MULTIMEDIA UNIVERSITY®

SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course	Database Systems
2.	Course Code	TDB 1131
3.	Status of Course [Applies to (cohort)]	Common Core for B.IT (Hons) Artificial Intelligence
4.	MQF Level/Stage Note : *Certificate – MQF Level 3* *Diploma – MQF Level 4* *Bachelor – MQF Level 6* *Masters – MQF Level 7* *Doctoral – MQF Level 8*	Bachelor – MQF Level 6
5.	Version (State the date of the Senate approval – history of previous and current approval date)	Date of previous version : June 2014 Date of current version : May 2016 June 2012
6.	Pre-Requisite	None June 2014
7.	Name(s) of academic/teaching staff	Goh Pey Yun Lee Chin Poo Tee Connie
8.	Semester and Year offered	Trimester 1, Year 1
9.	Objective of the course in the programme : To introduce concepts and types of Computer Database, examine theoretical and pragmatic ideas underlying relational databases, and discuss certain other aspects of database systems - recovery, concurrency, security, and integrity. Upon completion of this course, the students should be able to outline an architecture for a database system, define and manipulate data, and understands transactions process of database systems	
10.	Justification for including the course in the programme : Database is the underlying framework of the information system and has fundamentally changed the way many organizations operate nowadays. It is incredibly prevalent – it underlies technology used by most people every day if not every hour. Database systems are used everywhere to store and manage data. They reside behind a huge fraction of websites; they're a crucial component of telecommunications systems, banking systems, video games, and just about any other software system or electronic device that maintains some amount of persistent information. In addition to persistence, database systems provide a number of other properties that make them exceptionally useful and convenient: reliability, efficiency, scalability, concurrency control, data abstractions, and high-level query languages. Databases are so ubiquitous and important that IT students and graduates must possess.	

11.	Course Learning Outcomes :	Domain	Level
	LO1 Define various types of database technology.	Cognitive	1
	LO2 Design relational databases using Entity Relationship Diagram (ERD).	Cognitive	5

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	LO3 Create and manipulate databases using SQL.	Cognitive	3
	LO4 Normalise database tables.	Cognitive	3

12. Mapping of Learning Outcomes to Programme Outcomes :

Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
LO1		X						
LO2		X						
LO3	X	X						
LO4	X	X						

13. Assessment Methods and Types :

Method and Type	Description/Details	Percentage
1. Test	Written	20%
2. Assignment	Report and presentation	20%
3. Tutorial/Lab	Written	10%
4. Final Exam	Written examination	50%

14. Mapping of assessment components to learning outcomes (LOs)

Assessment Components	LO1	LO2	LO3	LO4
Test	25	20	20	-
Assignment	-	20	20	25
Lab	13	10	10	13
Final Exam	63	50	50	63

15. Details of Course

Topics	Mode of Delivery (eg : Lecture, Tutorial, Workshop, Seminar, etc.) Indicate allocation of SLT (lecture, tutorial, lab) for each subtopic	
	Lecture	Lab
Introduction Overview of Database Systems, Database Systems vs. File Systems, Various aspects of Database Systems, Terminology: model, schema, instance. Three levels of data abstraction, Database Languages, System Architecture of a Database System, Classification of DBMS.	2	2

	Data Modeling The Conceptual Model, Internal Model, External Model and Physical Model, Entity-Relationship (ER) Model, Entities and Entity types, Relationship and Relationship type, Constraints, Weak Entity Types, ER Diagrams, Semantic object model.	4	4
	Process of Database Design Phase 1 : Requirement Analysis Phase 2: Conceptual Database Design Phase 3: Database Schema Design	2	2
	Database and Database Application Design Database design using entity-relationship and semantic object models, database application design. Terminology in Relational Data Model, Keys, Integrity Constraints, Primitive Operations on Relations, Relational Algebra (RA), Relational Algebra Operations, Relational Completeness, Additional Operations on Relations.	4	4
	Database Implementation Foundations of relational implementation. Structured Query Language (SQL): DML Features in SQL, DDL in SQL, Updates in SQL, Views in SQL, Embedded SQL, Query-by-Example (QBE). Transaction, Concurrency, Recovery and Security Issues.	6	8
	Normalization Amstrong's Inference Rules and Minimum Covers, Normal Forms: First Normal Form, Second Normal Form, Third Normal Form, Boyce-Codd Normal Form	2	2
	Trends In Database Current Trends in Database Systems: Distributed Database Management Systems, Client-Server database systems, Open Database Connectivity (ODBC) standard, Knowledge-Based Systems, Object-Based Systems, data warehousing and data mining concepts, Web databases.	4	2

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	Total	**24**	**24**

	Total Student Learning Time (SLT)	Face to Face / Guided Learning	Independent Learning
	Lecture	24	24
	Tutorials	-	-
	Laboratory/Practical	24	12
	Presentation	1	3
	Assignment	-	10
	Mid Term Test	1	3
	Final Exam	2	16
	Sub Total	52	68
	Total SLT	**120**	
16.	Credit Value	3	

17. Reading Materials :

Textbooks

Carlos Coronel and Steven Morris (2016). Database Systems: Design, Implementation, and Management, 12th Ed. Course Technology

Reference Material (including 'Statutes' for Law)

1. Connolly, T., Begg, C., Strachan, A., (2014). Database Systems: A Practical Approach to Design, Implementation and Management, 6h Ed. Pearson.
2. Jeffrey Hoffer, V. Ramesh, Heiki Toppi, (2012). Modern Database Management, 11th Ed. Prentice Hall.
3. David Kroenke and David Auer, (2013). Database Processing: Fundamentals, Design and Implementation, 13th Ed. Prentice Hall.
4. Ramez Elmasri and Shamkant Navathe, (2015). Fundamentals of Database Systems, 7th Ed. Pearson.

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Appendix (to be compiled when submitting the complete syllabus for the programme) :

1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :

Subject	Learning Outcomes (please state the learning 0utcomes)	Bloom's Taxonomy Domain		
		Affective	Cognitive	Psychomotor
ABC1234	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
DEF5678	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement