules), dissertation

v) Problem solving

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Solving spatial problems	Practical classes, project work	Project reports, practical exercises, oral presentations (in optional modules), dissertation

vi) Working relationships

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Project management; organisational skills; time management; ability to contribute and comment on ideas; working in groups	Practical exercises, dissertation proposal meeting, fieldwork	Working with peers in the field; meeting coursework deadlines

vii) Managing learning

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Identifying a credible research project; establishing an effective research timetable; managing information; reflecting on and writing up results. Developing specialised analytical skills. Revision for exams	Dissertation module, exams	Exams, dissertation

viii) Career management

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
The ability to see how skills learnt in a university can be used in 'real world' settings; appreciation of the knowledge and skills required by the GIS specialist in an industrial setting	The ability to see how skills learnt in a university can be used in 'real world' settings; appreciation of the knowledge and skills required by the GIS specialist in an industrial setting	Discussions with personal tutors and concerning career progression and the applications of GIS, work placement report (where 'with industry')

ix) Placement Preparation 1 and 2

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
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	Students are provided with dedicated and timetabled sessions to prepare to search and secure an industrial placement. Problem solving classes, Masterclasses, Career development programmes, Independent research.	Formative module feedback through session tasks and exercises

x) On Placement

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
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	Students undertake a minimum of 3 months experience in the workplace.	Completion of Monthly Reflective Journals to record skills development, major achievements, key areas of work, learning points and challenges overcome.

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Compose a Professional Development Plan considering your strengths, development areas and motivations for your next step	Project supervision, independent research	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.
Modify your CV to include the skills and experience you have gained through your significant experience gained in the past 12 months.	Students undertake a minimum of 3 months experience in the workplace.	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. Special features

After completing the eight taught modules and exams in the first year of the course, students on the industry variant will carry out between 3 and 12 months employment in an industrial placement. Students will be encouraged to undertake the maximum period of employment possible, to gain the full benefit of experience in industry.

On the return from an industrial placement, the Placement Student will carry out an in-house project in the School or Department, as per the normal non-Industry MSc. The project will be supervised and assessed within the Department. The project title will be decided, in conjunction with the Placement Student, while they are on placement.

During the industrial placement, appropriate support will be provided by the School or Department as defined in the Code of Practice.

Placement Students will be expected to complete a Monthly Reflective Journal to record their training. This will support the Placement Student to complete the Placement Portfolio which is assessed on a pass/fail basis, and will have no credit weighting in the MSc

Placement Students who do not pass the assessment or meet the minimum duration of an industrial placement will receive the standard MSc degree.

11. Indicators of programme quality

This course has to date been accredited by the Royal Institution of Chartered Surveyors (RICS.

It is the student's responsibility to secure an industrial placement. 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.

The 'with Industry' MSc relies on the Placement Provider to provide work suitable for an MSc student. To ensure the role is relevant, the School or Department assesses the industrial placement through the University's Placement Approval Process. The Placement Provider will be asked to provider:

- An indication of the area of the organisation where the Placement Student will work.
- An indication of the area of expertise that the Placement Student should have or will gain.
- Whether the work is suitable only for a UK national, for and EU national or for an overseas student.
- The resources available to the Placement Student. For example, design software, textbooks, laboratory equipment, product specimens, access to facilities in the organisation.

- Identification of a suitable industrial mentor (i.e. a graduate with knowledge of the area and at least a couple of years of experience in the field).

When a Placement Student starts an industrial placement, 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. A Placement Student on an industrial placement will also gain from being able to:

1. 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.
2. Compose a Professional Development Plan considering your strengths, development areas and motivations for your next step
3. Modify your CV to include the skills and experience you have gained through your significant experience gained in the past 12 months

Placement Students will be provided with a Study Guide for their industrial placement and support them to complete the assessment. The School or Department will undertake a placement 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.

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.

