

## H7AVB: Advanced Databases

Module Code:	H7AVB
Long Title	Advanced Databases <b>APPROVED</b>
Title	Advanced Databases
Module Level:	LEVEL 7
EQF Level:	6
EHEA Level:	First Cycle
Credits:	5
Module Coordinator:	MICHAEL BRADFORD
Module Author:	MICHAEL BRADFORD
Departments:	School of Computing
Specifications of the qualifications and experience required of staff	
<b>Learning Outcomes</b>	
<i>On successful completion of this module the learner will be able to:</i>	
<b>#</b>	<b>Learning Outcome Description</b>
LO1	Examine the theory, concepts, technical issues and application of database systems
LO2	Describe the IR paradigm and apply classic information retrieval models
LO3	Illustrate Transaction Management in a DBMS
LO4	Examine the Data Warehouse concept and its main features
LO5	Identify current trends and developments in databases and utilise current database technologies
<b>Dependencies</b>	
<b>Module Recommendations</b>	
No recommendations listed	
<b>Co-requisite Modules</b>	
No Co-requisite modules listed	
<b>Entry requirements</b>	

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Module Content & Assessment			
Indicative Content			
<b>Transaction Management</b> • Transaction Support. • Concurrency Control. • Database Recovery. • Transaction Management using SQL • Programming language support for transaction management			
<b>Query Optimisation</b> • RDBMS File Management. • Tuning at the Internal Level e.g. Query Optimisation using SQL, Query Processing, Query tree, query plans, measures of query cost etc.			
<b>Distributed Databases</b> • Introduction to Distributed Data • DDBMS Characteristics. • Distributed Processing Vs. Parallel Processing Functions. • Architecture of a DDBMS Transparencies in a DDBMS Distributed Relational Database • Design Types of DDBMS			
<b>Database Security</b> • Introduction to Database Security. • Threats and Countermeasures Security in DBMSs. • DBMSs and Web Security			
<b>Data Warehousing</b> • Introduction to Data Warehousing. • Data Warehousing Concepts. • Types of Data Warehouse. • Designing a Data Warehouse. • Database Online. • Analytical Processing. • Data-mining Challenges of Data Warehousing			
<b>Non-relational Databases</b> • Types of non-relational databases. • Storing and retrieving information. • Algorithmic based queries. • Distributed data storage. • Cloud-based data storage			
<b>Information Retrieval</b> • Retrieval versus Filtering. • A Taxonomy of Information Retrieval Models. • A Formal Characterisation of Information Retrieval Models. • Boolean Model. • Vector Model. • Probabilistic model. • Information Retrieval Systems			
<b>Teaching methodology</b> The learning strategy involves the use of lectures, tutorials, practicals case studies and class discussions as appropriate.			
Assessment Breakdown			%
Coursework			50.00%
End of Module Assessment			50.00%
Assessments			
Full Time			
Coursework			
<b>Assessment Type:</b>	Continuous Assessment (0200)	<b>% of total:</b>	50
<b>Assessment Date:</b>	n/a	<b>Outcome addressed:</b>	2,3,5
<b>Non-Marked:</b>	No		
<b>Assessment Description:</b> Sample CA – Research Report. you are expected to carry out research on a number of Databases. You should pick AT LEAST TWO databases and compare these in your report. This assignment should compare and contrast the Transaction Management techniques of concurrency and recovery of two Databases of your choice. The analysis should be approached from a business and Technical perspective. The report should be a MAXIMUM of 3000 words - approx 6 PAGES			
End of Module Assessment			
<b>Assessment Type:</b>	Terminal Exam	<b>% of total:</b>	50
<b>Assessment Date:</b>	End-of-Semester	<b>Outcome addressed:</b>	1,2,3,4,5
<b>Non-Marked:</b>	No		
<b>Assessment Description:</b> End-of-Semester Final Examination			
No Workplace Assessment			
Reassessment Requirement			
<b>Repeat examination</b> Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.			

## H7AVB: Advanced Databases

Module Workload				
Module Target Workload Hours 0 Hours				
Workload: Full Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	2	Every Week	2.00
Tutorial	No Description	1	Every Week	1.00
Independent Learning	No Description	7.5	Every Week	7.50
Total Weekly Contact Hours				3.00
Workload: Part Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	2	Every Week	2.00
Tutorial	No Description	1	Every Week	1.00
Independent Learning	No Description	7.5	Every Week	7.50
Total Weekly Contact Hours				3.00

Module Resources	
<i>Recommended Book Resources</i>	
<p>Thomas Connolly, Carolyn Begg. (2014), Database Systems: A Practical Approach to Design, Implementation, and Management, 6th. Pearson Education, [ISBN: 1292061189].</p>	
<i>Supplementary Book Resources</i>	
<p>Manning C., Raghaven, P., &amp; Schutze, H. (2008), Introduction to Information Retrieval,, , Cambridge University Press.</p> <p>C. J. Date. (2004), An introduction to database systems, Pearson/Addison Wesley, New York, [ISBN: 0321197844].</p> <p>Eric Redmond, Jim Wilson. Seven Databases in Seven Weeks, Pragmatic Bookshelf, p.330, [ISBN: 1934356921].</p>	
<i>This module does not have any article/paper resources</i>	
<i>This module does not have any other resources</i>	
Discussion Note:	