MODULE SPECIFICATION

Part 1: Information			
Module Title	Linked, Open Data and the Internet of Things		
Module Code	UFCFLJ-15-M	Level	Level 7
For implementation from	2020-21		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Computer Science and Creative Technologies
Department	FET Dept of Computer Sci & Creative Tech		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: See Learning Outcomes

Outline Syllabus: Introduction: The open data movement, the role of linked data, origins.

Ontology: Ontology as a shared model of objects, their properties and relationships in a domain, OWL (Web Ontology Language), description logic, meta-models, re-use, relationship to vocabulary, taxonomy.

Semantic models: Metadata, URIs and URLs as the foundation of the semantic web, RDF (Resource Description Framework), creating a dataset based on the domain ontology, RDF serializations including Turtle, named graphs.

Querying Semantic Data: The SPARQL query language (SPARQL Protocol and RDF Query Language, pronounced "sparkle"), SPARQL endpoints.

Publishing Linked Data: Publishing models on the web, Open Linked Data, Enterprise Linked Data.

Consuming and Visualizing linked data: Web-based Javascript clients, JSON-LD, D3

visualization.

Internet of Things: Consuming and visualizing IoT sensor node data.

Open or Closed? Understanding the challenges of open versus closed data on the Internet of Things.

Teaching and Learning Methods: Scheduled learning includes lectures, tutorials, demonstration, practical classes.

Independent learning includes hours engaged with essential and further reading, assignment preparation and completion.

Part 3: Assessment

Learning outcomes will be assessed through examination and coursework. The exam will present problem-based questions and practical tasks to test students' ability to synthesise their learning, make strategic decisions and exemplify best practice. Coursework will demonstrate a student's ability to work practically with semantic web technologies to: create ontologies; find and consume linked, open data; present results that are visually appealing and understandable.

Assessment component A : Examination
Covering syllabus topics:
Ontological modelling
Interpreting RDF (turtle)
Understanding SPARQL query results
Internet of Things

Assessment component B : Coursework
Ontological modelling
Consuming and visualizing an existing linked data source

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	50 %	Online Examination (3 hours) 24-hour window
Project - Component B		50 %	Coursework (2000 words)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	50 %	Online Examination (3 hours) 24 hour window
Project - Component B		50 %	Coursework (2000 words)

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will achieve the following learning outcomes:

Module Learning Outcomes	**Reference**
Implement and evaluate Ontology Web Language (OWL) based ontologies using industry standard tools and create Resource Description Framework (RDF) models conforming to these	MO1

	Contrast and critique the uses of linked, open data in industry and be fully conversant with best practices in enabling Linked Open Data	MO2
	Create semantic models in an appropriate language and using appropriate tools	MO3
	Create optimised semantic web queries to extract data from the semantic web and subsequently visualise results in novel situations	MO4
	Synthesise evidence on technical challenges, developments and enabling technologies surrounding the development of the Internet of Things (IoT)	MO5

Contact Hours	**Independent Study Hours:**	
	Independent study/self-guided study	114
	Total Independent Study Hours:	114
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	36
	Total Scheduled Learning and Teaching Hours:	36
	Hours to be allocated	150
	Allocated Hours	150
Reading List	*The reading list for this module can be accessed via the following link:* https://uwe.rl.talis.com/modules/ufcflj-15-m.html	

Part 5: Contributes Towards

This module contributes towards the following programmes of study:

Information Management [Sep][FT][Frenchay][1yr] MSc 2020-21

Data Science [Sep][FT][Frenchay][1yr] MSc 2020-21

Data Science [Sep][PT][Frenchay][2yrs] MSc 2020-21

Data Science [Sep][FT][GCET][1yr] MSc 2020-21

Information Technology [Sep][FT][Frenchay][1yr] MSc 2020-21

Information Management [Sep][PT][Frenchay][2yrs] MSc 2019-20

Information Technology [Sep][PT][Frenchay][2yrs] MSc 2019-20