

**J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY**

(AUTONOMOUS)

DEPARTMENT OF IT



**COURSE FILE  
OF  
DATABASE MANAGEMENT SYSTEM**

**II B.TECH (IT)**

**II SEMESTER**

**ACADEMIC YEAR**

**2015-16**



## COURSE PLAN

2015-16

Regulation: R14

### FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department:: IT

### COURSE DETAILS

Name Of The Programme:: B.Tech

Batch:: 14-18

Designation:: Assistant Professor

Semester II


Year :II

Department:: IT

Subject Code

Title of The Subject Data Base Management  
Systems

No of Students 47

	COURSE PLAN	2015-16
		Regulation: R14

FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
 Designation: Assistant Professor  
 Department:: IT

1. TARGET

- a) Percentage Pass **100**
- b) Percentage I class **90**

2. COURSE PLAN

(Please write how you intend to cover the contents: i.e., coverage of Units by lectures, guest lectures, design exercises, solving numerical problems, demonstration of models, model preparation, or by assignments, etc.)

By lectures, design excersises, assignments

3. METHOD OF EVALUATION

- 3.1.  Continuous Assessment Examinations (CAE 1, CAE 2)
- 3.2.  Assignments / Seminars
- 3.3.  Mini Projects
- 3.4.  Quiz
- 3.5.  Term End Examination
- 3.6.  Others

4. List out any new topic(s) or any innovation you would like to introduce in teaching the subject in this Semester.

Signature of HOD  
 Date:

Signature of Faculty  
 Date:



## GUIDELINES TO STUDY THE SUBJECT

2015-16

Regulation: R14

### FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR

Designation: Assistant Professor

Department:: IT

Guidelines for Preparing the Course:

#### Course Description:

This course introduces database design and creation. Emphasis is on data dictionaries, normalization, data integrity, data modelling, and creation of simple tables, queries, reports, and forms. Upon completion, students should be able to design and implement normalized database structures by creating simple database tables, queries, reports, and forms.

#### Course Objectives:

1. To understand the different issues involved in the design and implementation of a database system.
2. To study the physical and logical database designs, database modeling, relational, hierarchical, and network models
3. To understand and use data manipulation language to query, update, and manage a database
4. To develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency,
5. To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

#### Learning Outcomes:

Define program-data independence, data models for database systems, database schema and database instances.

Recall Relational Algebra concepts, and use it to translate queries to Relational Algebra Statements and vice versa.

Identify Structure Query Language statements used in creation and manipulation of db. Identify the methodology of conceptual modeling through Entity Relationship model. Identify the methodology of logical model.

Identify the methodology of physical model.

Develop an understanding of the differences between OODBMS, ORDBMS and RDBMS and the practical implications of each approach.

Analyze and design a real database application.

Develop and evaluate a real database application using a database management system.

Improve teamwork management skills.

Enhance negotiation and discussion skills.

FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department:: IT

On completion of this Subject / Course the student shall be able to:

S.No.	Objectives	Outcomes
1.	Understand the applications of dbms, difference between filesystems vs dbms, identify the data models ,understand dbms structure	
2.	Identifies the entity ,attributes, identify entity relationship diagrams	Illustrate
3.	Understands the relational algebra concepts, selection ,projection ,relational calculus which helps in understanding queries	Infer Summarize
4.	Able to learn ddl, cmds, dml, queries	Reproduce Select
5.	Identifies the functional dependencies, decompositions: loss less join, dependency preserving decomposition Understands the need of normalization, Normal forms I,II,III,IV & BCNF is learnt	Convert Defend
6.	Understands the properties of transaction mgmt	Describe (a procedure)
7.	Identifies the recovery management	Distinguish Estimate
8.	Identifies the file organization methods access methods to store the data	Explain why/how

Note: For each of the OBJECTIVE indicate the appropriate OUTCOMES to be achieved. Kindly refer Page 16, to know the illustrative verbs that can be used to state the objectives.

