

DEPARTMENT OF COMPUTER APPLICATIONS
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Course Title	Database Management Systems		
Course Code	CA712	No. of Credits	3
Department	Computer Applications	Faculty	Dr. R. Eswari Mrs. A. Cynthia Devi
Pre-requisites Course Code	CA711, CA713		
Course Teacher(s) /Tutor(s) E-mail	eswari@nitt.edu cynthia@nitt.edu	Telephone No.	0431-2503744
Course Type	Core course		
COURSE OVERVIEW			
<p>The database management systems course provides a general overview of the nature and purpose of database systems. It presents the entity-relationship model with its design issues and constraints and also presents the relational model covering the relational algebra, relational calculus and SQL. It focuses on the relational database design which covers the theory of functional dependencies and normalization with emphasis on the understanding of each normal form. It deals with file-system structure and with the mapping of relational data to a file system. It explains a variety of access techniques such as hashing and indexing. It addresses query-evaluation algorithms, and query optimization based on equivalence-preserving query transformations. The course also focuses on the database tuning, security, transaction-processing system, concurrency control, techniques for ensuring serializability and recovery.</p>			
COURSE OBJECTIVES			
<p>To learn different database models and design of databases To study query languages and transaction management</p>			
COURSE OUTCOMES			Aligned Programme Outcomes (PO)
1. Illustrate the features of DBMS & Models for designing databases			1,2,3,5,7,8
2. Describe the nuances of Data retrieval methods			1,3,5,7
3. Apply normalization techniques in DB design			1,2,3,7
4. Perform concurrency and Transaction Management operations			2,3,7,8

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1	1	File System versus DBMS – Advantages – Database Languages - ER-Model: Entities – Relationships	Theory - chalk and Talk (2h) Tutorial - Problem solving - 1hr
2	2	Additional Features of ER Model - Conceptual Design with ER Model	-do-
3	3	Relational Model – Keys - Constraints – Querying – Views	-do-
4	4	Relational Algebra – Relational Calculus – SQL – QBE	-do-
5	5	File Organization – Organization of records in files – Indexing – Ordered Indices - B + Tree Index files	-do-
6	6	Hashing – Static – Dynamic – Query Optimization – Transformation of Relational Expressions – Choice of evaluation plans	-do-
7	7	Database Design – Pitfalls in Relational Database Design – Functional Dependencies	-do-
8	8	Decomposition – Normalization – I to V Normal Forms	-do-
9	9	DB Tuning – Security	-do-
10	10	Transaction Management – Transactions – Transaction state – Concurrent executions	-do-
11	11	Serializability – Concurrency Control – Protocols – Crash Recovery	-do-

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Test 1	Week 4	1 Hr	20
2	Test 2	Week 8	1 Hr	20
3	Assignment	Week 6	1 week	10
4	Semester	At the end of course	3 hrs	50

ESSENTIAL READINGS :

1. Raghu Ramakrishnan and Johannes Gehrke, "Data Base Management Systems", 3rd Edition, McGraw-Hill, 2003.
2. Silberschatz, Korth and Sudarshan, "Data Base System Concepts", McGraw-Hill, 6th Edition, 2010.
3. C. J. Date, "An Introduction to Database Systems", 8th Edition, Addison-Wesley, 2003.
4. R. Elmasri, S.B. Navathe, "Fundamentals of Database Systems", 5th Edition, Pearson Education/Addison Wesley, 2007.

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

- The students through the class representative may give their feedback at any time to the course faculty which will be duly addressed.
- The students may also give their feedback during Class Committee meeting.
- The COs will be computed after arriving at the final marks.

COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)

- **Plagiarism**
The students are expected to come out with their original solution for problems given as assignment, and tests/examinations.
- **Attendance**
100% is a must. However, relaxation upto 25% will be given for leave on emergency requirements (medical, death, etc.) and representing institute events.

ADDITIONAL COURSE INFORMATION

The students can get their doubts clarified at any time with their faculty member with prior appointment.

FOR SENATE'S CONSIDERATION

1. 
2. 

Course Faculty


CC-Chairperson


HOD