

QFO-AP-FI-MO02	اسم النموذج: Course Syllabus	جامعة فيلادلفيا  Philadelphia University
رقم الاصدار: 1 (Revision)	الجهة المصدرة: كلية تكنولوجيا المعلومات	
التاريخ: 2017/11/05	الجهة المدققة: عمادة التطوير والجودة	
عدد صفحات النموذج:		

<b>Code:</b> 731221	<b>Title:</b> Databases Fundamentals
<b>Prerequisite:</b> 721220 (Programming OO Paradigms)	<b>Level:</b> 4
<b>Credit hours:</b> 3	<b>Lecture Time:</b> Section 1: 11:10-12:00

### Academic Staff Specifics

Name	Rank	Office	Office Hours	Email
Dr. Samir Tartir	Assistant Professor	IT 303	STT 12:00-14:00	<a href="mailto:startir@philadelphia.edu.jo">startir@philadelphia.edu.jo</a>

### Course Description:

This module aims to give the students the main concepts of databases, database models, database design, relational algebra, query languages, object oriented database, normalization techniques, query optimization and database on the web.

### Course Components

- 1- Introduction, Concepts and Definitions
- 2- Data Base Models.
- 3- Relational Data Base.
- 4- E-R Diagrames.
- 5- Relational Algebra.
- 6- SQL.

### Text book:

Title : Fundamentals of Database Systems

Author(s): El Masri & Navathe<sup>th</sup>

Publisher : Addison-Wesley, 5<sup>th</sup> edition, 2006.

Web-site: [www.awlonline.com](http://www.awlonline.com).

In addition to the above, the students will be provided with handouts by the lecturer.

### Teaching Methods:

Duration : 16 weeks, 48 hours in total

Lectures : 42 hours, 3 hours per week, (including two 1-hour midterm exams)

Seminars : 6 hours (in last 2 weeks)

**Learning Outcomes:**

Upon completion of this module, students should be able to:

- 1- Define the general database concepts, objectives and models.
- 2- Understand the importance of data, and the difference between file management and databases. (A)
- 3- Understand the design of database management system architectures and environments. (A)
- 4- Know the principals of database design. (A)
- 5- Design a database as free-standing applications
- 6- Apply conceptual design methodologies, in particular conceptual design using Extended Entity Relationship modeling. (A, B, C, D)
- 7- Apply the relational model and mappings from conceptual designs, in particular normalizations. (A, B, C, D)
- 8- Explain physical and performance related design considerations. (A)
- 9- Understand transaction processing. (A)
- 10- Discuss and apply SQL and the Oracle DBMS. (A, C, D)
- 11- Work effectively with others.
- 12- Invoke the database applications with the World-Wide Web browser

**Assessment Instruments**

<u>Allocation of Marks</u>	
Mark	Assessment Instruments
20%	First examination
20%	Second examination
40 %	Final Exam (written unseen exam)
20%	Reports, Assignments, Quizzes, Home works
100%	Total

- \* 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**

Submit your home work covered with a sheet containing your name, number, course title and number, and type and number of the home work (e.g. tutorial, assignment, and project).

on the 10:00 by ( ---room IT )ffice Any completed homework must be handed in to my o

You must keep a duplicate copy of your work. After the deadline “zero” will be awarded. Due date work because it may be needed while the original is being marked.

You should hand in with your assignments:

- 1- A printed listing of your test programs (if any).
- 2- A brief report to explain your findings.
- 3- Your solution of questions.

