

Module Code:	COM540
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Module Title:	Databases and Web-based Information Systems
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Level:	5	Credit Value:	20
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Cost Centre(s):	GACP	JACS3 code:	I160
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Faculty:	Arts, Science and Technology	Module Leader:	Bindu Jose
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Scheduled learning and teaching hours	36 hrs
Guided independent study	164 hrs
Placement	0 hrs
Module duration (total hours)	200 hrs

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

Pre-requisites
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 will introduce students to the key concepts of software design and development on web platforms; closed source and open source systems. It covers technical aspects of analysing, designing and implementing database and web-based information systems.

The module will provide students with conceptual and practical understanding of website design and development, and encourages the integration of good interface design with effective system functionality.

This module aims to:

- Use logical thinking and algorithmic techniques to enable students to solve problems.
- Provide students with knowledge and skills to use Database Management Systems (DBMS) with web technologies, with the focus on SQL.
- Give students a clear understanding of the software development process, including analysis, design, testing, and implementation of web site deployments.
- Using modern object-oriented programming language, giving students a clear understanding of the syntax and structure of that language.

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	
1	Appreciate the business related issues, the context, role and architecture of database and web-based information systems	KS1	KS3
2	Apply appropriate methodologies, techniques and approaches for the development of web sites.	KS1	KS3
		KS6	KS9
3	Construct small-scale web sites based on current technologies using appropriate modern languages and available tools.	KS1	KS2
		KS5	
4	Evaluate the technical factors associated with implementing DBMS backend to web services.	KS3	KS4
		KS5	KS9
5	Apply HCI Design principles and implement well-designed, fit for purpose, web interfaces for different devices from desktop devices to mobile devices.	KS1	KS2
		KS4	KS6
		KS9	

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:

The module has two equally weighted assessment. Students are required to work in groups to analyse, design and implement a database-driven web-based information system for a specified business problem. It will provide students with the opportunity to undertake research on current issues and practical techniques in database and web-based information systems. It will also enable students to apply their knowledge to a practical business problem, demonstrating their skills for problem-solving and critical thinking/evaluation. Marks for the work will be derived from the software deliverable; the application of appropriate theories, technologies and good practice; and documentation reflecting on the work done and the processes involved.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1,2	Coursework	50%		
2	3, 4,5	Coursework	50%		

Learning and Teaching Strategies:

Lectures, supported by tutorials and practical sessions where students get the opportunity to put theory into practice.

The lectures will focus on presenting key topics and concepts, whereas the practical/tutorial based learning will provide exposure to hardware and software platforms, and the use of toolkits for designing and developing web sites and web applications.

These sessions will also support the study of underlying subject-based concepts and principles.

Formative, self-directed exercises will be used to support transfer of knowledge and understanding.

Students will have access to lecture materials, and ancillary resources, via the University's VLE platform.

Syllabus outline:

- Concepts and fundamentals of database and web-based information systems
- Database analysis and design techniques: fact finding, entity relationship modelling, and normalisation
- Web Site Development, including: An overview of platform specific frameworks, e.g. ASP.NET and PHP.
- An Introduction to development frameworks; Human Computer Interaction issues, such as Interfaces on differing screen sizes.
- Interaction through current technologies, location services, orientation, user preferences and data storage with a major focus on DBMS.
- Server-side & client-side programming
- Designing and implementing web database applications as an information system
- The use of lightweight web servers for development, debugging and user-interface testing.
- Business related issues in the context of database and web-based information systems

Indicative Bibliography:**Essential reading**

There are no essential texts; the module will use relevant online reference material.

Other indicative reading

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*. 4th ed. Harlow: Addison-Wesley.

Valacich, J. and George, J. (2016), *Modern Systems Analysis and Design*. 8th ed. Harlow: Pearson Education.

Learn ASP.NET

<https://www.asp.net/learn>

Getting Started with SQL Server Express Edition

[https://technet.microsoft.com/en-us/library/ms165608\(v=sql.90\).aspx](https://technet.microsoft.com/en-us/library/ms165608(v=sql.90).aspx)

PHP Documentation

<http://php.net/docs.php>

MySQL Documentation

<https://dev.mysql.com/doc/>

EasyPHP (DevServer)

<http://www.easyphp.org/documentation/devserver/>