Course Title: Fundamentals of Database	Course code: 731221
Course Level: 2	Course prerequisite: 721223
Lecture Time: S1:Sun,Tue 11:15-12:45	Credit hours: 3

UR	☐	FR	☐	DR	▣	C	☐	E	☐

Academic Staff Specifics

Name	Rank	Office Number and Location	Office Hours	E-mail Address
Ali Ahmad Alawneh	Associate Prof.	IT-330	12:30-13:30 Sun,Tue Mon,Wed	aalawneh@philadelphia.edu.jo

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The Learning Style Used in Teaching the Course

The Learning Style			
Blended Learning ☐			
Electronic Learning ☐			
Face-to-Face Learning ▬			
Face-to-Face	Electronic	Blended	Percentage
100%			

Course module description:

This module aims to give the students the main concepts of databases and database management systems, database models, database design, entity-relationship diagram, E-ERD, relational schema, relational algebra, query languages, object-oriented database, normalization techniques and query optimization. At the course completion, students will have the know-how of designing and implementing database-driven applications using SQLite DBMS.

Course module objectives:
On successfully completing the module, the students are expected to have gained good knowledge of:

- Gathering data requirements
- Implementing data requirements as ERD, EERD.
- Coverting ERD into relational schema
- Implementing physical tables from relational schema
- Manipulate database using SQLite DBMS

Course/ module components

Textbook

	Fundamentals of Database Systems, 7th edition	El Masri & Navathe	Addison-Wesley**.**	2021

Support material (s)
www.awlonline.com

Teaching methods:
Lectures, discussion groups, tutorials.

Learning outcomes:

A-   Knowledge and Understanding :

   A1. The essential mathematics and statistics relevant to databases, including sets and relational algebra;
   A2. A wide range of principles and tools available to database professionals including ERD and schema tools, in addition to major database management systems.
   A3. The professional and ethical responsibilities and understanding of quality;
   A4. The principles and techniques of a number of research in databases including BigData, datamining and NoSQL;
   A5. The application of database systems in management and business context;

B-   Intellectual Skills :

B1. Solve a wide range of problems related to the analysis, design and implementation of database systems;
B2. Contribute in design and implement database systems in the field of decision making and Strategic planning;
B3. Identify a range of solutions and critically evaluate and justify proposed design solutions in database projects including decision making, business systems, planning, project management, etc.;

C- Practical Skills:

   C1. Plan and undertake a major group project.
   C2. Prepare and deliver coherent and structured verbal and written technical reports.

C3. Give technical presentations suitable for the time, place, and audience.

C4. Use the scientific literature effectively and make discriminating use of Web resources.

C5. Design, write, and debug computer programs in tools relevant to database systems, including SQLite, Oracle, MS SQL Server, etc.

C6. Use appropriate computer-based design support tools, e.g. Dia, ERWin, etc.

D- Transferable Skills & Personal Qualities:

D1. Display an integrated approach to the deployment of communication skills.

D2. Use IT skills and display mature computer literacy.

D3. Work effectively with and for others.

D4. Strike a balance between self-reliance and seeking help when necessary.

D5. Display personal responsibility by working to multiple deadlines in complex activities.

D6. Employ discrete and continuous mathematical skills as appropriate.

Learning Outcomes Achievement

Module Number	Name Module	Knowledge & Understanding					Intellectual Skills			Practical Skills						Transferable Skills & Personal Qualities					
		A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6
0731213	Web Programming	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D	A,D

Development:
- **A1, A2, A3, A4, A5, B1, B2, B3, C4, D1, and D6 are developed through the lectures, tutorials, and practical works.**
- **C1, C2, C3, C5 and D1, D2, D3, D4, D5 are developed through Homeworks.**

Assessment:
- **A1, A2, A3, A4, A5, B1, B2, B3, C4, D1, and D6 are assessed through quizzes, written exams, and practical works exams**
- **C1, C2, C3, C5 and D1, D2, D3, D4, D5 are assessed through project.**

Assessment Instruments

- Database implementation project
- Practical works
- Short reports and/ or presentations,
- Quizzes.
- Home works
- Final examination: 40 marks

Allocation of Marks	
Assessment Instruments	**Mark**
Mid examination	**30**
Student Works (Assignments, Lab works,	**20**

Quizzes)	
Database implementation project	**10**
Final examination	**40**
Total	**100**

** Make-up exams will be offered for valid reasons only with consent of the Dean.
Make-up exams may be different from regular exams in content and format.*

Practical Submissions
The assignments that have work to be assessed will be given to the students in separate documents including the due date and appropriate reading material

Documentation and academic honesty

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Course/module academic calendar

Week	Basic and support material to be covered	Homework/reports and their due dates
(1)	• Introduction, Concepts and Definitions	
(2)	• DB, DBMS and Actors	
(3)	• Data Models and basic definitions	
(4)	• ER Diagrams	
(5)	• ER Diagrams	
(6)	• ER Diagrams	
(7)	• Extended ER Diagrams	
(8)	• Reduction of ERD to Tables	
(9) **Mid examination**	• Tutorial I, II	
(10)	• Relational Algebra	
(11)	• Relational Algebra	
(12)	• SQL Lab (SQLite)	
(13)	• SQL Lab (SQLite)	
(14)	• SQL Lab (SQLite)	
(15)	• Normalization.	
(16) **Final Examination**	**Projects Presentations**	

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

Module references

Books
Students will be expected to give the same attention to these references as given to the module textbooks.

1- 1. Advanced DB Technology and Design, by Mario, & Oscar, 2020. *www.artechhouse.com*.
2- Database System Concepts, by Abraham Silberschatz, & Henry S. Sudarshan, Mcgraw-Hill International Edition, 2016. *www.mhhe.com*.

Journals

1. Journal of Advanced Database Management & Systems

2. Journal of Database Management

Websites
1. www.mysql.com
2. https://aws.amazon.com/aws/databases
3. https://www.techtarget.com
4. https://www.g2.com