



Course Specifications

Course Title:	Advanced topics in Databases
Course Code:	502570-3
Program:	Bachelor in Information Technology
Department:	Department of Information Technology
College:	College of Computers and Information Technology
Institution:	Taif University

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A. Course Identification

1. Credit hours: 3
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input type="checkbox"/> Elective <input checked="" type="checkbox"/>
3. Level/year at which this course is offered: 13/5
4. Pre-requisites for this course (if any): 502478-3
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	7	100 %
2	Blended	0	0
3	E-learning	0	0
4	Distance learning	0	0
5	Other	0	0

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	40
2	Laboratory/Studio	30
3	Tutorial	0
4	Others (specify)	0
	Total	70

B. Course Objectives and Learning Outcomes

<p>1. Course Description</p> <p>This course intends to introduce more advanced topics in databases such as distributed databases, complex data, and advanced DBMSs. The emphasis is on object-oriented database systems. The course contains a deeper treatment of the object-oriented database area that comprises an overview of object-oriented concepts, Object oriented Data Model, Comparing relational DBMSs and OODBMSs, Object orientation in Query Languages, Object oriented Database systems, Object database standards. Also, the practical exposure for object-oriented support provided by popular packages like Oracle, DB2, etc for OODB is included in this course.</p>
<p>2. Course Main Objective</p> <p>On completing the course students will:</p> <ul style="list-style-type: none"> - State differences and similarities between object handling and other forms of database handling. - Outline the need for object-relational databases and understand their application in business, engineering, and scientific domains. - Describe the object-relational features of SQL:1999/SQL:2003 as implemented in Oracle DBMS. - Define object-relational databases design issues and tradeoffs. - Explain the main principles of object-oriented and object-relational databases and appreciate their relative advantages and drawbacks. - Design and implement object oriented database



3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	State differences and similarities between object handling and other forms of database handling	K1
1.2	Outline the need for object-relational databases and understand their application in business, engineering, and scientific domains	K1
2	Skills :	
2.1	Analyze the object-relational features of SQL:1999/SQL:2003 as implemented in Oracle DBMS	S1
2.2	Evaluate object-relational databases design issues and tradeoffs	S1
2.3	Explain the main principles of object-oriented and object-relational databases and appreciate their relative advantages and drawbacks	S2
2.4	Design and implement object-oriented database	S2
3	Values:	

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to object-oriented database systems	7
2	Basic concepts for using object databases	7
3	Object oriented data models	7
4	DBMS standards for objects	8
5	Query languages	10
6	Versions	7
7	Storage management and indexing techniques	12
8	Distributed databases	12
Total		70

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	State differences and similarities between object handling and other forms of database handling	Lecture Discussion	Mid, Final, quizzes
1.2	Outline the need for object-relational databases and understand their application in business, engineering, and scientific domains	Lecture Discussion	Mid, Final, quizzes
2.0	Skills		
2.1	Analyze the object-relational features of SQL:1999/SQL:2003 as implemented in Oracle DBMS	Lectures, lab work and exercises	Mid, Final, quizzes
2.2	Evaluate object-relational databases design issues and tradeoffs	Lectures, lab work and exercises	Mid, Final, quizzes



Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.3	Explain the main principles of object-oriented and object-relational databases and appreciate their relative advantages and drawbacks	Lectures, lab work and exercises	Mid, Final, quizzes
2.4	Design and implement object-oriented database	Lectures, lab work and exercises	Mid, Final, quizzes
3.0	Values		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	4:10	10%
2	Mid Exam	6	20%
3	Course project	10	15%
4	Lab Exam	11	15%
5	Final Exam	12	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer “at risk” students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none"> Elisa Bertino, Lorenzo Martino. Object-Oriented Database Systems: Concepts and Architectures Addison-Wesley Pub (Sd) , Latest version Douglas Barry. The Object Database Handbook: How to Select, Implement, and Use Object-Oriented Databases, Wiley Latest version
Electronic Materials	Course slides, course handouts, questions and answers bank, and LMS to facilitate communications between instructors and students.



Other Learning Materials	
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2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> • A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board. • A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> • Data show / White Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	<ul style="list-style-type: none"> • Review CAF (Course assessment file) • Alumni surveys. • Periodic exchange and remarking of tests or a sample of assignments with staff at another

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	IT Department Council/ Executive program committee
Reference No.	11
Date	23/10/21443



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