DATA: Data Intensive Applications

Module Title:	Data Intensive Applications
Language of Instruction:	English

Credits:	5

NFQ Level:	8

Module Delivered In	1 programme(s)

Teaching & Learning Strategies:	The course is taught by means of lectures and supervised practicals. The practical work consists of lab assignments and tutorials focusing on scalable datastores and data processing systems. The laboratory exercise topics (data models, data processing, analysis, etc) are designed to explore and analyse features of a variety of data intensive systems.

Module Aim:	To develop the student's knowledge of the design, operation and management of cloud and on-premises data storage and processing systems.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Organize and analyze data to discover patterns and tends.
LO2	Deploy and scale modern on-premises and cloud data stores and warehouses.
LO3	Evaluate and rationalize modern polyglot data architectures

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*
No requirements listed

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Module Content & Assessment

Indicative Content
1. Data Management in the Cloud DaaS, DBaaS, Cloud-based DBMS Services, Security, AWS, EMC, Azure
2. Data Warehousing OLAP, dimensions, measures, roll-up/drill-down, dimension & fact tables, star schema, data warehouse, data mart, materialized view
3. Data Analytics market basket analysis, classification, association rules, clustering, decision trees, regression, neural nets, genetic algorithms, big data, total data
4. Scalable Datastores Unstructured data, polyglot persistence, NoSQL, graph, document-oriented, columnar, key-value, NewSQL, Hadoop, Spark

Assessment Breakdown	%
Continuous Assessment	40.00%
Practical	60.00%

Continuous Assessment

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Other	Class test or written assignment (e.g. problem sheets, literature surveys, etc)	1,2	15.00	Week 6
Other	Class test or written assignment (e.g. problem sheets, literature surveys, etc)	2,3	25.00	Week 12

No Project

Practical

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	Laboratory assignments to be completed on weeks 3, 6 and 10.	1,2,3	60.00	Week 10

No End of Module Formal Examination

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	12 Weeks per Stage	2.00
Laboratory	12 Weeks per Stage	2.00
Independent Learning Time	15 Weeks per Stage	5.13
	Total Hours	125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KCCIT_B	Bachelor of Science (Honours) in Information Technology Management	8	Group Elective 1