



**BIRZEIT UNIVERSITY**

**Department of Computer Science**

**Database Systems**

**COMP333**

**COURSE OUTLINE**

**Fall 2017- 2018**

**1- Course information:**

- a. Course Code:** COMP333
- b. Course Name:** Database Systems
- c. Prerequisite:** COMP242 or COMP2321
- d. Co-requisite:**

**2- Instructors information**

- **Name:** Mr. Wahbeh Mousa  
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**3- Course Description**

This course is intended to give students a solid background in relational database management systems. Topics include data modeling, database design theory, data definition and manipulation languages, normalization, connectivity with a programming language, building procedures and triggers, overview of storage and indexing, transactions, crash recovery. Furthermore, this course aims to provide practical experience in applying these concepts using commercial database management systems.

**4- Course Objectives**

- Understanding and building the design methodology for databases and verifying their design correctness.
- Implementing databases and applications software primarily in the relational model.
- Using querying languages such relational algebra and SQL with the supporting database software.
- Applying the theory behind various database models and query languages.
- Working in group settings to design and implement larger programming projects.

## 5- Course Outcomes

### A. Knowledge and understanding

1. To be familiar with the essential theories, concepts, and principles related to databases and computer applications as appropriate.
2. To gain the knowledge and skills needed to be able to provide computer science solutions to information technology problems.

### B. Intellectual/Cognitive skills

1. To be able to analyze problems related to computing and to provide solutions related to the design/construction of computing systems.
2. To be able to use related database theories, practices, and tools including mathematical principles and notation, engineering principles, and computing principles for the analysis, specification, design, implementation, and evaluation of computer-based systems.

### C. Subject specific and practical skills

1. Apply appropriate methodologies and techniques in database to specify, design, implement, verify, maintain and computer-based systems.

### D. General and transferable skills

1. Using and developing skills related to work in groups, organizational skills, team and time management.
2. Use appropriate tools that aid in the preparation of reports and presentations for a wide range of audiences including academics and non-academics.

## 6- Course Content

Week #	Subject	No. of Hours	Project
1	Overview of Database Systems	2	
2,3	Introduction to database design	3	
3,4	Relational model	3	Project is Assigned
5	Relational algebra	4	
6,7,8	SQL: queries, constrains	8	
8,9	Normalization	4	
10	Transactions	2	
11	Connecting java with database	2	
12,13	Advanced SQL: Procedures and Functions	5	
14,15	Crash Recovery	2	
15	Overview of Storage and Indexing	4	
15	Project Discussion	3	Project Presentation

### **7- Teaching and learning methods**

- 1 - Lectures – introduce new concepts, and theory.
- 2 - Class discussion for more understanding and examples.
- 3 – Group Projects and home works.
- 4 – Practical sessions.

### **8- Assessment methods based on outcomes**

1. Exam/Quiz to Assess Knowledge and understanding
2. Exam/Quiz to Assess Intellectual/Cognitive skills
3. Project to Assess General and transferable skills
4. Project to Assess Subject specific and practical skills

### **9- Weighting of assessments**

Midterm Exam	30 %
Final Exam	40 %
Project	20 %
Quizzes	10 %
<b>Total</b>	<b>100%</b>

### **10- References**

- A. Essential books /text books
  1. Database Management Systems 3rd Ed. Ramakrishnan & Gehrke
- B. Recommended books and Readings
  1. Fundamentals of Database Systems by Elmasri (4th Edition)
  2. Database Systems: The complete book by Manlina, Ullman & Widom.
- C. Other references
  1. Lectures Notes and slides.