

<b>Module Title</b>	Database Management Systems	<b>School</b>	Mathematical and Computer Sciences				<b>On or Off-Campus</b>	<b>On</b>	
<b>Module Co-ordinator</b>	Jenny Coady, Monica Farrow	<b>SCQF Level</b>	8	<b>Module Code</b>	F28DM	<b>Semester</b>	2	<b>Credits</b>	15

<b>1. Pre-requisites</b>	F27DB Introduction to Database Systems <i>or equivalent</i>		
<b>2. Linked Modules (specify if synoptic)</b>			
<b>3. Excluded Modules</b>	None		
<b>4. Replacement Module</b>	<b>Code:</b> <b>Date Of Replacement:</b>	<b>5. Availability as an Elective</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>6. Degrees for which this is a core module</b>	Mandatory module for BSc Computer Science, MEng Software Engineering, BSc Information Systems		
<b>7. Aims</b>	To familiarise students with the principles of database management systems, to enable them to design and implement databases for specific applications and to integrate databases with application programs.		
<b>8. Syllabus</b>	<p><b>Database Design:</b> data requirements, entity relationship diagrams, relational data model, integrity constraints, key constraints, types, integrity maintenance</p> <p><b>Relational Queries:</b> SQL, Boolean combinations of queries, aggregation, duplicate elimination, nested queries, negation, views, insertions, deletions, updates, command level interfaces, JDBC</p> <p><b>Query execution and optimisation:</b> data storage principles, file organisation, indexing, indexes in commercial DBMS's, relational algebra, query execution plans, cost estimation of plans, interpretation of plans, physical database design</p> <p><b>Concurrency:</b> transactions, schedules, serialisability, concurrency control protocols, locking, two-phase-locking, time stamp based concurrency control.</p> <p><b>Emerging Database Trends:</b> XML and data warehousing</p>		

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### 9. Learning Outcomes (HWU Core Skills: Employability and Professional Career Readiness)

<b>Subject Mastery</b>	<p><b>Understanding, Knowledge and Cognitive Skills</b>      <b>Scholarship, Enquiry and Research (Research-Informed Learning)</b></p> <ul style="list-style-type: none"> <li>◆ Broad knowledge and understanding of the concepts and formalisms of database design</li> <li>◆ Detailed knowledge of the building blocks and meaning of relational database queries</li> <li>◆ Critical understanding of the principles of query evaluation and concurrency control underlying database applications</li> <li>◆ Practice in the collection of data requirements and the design of conceptual database schemas</li> <li>◆ Evaluation of emerging database trends and ability to understand their benefits</li> </ul>
<b>Personal Abilities</b>	<p><b>Industrial, Commercial &amp; Professional Practice</b>      <b>Autonomy, Accountability &amp; Working with Others</b>      <b>Communication, Numeracy &amp; ICT</b></p> <ul style="list-style-type: none"> <li>◆ Practice in working on a development project in a small group under the guidance of a tutor (PDP)</li> <li>◆ Practice in defining the subject and scope of a development project (PDP)</li> <li>◆ Presenting the project orally, and reporting on it in writing (PDP)</li> <li>◆ Use of ICT techniques for presenting the project (PDP)</li> <li>◆ Constructing a website that reports on the progress of the project</li> <li>◆ Practice in designing tests for quantitative analysis</li> </ul>

10. Assessment Methods				11. Re-assessment Methods	
Method	Duration of Exam (if applicable)	Weighting (%)	Synoptic modules?	Method	Duration of Exam (if applicable)
Coursework		30%		Examination	2 hours
Examination	2 hours	70%			

12. Date and Version							
<b>Date of Proposal</b>	10/10/07	<b>Date of Approval by School Committee</b>	December 2007	<b>Date of Implementation</b>	September 2008	<b>Version Number</b>	1