13. Progression points

As defined in Senate Regulation 6: Regulations governing taught postgraduate programmes of study with the additional requirement that students must pass the dissertation proposal. A candidate who does not pass the dissertation proposal (PASS = 50%) at the second attempt will not be able to progress to the dissertation component of the Degree and therefore can only, at best, graduate with a PG Diploma.

For the 'with industry' option students are subject to the following progression rules (in addition to any rules applicable to their core programme) after completion of the taught component:

Taught Module Credits Failed at First Attempt	**Progression rule for with industry**
Up to 30 credits	A student can proceed with an industrial placement and is entitled to re-sit failed module(s) up to the maximum credit value set out in paragraph 6.24 above, at the earliest opportunity. The student can begin their industrial placement but must request release to re-sit the failed module(s). If, after reassessment, a student has any module mark of < 40%, Grade 'F', s/he will be allowed to complete their industrial placement but not be allowed to work on the dissertation or research project and shall be considered at the next meeting of the Board of Examiners following the end of the industrial placement.

31-45 credits	A student cannot proceed with an industrial placement and must re-sit failed modules up to the maximum credit value set out in paragraph 6.23 above, at the earliest opportunity. The student must not begin their industrial placement and must wait to re-sit failed module(s). If, after reassessment, a student has more than 30 credits of failed modules, or any module mark of < 40%, Grade 'F', s/he will not be allowed to proceed with an industrial placement and shall be considered at the next meeting of the Board of Examiners.
More than 46 credits	A student cannot proceed with an industrial placement, but is entitled to re-sit failed modules up to the maximum credit value set out in paragraph 6.24 above in order to meet the requirements for intermediate award, where the relevant programme specification makes provision for such an award.

In the course of their placement the student will receive one or two support visits from a member of staff. The second 'visit' can be in the form of a Skype call. Typically where an overseas placement is secured both visits will be conducted via a Skype call.

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

1. They fail to satisfactorily perform (attendance, participation and completion of set tasks) in the employability modules.
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 UKVI 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)

Admissions are in October only.
For the 'with industry' option, students will be required to undertake reflective activities whilst on placement which are marked on a pass/fail basis.

UNIVERSITY OF LEICESTER

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

Date created: 14/12/2020 **Last amended:** 14/12/2020 **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.

MSc in Geographical Information Science

Credit breakdown

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

180 credits in total

Level 7/Year 1 2021/22

Core modules

Delivery period	Code	Title	Credits
Semester 1	GY7701	FUNDAMENTALS OF GIS	15 credits
Semester 1	GY7702	R FOR DATA SCIENCE	15 credits
Semester 1	GY7704	GEOGRAPHICAL VISUALISATION	15 credits
Semester 1	GY7705	REMOTE SENSING	15 credits
Semester 2	GY7707	GEOSPATIAL DATA ANALYTICS	15 credits

Delivery period	Code	Title	Credits
Semester 2	GY7708	GEOSPATIAL DATABASES AND INFORMATION RETRIEVAL	15 credits
Term 3	GY7720	MSc DISSERTATION	60 credits

Notes

Option modules

Delivery period	Code	Title	Credits
Semester 2	GY7709	SATELLITE DATA ANALYSIS IN PYTHON	15 credits
Semester 2	GY7710	GIS IN ENVIRONMENTAL HEALTH	15 credits
Semester 2	GY7711	FIELD DATA CAPTURE	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.

MSc in Geographical Information Science with Industry

Credit breakdown

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

180 credits in total

Programme structure is as for the non industry degree, with the addition of:

Year 1

Core Modules

Delivery period	Code	Title	Credits
Semester 1	ADGY7221	Placement Preparation 1	n/a
Semester 2	ADGY7222	Placement Preparation 2	n/a

Year 2

Core Modules

Delivery period	Code	Title	Credits
Semester 1	ADGY7223	On Placement	n/a
Semester 2	ADGY7223	On Placement	n/a
Term 3	GY7720	Dissertation	60 credits

Appendix 2: Module specifications

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

Appendix 3: Programme updates

Academic year affected	Module Code(s)	Update
2021/22	GY7703	Module removed