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Refer to guidance notes for completion of each section of the specification.

Module Code:	COM736
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Module Title:	Database Systems and Data Analytics
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Level:	7	Credit Value:	20
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Cost Centre(s):	GACP	JACS3 code:	I240
		HECoS code:	100754

Faculty	FAST	Module Leader:	Bindu Jose
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Scheduled learning and teaching hours	21 hrs
Placement tutor support	0hrs
Supervised learning eg practical classes, workshops	27 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total contact hours	48 hrs
Placement / work based learning	0 hrs
Guided independent study	152 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
MSc Data Science and Big Data Analytics	✓	<input type="checkbox"/>
MSc Computing	✓	<input type="checkbox"/>

Pre-requisites
None

Office use only

Initial approval: 28/11/2018 Version no:1
 With effect from: 01/09/2020
 Date and details of revision: approved new contact hours on 22/07/2020 in Version no:2
 MSc Data Science and Big Data Analytics validation

Module Aims

This module is designed to give students an understanding of the role of database systems in Information Management, and the theoretical and practical issues that influence the design and implementation of database management systems. The module will provide the student with the skills required to create, maintain and interrogate a relational database management system using commercially available database software. This module aims to extend the students' knowledge of database system and data analytics by introducing them to a number of advanced topics and techniques including data science and data analytics, personalised data and other advanced database topics.

Module Learning Outcomes - at the end of this module, students will be able to

1	Demonstrate an advanced understanding of the principles of the relational database model, data integrity and functional dependency to logical data design problems.
2	Perform data manipulation and information retrieval operations using query language and stored procedures etc. using commercially available DBMS software for example ORACLE SQL, PL/SQL etc.
3	Critically evaluate advanced aspects of data science and data analytics encompassing the principles, research results and commercial application of the technologies.

Employability Skills The Wrexham Glyndŵr Graduate	I = included in module content A = included in module assessment N/A = not applicable
CORE ATTRIBUTES	
Engaged	I/A
Creative	I/A
Enterprising	I
Ethical	I/A
KEY ATTITUDES	
Commitment	I
Curiosity	I/A
Resilient	
Confidence	I
Adaptability	I/A
PRACTICAL SKILLSETS	
Digital fluency	I/A
Organisation	I/A
Leadership and team working	N/A
Critical thinking	I/A
Emotional intelligence	N/A
Communication	I

Derogations

NONE

Assessment:

Indicative Assessment Tasks:

Assessment of the module will be based on coursework requiring the students to design and development (assignment 1) of database solutions and critically evaluating (assignment 2) adoption of data analytics and the issues for a given business scenario. Indicative word count for assignment 2 is 3000 words.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2	Coursework	50%
2	3	Coursework	50%

Learning and Teaching Strategies:

The module will be taught using a mixture of lectures, laboratory workshops, seminar sessions, and self-study exercises. The lectures will normally introduce the various concepts and principles of the module's topics.

Each lecture will normally be followed either by a laboratory workshop or a seminar session. Students will also disseminate and discuss information through student-led seminars and peer group discussion. It is our belief that students learn more effectively when they are actively involved in learning activities that reinforce the theories that are being discussed in class.

For the self-study exercises and assessment, students are expected to spend time on unsupervised work in the computer laboratories and in private study.

Syllabus outline:

Database systems: database approach, database environment, database development lifecycle, the relational model

Database development: normalisation, logical data structure design, physical design, implementation

Database programming: SQL, PL/SQL

Data Science: Emerging Technologies and Trends in data science and data analytics, review of current technologies, the issues raised by them, and outstanding problems of current and future database management technologies

Indicative Bibliography:**Essential reading**

None

Other indicative reading

Connolly, T.M. and Begg, C.E. (2014), Database Systems - A Practical Approach to Design Implementation and Management. 6th ed. Harlow: Pearson Education.

Elmasri, R. and Navathe, S.B. (2016), Fundamentals of Database Systems. 7th ed. Harlow: Pearson Education.

Viescas, J.L. (2018), SQL Queries for Mere Mortals: A Hands-On Guide to Data Manipulation in SQL. Addison-Wesley.

Isson, J.P. (2018), Unstructured Data Analytics - How to Improve Customer Acquisition, Customer Retention, and Fraud Detection and Prevention. CENGAGE Learning

Hwang, K. and Chen, M. (2017), Big-Data Analytics for Cloud, IoT and Cognitive Computing. Wiley.

Journals (available electronically through the library)

ACM Digital Library

IEEE Xplore