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

Module Code:	CONL722

Module Title:	Big Data: Challenges and Opportunities

Level:	7	Credit Value:	15

Cost Centre(s):	GACP	<u>JACS3</u> **code**: <u>HECoS</u> code:	I260 100755

Faculty	FAST	Module Leader:	Bindu Jose

Scheduled learning and teaching hours	15 hrs
Placement tutor support	0 hrs
Supervised learning eg practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total contact hours	15 hrs
Placement / work based learning	0 hrs
Guided independent study	135 hrs
Module duration (total hours)	150 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
MSc Computer Science with Big Data Analytics	✓	☐
MBA Big Data	✓	☐

Pre-requisites
None

Module Aims
This module aims to explore the principles of Big Data analytics, how the data is gathered, processed and analysed to turn into knowledge, various computational platforms supporting Big Data Applications, the challenges in Big Data Computing and ways to overcome them. Students will explore big data applications and will learn how to responsibly design, build and maintain complex Big Data resources. Students will develop critical awareness of the impact of current and emerging big data technologies and applications.

Module Learning Outcomes - at the end of this module, students will be able to	
1	Synthesise the fundamentals of Data Science and Big Data Analytics.
2	Appreciate and assess various Big Data technology infrastructures, platforms and applications.
3	Critically evaluate the challenges in Big Data design and analysis.
4	Make informed judgement by critically evaluating security, legal and privacy issues in current and future Big Data application environment.

Employability Skills The Wrexham Glyndŵr Graduate	I = included in module content A = included in module assessment N/A = not applicable
Guidance: complete the matrix to indicate which of the following are included in the module content and/or assessment in alignment with the matrix provided in the programme specification.	
CORE ATTRIBUTES	
Engaged	I
Creative	N/A
Enterprising	I
Ethical	I/A
KEY ATTITUDES	
Commitment	I
Curiosity	I/A
Resilient	N/A
Confidence	I
Adaptability	I
PRACTICAL SKILLSETS	
Digital fluency	I/A
Organisation	I/A
Leadership and team working	I
Critical thinking	I/A
Emotional intelligence	N/A
Communication	I/A

Derogations
None

Assessment:
Indicative Assessment Tasks:
The first assessment will be in the form of a portfolio (1800 words equivalent) where the students will be completing a series of formative and summative tasks at various stages of the module delivery. These will incorporate weekly scenario-based activities, restricted-response quizzes and coursework looking into the current and future Big Data applications, architecture, design, analysis and challenges. The second assessment will be a 1200-word report and critical evaluation demonstrating students' abilities to apply the module topics in a simulated big data environment.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2,3	Portfolio	60%
2	4	Report	40%

Learning and Teaching Strategies:
The overall learning and teaching strategy is one of guided independent study requiring ongoing student engagement. Online material will provide the foundation of the learning resources, requiring the students to login and engage on a regular basis throughout the eight-week period of the module. There will be a mix of suggested readings, discussions and interactive content containing embedded digital media and self-checks for students to complete as they work through the material and undertake the assessment tasks. The use of a range digital tools via the virtual learning environment together with additional sources of reading will also be utilised to accommodate learning styles. There is access to a helpline for additional support and chat facilities through Canvas for messaging and responding.

Syllabus outline:
1. Overview of Big Data and Data Science 2. Fundamentals of Big Data Analytics 3. Big Data Infrastructures and Platforms 4. Big Data Applications 5. Legal, Security and Privacy Issues of Big Data applications

Indicative Bibliography:
Essential reading
Berman, J.J. (2018), *Principles and Practice of Big Data: Preparing, Sharing, and Analyzing Complex Information. 2nd* ed. Academic Press
Other indicative reading
Buyya, R., Calheiros, R.N., Dastjerdi, A.V. (2016), *Big Data: Principles and Paradigms.* Morgan Kaufman Isson, J.P. (2018), *Unstructured Data Analytics - How to Improve Customer Acquisition, Customer Retention, and Fraud Detection and Prevention.* CENGAGE Learning