



GA_SGISC_S08

Certificate in Digital Mapping and Geographical Information Systems

Programme Documentation

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GA_SGISC_S08

Certificate in Digital Mapping and Geographical Information Systems

Programme Overview

Full Title	Certificate in Digital Mapping and Geographical Information Systems		
Status	Uploaded to Banner	Programme Code	GA_SGISC_S08
Level	08	Required Credits	25
Delivered By	Semester	Minimum Duration	2
Start Term	2020	ISCED Code	0610 - Info and Comm Technologies
Award Class	Special Purpose Award	Award Type	Certificate
Award Standard	Multi-Disciplinary	Department	Business, Humanities and Tech
Delivery Mode(s)	Blended		

Programme Authors

Yvonne McDermott, Emer Crean, Pearse McDonnell

Aim

The aim of the Certificate in Digital Mapping and GIS is to develop participants' ability to utilise proprietary and open source software geospatial tools to support spatial data capture, manipulation, management, analysis and dissemination.

This programme is about the "science of where". The advent of the ubiquitous smart phone, smart transport, driverless vehicles and the internet of things mean that geo-mapping and location-based services are key skills that are increasingly in demand.

The target market for this programme includes recent graduates, those in employment and others who have a need to upskill in the area of digital mapping and GIS to support their various work and research functions. The programme is of relevance to graduates and employees of wide variety of disciplines; ecologists, epidemiologists, engineers, geologists, geographers, geoscientists, historians, heritage officers, insurance risk managers, investment managers, local authority planners, retail planners, workers in the leisure and outdoor activity arena and information technologists.

Entry Requirements and Access Routes

The minimum entry requirement is a level 7 major award or equivalent in a cognate area; computing, geography, geology, engineering, ecology, environmental science, epidemiology, heritage, history, outdoor education, surveying or other related discipline.

GMIT is committed to the principles of transparency, equity and fairness in recognition of prior learning (RPL) and to the principle of valuing all learning regardless of the mode or place of its acquisition. Recognition of Prior Learning may be used to gain access to this programme in accordance with GMIT's Recognition of Prior Learning policy. Applicants for RPL will be provided with application guidance.

Transfer Routes

Not Applicable.

Progression Pathways

Not Applicable.

Teaching & Learning Strategy

The programme development team proposes that the programme will be delivered via blended methods (employing both online and offline), online format or the traditional face-to-face delivery methodology. It is envisaged that students would attend on campus one day per month for labs and practical activities. Where possible a certain amount of practical field work may be proposed for the student - to gather and analyse data in their locality for further analysis for example. The delivery methods, and field work, are, of course, contingent on the public health situation at the time of delivery. The programme can be adapted to be fully online if government restrictions necessitate.

The teaching and learning strategy of this programme places learners at the centre of all interactions and engagement. The lecturing team

facilitate innovative learning practices which will focus the learner's ability to explore, research, interact with peers and the lecturing team and reflect on the outcome of these engagements.

Online/blended delivery requires more facilitation for student engagement and collaboration than traditional face-to-face course delivery. Consequently, an initial get-to-know-you webinar will be scheduled at the start of the programme to promote and encourage participation and collaboration. Forum discussions will ensure that all students share a little about themselves. Students in the same geographical area will be encouraged to collaborate. Students will also be encouraged to use their own social networking groups whereby they can get instant notifications of comments and can contribute to discussions.

At the start of all modules lecturers will schedule a webinar detailing how to communicate with lecturer and other students (email and forums). It will be highlighted that some assessment activities will require collaboration on the virtual learning environment (VLE) or other channels. Lecturers will interact with students on VLE forum. Lecturers will lead by example by posting comments on their comments and facilitate discussion by posting links to relevant and interesting material. Timely feedback will be given on assessment submissions. Lecturers will encourage discussion around their solutions versus others. Live (and recorded) webinars will be posted as links and will be continuously referred to during module. A survey will be carried out towards the end of the semester to gather student feedback on matters including appropriate modes of delivery.

Assessment Strategy

The awards will be assessed in accordance with GMIT Marks and Standards (Academic Code of Practice No 3.) as approved by Academic Council.

The programme will be assessed on the basis of 100% continuous assessment, comprising a variety of methods outlined in the individual modules. This approach was taken on the basis of the practical nature of the modules and the needs of the cohort of learners.

Assessment will be appropriate to the Learning Outcomes. The objective of the assessment strategy is to ensure the effective transfer of learning to the workplace. Assessment will be both formative and summative in nature. Information concerning the nature of continuous assessment in each module will be discussed and agreed with learners and external examiners at the start of the academic year. To ensure an even assessment load for learners, a schedule will be established by the Programme Board at the commencement of the year and will be discussed and agreed with learners.

An individual learning plan will be developed for course modules and presented to each learner. This will also allow learners to track progress through course assessments but also recognise what is expected while engaging with this module.

