

---

جامعة الزيتونة الأردنية  
Al-Zaytoonah University of Jordan

---



## **Course Syllabus**

***According to JORDAN National Qualification  
Framework (JNQF)***

**Course Name: Database 2**

**Course Number: 0130306**

---

---

### General Course Information:

Course Title	<b>Database (2)</b>
Course Number	0130306
<b>Credit Hours</b>	3
<b>Education Type</b>	Traditional learning
Prerequisites/Co-requisites	N/A
Academic Program	Computer Science
Program Code	112
Faculty	Faculty of Science and IT
Department	Computer Science
Level of Course	3-4
<b>Academic Year /Semester</b>	2024/2025 (2nd Semester)
Awarded Qualification	BS'c
<b>Other Department(s) Involved in Teaching the Course</b>	N/A
Language of Instruction	English
Date of Production/Revision	30/04/2025

### Course Coordinator:

<b>Coordinator's Name</b>	<b>Dr. Katrina Sundus</b>
<b>Office No.</b>	9221
<b>Office Phone Extension Number</b>	-
<b>Office Hours</b>	8:00 to 9:30 (Sunday, Tuesday) 12:30 to 2:00 (Monday, Wednesday)
<b>E-mail</b>	k.sundus@zuj.edu.jo

### Other Instructors:

<b>Instructor Name</b>	-
<b>Office No.</b>	-
<b>Office Phone Extension Number</b>	-
<b>Office Hours</b>	-
<b>Email</b>	-

### Course Description (*English/Arabic*):

<b>English</b>	<i>This course provides in-depth knowledge and practical skills in database programming, focusing on the use of procedural extensions for SQL, such as Oracle's PL/SQL. Students will learn to develop robust, secure, and efficient database applications using stored procedures, functions, packages, triggers, and cursors. Emphasis is placed on real-world applications, error handling, transaction control, and performance optimization. By the end of the course, students will be able to build and manage complex data-driven systems that support enterprise-level applications.</i>
----------------	---

---

## Arabic

يركز هذا المقرر على تزويد الطلبة بالمعرفة النظرية والمهارات العملية اللازمة لبرمجة قواعد البيانات باستخدام الامتدادات الإجرائية للغة SQL ، مثل PL/SQL يتعلم الطلبة كيفية تطوير تطبيقات قواعد بيانات آمنة وفعالة من خلال بناء الإجراءات المخزنة، الدوال، الحزم البرمجية، المشغلات (Triggers) ، والمؤشرات (Cursors) كما يتم التركيز على معالجة الأخطاء، التحكم بالمعاملات (Transactions) ، وتحسين الأداء. بنهاية المقرر، سيكون الطالب قادراً على تصميم وتنفيذ أنظمة قواعد بيانات متقدمة تدعم تطبيقات الأعمال والمؤسسات.

**Textbook: Author(s), Title, Publisher, Edition, Year, Book website.**

**Title: Modern Oracle PL/SQL: Best Practices for Database Development**  
**Author: Steven Feuerstein**  
**Publisher: O'Reilly**  
**Year: 2023**

**References: Author(s), Title, Publisher, Edition, Year, Book website.**

**Title: Pro Oracle PL/SQL: Robust Code for Database Applications**  
**Author: Kishore Kumar**  
**Publisher: Apress**  
**Year: 2021**

**Title: Database Design for Mere Mortals**  
**Author: Michael J. Hernandez**  
**Publisher: Addison-Wesley**  
**Edition: 4th Edition**  
**Year: 2020**

## Course Educational Objectives (CEOs):

1.	<b>Develop advanced database applications:</b> using procedural extensions of SQL such as PL/SQL, incorporating stored procedures, functions, packages, and triggers.
2.	<b>Enhance data integrity, automation, and control</b> within database systems through the use of triggers, exception handling, and transaction control techniques.
3.	<b>Apply control structures and cursor-based programming</b> to manage complex data processing logic and row-by-row data handling.
4.	<b>Design modular, maintainable, and reusable database code</b> that adheres to industry best practices and performance optimization strategies.
5.	<b>Prepare students for enterprise-level database development roles</b> by providing the skills necessary to work effectively with backend logic in multi-tier applications.

