

<b>Module Code:</b>	COM641
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<b>Module Title:</b>	Distributed Data and Data Analytics
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<b>Level:</b>	6	<b>Credit Value:</b>	20
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<b>Cost Centre(s):</b>	GACP	<b>JACS3 code:</b>	I240
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<b>Faculty:</b>	Arts, Science and Technology	<b>Module Leader:</b>	Bindu Jose
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Scheduled learning and teaching hours	36 hrs
Guided independent study	164 hrs
Placement	0 hrs
<b>Module duration (total hours)</b>	200 hrs

<b>Programme(s) in which to be offered (not including exit awards)</b>	Core	Option
BSc (Hons) Computer Science	✓	<input type="checkbox"/>
BSc (Hons) Computing	✓	<input type="checkbox"/>
BSc (Hons) Applied Software Engineering	✓	<input type="checkbox"/>

<b>Pre-requisites</b>
None

**Office use only**

Initial approval: 30/08/2018

Version no:2

With effect from: 01/09/2018

Date and details of revision: Jan 22 addition of BSc Applied Software Engineering

Version no:

**Module Aims**

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. Topics covered include distributed data, data warehousing, data intensive computing, data science and data analytics, personalised data and other advanced database topics.

**Intended Learning Outcomes**

Key skills for employability

KS1	Written, oral and media communication skills
KS2	Leadership, team working and networking skills
KS3	Opportunity, creativity and problem solving skills
KS4	Information technology skills and digital literacy
KS5	Information management skills
KS6	Research skills
KS7	Intercultural and sustainability skills
KS8	Career management skills
KS9	Learning to learn (managing personal and professional development, self-management)
KS10	Numeracy

At the end of this module, students will be able to

Key Skills

At the end of this module, students will be able to		Key Skills	
1	Critically assess some of the more advanced developments in database technology. e.g. Stored Procedures and Functions	KS1	KS3
		KS4	KS5
		KS6	KS9
2	Evaluate the current issues associated with theory to practical implementations in database research.	KS1	
		KS3	KS4
		KS5	KS6
		KS7	KS8
3	Explore advanced aspects of data warehousing, distributed data, data science and data analytics encompassing the principles, research results and commercial application of the technologies.	KS9	KS10
		KS1	KS2
		KS3	KS4
		KS5	KS6
4	Critically evaluate the adoption/use of data analytics and business intelligence practices for achieving organisational benefits.	KS7	KS8
		KS9	KS10
		KS1	
		KS3	KS4
		KS5	KS6
		KS7	KS8
		KS9	KS10

**Transferable skills and other attributes**

- Personal motivation, organisation and time management
- Ability to collaborate and plan
- Written and verbal communication skills
- Research and analytical skills

**Derogations**

*None*

**Assessment:**

Indicative Assessment Tasks:

Assessment of the module will be based on coursework requiring the students to design (assignment 1) database solutions (for example Data Warehouse, Distributed Database etc.) and critically evaluating (assignment 2) adoption of data analytics and the issues for a given business scenario.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1,2 & 3	Coursework	50%		2500
2	1,2 & 4	Coursework	50%		2500

**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:**

**Advanced Data Models:** Distributed Database, Data Warehouse, Stored Procedure and Functions

**Applications:** Use of Data: Data Intensive Computing, Data Science, Data Warehousing, Data Analytics, Business Intelligent Systems

**Emerging Technologies and Trends in database management systems:** A review of current technologies, the issues raised by them, and outstanding problems of current and future database management technologies

**Indicative Bibliography:****Other indicative reading**

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

Connolly, T.M. and Begg, C.E. (2014), *Database Systems - A Practical Approach to Design Implementation and Management*. 6th ed. London: Addison-Wesley.

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

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

Journals (available electronically through the library)

ACM Digital Library

IEEE Xplore