Decisions on nature of assessment will be linked to the requirement to achieve particular learning outcomes. They may be in the form of a written assessment, computer-based exam, project or other relevant assessment. Individuals may be interviewed or asked to present their work in a formal context to validate authenticity and ownership of work. Repeat facilities will be accommodated in line with GMIT Code of Practice No. 3 and in compliance with programme board decisions.

Student Feedback Strategy

Learner feedback will be provided in a variety of different forms: written, electronic or verbal to ensure the learner has access to feedback. It will be provided throughout the programme/module and will align with any assessment criteria as outlined prior to the assessment. Feedback will be provided in a timely manner, based on receipt of submissions for assignments.

Programme Learning Outcomes

Strand	Programme Learning Outcomes <i>On successful completion of this programme the learner will/should be able to:</i>	Modules Mapped to Outcomes
Knowledge Breadth	1. Describe the theoretical and technical concepts pertaining to digital mapping and Geographical Information Systems.	TECH08063 Geographical Information Systems 1 TECH08064 Geographical Information Systems 2 TECH08065 Web Mapping TECH08062 Data Capture and Manipulation
Knowledge Kind	2. Have detailed knowledge and understanding and of GIS within desktop, field and web-based contexts.	TECH08062 Data Capture and Manipulation TECH08065 Web Mapping TECH08064 Geographical Information Systems 2 TECH08063 Geographical Information Systems 1
Know How & Skill Range	3. Demonstrate a range of specialised technical skills and abilities in collating, manipulating and disseminating spatial data.	TECH08062 Data Capture and Manipulation TECH08063 Geographical Information Systems 1 TECH08064 Geographical Information Systems 2 TECH08065 Web Mapping
Know How & Skill Selectivity	4. Apply their knowledge to developing strategies for managing data needs appropriate to GIS.	TECH08063 Geographical Information Systems 1 TECH08065 Web Mapping TECH08064 Geographical Information Systems 2
Competence Context	5. Utilise their knowledge and skills to develop strategies for spatial data handling across desktop, field and internet platforms.	TECH08062 Data Capture and Manipulation TECH08063 Geographical Information Systems 1 TECH08064 Geographical Information Systems 2 TECH08065 Web Mapping
Competence Role	6. Contribute constructively to problem solving within the context of spatial data systems utilisation.	TECH08064 Geographical Information Systems 2 TECH08065 Web Mapping TECH08062 Data Capture and Manipulation TECH08063 Geographical Information Systems 1
Competence Learning to Learn	7. Research new technologies and software tools within the context of GIS.	TECH08064 Geographical Information Systems 2 TECH08065 Web Mapping
Competence Insight	8. Learn from experiences gained from different contexts. 9. Take responsibility for his/her own learning. 10. Maintain integrity and independence in professional judgement.	COMM07008 The Next Step - Transitioning to Work TECH08062 Data Capture and Manipulation TECH08064 Geographical Information Systems 2 TECH08065 Web Mapping TECH08063 Geographical Information Systems 1

Approved Programme Schedule - GA_SGISC_S08 Certificate in Digital Mapping and Geographical Information Systems

Stage 4

Delivery	Code	Module Title	Level	Credit	M/E	BL	CA	PJ	PC	FE	Total
SEM 7	TECH08062	Data Capture and Manipulation	08	05	M	4.12	100	0	0	0	100
SEM 7	TECH08063	Geographical Information Systems 1	08	05	M	4.12	100	0	0	0	100
SEM 8	TECH08064	Geographical Information Systems 2	08	05	M	4.12	100	0	0	0	100
SEM 8	TECH08065	Web Mapping	08	05	M	4.12	100	0	0	0	100
SEM 8	COMM07008	The Next Step - Transitioning to Work	07	05	M	2.00	100	0	0	0	100
Credit Total				25							

Semesters Per Stage	Elective Rules Per Stage	Credits Required Per Stage	Percentage Allocation towards Award
2	0	25	100

Key

M/E - Mandatory/Elective, BL - Blended, CA - Continuous Assessment, PJ - Project, PC - Practical, FE - Final Exam,

Programme Delivery Schedule

Stage 4 - Delivery Mode Blended

Delivery	Code	Module Title	Level	Credit	M/E	Lecture	Seminar	Practical	Online Learning	Total
SEM 7	TECH08062	Data Capture and Manipulation	08	05	M	0.5		3.62		4.12
SEM 7	TECH08063	Geographical Information Systems 1	08	05	M	0.5		3.62		4.12
SEM 8	TECH08064	Geographical Information Systems 2	08	05	M	0.5		3.62		4.12
SEM 8	TECH08065	Web Mapping	08	05	M	0.5		3.62		4.12
SEM 8	COMM07008	The Next Step - Transitioning to Work	07	05	M				2	2.00
Total						2.00		14.48	2.00	

Stage Average Weekly Contact Hours	Semester 1 Average Weekly Contact Hours	Semester 2 Average Weekly Contact Hours
0	8	10

