

Databases Theme – Overview of Areas of Study

		European Computer Driving License – Database Module		Introduction to Databases		Database Application Development		Advanced and Distributed Databases	
Level	Credit	0	-	1	20cp	2	20cp	3	20cp
<i>Organisational/Learning Context</i>		-		<i>Essentially single-user database for small business support</i>		<i>Centralised corporate multi-user database for operational support</i>		<i>Distributed and centralized databases for corporate operational and decision support</i>	
<i>Main Software Teaching Vehicle(s)</i>		<i>Access</i>		<i>Oracle SQL Developer and APEX</i>		<i>Oracle SQL Developer</i>		<i>Oracle (3 servers), and iSQL Developer</i>	
<i>Data Access, Interfacing and Analysis Tools and Methods</i>	<i>Connectivity and Access</i>	Opening a saved single-user database		Access in a small business environment		Access issues in a client-server architecture		Access in a distributed architecture	
	<i>Reporting, Analysis and Mining</i>	Basic reports of selected, grouped and ordered data from a single table		SQL queries including joins and grouping		Advanced query techniques.		ROLLUP and CUBE for multi-dimensional analysis. Practical introduction to a data mining technique.	
	<i>Forms</i>	Construction of basic forms		Intro. to event-driven forms		Access to databases from web forms.		XForms.	
<i>Development of databases to meet organisation and application requirements</i>	<i>Design</i>	Table design		Explanation of a given small business database design		Database design using E-R modelling and normalisation techniques. Logical and physical database design and associated issues.		Design of distributed databases and OLAP databases for decision support (inc. data warehouses)	
	<i>Construction</i>	Construction of database tables		Construction of a small business database		Construction of part of a corporate database using SQL		Distributed and decision support database construction issues	
	<i>Integrity</i>	Primary key definition		Primary and referential integrity for single column keys		SQL for compound keys and coded business integrity		Advanced SQL integrity option and decision support data preparation issues	
<i>Database Models and Management Systems</i>	<i>Models</i>	-		Basic concepts of relational model		Further examination of relational model (eg views) and in contrast to alternative models (eg hierarchical) XML data representation.		Critical contrast with alternative model eg object-relational XM and Databases	
	<i>DBMS Architecture</i>	-		-		ANSI-SPARC architecture		Distributed DBMS architectures	
	<i>Administration</i>	Save a database		Admin issues in a small business environment		DBA in a corporate environment		Distributed DBA	
	<i>Transaction Management</i>	-		Concept of a transaction		Transactions in a multi-user environment		Distributed transaction management issues	