

Short Title:	XML Ontologies for Corpus Building APPROVED
Full Title:	XML Ontologies for Corpus Building
Module Code:	MHLT H6012
ECTS credits:	10
NFQ Level:	9
Module Delivered in	1 programme(s)
Module Contributor:	Brian Nolan
Module Description:	Students will gain an in-depth knowledge of ontologies and ontology languages. Students will have the ability to use tools to build and store ontologies. Students will understand the underlying ideas of Semantic Web and its layered architecture, and will become familiar with its main technologies.
Learning Outcomes:	
<i>On successful completion of this module the learner will be able to</i>	
<ol style="list-style-type: none"> 1. Use ontology tools and apply methodologies 2. Use ontology description languages 3. Use ontology querying languages 4. Use structured web documents 5. Develop ontologies and knowledge bases 	

Module Content & Assessment

Indicative Content

Computational Linguistics and Ontologies (10%)

Computational linguistics concepts useful in building ontologies Types of terminological resources for ontology building: lexicons, thesauri, mono-multilingual dictionaries, controlled language vocabularies, terminological databases, Multilingual representation in ontologies.

Ontologies (40%)

Introduction to ontologies, theoretical aspects: definition, scope, types of ontologies, ontology repositories, Languages used in ontology implementation: (RDF(S) and OWL) as well as query languages: SPARQL, Tools used in building and storing ontologies (Sesame, Jena, Protégé, NeOn toolkit) as well as in ontology reasoning (RACER), Life cycles and development methodologies used in building ontologies from scratch. Ontology networks used in building ontologies through collaborative work, Activities to be performed when preparing the ontology specification requirements, Ontology re-using, re-engineering and resource learning (ontological and non-ontological resources) as a way of speeding up the process of building ontologies by using knowledge that has been already agreed upon, Methods, techniques and tools used to carry out alignments and mappings between ontologies and between ontologies and other resources.

Ontologies in Computer Science and Informatics (10%)

The computer science view of ontology and ontologies, Information retrieval vs. knowledge exploration and discovery, An introduction to data, what it means and represents, Problems of data integration and aggregation.

The Semantic Web (30%)

Introduction to semantic web and ontologies, Resource annotation, documents, texts, web pages, web services, databases, Application of semantic web ontologies, Methods, techniques and tools used in (semi)-automatic annotation of texts and multimedia documentation, Procedures and methods to turn content information from databases into semantic contents usable in the semantic web. Accessing data bases in terms of semantic contents, Architectures and languages used in creating semantic web services: WSMO, OWL-S, Applications using semantic web technologies: e-commerce, knowledge management, semantic portals.

Current issues in XML Ontologies for Corpus Building (10%)

Practical issues: Ontology integration, Ontology collaboration, Current issues for XML ontologies

Indicative Assessment Breakdown

	%
Course Work Assessment %	100.00%

Course Work Assessment %

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Practical exercises based on lecture material	1,2,3,4,5	20.00	Every Week
Project	Students will typically be asked to analyse and critique an ontology provided.	1,2,3,4	40.00	n/a
Project	Students will typically be asked to develop an ontology for a specific domain.	1,2,3,4,5	40.00	n/a

No Final Exam Assessment %

Indicative Reassessment Requirement

Coursework Only

This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.

ITB reserves the right to alter the nature and timings of assessment

Indicative Module Workload & Resources

Indicative Workload: Full Time	
Frequency	Indicative Average Weekly Learner Workload
Every Week	28.00
Every Week	28.00
Every Week	56.00

Indicative Workload: Part Time	
Frequency	Indicative Average Weekly Learner Workload
Every Week	56.00
Every Week	28.00
Every Week	28.00

Resources
<i>Recommended Book Resources</i>
<p>Grega Jakus, Veljko Milutinovic, Sanida Omerovic, Saso Tomazic 2013, <i>Concepts, Ontologies and Knowledge Representation</i>, Springer</p> <p>Michael Levison, Greg Lessard, Craig Thomas, Matthew Donald 2013, <i>The Semantic representation of Natural Language</i>, Bloomsbury Press</p>
<i>Supplementary Book Resources</i>
<p>Friederike Moltmann 2013, <i>Abstract Objects and the Semantics of Natural Language</i>, Oxford University Press UK</p> <p>Michel Chein and Marie-Laure Mugnier 2009, <i>Graph-based Knowledge Representation Computational Foundations of Conceptual Graphs</i>, Springer</p>
<i>This module does not have any article/paper resources</i>
<i>This module does not have any other resources</i>

Module Delivered in

Programme Code	Programme	Semester	Delivery
BN_KMHLT_R	Master of Science in Computing in Multimodal Human Language Technology	2	Elective