Programme Assessment Matrix

Stage 4 Semester 1

Code	Module Title	M/E	Type	Description	Module Outcomes Assessed	% of Total	Indicative Week
TECH08062	Data Capture And Manipulation	M	CA	Practicals	2,4	40	OnGoing
TECH08062	Data Capture And Manipulation	M	CA	Assessment	1,3,5	60	OnGoing
TECH08063	Geographical Information Systems 1	M	CA	Practicals	1,2	40	OnGoing
TECH08063	Geographical Information Systems 1	M	CA	Assessment	3,4,5	60	OnGoing

Programme Assessment Matrix

Stage 4 Semester 2

Code	Module Title	M/E	Type	Description	Module Outcomes Assessed	% of Total	Indicative Week
COMM07008	The Next Step - Transitioning To Work	M	CA	Interview Recruitment Interview	6	20	Week 23
COMM07008	The Next Step - Transitioning To Work	M	CA	Project Portfolio	1,2,3,4,5	60	End of Term
COMM07008	The Next Step - Transitioning To Work	M	CA	Reflective Essay	7	20	End of Term
TECH08064	Geographical Information Systems 2	M	CA	Practicals	2,4,5	50	OnGoing
TECH08064	Geographical Information Systems 2	M	CA	Assessment	1,3,4	50	OnGoing
TECH08065	Web Mapping	M	CA	Practicals	1,2	40	OnGoing
TECH08065	Web Mapping	M	CA	Assessment	3,4	60	OnGoing

Approved Modules

Stage	Approved Modules	New Modules
4	TECH08062 Data Capture and Manipulation TECH08063 Geographical Information Systems 1 TECH08064 Geographical Information Systems 2 TECH08065 Web Mapping COMM07008 The Next Step - Transitioning to Work	



Stage 4 Modules

TECH08062 Data Capture and Manipulation

Mandatory Delivered in Stage 4 Semester 7

Full Title	Data Capture and Manipulation		
Status	Uploaded to Banner	Start Term	2020
NFQ Level	08	ECTS Credits	05
Module Code	TECH08062	Duration	Semester - (13 Weeks)
Grading Mode	Numeric	Department	Business, Humanities and Tech
Module Author	Emer Crean		
Co Authors	Yvonne McDermott, Pearse McDonnell		

Module Description

This module introduces the learner to the concept of data, with an emphasis on geospatial data in particular. Students will learn how to capture and manipulate diverse data types which will provide a solid foundation for working with GIS and Web Mapping. The ability to source and manipulate data, and transform it from one form to another, are basic requirements for the realisation of a spatial data project.

Learning Outcomes

On completion of this module the learner will/should be able to:

1. Demonstrate knowledge of the fundamentals of data.
2. Manipulate spreadsheet data and convert data from one form to another using the built in spreadsheet functions
3. Identify and describe fundamental database concepts and processes
4. Use Structured Query Language (SQL) to manipulate data in a relational database and convert data from one form to another.
5. Demonstrate familiarity of spatial data standards and quality issues.

Indicative Syllabus

Data Fundamentals 15%

The student will gain an understanding of the fundamentals of data; qualitative and quantitative aspects, data types and formats.

Data Manipulation Tools 25%

The student will gain experience in using spreadsheet functions focusing particularly on data manipulation, validation and conversion. The student will learn about file formats, and conversion from one file format to another.

Introduction to databases 30%

Overview of relational database theory, data design and SQL basics. The student will learn skills in data management, query and manipulation.

Data capture methods 15%

GPS systems, field survey design and data collection. The student may be asked to engage in a small fieldwork project to capture data for subsequent manipulation/mapping.

Data sources 5%

An overview of sources of spatial data – international and national.

Data quality and standards 10%

Accuracy and precision, metadata standards, overview of INSPIRE.

Teaching and Learning Strategy

This module can be delivered via blended (employing both online and offline), online format or the traditional face-to-face delivery methodology.

Blended delivery format.

The module can be delivered in the blended delivery method using a mixture of online delivery (approx. 75%) and face-to-face engagement (approx. 25%).

Weekly online delivery will consist of, but not exclusive to, live lectures, practicals, webinars, pre-recordings, synchronous and asynchronous discussion forums and open educational resources (OER's), exercises and reading, accounting for approx. 4 hours per week.

Online delivery format.

The module can be delivered in an asynchronous online method. Information concerning the nature and timing of continuous assessment will be reviewed and agreed with learners and external examiners at the beginning of the academic year. Marking criteria, deadlines and expectations will also be provided to the learner in advance as appropriate. Constructive feedback will be provided in a timely manner and in an appropriate format.

Traditional face-to face delivery format.

The module can be delivered in the traditional delivery method using lectures/tutorials (1 hours per week) and lab practicals (3 hours per week).

Assessment Strategy

This module will comprise 100% continuous assessment. The learner will be assessed on their practical ability and theoretical knowledge of data fundamentals and manipulation through a combination of practical worksheet tasks, forums, quizzes and practical exams. This is appropriate given the practical nature of the topic.

Information concerning the nature and timing of continuous assessment will be reviewed and agreed with learners and external examiners at the beginning of the academic year. Marking criteria, deadlines and expectations will also be provided to the learner in advance. Constructive feedback will be provided in a timely manner and in an appropriate format.

