UNIVERSITI TEKNOLOGI MARA

CSC405: COMPUTER APPLICATION

Course Name (English)	COMPUTER APPLICATION `APPROVED`
Course Code	CSC405

MQF Credit	2

Course Description	This course is aimed at giving the student a wide knowledge on database management system and their use in modelling information in the real world. The conceptual, logical and physical levels of database design are discussed. The course will cover both the theoretical and practical aspects of database systems. The main emphasis will be on the formation of a database system. This will require students to develop a database system starting from the entity-relationship model up through implementing their system using a relational database, Microsoft Access 2013.

Transferable Skills	Students will demonstrate ability to investigate problems and provide effective solutions in developing data model for a database application as well as skill in implementing a database application using an appropriate relational DBMS.

Teaching Methodologies	Lectures, Lab Work

CLO	CLO1 Describe the major components of a database management system and state their functions and purposes. CLO2 Construct a data model for a database application using an appropriate modeling tools such as Entity-Relationship Diagram (ERD). CLO3 Develop and present in a group a simple computer application using a relational DBMS.

Pre-Requisite Courses	No course recommendations

Topics
1. Introduction 1.1) Data and information 1.2) The Database and the Database Management System (DBMS) 1.3) The information system
2. Database building blocks: entities, entity sets & attributes 2.1) Database and their components 2.2) Primary key (PK) and Composite Primary Key, Candidate key, Secondary Key, Foreign Key 2.3) Entity Integrity and referential integrity 2.4) Putting it all together in a small database 2.5) Data inclusion: historical accuracy requirements, evaluation of derived attributes and line numbers 2.6) Documentation: Selecting and naming attributes 2.7) Attribute characteristics: simple (atomic) and composite, single-valued and multivalued 2.8) Composite tables
3. Relationship types 3.1) One-to-One relationship. One-to-many relationship, Many-to-Many relationship 3.2) Optional and mandatory relationships 3.3) Weak and strong entities 3.4) Composite entities 3.5) Recursive relationships
4. Database design: Creating a Blueprint with an ERD 4.1) Entity relationship diagram (ERD) 4.2) Business rules for an ERD 4.3) Implementing business rules into design: sample ERDs

5. Normalizing Database Designs
5.1) Zero Normal Form (0NF)
5.2) First Normal Form (1NF)
5.3) Second Normal Form (2NF)
5.4) Third Normal Form (3NF)

Assessment Breakdown	%
Continuous Assessment	50.00%
Final Assessment	50.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Group Project	Group Project	15%	CLO2
	Lab Exercise	Lab Exercise	10%	CLO2
	Presentation	Presentation	5%	CLO3
	Test	Test 1	10%	CLO1
	Test	Test 2	10%	CLO2

Reading List	Recommended Text	• **Philip J. Pratt,Mary Z. Last 2016,** *Shelly Cashman Series Microsoft Office 365 & Access 2016: Comprehensive*, **1st Ed., Cengage Learning [ISBN: 9781305870635]**
		• **Henry F. Korth,S. Sudarshan,Abraham Silberschatz, Professor 2019,** *Database System Concepts*, **McGraw-Hill Education [ISBN: 0078022150]**
		• **Ramez Elmasri,Shamkant B. Navathe 2015,** *Fundamentals of Database Systems*, **Addison-Wesley [ISBN: 0133970779]**
	Reference Book Resources	• **Lisa Friedrichsen 2016,** *Illustrated Microsoft Office 365 & Access 2016: Introductory*, **1st edition Ed., Cengage Learning [ISBN: 1305877985]**
		• **Garcia-Molina 2014,** *Database Systems: The Complete Book*, **2nd edition Ed., Pearson Education [ISBN: 978-933251867]**
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	