Module Title	**Big Data and Database Systems**
Level	5
Reference No.	CSI_5_BDD
Credits	20
Student Study Hours	Total: 200 Contact hours: 52 Student managed learning hours: 148
Pre-Requisites	None
Co-requisites	None
Excluded combinations	None
Module coordinator	TBC
Division	Division of Computer Science and Informatics
Short Description	This module covers the concepts and practice of Database Systems Management as well as the fundamentals of Big Data processing. The subject of the database field is concerned with how to use computers to store and manage data, usually large quantities of data, that is accessible locally and remotely via the web, the cloud etc…
Aims	The study of databases is typically a core area in undergraduate information technology and systems courses. This module will aim to provide you with an understanding of various database issues such as database management, data modelling, relational database theory, data integrity and security, and the database query language SQL (Structured Query Language). In addition, the module will also introduce you to some of the intermediate aspects of databases such as triggers, procedures Web databases, Big Data and Data Warehousing.
Learning Outcomes	**LO1: Knowledge and Understanding.** ● Critically discuss and evaluate a broad range of data management & big data issues including data administration, integrity and security. (Maps to: BCS 2.2.1 a1-a6) **LO2: Intellectual Skills** ● Discuss the continuing development of big data - database technologies/ applications and the need for continued study, reflection, and development throughout a career as a database professional. (Maps to: BCS 2.2.1 a7-a9) **LO3: Practical Skills** ● Design, implement, query and secure database applications and Internetworking for database systems (Maps to: BCS 2.2.1 b1-b4) **LO4: Transferable Skills** ● Develop skills for autonomous practice, including oral and written communication skills. (Maps to: BCS 2.2.1 c1-c2)
Employability	Data and databases are at the heart of every organisation's information systems infrastructure. Acquiring skills and being able to demonstrate competence in the area of databases therefore clearly improves your chances of gaining and retaining good employment opportunities.
Teaching and Learning Pattern	The module will be a mixture of lectures, discussions, and work in the laboratories. The weekly contact time consists of a lecture followed by exercises and activities. Learning will be achieved through mixed format lectures, supported by practical and lab-based activities. You will be expected to read through the texts, to participate in the classroom discussions, and to work through the assigned exercises and activities.

Indicative Content	● An introduction to databases and the relational data model ● Normalisation & Data Modelling techniques ● Relational database management systems ● SQL and triggers, stored procedures ● Database security/administration ● Database connectivity and web databases, ● Data Warehousing and Big Data Concepts ● Data understanding and Data preparation ● Basic analytics, reporting and visualisation techniques
Assessment *Elements & weightings*	**Exam 40% : Coursework 60%** **Summative Assessment** Exam: 2-hour unseen paper from a selection of areas from the module content. Tutorial Logbooks containing Tutorial Exercise attempts only.are allowed Lecture slides, textbooks, calculators are not allowed. (Maps to: BCS 2.2.1 a1-a9) (LO1, LO2, LO3) Coursework: Expected to consist of an individual assessment activity primarily based around a substantive case study. It is a practical implementation assignment including elements of database and big data technology. (Maps to: BCS 2.2.1 b1-b4) (LO1, LO3, LO4) **Formative Assessment** Skills for the summative assessment will be embedded throughout formative opportunities in Lectures and Workshops. Formative assessment will take different forms, such as: ● verbal feedback on tutorial activities ● observation and questioning to provide instant feedback as the student takes part in learning activities ● think-pair-share concept and class discussions
Indicative Sources *(Reading lists)*	**Core:** ● Pratt, P. Last, M. Starks, J. (Feb 2018) 9th Ed. Concepts of Database Management; Cengage Learning Custom Publishing. **Optional:** ● Coronel, C. Morris, S. (2016) Database Systems: Design, Implementation, & Management; Cengage Learning Custom Publishing. ● Kroenke, D.M. and Auer, D.J. (2014) *Database Concepts,* 7th Ed., Pearson Education.Elmasri, R. and Navathe, S.B.