Repeat Assessment Strategies

Repeat facilities will be accommodated in line with GMIT Code of Practice No. 3 Student Assessment: Marks & Standards procedures and in compliance with programme board decisions.

Decisions on nature of assessment will be linked to the need to achieve particular learning outcomes. They may be in the form of a written assessment, practical computer exam, project or other relevant assessment. Individuals may be interviewed or asked to present their work in a formal student conference context to prove authenticity and ownership of work.

Indicative Coursework and Continuous Assessment:		100 %		
Form	Title	Percent	Week (Indicative)	Learning Outcomes
Assessment	Practicals	40 %	OnGoing	2,4
Assessment	Assessment	60 %	OnGoing	1,3,5

Full Time Delivery Mode Average Weekly Workload:			4.00 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Lecture	Lecture	Laboratory	1	Weekly	1.00
Practical	Practical Work	Laboratory	3	Weekly	3.00

Online Learning Delivery Mode Average Weekly Workload:			4.00 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Lecture	Lecture	Online	1	Weekly	1.00
Practical	Practical Work	Online	3	Weekly	3.00

Blended Delivery Mode Average Weekly Workload:			4.12 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Lecture	Lecture	Online	0.5	Weekly	0.50
Practical	Practical Work	Online	3	Weekly	3.00
Practical	Workshop	Laboratory	2.5	Monthly	0.62

Recommended Reading Book List

McFedries, P., (2020). *MOS Study Guide for Microsoft Access Expert Exam MO-500*. Microsoft Press.
ISBN 013662832X ISBN-13 9780136628323

Lambert, J., (2020). *MOS Study Guide for Microsoft Excel Exam MO-200*. Microsoft Press.
ISBN 0136627153 ISBN-13 9780136627159

Online Resources

[SQL Tutorials](#), [SQL Sandbox](#)

[Inspire Knowledge Base](#)

[Geospatial Knowledge Base](#)

[Irish Government Open Data Technical Framework](#)

[GIS for Inspire](#)

Field Surveys [QGIS](#), [ESRI](#)

Programme Membership

GA_SGISC_S08 202000 Certificate in Digital Mapping and Geographical Information Systems

TECH08063 Geographical Information Systems 1

Mandatory Delivered in Stage 4 Semester 7

Full Title	Geographical Information Systems 1		
Status	Uploaded to Banner	Start Term	2020
NFQ Level	08	ECTS Credits	05
Module Code	TECH08063	Duration	Semester - (13 Weeks)
Grading Mode	Numeric	Department	Business, Humanities and Tech
Module Author	Emer Crean		

Module Description

This module will serve as an introduction to the concepts and practical usage of GIS. Students will gain hands-on experience of the fundamental functions of GIS software through the collation, analysis and presentation of datasets and the design of static maps. No prior experience of GIS is required.

Learning Outcomes

On completion of this module the learner will/should be able to:

1. Demonstrate their understanding of the concepts that underpin Geographical Information Systems.
2. Use GIS to import, display and investigate spatial data.
3. Create and edit vector datasets.
4. Create static maps using established design principles.
5. Demonstrate skills in basic GIS analytical functions

Indicative Syllabus

Introduction to GIS 10%

The student will examine the fundamentals of GIS; origins, relevance, functions, software and applications of GIS, how geographic features are represented, data models and data formats. How to find support resources on the web.

Managing data in a GIS 10%

This will involve learning how to navigate the GIS application interface; import data of different models and formats, layer management, layer visibility, map navigation, feature selection methods, layer export, basic labelling and the display of background layers.

Spatial feature symbolisation 15%

The student will learn techniques in visualisation and symbolisation of vector datasets; classification systems, symbolisation of quantitative versus qualitative data, methodologies for thematic maps, charts and feature labelling.

Georeferencing 5%

Systems for georeferencing phenomena and features on the Earth's surface; datums, geographic and projected coordinate reference systems, systems relevant to Ireland, conversion between systems.

Cartography: Principles and Production 20%

This section will include an examination of the history of cartography, different categories of maps, principles of map design, visual variables, map elements and hands on skills in creating static maps.

Working with tabular data 20%

Students will gain understanding and skills in managing and manipulating tabular data within a GIS; create attributes, use of data calculator to modify data, join tables, geocode text data, filter and query data.

Spatial data creation 15%

Creation of point, line and polygon datasets, field survey data capture, digitisation and feature editing, basic snapping techniques.

Basic spatial queries 5%

The student will learn how to identify spatial relationships between features and layers and how to use tools that facilitate problem solving using these spatial relationships

Teaching and Learning Strategy

This module can be delivered via blended (employing both online and offline), online format or the traditional face-to-face delivery methodology.

Blended delivery format.

The module can be delivered in the blended delivery method using a mixture of online delivery (approx. 75%) and face-to-face engagement (approx. 25%).

Weekly online delivery will consist of, but not exclusive to, live lectures, practicals, webinars, pre-recordings, synchronous and asynchronous discussion forums and open educational resources (OER's), exercises and reading, accounting for approx. 4 hours per week.

