Princess Sumaya University for Technology
The King Hussein School for Information Technology
Computer Science Department

Course Syllabus – Fall Semester 2022/2023

CS 11354 Database Systems Lab

- **Course Information**

Catalog Description	How to design and implement a complete database application using a modern relational database system: It covers relations, queries, forms, reports, objects, properties, data design, software design, and rapid application development tools.
Credit Hours	1
Prerequisite	Co-requisite: 11323
Course Type	Lab
Required/Elective	Required
Textbook	Oracle University Books(SQL,PL/SQL, Forms, Reports)
Instructor	Eman Alnagi
Class Schedule	Section2: Mon 3:00 – 6:00 Section3: Wed 3:00 – 6:00 Section4: Tue 3:00 – 6:00
Class Location	Online
Office Hours	Sun/Thu: 12:00 – 2:00 Mon/Wed: 11:00 – 1:00
Teaching Assistant	-

- **Course Contents**

Lab#	Topic(s)
0	Introduction to Database systems Database design phases Install needed software (ERD design tool, Oracle Express, Online SQL tools) Working with users (Create user, set user Password, manipulate user, drop user)
1	**Entity Relationship (ER):** Review of ER notations (Entity, relation, attributes, …etc.) , Design ER diagram using a special tool, depending on given requirements.
2	**Enhanced Entity Relationship Diagram (EER):** Superclasses, Subclasses, UNION types
3	**DDL Statements:** Create, alter, rename, and drop tables Define and update constraints
4	**DML Statements:** Insert, Update, Delete records Database Transactions (COMMIT and ROLLBACK)
5	**Retrieving Statements:** Projection and selection (Select, where)

	Selection: conditions (Mathematical and logical conditions, In, not Null, is Null, Projection: Aliases, concatenation, Distinct, and Order by
6	**Single-row functions: (**Character functions, Number functions, Date functions**,** to_char, NVL, Decode) and Nesting Functions
7	**Join** (Inner join, equal-Join, non-equal join, self-Join, Natural Join, Cartesian product, Outer join, right outer join, left outer join, full outer join)
8	**Aggregation functions** (Sum, Avg, Count, Min, Max), GROUP BY and HAVING Clauses
9	**Sub-Queries** (regular conditions, In/Not in, Exists/Not Exists, All, any, Insert into, update, delete with select statement in condition)
10	**Views** **DCL Statements:** GRANT and REVOKE

- **Course Objectives**

  - To Be Able to Use iSQL*Plus Command. **ABET: c,i**.
  - To Be Able to Use SQL, DML, DCL, DDL, and Transaction Control. **ABET**: **b,c,i.**
  - To Be Able to Use PL/SQL (Modularity, Procedures, Functions, Cursors, Error Handling, Records, Variables, Control Statements). **ABET: b,c,i.**
  - To Be Able to Use Oracle Forms And Reports. **ABET: b,c,i.**

- **Assessment Policy**

Assessment Tool	Expected Due Date	Weight
Lab Work	All Course duration	30%
Mid Term Exam		30%
Final Exam		40%

- **Contribution of the Course to the Professional Component**

Computer Science Topics	100%
General Education	20%
Mathematics & Basic Sciences	20%

- **Expected level of proficiency from students entering the course**

Mathematics	Some
Physics	Not applicable
Technical writing	Some
Computer programming	Some

- **Material available to students, instructors, TAs, and department at end of course**

	Students	Department	instructor	TA(s)
Course objectives and outcomes form	X	X	X	

Lecture notes, homework assignments, and solutions	X	X	X	
Samples of homework solutions from 3 students		X		
Samples of lab reports of 3 students		X		
Samples of exam solutions from 3 students		X		
Course performance form from student surveys		X	X	
End-of-course instructor survey		X	X	

- **Relationship to Program Outcomes**

b	Strong	Strong: b, c Average: i
c	Strong	
i	Average	

Abet Computer Science Program Outcomes

a.	An ability to apply knowledge of computing and mathematics appropriate to the discipline
b.	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
c.	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
d.	An ability to function effectively on teams to accomplish a common goal
e.	An understanding of professional, ethical, legal, security and social issues and responsibilities
f.	An ability to communicate effectively with a range of audiences
g.	An ability to analyze the local and global impact of computing on individuals, organizations, and society
h.	Recognition of the need for and an ability to engage in continuing professional development
i.	An ability to use current techniques, skills, and tools necessary for computing practice.