Signature of Faculty  
Date:



## COURSE OUTCOMES

2015-16

Regulation: R14

**FACULTY DETAILS:**

Name of the Faculty:: B.VIJAY KUMAR  
 Designation: Assistant Professor  
 Department: IT

**The expected outcomes of the Course / Subject are:**

S.No.	General Categories of Outcomes	Specific Outcomes of the Course
A.	An ability to apply knowledge of mathematics, science, and engineering	The ability to apply the concepts of engineering i.e collecting data, organize the data in the systematic form ,arrange the data in a computational way and this the way in applying mathematics
B.	An ability to design and conduct experiments, as well as to analyze and interpret data	Able to design the ER diagrams as well as interpret the design of database
C.	An ability to design a system, component, or process to meet desired needs within realistic Constraints such as economic, environmental, social, political, ethical, health and safety, Manufacturability and sustainability	Able to design the db system due to inferring the knowledge
D.	An ability to function on multi-disciplinary teams	Participating in projects, workshops encourages multidisciplinary teams
E.	An ability to identify, formulate, and solve engineering problems	Formulate the queries required to solve the issues in db
F.	An understanding of professional and ethical responsibility	Professional is developed by being in the entrepreneur
G.	An ability to communicate effectively	By conduction of seminars and discussions ability to communicate effectively
H.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	The subject learnt by students can be implemented in real time systems whenever it is necessary

I.	A recognition of the need for, and an ability to engage in life-long learning	
J.	A knowledge of contemporary issues	The knowledge of present versions of the tools are updated
K.	An ability to use the techniques, skills, and modern engineering tools necessary for Engineering practice.	Skills are developed while working for the project during academic calendar.

**Objectives – Outcome Relationship Matrix** (Indicate the relationships by  mark).

Objectives \ Outcomes	A	B	C	D	E	F	G	H	I	J	K
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## COURSE SCHEDULE

2015-16

Regulation: R14

### FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department:: IT

The Schedule for the whole Course / Subject is::

S. No.	Description	Duration (Date)		Total No. of Periods
		From	To	
1.	Introduction to databases and on ER diagrams	14.12.15	06-1-16	15
2.	Introduction to Relational model and Relational algebra	07-1-16	29-1-16	12
3.	From of Basic SQL Query and Schema Refinement	01-2-16	29-2-16	18
4.	Transaction concept and Recovery and Atomicity	01-3-16	17-3-16	14
5.	Data on External Storage and Advanced DBMS	18-3-16	05-04-16	14

Total No. of Instructional periods available for the course: Hours / Periods





## SCHEDULE OF INSTRUCTIONS

2015-16

### UNIT - I

Regulation: R14

#### FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department: IT


The Schedule for the whole Course / Subject is::

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	14-12-15	1	Data base System Applications		TB-1, 1 Pg 1
2	16-12-15	1	data base System VS file System		TB-1 Pg3
3	17-12-15	1	View of Data – Data Abstraction Instances and Schemas		TB-1 Pg5
4	18-12-15	1	data Models the ER Model , Relational Model, Other Models ,		TB-1 Pg 7
5	19-12-15	1	Database languages DDL , DML		TB-1 Pg11
6	21-12-15	1	Database Access for applications Programs		TB-1 pg15
7	22-12-15	1	Data base System Structure Storage Manager		TB-1 pg 16
8	23-12-15	1	The Query Processor		TB-1 pg 17
9	24-12-15	1	History of Data base Systems		TB-1 Pg 18
10	28-12-15	1	Data base design and ER diagrams		TB-2 pg 26
11	29-12-15	1	Beyond ER Design Entities, Attributes and Entity sets		TB-2 Pg 27
12	30-12-15	1	Relationships and Relationship sets		TB-2 pg 29

13	4-1-16	1	Additional features of ER Model	TB-2 Pg 32
14	5-1-16	1	Concept Design with the ER Model	TB-2 Pg 40
14	6-1-16	1	Conceptual Design for Large enterprises	TB-2 Pg 46

Signature of Faculty  
Date

- Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.  
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.  
3. MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	<p style="text-align: center;"><b>SCHEDULE OF INSTRUCTIONS</b></p> <p style="text-align: center;"><b>UNIT - II</b></p>	2015-16
		Regulation: R14

FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department:: IT


The Schedule for the whole Course / Subject is::

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	07-1-16	1	Introduction to the Relational Model		TB-1 & 2 Pg 57
2	08-1-16	1	Integrity Constraint Over relations		TB-2 Pg64
3	16-1-16	1	Enforcing Integrity constraints		TB-2 Pg 69
4	17-1-16	1	Querying relational data		TB-2 Pg73
5	19-1-16	1	Logical data base Design		TB-2 Pg 75
6	21-1-16	1	Introduction to Views		TB-2 Pg 87
7	22-1-16	1	Destroying /altering Tables and Views.		TB-2 Pg 91
8	23-1-16	1	Relational Algebra Selection and projection		TB-2 Pg 102

