Date:12/05/12

1. **Course Name** : Data Base Management Systems
2. **Course Code** : 09 EM 301
3. **Course Coordinator** : Smt.T.Anuradha
4. **Course Structure(LTP)** : 3-0-2
5. **Credits** : 4
6. **Team Members** : T.Anuradha,S.Nagendram

7. **Course Description :** This course is offered in the fifth semester of B.Tech programme in Electronics and Computer Engineering.The prerequisite for the course is operating systems.This is a core course for the ECM students for both GATE as well as for any campus placement.

8. **Course objectives:** Databases and database systems have become an essential component of everyday life in modern society. In the course of a day, most of us encounter several activities that involve some interaction with a database. This course explains about Database systems concepts and architecture, data modeling using Entity-relationship model, Record storage and primary file organization, Relational data model,SQL, Normalizations for relational databases, Transaction processing concepts and concurrency control techniques.

9. **Program Outcomes:**

PO1.Apply knowledge of Mathematics, Science, Engineering fundamentals and Electronics and Computer Engineering to the conceptualization of Engineering models.

PO2.Identify, formulate, research literature, and solve complex problems reaching substantial conclusions using first principles of Mathematics and Electronics and Computer Engineering

PO3.Design solutions for complex engineering problems and design systems , components , or processes that meet specified needs with appropriate consideration of public health , and safety , cultural , societal and, environmental considerations

PO4.Conduct investigations of Complex problems including design of modules and components , analysis and interpretation of data , and synthesis of information to provide valid conclusions.

PO5.Create, select ,and apply appropriate techniques, resources and modern engineering tools, including prediction and modeling to complex engineering activities, with an understanding of limitations.

PO6. Function effectively as an individual, and as a member or leader in diverse teams and multi disciplinary settings.

PO7.Communicate effectively on complex engineering activities with the engineering community and with society at large , such as being able to comprehend and write effective reports and design documentation , make effective presentations, and give and receive clear instructions .

PO8. Demonstrate understanding of societal, health, safety, legal, and cultural issues and the consequent responsibilities and norms of engineering practice.

PO9. Understand and Commit to professional ethics and responsibilities and norms of engineering practice.

PO10.Understand the impact of engineering solutions in a societal context and demonstrate knowledge of and need for sustainable development.

PO11.Demonstrate a knowledge and understanding of management and business practices, such as risk and change management and understand their limitations.

PO12.Recognize the need for, and have the ability to engage in independent and life-

long learning.

10. Competencies student acquires from the course

- C1. Differentiate a normal file processing system from a database management system
- C2. Understand different data models, architecture of a DBMS system
- C3. Analyze the given problem and draw ER model for any given problem
- C4. Apply SQL statements to create a database and retrieve data from the database
- C5. Apply relational algebra and relational calculus concepts to retrieve data
- C6. Understand transaction processing and concurrency control techniques

11. Competency – PO Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C1	3	3										
C2	3	3										
C3	3	2		3		2	1					
C4	2	1			3	2	2				3	
C5	3	2			2							
C6	2				2			3		3	1	

1. Slightly   2. Moderately   3. Substantially

12. **Time Table:** Time table will be announced in the class.

13. Syllabus:

UNIT I: Databases and Database users: Characteristics, Actors, Advantages, implications. Database systems concepts and Architecture: Data Models, Schemas and Instances, DBMS Architecture and Data Independence, Languages and Interfaces, Environment, Classification. Data modeling using the Entity-Relationship model.

(12)

UNIT II: The Relational Data Model, Relational constraints, and the Relational Algebra: Update Operations and Dealing with constraint violations, Basic and Additional Relational Algebra operations. SQL-The Relational Database Standard: Queries in SQL, Insert, delete and Update statements, Views, Specifying General Constraints as Assertion. Additional Features.

(12)

UNIT III: ER and EER – to – Relational Mapping and other Relational Languages: Relational Database Design Using ER-to-Relational Mapping, Mapping EER Model concepts to Relations, Domain and Tuple Relational Calculus. Functional

Dependencies and Normalizations for Relational Databases: Design Guidelines, Functional Dependencies, normal Forms based on Primary Keys, Second and Third Normal Forms, Boyce-codd Normal Form. Relational Database Design Algorithms and Further Dependencies.

(12)

UNIT IV: Transactions Processing Concepts: Introduction, Transaction and system concepts, Desirable properties of Transactions, Schedules and Recoverability, Serializability of Schedules, Transaction Support in SQL.

(12)

UNIT V: Concurrency Control Techniques: Locking Techniques, Time Stand Ordering, Multiversion Techniques, Validation Techniques, Granularity and Multiple Granularity Locking, Using Locks, Other Concurrency control Issues,Database recovery

(12)

Text Books :

"Fundamentals of data base systems" 4th eddition Elmasri navathe

Reference Books   :

1.Bipin C.Desai, 'An Introduction to Database Systems', West Publishing Company,2000.

2.CJ Date, 'An Introduction to Database Systems', 6th Edition, Addison Wesley Longman Inc- 1999.

14. Self Learning Topics:

UNIT	TOPIC	SOURCE
I	Company schema – UML class diagrams	Fundamentals of data base systems'' 4th eddition Elmasri navathe
II	EER model concepts	Fundamentals of data base systems'' 4th eddition Elmasri navathe
III	Embedded SQL	Fundamentals of data base systems'' 4th eddition Elmasri navathe
IV	Relational database design algorithms	Fundamentals of data base systems'' 4th eddition Elmasri navathe
V	Database Recovery	Fundamentals of data base systems'' 4th eddition Elmasri navathe

15. Evaluation Scheme:

Internal Marks : 40, External Marks : 60

Sl. No.	Nature of examination	Marks%	Type of examination and mode of Assessment		Scheme of examination
1	*Theory	60	Semester end examination (external evaluation)		This examination question paper in theory subjects will be for a maximum of 60 marks
		40	20	Test – 1	2 mid – exams each for 20 marks and of 1½ hr duration are to be conducted. For a total of 20 marks, 75% of better of the two and 25% of the other are added and reported.
				Test - 2	
			5	Assignment Test	6 Question to be released in advance. 2 Questions allotted

					by Examiners choice to be answered. Duration 45 min.
			5	Home Assignments	Average of Home Assignments minimum 2 per subject
			5	Surprise Quiz	A maximum of two surprise quizzes per subject
			5	Attendance / Class notes	5 marks are allotted for attendance and class notes

16. Notices : All notices regarding the course matters will be displayed in E-Learning site only.

17. Chamber consultation hour: 1 pm to 2 pm

18. Signature of the course coordinator:

19. Signature of the group head:

20. Signature of the HOD: