TECH08062
Data Capture and Manipulation

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