9	24-1-16	1	set operations renaming Joins Division	TB-2 Pg 104
10	27-1-16	1	Examples of Algebra overviews	TB-2 Pg 106
11	28-1-16	1	Relational calculus Tuple relational Calculus Domain relational calculus	TB-2 Pg 116
12	29-1-16	1	Expressive Power of Algebra and calculus	TB-2 Pg 124

Signature of Faculty  
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.  
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MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	<b>SCHEDULE OF INSTRUCTIONS</b>  <b>UNIT - III</b>	2015-16
		Regulation: R14

FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department:: IT

The Schedule for the whole Course / Subject is::

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	30-1-16	1	Form of Basic SQL Query		TB-1 Pg 132
2	2-2-16	1	Examples of Basic SQL Queries		TB-1 Pg 138
3	3-2-16	1	Introduction to Nested Queries		TB-1 Pg 141
4	6-2-16	1	Correlated Nested Queries Set		TB-1 Pg 147
5	14-2-16	1	Comparison Operators Aggregative Operators NULL values		TB-1 Pg 147
6	15-2-16	1	Comparison using Null values		TB-1 Pg 163

7	16-2-16	1	Logical connectivity's – AND, OR and NOT	TB-1 Pg 164
8	17-2-16	1	Impact on SQL Constructs Outer Joins	TB-1 Pg 165
9	18-2-16	1	Disallowing NULL values	TB-1 Pg 165
10	19-2-16	1	Complex Integrity Constraints in SQL Triggers and Active Data bases	TB-1 Pg 167
11	20-2-16	1	Schema refinement and Problems Caused by redundancy	TB-1 & 2 Pg 606
12	22-2-16	1	Decompositions and Problem related to decomposition	TB-1 & 2 Pg 608 & 609
13	23-2-16	1	FIRST, SECOND, THIRD Normal forms ,BCNF	TB-1 & 2 Pg 614-619
14	24-2-16	1	Lossless join Decomposition	TB-1 & 2 Pg 619
15	25-2-16	1	Dependency preserving Decomposition	TB-1 & 2 Pg 621
16	26-2-16	1	Schema refinement in Data base Design	TB-1 & 2 Pg 629
17	27-2-16	1	Multi valued Dependencies	TB-1 & 2 Pg 633
18	29-2-16	1	FOURTH Normal Form	TB-1 & 2 Pg 636

Signature of Faculty  
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.  
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.  
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.



## SCHEDULE OF INSTRUCTIONS

2015-16

### UNIT - IV

Regulation: R14

#### FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department: IT

The Schedule for the whole Course / Subject is::

Sl. No.	Date	No. Of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	1-3-16	1	Transaction Concept and Transaction Stat		TB-1 Pg 565-70
2	2-3-16	1	Implementation of Atomicity and Durability		TB-1 Pg 571-72
3	3-3-16	1	Concurrent Executions		TB-1 Pg 573-75
4	4-3-16	1	Serializability Recoverability		TB-1 Pg 576,582
5	5-3-16	1	Implementation of Isolation Testing for serializability		TB -1 Pg 583-89
6	7-3-16	1	Lock Based Protocols		TB-1 Pg 591-7
7	8-3-16	1	Timestamp Based Protocols		TB -1 Pg 604-6
8	9-3-16	1	Validation- Based Protocols		TB-1 Pg 607-8
9	10-3-16	1	Multiple Granularity		TB -1 Pg 609-13
10	11-3-16	1	Recovery and Atomicity		TB-1 Pg 644
11	14-3-16	1	Log Based Recovery		TB-1 Pg 645
12	15-3-16	1	Recovery with Concurrent Transactions		TB-1 Pg 657
13	16-3-16	1	Buffer Management & Failure with loss of non volatile storage		TB-2 Pg 660-663
14	17-3-16	1	Advance Recovery systems Remote Backup systems		TB-2 Pg 664,672

Signature of Faculty  
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.  
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.  
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.



