

California State University Channel Islands
New Course Proposal

Program Areas: Physical Sciences, Math and Computer Science

1. Catalog Description of the Course.

COMP 520 ADVANCED DATABASE SYSTEMS (3)

Three hours lecture in the lab per week.

Prerequisite: Admission to the Computer Science or Mathematics Graduate Program

This graduate course covers advanced analysis of Relational Database Management Systems including their design and implementation. Topics include relational algebras, Entity Relation Diagrams, first, second, and third Normal Forms, data integrity constraints, triggers, query optimization, indexing, stored procedures, distributed databases, database administration issues, transaction processing and scheduling, object oriented database modeling, and data security

2. Mode of Instruction.

	<u>Units</u>	<u>Hours per Unit</u>	<u>Benchmark Enrollment</u>
Lecture 3	1		24
Seminar *	*	*	
Laboratory	*	*	*
Activity *	*	*	

3. Justification and Learning Objectives.

Justification: This a required course in the MS in CS.

Learning Objectives:

Through this course, students will be able to

1. Apply effectively the components of a database system.
2. Represent information in the form of tables, records, and fields.
3. Be able to construct Entity Relation diagrams, Relational Database Management Systems
4. Be able to analyze and implement sql queries.
Be able to analyze data integrity constraints, triggers, query optimization, indexing, stored procedures,
5. distributed databases, database administration issues, transaction processing and scheduling, object oriented database modeling, and data security
6. Identify and represent system constraints, discuss uncertainty issues.
7. Organize and express ideas clearly and convincingly in oral and written forms.

4. Is this a General Education Course?

No.

5. Course Content in Outline Form.

Topics:

- a) Relational Database Management Systems including their design and implementation.
 1. Relational Algebras
 2. Entity Relation Diagrams
 3. First, second, and third Normal Forms
 4. Data integrity constraints,
 5. Triggers,
 6. Query optimization, indexing, stored procedures,
 7. Distributed databases, database administration issues
 8. Transaction processing and scheduling,
- b) Object oriented database modeling, and data security
- c) Multimedia indexing
- d) Uncertainty issues.

6. References.

Texts:

Advanced Database Systems, The Morgan Kaufmann Series in Data Management Systems,
by Carlo Zaniolo, Stefano Ceri, Christos Faloutsos, Richard T. Snodgrass, V. S. Subrahmanian, Roberto
Zicari, (1997) , 155860443X

7. Faculty Qualified to Teach This Course.

Qualified Faculty: CS Faculty.

8. Frequency.

Projected semesters to be offered: Spring X

9. New Resources Required.

- a. New Equipment needs: Use of existing labs.
- b. New Library needs: No additional needs
- c. New Space/Facilities needs: none

10. Consultation.

Attach consultation sheet from all program areas, Library, and others (if necessary).

11. Program Modification.

If this new course will alter any degree, credential, certificate, or minor in your program, attach a
program modification.

12. Proposer of Course.

Proposer: P. Smith, AJ Bieszczad Date: 10/28/2003

Proposer of Course

Date