Online delivery format.

The module can be delivered in an asynchronous online method. Information concerning the nature and timing of continuous assessment will be reviewed and agreed with learners and external examiners at the beginning of the academic year. Marking criteria, deadlines and expectations will also be provided to the learner in advance as appropriate. Constructive feedback will be provided in a timely manner and in an appropriate format.

Traditional face-to face delivery format.

The module can be delivered in the traditional delivery method using lectures/tutorials (1 hours per week) and lab practicals (3 hours per week).

Assessment Strategy

This module will comprise 100% continuous assessment. The learner will be assessed on their practical ability and theoretical knowledge of GIS through a combination of practical worksheet tasks, forums, quizzes and practical exams. This is appropriate given the practical nature of the topic.

Information concerning the nature and timing of continuous assessment will be reviewed and agreed with learners and external examiners at the beginning of the academic year. Marking criteria, deadlines and expectations will also be provided to the learner in advance. Constructive feedback will be provided in a timely manner and in an appropriate format.

Repeat Assessment Strategies

Repeat facilities will be accommodated in line with GMT Code of Practice No. 3 Student Assessment: Marks & Standards procedures and in compliance with programme board decisions.

Decisions on nature of assessment will be linked to the need to achieve particular learning outcomes. They may be in the form of a written assessment, practical computer exam, project or other relevant assessment. Individuals may be interviewed or asked to present their work in a formal student conference context to prove authenticity and ownership of work.

Indicative Coursework and Continuous Assessment:		100 %		
Form	Title	Percent	Week (Indicative)	Learning Outcomes
Assessment	Practicals	40 %	OnGoing	1,2
Assessment	Assessment	60 %	OnGoing	3,4,5

Full Time Delivery Mode Average Weekly Workload:			4.00 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Lecture	Lecture	Laboratory	1	Weekly	1.00
Practical	Practical Work	Laboratory	3	Weekly	3.00

Online Learning Delivery Mode Average Weekly Workload:			4.00 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Lecture	Lecture	Online	1	Weekly	1.00
Practical	Practical Work	Online	3	Weekly	3.00

Blended Delivery Mode Average Weekly Workload:			4.12 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Lecture	Lecture	Online	.5	Weekly	0.50
Practical	Practical Work	Online	3	Weekly	3.00
Practical	Workshop	Laboratory	2.5	Monthly	0.62

Required Reading Book List

Goodchild, F., (2015). *Geographic Information Science and Systems*. John Wiley & Sons.
ISBN 9781118676950 ISBN-13 1118676955

Recommended Reading Book List

Heywood, I., (2011). *An Introduction to Geographical Information Systems*
ISBN 027372259X ISBN-13 9780273722595

Peterson, G., (2020). *QGIS Map Design*. 2nd Edition. Locate Press LLC.

Bolstad, P., (2019). *GIS Fundamentals*.
ISBN 1593995520 ISBN-13 9781593995522

Tyner, A., (2014). *Principles of Map Design*. Guilford Publications.
ISBN 9781462517121 ISBN-13 1462517129

Journal Resources

Irish Geography
Geo-spatial Information Science
Transactions in GIS

Online Resources

[QGIS](#)
[ESRI](#)
[Esri e-books](#)
[Geospatial World](#)
[GIS Lounge](#)

Other Resources

[Irish Association for Geographic Information](#)

Programme Membership

GA_SGISC_S08 202000 Certificate in Digital Mapping and Geographical Information Systems

TECH08064 Geographical Information Systems 2

Mandatory Delivered in Stage 4 Semester 8

Full Title	Geographical Information Systems 2		
Status	Uploaded to Banner	Start Term	2020
NFQ Level	08	ECTS Credits	05
Module Code	TECH08064	Duration	Semester - (13 Weeks)
Grading Mode	Numeric	Department	Business, Humanities and Tech
Module Author	Emer Crean		
Co Authors	Yvonne McDermott, Pearse McDonnell		

Module Description

This module builds on the knowledge attained in Geographical Information Systems 1. More advanced techniques in data management, editing, symbolisation, geoprocessing and analysis will augment the student's skill set.

Learning Outcomes

On completion of this module the learner will/should be able to:

1. Import, visualise and analyse data within a GIS.
2. Use advanced editing tools and functions to create topologically correct spatial data.
3. Demonstrate ability to utilise geoprocessing and analysis tools.
4. Set up a server-based spatial database for use in a GIS.
5. Troubleshoot and learn GIS functions independently

Indicative Syllabus

Advanced spatial data editing 10%

Multipart geometries, the snapping environment, topology, data verification.

Spatial data management 15%

Installation of SQL spatially enabled database, data import and management. Folder structures for project work, layer definition files and templates.

Advanced vector symbolisation 20%

Rule based symbolisation, symbols levels, creating symbols, scale-based visibility, advanced cartographic techniques, expressions in symbology and labels.

Raster data sourcing and management 20%

Review of raster data sources, raster symbolisation.

