1.	Name of Course/Module	Database Systems
2.	Course Code	TDB2111
3.	Status of Subject	Core for B.IT Artificial Intelligence
4.	MQF Level/Stage	Bachelor Degree – MQF Level 6
5.	Version (state the date of the last Senate approval)	June 2012
6.	Requirement for Registration	None
7.	Name(s) of academic/teaching staff	Chong Lee Ying Siti Fatimah Abdul Razak Tee Connie
8.	Semester and Year offered	Trimester 2 (Beta Level)

9.	Objective of the course/module 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.	Learning Outcomes :
	At the completion of the subject, students should be able to: LO1: Define various types of database technology. (Cognitive, Level 1) LO2: Design relational databases using ERD. (Cognitive, Level 5) LO3: Create and manipulate databases using SQL. (Psychomotor, Level 7) LO4: Normalise database tables. (Cognitive, Level 3)

11.	Synopsis:
	The major areas of study include Database Systems and File Systems, Relational Data Modelling, SQL, E-R Modelling, Normalization, Transaction and Concurrency Control, Database Design, and Latest Trends in Database. Bidang pengajian meliputi: Sistem pangkalan data dan sistem fail, Pemodelan data hubungan, SQL, Model E-R, Rekabentuk pangkalan data, dan Haluan pangkalan data terkini.

12.	Mapping of Subject to Programme Outcomes :	
	Programme Outcomes	% of Contribution
	PO1: Apply soft skills in work and career related activities	33.33
	PO2: Demonstrate knowledge and understanding of fundamental concepts, principles and best practices	66.67

13.	Assessment Methods and Types :		
	Method and Type	Description/Details	Percentage

	Test		20%
	Assignment		20%
	Tutorial/Lab		10%
	Final Exam		50%

14.				
	Details of Subject			
	Topics		Mode of Delivery	
			Lecture	Laboratory
	1. 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
	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.		6	2
	3. Process of Database Design Phase 1 : Requirement Analysis Phase 2: Conceptual Database Design Phase 3: Database Schema Design		2	4
	4. 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.		6	4
	5. 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	10
	6. Normalization Amstrong's Inference Rules and Minimum Covers, Normal Forms: First Normal Form, Second Normal Form, Third Normal Form, Boyce-Codd Normal Form		3	2
	7. 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.		3	4
	Total		**28**	**28**

15.	Lab
	• Introduction to relational database • Creating Entity Relational Diagram • Structured Query Language • Normalization • Database Trends

16.	Total Student Learning Time (SLT)	Face to Face (Hour)	Total Guided and Independent Learning
	Lecture	28	28
	Tutorials	-	-
	Laboratory/Practical	28	14
	Presentation	0.5	1.5
	Assignment	-	10
	Mid Term Test	1	5
	Final Exam	2	16
	Quizzes	-	-
	Sub Total	59.5	74.5
	Total SLT	134/40 = 3.35 => 3	
17.	Credit Value	3	
18.	Reading Materials :		
	Textbook		Reference Materials
	1. Peter Rob, Carlos Coronel, Database Systems: Design, Implementation, and Management, 9th edition, Course Technology, 2011.		1. Connolly, T., Begg, C. & Strachan, A.. Database Systems: A Practical Approach to Design, Implementation and Management, 4th edition, Addison-Wesley, 2005. 2. Hoffer/Prescott/McFadden Modern Database Management, 6th Edition, Prentice Hall, 2002. 3. D. Kroenke, Database Processing: Fundamentals, Design and Implementation, Prentice Hall Business Publishing, 1997. 4. C. J. Date, An Introduction to Database Systems, 6th ed., Addison Wesley, 1995. 5. Ramez Elmasri and Shamkant B. Navathe, Fundamentals of DatabaseSystems, 2nd ed., Benjamin/Cummings Publishing Co., 1994.

19.	Appendix (to be compiled when submitting the complete syllabus for the programme) :
	     1. Mission and Vision of the University and Faculty
	     2. Mapping of Programme Objectives to Vision and Mission of Faculty and University
	     3. Mapping of Programme Outcome to Programme Objectives
	     4. Programme Objective and Outcomes (Measurement and Descriptions)		