## SCHEDULE OF INSTRUCTIONS

2015-16

### UNIT - V

Regulation: R14

#### FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department:: IT

The Schedule for the whole Course / Subject is::

Sl. No.	Date	No. Of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	18-3-16	1	Data on External Storage		TB-2 Pg 274
2	21-3-16	1	File Organization and Indexing		TB-2 Pg 275
3	22-3-16	1	Cluster Indexes		TB-2 Pg 276
4	23-3-16	1	Primary and Secondary Indexes		TB-2 Pg 277
5	24-3-16	1	Index data Structures		TB-2 Pg 278
6	25-3-16	1	Hash Based Indexing		TB-2 Pg 279
7	28-3-16	1	Tree base Indexing		TB2 Pg 280
8	29-3-16	1	Comparison of File Organizations		TB2 Pg 282
9	30-3-16	1	Indexes and Performance Tuning		TB 2 Pg 291
10	31-3-16	1	Intuitions for tree Indexes		TB2 Pg 339
11	1-4-16	1	Indexed Sequential Access Methods (ISAM)		TB2 Pg 341
12	2-4-16	1	B+ Trees: A Dynamic Index Structure		TB2 Pg 344
13	4-4-16	1	Introduction to Distributed Database and architecture		TB1 Pg 727
14	5-4-16	1	Fragmentation, Allocation and Joins		TB1 Pg 739-745

Signature of Faculty  
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.  
2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.  
MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	<b>COURSE COMPLETION STATUS</b>	2015-16
		Regulation: R14

**FACULTY DETAILS:**

Name of the Faculty:: B.VIJAY KUMAR  
 Subject:: Data Base Management systems  
 Department:: IT  
 Subject Code  
 Actual Date of Completion & Remarks, if any

Units	Remarks	Nos. of Objectives Achieved
Unit 1	Define identify    Reproduce    Label List	3 & 4
Unit 2	Match                    Procedure            Select            Estimate Reproduce            Distinguish            State            Explain why/how	4
Unit 3	Generalize            Extend	2
Unit 4	Generalize            Give examples	2
Unit 5	Illustrate Infer                    Summarize	2

**Signature of Dean of School**  
Date:

**Signature of Faculty**  
Date:

NOTE: AFTER THE COMPLETION OF EACH UNIT MENTION THE NUMBER OF OBJECTIVES ACHIEVED.



## TUTORIAL SHEETS - I

2015-16

Regulation: R14

### FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department:: IT

The Schedule for the whole Course / Subject is::

Date:

This Tutorial corresponds to Unit Nos. I and II

Time:

1. What are the five main functions of Database Administrator?
2. List four significant differences between a File processing system and a DBMS.
3. Explain the differences between Logical and Physical data independence  
.. Explain about the following
  - i. Key constraints
  - ii. Specifying foreign key constraints in SQL with an example.
- 4 What is a view? Explain about views in detail.
5. What is a view? How does views support logical data independence and How queries on views are evaluated?

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School  
Date:

Signature of Faculty  
Date:





## TUTORIAL SHEETS - II

2015-16

Regulation: R14

### FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department:: IT

The Schedule for the whole Course / Subject is::

Date:

This Tutorial corresponds to Unit No. III

Time:

1. Write the following queries in SQL using Nested queries concept for following Schema.  
Sailors (sid: integer, sname: string, rating: integer, age: real)  
Boats (bid: integer, bname: string, color: string)  
Reserves (sid: integer, bid: integer, day: date)
  - i. Find the names of sailors who have reserved both red and a green boat
  - ii. Find the names of sailors who have reserved all boats.
  - iii. Find the names of sailors who have not reserved red boat.
  - iv. Find sailors whose rating is better than some sailor called raghu.
2. What are the differences between Integrity constraints and Triggers?
3. What is the motivation for 3NF?
4. Describe multi valued dependencies with examples.
5. Explain the problems caused by redundancy.

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School  
Date:

Signature of Faculty  
Date:



## TUTORIAL SHEETS - III

2015-16

Regulation: R14

### FACULTY DETAILS:

Name of the Faculty:: B.VIJAY KUMAR  
Designation: Assistant Professor  
Department:: IT

Date:

This Tutorial corresponds to Unit Nos. IV and V

Time:

1. Explain different States of transactions
2. Define the concept of schedule for a set of concurrent transaction. Give a suitable example
3. What is serializability? Explain briefly about conflict and view serializability.
4. Explain the procedure of granting locks to transactions.
5. Explain in detail about the role of checkpoints in log-based recovery.
6. Explain the different buffering techniques used for implementing the crash-recovery.
7. Explain about fixed length file organization with an example.
8. Explain indexes and performance tuning in detail.