For the research report, you are required to write a report similar to a research paper. It should include:

- **Abstract:** It describes the main synopsis of your paper.
- **Introduction:** It provides background information necessary to understand the research and getting readers interested in your subject. The introduction is where you put your problem in context and is likely where the bulk of your sources will appear.
- **Methods (Algorithms and Implementation):** Describe your methods here. Summarize the algorithms generally, highlight features relevant to your project, and refer readers to your references for further details.
- **Results and Discussion (Benchmarking and Analysis):** This section is the most important part of your paper. It is here that you demonstrate the work you have accomplished on this project and explain its significance. The quality of your analysis will impact your final grade more than any other component on the paper. You should therefore plan to spend the bulk of your project time not just gathering data, but determining what it ultimately means and deciding how best to showcase these findings.
- **Conclusion:** The conclusion should give your reader the points to “take home” from your paper. It should state clearly what your results demonstrate about the problem you were tackling in the paper. It should also generalize your findings, putting them into a useful context that can be built upon. All generalizations should be supported by your data, however; the discussion should prove these points, so that when the reader gets to the conclusion, the statements are logical and seem self-evident.
- **Bibliography:** Refer to any reference that you used in your assignment. Citations in the body of the paper should refer to a bibliography at the end of the paper.

### **Protection by Copyright**

1. Coursework, laboratory exercises, reports, and essays submitted for assessment must be your own work, unless in the case of group projects a joint effort is expected and is indicated as such.
2. Use of quotations or data from the work of others is entirely acceptable, and is often very valuable provided that the source of the quotation or data is given. Failure to provide a source or put quotation marks around material that is taken from elsewhere gives the appearance that the comments are ostensibly your own. When quoting word-for-word from the work of another person quotation marks or indenting (setting the quotation in from the margin) must be used and the source of the quoted material must be acknowledged.

3. Sources of quotations used should be listed in full in a bibliography at the end of your piece of work.

**Avoiding Plagiarism.**

1- Unacknowledged direct copying from the work of another person, or the close paraphrasing of somebody else's work, is called plagiarism and is a serious offence, equated with cheating in examinations. This applies to copying both from other students' work and from published sources such as books, reports or journal articles.

2- Paraphrasing, when the original statement is still identifiable and has no acknowledgement, is plagiarism. A close paraphrase of another person's work must have an acknowledgement to the source. It is not acceptable for you to put together unacknowledged passages from the same or from different sources linking these together with a few words or sentences of your own and changing a few words from the original text: this is regarded as over-dependence on other sources, which is a form of plagiarism.

3- Direct quotations from an earlier piece of your own work, if not attributed, suggest that your work is original, when in fact it is not. The direct copying of one's own writings qualifies as plagiarism if the fact that the work has been or is to be presented elsewhere is not acknowledged.

4- Plagiarism is a serious offence and will always result in imposition of a penalty. In deciding upon the penalty the Department will take into account factors such as the year of study, the extent and proportion of the work that has been plagiarized, and the apparent intent of the student. The penalties that can be imposed range from a minimum of a zero mark for the work (without allowing resubmission) through caution to disciplinary measures (such as suspension or expulsion).

### Course Academic Calendar

Week	Topic(s)	Homework/reports and their due dates
(1)	Introduction, Concepts and Definitions	
(2)	DB, DBMS and Actors	
(3)	Representations	
(4)	Models	Assignment 1
(5)	ER Diagrams	
(6) <b>First Exam</b>	ER Diagrams	
(7)	Extended ER Diagrams	
(8)	Reduction of ERD to Tables	
(9)	Tutorial I, II	
(10)	Relational Algebra	
(11)	Relational Algebra	Assignment 2
(12) <b>Second Exam</b>	Relational Algebra	
(13)	SQL	
(14)	SQL	
(15)	Normalization.	Seminars
(16) <b>Final Examination</b>	Project discussion	Seminars

#### **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 college/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**

- 1- Advanced DB Technology and Design, by Mario, & Oscar.2002  
[WWW.ARTECHHOUSE.COM](http://WWW.ARTECHHOUSE.COM).
- 2- Database System Concepts, by Abraham Silberschatz, & Henry S. Sudarshan, McGraw-Hill International Edition, 2006. [WWW.MHHE.COM](http://WWW.MHHE.COM)
- 3- Patrick Valduriez M. TamerOzsu, Principles of Distributed Database Systems, 2<sup>nd</sup> Edition, Prentice Hall, 1999.