Geoprocessing 20%

Geoprocessing functions for data compilation, analysis, spatial statistics. Georectification of image files, introduction to the raster calculator

Batch processing 5%

Use of batch processing tools to automate tasks in a GIS

The student will also have the opportunity to gain experience in additional core GIS software.

Teaching and Learning Strategy

This module can be delivered via blended (employing both online and offline), online format or the traditional face-to-face delivery methodology.

Blended delivery format.

The module can be delivered in the blended delivery method using a mixture of online delivery (approx. 75%) and face-to-face engagement (approx. 25%).

Weekly online delivery will consist of, but not exclusive to, live lectures, practicals, webinars, pre-recordings, synchronous and asynchronous discussion forums and open educational resources (OER's), exercises and reading, accounting for approx. 4 hours per week.

Online delivery format.

The module can be delivered in an asynchronous online method. Information concerning the nature and timing of continuous assessment will be reviewed and agreed with learners and external examiners at the beginning of the academic year. Marking criteria, deadlines and expectations will also be provided to the learner in advance as appropriate. Constructive feedback will be provided in a timely manner and in an appropriate format.

Traditional face-to face delivery format.

The module can be delivered in the traditional delivery method using lectures/tutorials (1 hours per week) and lab practicals (3 hours per week).

Assessment Strategy

This module will comprise 100% continuous assessment. The learner will be assessed on their practical ability and theoretical knowledge of GIS through a combination of practical worksheet tasks, forums, quizzes and practical exams. This is appropriate given the practical nature of the topic.

Information concerning the nature and timing of continuous assessment will be reviewed and agreed with learners and external examiners at the beginning of the academic year. Marking criteria, deadlines and expectations will also be provided to the learner in advance. Constructive feedback will be provided in a timely manner and in an appropriate format.

Repeat Assessment Strategies

Repeat facilities will be accommodated in line with GMT Code of Practice No. 3 Student Assessment: Marks & Standards procedures and in compliance with programme board decisions.

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Indicative Coursework and Continuous Assessment:		100 %		
<i>Form</i>	<i>Title</i>	<i>Percent</i>	<i>Week (Indicative)</i>	<i>Learning Outcomes</i>
Assessment	Practicals	50 %	OnGoing	2,4,5
Assessment	Assessment	50 %	OnGoing	1,3,4

Full Time Delivery Mode Average Weekly Workload:			4.00 Hours		
<i>Type</i>	<i>Description</i>	<i>Location</i>	<i>Hours</i>	<i>Frequency</i>	<i>Weekly Avg</i>
Lecture	Lecture	Laboratory	1	Weekly	1.00
Practical	Practical Work	Laboratory	3	Weekly	3.00

Online Learning Delivery Mode Average Weekly Workload:			4.00 Hours		
<i>Type</i>	<i>Description</i>	<i>Location</i>	<i>Hours</i>	<i>Frequency</i>	<i>Weekly Avg</i>
Lecture	Lecture	Online	1	Weekly	1.00
Practical	Practical Work	Online	3	Weekly	3.00

Blended Delivery Mode Average Weekly Workload:			4.12 Hours		
<i>Type</i>	<i>Description</i>	<i>Location</i>	<i>Hours</i>	<i>Frequency</i>	<i>Weekly Avg</i>
Lecture	Lecture	Online	0.5	Weekly	0.50
Practical	Practical Work	Online	3	Weekly	3.00
Practical	Workshop	Laboratory	2.5	Monthly	0.62

Required Reading Book List

Goodchild, F., (2015). *Geographic Information Science and Systems*. John Wiley & Sons.
ISBN 9781118676950 ISBN-13 1118676955

Kurland, K., (2017). *GIS Tutorial 1 for ArcGIS Pro*. ESRI Press.
ISBN 1589484665 ISBN-13 9781589484665

Recommended Reading Book List

Et, G., (2017). *QGIS: Becoming a GIS Power User*. 1st Edition. Packt Publishing Limited.

Tyner, A., (2014). *Principles of Map Design*. Guilford Publications.
ISBN 9781462517121 ISBN-13 1462517129

Heywood, I., (2011). *An Introduction to Geographical Information Systems*
ISBN 027372259X ISBN-13 9780273722595

McMaster, B., (2013). *Thematic Cartography and Geovisualization*. Pearson.
ISBN 129204067X ISBN-13 9781292040677

Journal Resources

Irish Geography

Geo-spatial Information Science

Transactions in GIS

Online Resources

[Esri e-books](#)

[QGIS](#)

[ESRI](#)

[Geospatial World](#)

[GIS Lounge](#)

Other Resources

[Irish Association for Geographic Information](#)

Programme Membership

GA_SGISC_S08 202000 Certificate in Digital Mapping and Geographical Information Systems

TECH08065 Web Mapping

Mandatory Delivered in Stage 4 Semester 8

Full Title	Web Mapping		
Status	Uploaded to Banner	Start Term	2020
NFQ Level	08	ECTS Credits	05
Module Code	TECH08065	Duration	Semester - (13 Weeks)
Grading Mode	Numeric	Department	Business, Humanities and Tech
Module Author	Emer Crean		
Co Authors	Yvonne McDermott, Pearse McDonnell		

Module Description

The student will be introduced to the technologies that support the construction and delivery of web maps; Client-Server Architecture; Client-side programming: HTML, JavaScript, CSS. The student will review the range of FOSS technologies applicable to Web GIS. Practical skills will include the examination and delivery of web maps over Web Map Platforms Services, the development of story maps, setup of individual web maps from scratch and the usage and deployment of Web Map Services.