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School  
Date:

Signature of Faculty  
Date:



## ILLUSTRATIVE VERBS FOR STATING INSTRUCTIONAL OBJECTIVES

2015-16

Regulation: R14

*These verbs can also be used while framing questions for Continuous Assessment Examinations as well as for End – Semester (final) Examinations.*

### ILLUSTRATIVE VERBS FOR STATING GENERAL OBJECTIVES

Know Comprehend	Understand Apply	Analyze Design	Generate Evaluate
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### ILLUSTRATIVE VERBS FOR STATING SPECIFIC OBJECTIVES:

#### A. Cognitive Domain

1	2	3	4	5	6
<b>Knowledge</b>	<b>Comprehension Understanding</b>	<b>Application</b> of knowledge & Comprehension	<b>Analysis</b> of whole w.r.t. its constituents	<b>Synthesis</b> combination of ideas/constituents	<b>Evaluation</b> judgement

Define	Convert	Change	Breakdown	Categorize	Appraise
Identify	Defend	Compute	Differentiate	Combine	Compare
Label	Describe (a procedure)	Demonstrate	Discriminate	Compile	Conclude
List	Distinguish	Deduce	Distinguish	Compose	Contrast
Match	Estimate	Manipulate	Separate	Create	Criticize
Reproduce	Explain why/how	Modify	Subdivide	Devise	Justify
Select	Extend	Predict		Design	Interpret
State	Generalize	Prepare		Generate	Support
	Give examples	Relate		Organize	
	Illustrate	Show		Plan	
	Infer	Solve		Rearrange	
	Summarize			Reconstruct	
				Reorganize	
				Revise	

#### B. Affective Domain

#### C. Psychomotor Domain (skill development)

Adhere	Resolve	Bend	Dissect	Insert	Perform	Straighten
Assist	Select	Calibrate	Draw	Keep	Prepare	Strengthen
Attend	Serve	Compress	Extend	Elongate	Remove	Time
Change	Share	Conduct	Feed	Limit	Replace	Transfer
Develop		Connect	File	Manipulate	Report	Type
Help		Convert	Grow	Move precisely	Reset	Weigh
Influence		Decrease	Handle	Operate	Run	
Initiate		Demonstrate	Increase	Paint	Set	



## LESSON PLAN Unit-1

2015-16

Regulation: R14

Name of the Faculty: B.VIJAY KUMAR

Subject DBMS


Subject Code

### INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Data base System Applications,	50 min	TB1	PPT, charts
2	data base System VS file System ,	50 min	TB1	Chalk & board, PPT
3	View of Data – Data Abstraction , Instances and Schemas	50 min	TB1	Chalk & board
4	data Models , the ER Model ,Relational Model, Other Models ,	50 min	TB1	Chalk & board
6	Data base Users and Administrator Transaction Management	50 min	TB1	Chalk & board
7	Data base System Structure	50 min	TB1	Chalk & board
8	The Query Processor	50 min	TB1	Chalk & board
9	History of Data base Systems	50 min	TB1	Chalk & board
10	Data base design and ER diagrams	50 min	TB1	Chalk & board
11	Beyond ER Design Entities, Attributes and Entity sets	50 min	TB1	Chalk & board
12	Relationships and Relationship sets	50 min	TB1	Chalk & board
13	Additional features of ER Model	50 min	TB1	Chalk & board
14	Concept Design with the ER Model	50 min	TB1	Chalk & board
15	Conceptual Design for Large enterprises	50 min	TB1	Chalk & board

On completion of this lesson the student shall be able to (Outcomes)

1. Understands the concept reg DB
2. Gets an idea where db is used
3. Could differentiate between traditional file systems& DB
4. Gets the understanding of the structure of the DBMS
5. Identifies Entities, Attributes
6. Establish the relationship among entity& attribute
7. Identify different relations


	<b>ASSIGNMENT Unit-I</b>	2015-16
		Regulation: R14

**Assignment / Questions**

1. Define DBMS? List Database system Applications.
2. Explain Database Administrator's responsibilities.
3. Explain the main functions of Database Administrator
4. What is a weak entity set? Differentiate between entity set and strong entity set.
5. Define Aggregation. What is the problem associated with aggregation? Discuss the remedies.
6. What is a partial key? How is it represented in ER diagram? Give an Example.
7. What is descriptive attribute? Explain.
8. Discuss the usage of ISA feature in ER diagrams.

