CENTRE OF INFORMATION TECHNOLOGY
FACULTY OF COMPUTER AND MATHEMATICAL SCIENCES

SCHEME OF WORK

ICT450 DATABASE DESIGN AND DEVELOPMENT

SEMESTER MAC - JULY 2020

Course Description : In the information age today, enormous amount of data is kept in files and databases. The knowledge to manipulate and manage these files is beyond doubt. By using a database package, the students will be able to appreciate the needs for database systems rather than the traditional file systems.

Course Outcomes : After completing this course, the students should be able to

- Demonstrate an understanding on database fundamental concepts, design and development.
- Construct database structure and queries using database management system (DBMS) language.
- Present idea in verbal and written form related to database design and development.

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WEEK	TOPIC	HOURS	REMARKS
1 w/c 24 Feb	**1.0 DATABASE CONCEPTS** 1.1 Introducing The Database 1.2 The Historical Roots of Database 1.3 Files and File Systems 1.4 A File System Critique 1.5 Database Systems 1.6 Database Models	2	• Introduction about ICT450 • Group Project: Briefing • Entrance Survey via i-Learn
	Lab: Getting Started with Microsoft Access 2016	2	

WEEK	TOPIC	HOURS	REMARKS
2 w/c 2 Mar	**2.0 DATA MODELS** 2.1 The Importance of Data Models 2.2 Data Model Basic Building Blocks 2.3 Business Rules 2.4 he Evolution of Data Models 2.5 Degree of Data Abstraction 2.5.1 The Conceptual Model 2.5.2 The Internal Model 2.5.3 The External Model 2.5.4 The Physical Model	2	• Project team
	Lab: Getting Started with Microsoft Access Using Tables and Queries	2	
3 w/c 9 Mar	**3.0 THE RELATIONAL MODEL** 3.1 A Logical View of Data 3.2 Keys 3.3 Integrity Rules Revisited 3.4 The Data Dictionary And The System Catalogue	2	
	Lab: Using Forms and Reports	2	
4 w/c 16 Mar	**3.0 THE RELATIONAL MODEL** 3.5 Relationship Within the Relational Database 3.6 Data Redundancy Revisited 3.7 Indexes	2	
	Lab: Using Forms and Reports	2	
5 w/c 23 Mar	**4.0 ENTITY RELATIONSHIP (ER) MODELLING** 4.1 Basic Modelling Concepts 4.2 Data Models 4.3 Degrees of Data Abstraction 4.4 The E-R Model		
	Tutorial: ERD		

WEEK	TOPIC	HOURS	REMARKS
6 w/c 30 Mar	**4.0 ENTITY RELATIONSHIP (ER) MODELLING** 4.5 Developing and E-R Diagram 4.6 A Comparison of E-R Modelling Symbols 4.7 The Challenge of Db Design 4.8 Conflicting Goals	2	
	Lab: Modifying A Database Structure	2	
Sem Break (6 – 12 April 2020) (1 Week)			
7 w/c 13 Apr	**5.0 NORMALIZATION OF DATABASE TABLES** 5.1 Database Tables and Normalization	2	• Due project proposal
	TEST 1 (Chapter 1, 2, 3, 4)	2	
8 w/c 20 Apr	**5.0 NORMALIZATION OF DATABASE TABLES (continue)** 5.2 Normalization and Database Design	2	
	Tutorial: Normalization	2	
9 w/c 27 Apr	**6.0 DATABASE DESIGN** 6.1 Changing Data Into Information 6.2 The Information System 6.3 The Systems Development Life Cycle (SDLC)	2	
	Lab: Developing Forms and Sub-Forms	2	
10 w/c 4 May	**6.0 DATABASE DESIGN (continue)** 6.4 The Database Life Cycle (DBLC) 6.5 A Special Notes About Design Strategies 6.6 Centralized Versus Decentralized Design	2	
	Lab: Developing Forms and Sub-Forms	2	
11 w/c 11 May	**7.0 AN INTRODUCTION TO SQL** 7.1 Introduction to SQL 7.2 Data Definition Commands 7.3 Basic Data Management		
	Lab: SQL		

WEEK	TOPIC	HOURS	REMARKS
12 w/c 18 May	**7.0 AN INTRODUCTION TO SQL (continue)** 7.4 Queries 7.5 Advanced Data Management Commands 7.6 More Complex Queries and SQL Functions		
	Lab: SQL		
Special Break (25 Mei – 7 Jun 2020) (2 Weeks)			
13 w/c 8 Jun	**TEST 2 (Chapter 5, 6, 7, 8)**	2	
	LAB TEST	2	
14 w/c 15 Jun	**8.0 CURRENT TRENDS AND ISSUES IN DATABASE** 8.1 Introduction to specific area of database (i.e. Big Data etc) 8.2 Conceptual model on the specific area of database 8.3 Data Management Issues	2	• Exit Survey & SuFo via i-Learn
	Mini Group Project	2	• Mini Group Project: o Report Submissions o Presentation

Assessments :

Item	Percentage (%)
Test 1	10
Test 2	10
Lab Exercise	5
Lab Test	5
Project – Proposal	5
Project – Final Report	10
Project - Presentation	5
Final Exam	50
TOTAL	**100**

Recommended Text :

Carlos Coronel,Steven Morris, Database Systems: Design, Implementation, & Management, Cengage Learning, 2018, ISBN: 1337627909

References :

1. Thomas Connolly and Carolyn Begg, Database Systems: A Practical Approach to Design, Implementation, and Management, 6th, Pearson, 2015, ISBN: 1292061189
2. Michael Mannino, Database Design, Application Development, and Administration, Sixth Edition, Ediyu, 2014, ISBN: 0983332428
3. Thomas Connolly,Thomas M. Connolly,Carolyn E. Beg, Database Systems, Addison-Wesley, 2014, ISBN: 0132943263
4. Mary Anne Poatsy,Eric Cameron,Robert Grauer,Jerri Williams, Exploring Microsoft Office Access 2016 Comprehensive, Pearson, 2016, ISBN: 0134479459
5. Ramez Elmasri, Shamkant B. Navathe, Fundamentals Of Database System, 7th edition, Pearson India, 2015, ISBN: 933258270X.