F21BD Big Data Management

COURSE DETAILS
Course Code: F21BD
Full Course Title: Big Data Management
SCQF Level: 11
SCAF Credits: 15
Available as Elective: No

DELIVERY LEVEL
Undergraduate: Yes  Postgraduate Taught: Yes  Postgraduate Research: No

Additional Information:

COURSE AIMS
- Review principle abstractions, methods and techniques for the management of large and complex data sets ("Big Data").
- Develop an understanding of the foundations and tools of the Semantic Web.
- Enable students to appreciate critically a range of data integration solutions.

LEARNING OUTCOMES – SUBJECT MASTERY
- A detailed and integrated knowledge and understanding of a range of data representation and data management techniques for big data sets.
- Critical understanding of the role of semantic web technologies in the context of big data management.
- Extensive knowledge of the mechanisms that underlie data integration techniques.
- To be able to demonstrate a critical understanding of appropriateness and effectiveness of different techniques.

LEARNING OUTCOMES – PERSONAL ABILITIES
- Conceptualize and define new abstract problems within the context of complex data sets.
- Deal with complex issues and make informed judgements about the applicability of semantic web solutions to big data questions.
- Exercise substantial autonomy, initiative and creativity in the application of data integration techniques.
- Demonstrate critical reflection. (PDP)
- Communicate with professional level peers, senior colleagues and specialists. (PDP)

SYLLABUS
Complex data sets:
RDF, triple stores, SPARQL, Big Data vs Smart Data vs Broad Data, NoSQL, indexing data.
Semantic Web Foundations:
RDFS, OWL, Ontologies, Reasoning, Protégé.
Data Integration:
Linked Data, Mash-ups, Ontology mapping, Data Provenance.

Prerequisites: Academic knowledge of fundamentals of databases and logic.
COURSE RELATIONSHIPS
N/A

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Reassessment for postgraduates only