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SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course	Advanced Database
2.	Course Code	TIS3351
3.	Status of Course [Applies to (cohort)]	Specialization Core for B.CS (IS), Elective for all other B.CS Specializations and Major for B.IT (IS)
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)	Current: June 2014 Previous: June 2016
6.	Pre-Requisite	TIS1101 Database Fundamentals
7.	Name(s) of academic/teaching staff	Haw Su Cheng Soon Lay Ki
8.	Semester and Year offered	Trimester 2 (Gamma)
9.	Objective of the course in the programme : To strengthen students' understanding on database systems and provide broader aspects of management (data mining and warehousing) and development of databases.	
10.	Justification for including the course in the programme : To prepare graduates to understand, plan, design, implement and manage various kinds of databases ranging from traditional databases to XML databases.	

11.

Course Learning Outcomes :	Domain	Level
LO1. Write advanced SQL commands effectively.	Cognitive	3
LO2. Construct data warehouse for decision support purposes.	Cognitive	3
LO3. Design, implement and manage selected types of databases.	Cognitive	5
LO4. Describe the concepts of emerging database technologies.	Cognitive	2

12. Mapping of Learning Outcomes to Programme Outcomes :

Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
LO1							X		
LO2									X
LO3									X
LO4							X	X	

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13. Assessment Methods and Types :

Method and Type	Description/Details	Percentage
Test	Written	20
Quizzes	Hands-on practical work in lab	10
Assignment	Practical work on designing and implementing data warehouse	30
Final Exam	Written Exam	40

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

Assessment Components	LO1	LO2	LO3	LO4
Test	X		X	
Quizzes	X	X		
Assignment		X		
Final Exam	X	X	X	X

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 (Hrs)	Lab (Hrs)
1. Advanced SQL Data Definition, Queries, Update Statements, Creating Views, Additional Constraints, Indexes, Embedded SQL	8	8
2. Data Warehousing Basic Concept, Characteristics of Data Warehouse data, Data Warehouse Architecture, Online Analytical Processing, Star Schema, Data Warehouse Implementation	4	4
3. Object-Oriented and Object-Relational Database Object Identity, Object Structure and Type Construct, Encapsulation of Operations, Methods and Persistence, Type and Class Hierarchies, Inheritance	2	2
4. Transaction Management and Concurrency Control Transaction properties, transaction log, concurrency control, two-phase locking, deadlock, database recovery management	2	2
5. Distributed Database Distributed Processing, Distributed Database Environment, Level of Distribution, Data and Process Distribution	2	2

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	6. XML Database XML Database, XML Data Model, Querying XML with SQL, Querying XML with XQuery, Managing XML	2	2
	7. Special-Purpose Database Systems Temporal Database, Spatial Database, Mobile Database, Multimedia Database	4	4
	8. Emerging Database Technologies Big Data, NoSQL Databases	2	2
	9. Database Administration and Security Data integrity, backup and recovery, Database Administrator (DBA) role and techniques, DBA strategy, DBA tools, Security	2	2
		28	28

	Total Student Learning Time (SLT)	Face to Face / Guided Learning	Independent Learning
	Lecture	28	28
	Laboratory/Practical	28	28
	Assignment	1	15
	Test	2	8
	Final Exam	2	20
	Sub Total	61	99
	Total SLT	160	
16.	Credit Value	4 (160 / 40) = 4	

17. Reading Materials :

Textbooks

Coronel. C , Morris S. & Rob, P (2014**).** Database Principles: Fundamentals of Design, Implementation, and Management (11th Edition). USA: Course Technology, Cengage Learning.

Reference Material (including 'Statutes' for Law)

1. Hoffer, J.A., Prescott, M., Topi, H. (2012). Modern Database Management (11th Edition). Pearson,
2. Connolly, T. & Begg, C. (2014). Database Systems: A Practical Approach to Design, Implementation and Management (6th Edition). Pearson.
3. Elmasri, R., & Navathe, S. B. (2014). Fundamentals of database systems (6th Edition). Pearson.
4. David, M. K., & David, J. (2015). Database processing: fundamentals, design, and implementation (14th Edition). Prentice-Hall.

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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
TIS3351	LO1		3	
	LO2		3	
	LO3		5	
	LO4		2	

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