## Intended Learning Outcomes (ILO's):

Intended learning outcomes (ILOs)		Relationship to CEOs	Contribution to PLOs	Bloom Taxonomy Levels*	JNQF Descriptors**
K- Knowledge and Understanding					
K1	Explain the principles of procedural extensions to SQL such as PL/SQL	1	PL02-K	Remembering Understanding	K
	Describe and identify the role of stored procedures, functions, and triggers in database systems.	1	PL02-K	Understanding	K

S- Intellectual skills						
<b>S1</b>	Design efficient PL/SQL scripts to solve complex database tasks.	2	PL03-S	Applying	S	
<b>S2</b>	Apply logic to manage conditions using control structures and cursors.	2	PL03-S	Applying	S	
C- Competencies						
<b>C1</b>	Write, test, and debug stored procedures, functions, packages, and triggers. In addition to using explicit and implicit cursors to process query results row by row.	3	PL05-C	Analyzing	C	
D- Transferable skills						
<b>D1</b>	Collaborate effectively in teams for database application development.	4	PL06-C PL07-C	Evaluating Creating	C	
*Bloom Taxonomy Levels:						
Level #	1	2	3	4	5	6
Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
** Descriptor (National Qualification Framework Descriptors): K: Knowledge, S: Skill, C: Competency.						

### Program Learning Outcome (PLOs):

(PLOs)	JNQF Descriptors**		
	K	S	C

PLO1-K	Knowledge of professional ethics, social responsibility, and the regulations governing them.	K		
PLO2-K	Understanding various programming techniques, the stages of software development, and the fundamental principles of security.	K		
PLO3-S	Skill in applying mathematical concepts to analyze and design algorithms and verify their correctness		S	
PLO4-S	Skill in using different programming languages and applying them to develop software and computer applications.		S	
PLO5-C	The ability to analyze, designs, and develop effective and reliable computer programs that meet user requirements and adhere to professional ethics.			C
PLO6-C	The ability to keep up with continuous advancements in computer science, innovate, and work independently or as part of a team.			C
PLO7-C	The ability to work collaboratively, communicates effectively, and demonstrates teamwork spirit.			C

\*\* Descriptors according to the national qualifications framework (K: knowledge, S:  Face to Face (F2F)

Hybrid (One - To - One)

Online

skill, C: Competency)

**Weekly Schedule** (please choose the type of teaching)

### Schedule of Simultaneous and their Topics:

Week	First Lecture (F2F)	Second Lecture (F2F)	ILOs	PLOs	JNQF Descriptors*
1	Database concepts. Review	Database concepts. Review	ILO1-K ILO2-K	PLO2-K	K
2	SQL. Review (Project)	SQL. Review (Project)	ILO1-K ILO2-K	PLO2-K	K
3	Introduction to PL/SQL	Introduction to PL/SQL	ILO1-K ILO2-K	PLO2-K	K
4	Data Variables	Composite Data Variables	ILO3-S ILO4-S	PLO3-S	S
5	Control Structures	Control Structures	ILO3-S ILO4-S	PLO3-S	S
6	Cursors	Cursors	ILO5-C	PLO5-C	C
7	Exceptions	Exceptions	ILO5-C	PLO5-C	C
<b>Midterm Exam (30%)</b>					
9	Procedures	Functions	ILO5-C	PLO5-C	C
10	Packages	Triggers	ILO5-C	PLO5-C	C
11	Triggers	Triggers	ILO5-C	PLO5-C	C
12	Forms Builder	Forms Builder	ILO6-D	PLO6-C PLO7-C	C
13	Forms Builder	Forms Builder	ILO6-	PLO6-C	C

			D	ILO6-D CPLO7-C	
14	Report Builder	Report Builder	ILO6-D	PLO6-C PLO7-C	C
15	Projects Discussion				
16	Final Exam				

\* K: Knowledge, S: Skills, C: Competency

## Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Lecture.
- flipped learning.
- learning through projects.
- learning through problem solving.
- participatory learning

## Course Policies:

### A- Attendance policies:

The maximum allowed absences is 15% of the lectures.

### B- Absences from exams and handing in assignments on time:

Midterm exam can be retaken based on approval of excuse by the instructor's discretion.

Not handing assignment on time will incur penalties.

### C- Academic Health and safety procedures

### D- Honesty policy regarding cheating, plagiarism, and misbehaviour:

Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.

### E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Online Activities (Course Videos, Practice labs, Discussion Forums, Quizzes) 30%
- Midterm 30%
- Final Exam 40 %

F- Available university services that support achievement in the course: E-Learning Platform, Labs, Library.

## Required Equipment:

- PC / Laptop with webcam and mic
- Internet Connection
- Access to the ZUJ E-Learning Platform at <https://exams.zuj.edu.jo/>
- E-learning plan
- Satisfaction questionnaires for online and face-to-face learning
- Software for e-learning
- Training

## Assessment Tools Implemented in the Course:

- Final Exam
- Midterm Exam
- Quizzes
- Homework
- Practice Labs

- Discussion Forums
- Periodic reports for learning assessment
- Improvement plans for online or face-to-face teaching.
- Others...

### Responsible Persons and their Signatures:

Course Coordinator	Dr. Katrina Sundus	Completed Date	04/ 05 / 2025
		Signature	د. كاترينا ابو السندس
Received by (Department Head)		Received Date	/ /
		Signature	