Learning Outcomes

On completion of this module the learner will/should be able to:

1. Research and utilise the technologies that support the delivery of web maps.
2. Create a spatially based story map.
3. Establish a web map server.
4. Demonstrate introductory level skills in the use of scripting languages for the delivery of interactive web maps.

Indicative Syllabus

Introduction to Web Map Technologies 10%

The student will examine the fundamentals of web maps; concepts and technologies that support the delivery of maps and applications over the Internet.

Web Map Platform 10%

An overview of web map platforms; development over time, current offerings, practical skills in using web map platforms.

Digital Storytelling with Maps 20%

Overview of story map platforms, case studies, practical experience in creating story maps.

Web Map Standards 5%

Review of Open Geospatial Consortium standards.

Web Map Servers 20%

Overview of map server technologies; database setup for map server deployment, use of FOSS to host a map server.

Programming for the Web 35%

This section will introduce the student to basic web scripting technologies; HTML, CSS, and Javascript, writing a web map page from scratch, how to create a basic web map application.

Teaching and Learning Strategy

This module can be delivered via blended (employing both online and offline), online format or the traditional face-to-face delivery methodology.

Blended delivery format.

The module can be delivered in the blended delivery method using a mixture of online delivery (approx. 75%) and face-to-face engagement (approx. 25%).

Weekly online delivery may consist of live lectures, practicals, webinars, pre-recordings, synchronous and asynchronous discussion forums and open educational resources (OER's), exercises and reading, accounting for approx. 4 hours per week. In addition, other methods may also be used.

Online delivery format.

The module can be delivered in an asynchronous online method. Information concerning the nature and timing of continuous assessment will be reviewed and agreed with learners and external examiners at the beginning of the academic year. Marking criteria, deadlines and expectations will also be provided to the learner in advance as appropriate. Constructive feedback will be provided in a timely manner and in an appropriate format.

Traditional face-to face delivery format.

The module can be delivered in the traditional delivery method using lectures/tutorials (1 hours per week) and lab practicals (3 hours per week).

Assessment Strategy

This module will comprise 100% continuous assessment. The learner will be assessed on their practical ability and theoretical knowledge of web mapping through a combination of practical worksheet tasks, forums, quizzes and practical exams. This is appropriate given the practical nature of the topic.

Information concerning the nature and timing of continuous assessment will be reviewed and agreed with learners and external examiners at the beginning of the academic year. Marking criteria, deadlines and expectations will also be provided to the learner in advance. Constructive feedback will be provided in a timely manner and in an appropriate format.

Repeat Assessment Strategies

Repeat facilities will be accommodated in line with GMT Code of Practice No. 3 Student Assessment: Marks & Standards procedures and in compliance with programme board decisions.

Decisions on nature of assessment will be linked to the need to achieve particular learning outcomes. They may be in the form of a written assessment, practical computer exam, project or other relevant assessment. Individuals may be interviewed or asked to present their work in a formal student conference context to prove authenticity and ownership of work.

Indicative Coursework and Continuous Assessment:		100 %		
Form	Title	Percent	Week (Indicative)	Learning Outcomes
Assessment	Practicals	40 %	OnGoing	1,2
Assessment	Assessment	60 %	OnGoing	3,4

Full Time Delivery Mode Average Weekly Workload:			4.00 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Lecture	Lecture	Laboratory	1	Weekly	1.00
Practical	Practical Work	Laboratory	3	Weekly	3.00

Online Learning Delivery Mode Average Weekly Workload:			4.00 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Lecture	Lecture	Online	1	Weekly	1.00
Practical	Practical Work	Online	3	Weekly	3.00

Blended Delivery Mode Average Weekly Workload:			4.12 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Lecture	Lecture	Online	.5	Weekly	0.50
Practical	Practical Work	Online	3	Weekly	3.00
Practical	Workshop	Laboratory	2.5	Monthly	0.62

Required Reading Book List

Fu, P., (2020). *Getting to Know Web GIS*. Getting to Know.
ISBN 1589485920 ISBN-13 9781589485921

Recommended Reading Book List

Dorman, M., (2020). *Introduction to Web Mapping*. 1st Edition. CRC Press.

