

H8INDB: Introduction to Databases

Module Code:	H8INDB
Long Title	Introduction to Databases APPROVED
Title	Introduction to Databases
Module Level:	LEVEL 8
EQF Level:	6
EHEA Level:	First Cycle
Credits:	5
Module Coordinator:	PAUL HAYES
Module Author:	Paul Stynes
Departments:	School of Computing
Specifications of the qualifications and experience required of staff	Lecturer preferably with Master's degree or PHD in a computing or cognate discipline. May have industry experience also. Proposed Lecturer: Mr. David Hamill, Dr. Paul Hayes
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
#	Learning Outcome Description
LO1	Analyse and evaluate current and future trends in database technologies
LO2	Construct and evaluate data models based on analysis of data requirements
LO3	Comprehend and describe the relational database model
LO4	Design, implement and evaluate a relational database system with an appropriate database package
LO5	Formulate and assess advanced SQL queries to manipulate databases and provide value-added reporting
Dependencies	
Module Recommendations	
No recommendations listed	
Co-requisite Modules	
No Co-requisite modules listed	
Entry requirements	

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Module Content & Assessment			
Indicative Content			
Introduction to Databases Databases Database approach History of Databases Advantages of DBMSs Career Opportunities Introduction to SQL			
Database Environment Logical data independence Physical data independence Types of Data Models Functions of a DBMS Client-Server Architectures			
The Relational Model Terminology Relations & data Properties of Relations Identifying keys Entity & Referential Integrity			
Conceptual Data Modelling Importance of Conceptual Model Object-based data models Entity-Relationship modelling Enhanced ER Modelling Identifying Entities and Attributes Types of Relationships Structural Constraints			
Logical and Physical Data Modelling Logical Relational Data Model Logical Database Design Process of Conversion of Conceptual Model Identifying Parent and Child Entities Implementation of base tables Implementation of constraints			
Normalisation Introduction Functional Dependencies Data Redundancy Update Anomalies Process of Normalisation Normal Forms Denormalisation			
Advanced SQL Complex DML statements with Multiple Commands Update of Views (Vertical and Horizontal) Integrity Enhancement Features			
Non-Related Databases Types of non-relational databases Integrity Enhancement Features Storing and retrieving information Algorithmic based queries Distributed data storage Cloud-based data storage			
Data Warehousing Data Warehouse Concepts Types of data warehouse Designing a Data Warehouse Building a Data Warehouse Online Analytical Processing Administering a data Warehouse Challenges facing a data 211 Warehouse			
Security and Other Considerations Security and Administration Threats and Countermeasures Web security RAID technology Legal, Ethical and Intellectual Properties Rights issues			
Assessment Breakdown			%
Coursework			40.00%
End of Module Assessment			60.00%
Assessments			
Full Time			
Coursework			
Assessment Type:	Formative Assessment	% of total:	Non-Marked
Assessment Date:	n/a	Outcome addressed:	1,2,3,4,5
Non-Marked:	Yes		
Assessment Description: Ongoing independent and group class activities and feedback.			
Assessment Type:	Project	% of total:	40
Assessment Date:	n/a	Outcome addressed:	4,5
Non-Marked:	No		
Assessment Description: Students to collaborate in teams to design, build, administer and operate a relational database management system based on user requirements. Including proctored tests on Database theory and SQL to access intermediary progress on learning outcomes.			
End of Module Assessment			
Assessment Type:	Terminal Exam	% of total:	60
Assessment Date:	End-of-Semester	Outcome addressed:	1,2,3,4,5
Non-Marked:	No		
Assessment Description: End-of-Semester Proctored Final Examination			
No Workplace Assessment			
Reassessment Requirement			
Repeat examination <i>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.</i>			
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Module Workload				
Module Target Workload Hours 0 Hours				
Workload: Full Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	24	Per Semester	2.00
Tutorial	No Description	12	Per Semester	1.00
Independent Learning	No Description	89	Per Semester	7.42
Total Weekly Contact Hours				3.00
Workload: Online				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	12	Per Semester	1.00
Tutorial	No Description	12	Per Semester	1.00
Directed Learning	No Description	12	Per Semester	1.00
Independent Learning	No Description	89	Per Semester	7.42
Total Weekly Contact Hours				3.00
Workload: Part Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	24	Every Week	24.00
Laboratories	No Description	12	Every Week	12.00
Independent Learning Time	No Description	89	Every Week	89.00
Total Weekly Contact Hours				36.00

Module Resources	
<i>Recommended Book Resources</i>	
Thomas Connolly, Carolyn Begg. (2014), Database Systems: A Practical Approach to Design, Implementation, and Management, 6. Pearson Education, [ISBN: 1292061189]. Coronel, C. & Rob, P.. (2014), Database Principles: Fundamentals of Design, Implementation, and Management, Cengage Learning, Boston.	
<i>Supplementary Book Resources</i>	
Elmasri, R. & Navathe, S.. (2015), Fundamentals of Database Systems (7th ed), Pearson Education, Boston. Kriev, O.. (2017), SQL: The Comprehensive Beginner's Guide to Learn SQL with Practical Examples, New York: Createspace Independent Publishing Platform.	
<i>This module does not have any article/paper resources</i>	
<i>This module does not have any other resources</i>	
Discussion Note:	Approved on behalf of SoC to allow for approval of parent programmes.