Iacovella, S., (2017). *GeoServer Beginner's Guide*. Packt Publishing Ltd.
ISBN 9781788294072 ISBN-13 1788294076

Online Resources

Story Maps: [ESRI](#), [Knight Lab](#)

[Scripting Tutorials](#)

Mapping Libraries and Tutorials: [Leaflet](#), [ESRI](#)

[PostgreSQL](#), [PostGIS](#)

Map Servers: [Geoserver](#), [MapServer](#)

[Geospatial Knowledge Base Training Platform](#)

Programme Membership

GA_SGISC_S08 202000 Certificate in Digital Mapping and Geographical Information Systems

COMM07008 The Next Step - Transitioning to Work

Mandatory Delivered in Stage 4 Semester 8

Full Title	The Next Step - Transitioning to Work		
Status	Uploaded to Banner	Start Term	2019
NFQ Level	07	ECTS Credits	05
Module Code	COMM07008	Duration	Semester - (13 Weeks)
Grading Mode	Numeric	Department	Business
Module Author	Sinead Kilgannon		
Co Authors	Noreen Henry		

Module Description

This module will develop the learner professionally and personally and equip them with the skills and knowledge to enable them to plan for and achieve their career goals. This module will apply action learning techniques through interaction with industry professionals. Learners will gain knowledge and skills in relation to the recruitment and selection process, and gain skills relevant to commencing in the workplace.

Learning Outcomes

On completion of this module the learner will/should be able to:

1. Analyse an occupation/industry sector and formulate an appropriate occupation/sector analysis.
2. Analyse personal skills and characteristics and develop a personal development plan related to career strategy.
3. Develop a personal brand and apply marketing techniques to marketing themselves.
4. Network effectively online and in person.
5. Review current recruitment and selection processes used by organisations, and prepare relevant documents for same.
6. Present and articulate their skills and experience professionally in an interview situation.
7. Discuss and appraise appropriate behaviour and communication in a range of employment situations.

Indicative Syllabus

1. Occupation/Industry Sector Analysis

Sources of information, Key Indicators and Bases for Analysis

2. Personal Development

Personality profile, Analysis of aptitudes, Personal Development Plan (PDP), Mentoring

3. Marketing for Recruitment

The recruitment and selection process, marketing yourself, CVs, Cover Letters

4. Networking

The importance of networking, How to Network – Online and Traditional Networking, Networking Events

5. Developing an Online Profile

Online Professional Profile Development Technologies e.g. Linked In, Twitter, Tumblr, Blogging Technologies, Video.

6. Professional Etiquette

Professionalism, Ethical Perspectives, Professional Communication

7. Professional Presentation

Interview skills, Interpersonal skills, Presenting, Negotiating, Pitching

Teaching and Learning Strategy

This module will use action learning and discussions, and will include guest lecturers from industry as relevant.

Assessment Strategy

This module will be assessed using a portfolio (including inter alia occupation analysis, PDP, Online Profile(s), recruitment documentation), interview, discussions and reflective essay.

Repeat Assessment Strategies

Students will be required to repeat any failed written components of this module and submit for assessment on 1st September. Students failing the interview element will be required to present for a repeat interview in early September.

Indicative Coursework and Continuous Assessment:		100 %		
Form	Title	Percent	Week (Indicative)	Learning Outcomes
Assignment	Project Portfolio	60 %	End of Term	1,2,3,4,5
Interview	Interview Recruitment Interview	20 %	Week 10	6
Assignment	Reflective Essay	20 %	End of Term	7

Full Time Delivery Mode Average Weekly Workload:			2.00 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Seminar	Double Class	Seminar Room	2	Weekly	2.00

Online Learning Delivery Mode Average Weekly Workload:			2.00 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Online Learning	Online Delivery	Not Specified	2	Weekly	2.00

Blended Delivery Mode Average Weekly Workload:			2.00 Hours		
Type	Description	Location	Hours	Frequency	Weekly Avg
Online Learning	Blended Delivery	Not Specified	2	Weekly	2.00

Literary Resources

Bolton, G. E. (2010). *Reflective Practice: Writing and Professional Development*. Sage Publications.

Faust, B. a. (2006). *Pitch Yourself: The Most Effective CV You'll Ever Write: Stand Out and Sell Yourself*. Prentice Hall.

Kay, S. (2010). *Professionalism: The ABC for Success*. Hertfordshire: Professionalism Book

Parkinson-Hardman, L. (2013). *LinkedIn Made Easy: Business Social Networking Simplified*. 3rd ed. Clear Publications.

Spiropoulos, M. (2005). *Interview Skills that Win the Job*. Allen and Unwin.

Online Resources

Students will be advised of appropriate and relevant discipline/industry related web resources.

Other Resources

None

Additional Information

None

Programme Membership

GA_KNCSC_B07 202000 Bachelor of Science in Network Cybersecurity
GA_SGISC_S08 202000 Certificate in Digital Mapping and Geographical Information Systems
GA_ACOAG_H08 202100 Bachelor of Arts (Honours) in Contemporary Art
GA_ESOEG_B07 202000 Bachelor of Engineering in Software and Electronic Engineering
GA_ESOEG_H08 202000 Bachelor of Engineering (Honours) in Software and Electronic Engineering
GA_ESOEG_B07 202100 Bachelor of Engineering in Software and Electronic Engineering