**Signature of Faculty**

Note: Mention for each question the relevant objectives and outcomes.

	<b>LESSON PLAN</b> <b>Unit-II</b>	2015-16
		Regulation: R14

Name of the Faculty: B.VIJAY KUMAR

Subject DBMS


Subject Code

**INSTRUCTIONAL OBJECTIVES:**

Session No	Topics to be covered	Time	Ref	Teaching Method
16	Introduction to the Relational Model	50 min	TB2	Chalk& Board,
17	Integrity Constraint Over relations	50 min	TB2	Chalk& Board, excersise
18	Enforcing Integrity constraints	50 min	TB2	Chalk& Board, excersise
19	Querying relational data	50 min	TB2	Chalk& Board exercise
20	Logial data base Design	50 min	TB2	Chalk& Board exercise
21	Introduction to Views	50 min	TB2	Chalk& Board exercise
22	Destroying /altering Tables and Views.	50 min	TB2	Chalk& Board exercises
23	Relational Algebra Selection and projection	50 min	TB2	Chalk& Board exercise
24	set operations renaming Joins Division	50 min	TB2	Chalk& Board exercise
25	Examples of Algebra overviews	50 min	TB2	Chalk& Board exercise
26	Relational calculus Tuple relational Calculus Domain relational calculus	50 min	TB2	Chalk& Board exercise
27	Expressive Power of Algebra and calculus	50 min	TB2	Chalk& Board exercise

On completion of this lesson the student shall be able to (Outcomes)

1. Identify the computational back ground for relational algebra
2. Understands the selection projection renaming operations
3. Understands the necessity of relational calculus

	<b>ASSIGNMENT</b> <b>Unit-II</b>	2015-16
		Regulation: R14

**Assignment / Questions**

1. Define the divisible operation in terms of the basic Relational Algebra operations.
2. Describe a typical query that calls for division. Unlike join, the division operation is not given special treatment in database systems. Explain why.
3. Relational calculus is said to be a declarative language, in contrast to algebra, which is a procedural language. Explain the distinction.
4. Define all the variations of the join operation. Why is the join operation given special attention? Cannot we express every join operation in terms of Cross-product, Selection and Projection?

**Signature of Faculty**

Note: Mention for each question the relevant objectives and outcomes.



**LESSON PLAN**  
**Unit-III**

2015-16

Regulation: R14

Name of the Faculty: B.VIJAY KUMAR

Subject DBMS

Subject Code

INSTRUCTIONAL OBJECTIVES:


Session No	Topics to be covered	Time	Ref	Teaching Method
28	Form of Basic SQL Query	50 min	TB2,Ref 2	Chalk& Board exercise
29	Examples of Basic SQL Queries	50 min	TB2	Chalk& Board exercise
30	Introduction to Nested Queries	50 min	TB2	Chalk& Board exercise
31	Correlated Nested Queries Set	50 min	TB2	Chalk& Board exercise
32	Comparison Operators Aggregative Operators NULL values	50 min	TB2	Chalk& Board exercise
33	Comparison using Null values	50 min	TB2	Chalk& Board exercise
34	Logical connectivity's – AND, OR and NOT	50 min	TB2	Chalk& Board exercise
35	Impact on SQL Constructs Outer Joins	50 min	TB2	Chalk& Board exercise
36	Disallowing NULL values	50 min	TB2	Chalk& Board exercise
37	Complex Integrity Constraints in SQL Triggers and Active Data bases	50 min	TB2	Chalk& Board exercise
38	Schema refinement and Problems Caused by redundancy	50 min	TB1,TB2	Chalk& Board exercise
39	Decompositions and Problem related to decomposition	50 min	TB1,TB2	Chalk& Board exercise
40	FIRST, SECOND, THIRD Normal forms ,BCNF	50 min	TB1,TB2	Chalk& Board exercise



41	Lossless join Decomposition	50 min	TB1,TB2	Chalk& Board exercise
42	Dependency preserving Decomposition	50 min	TB1,TB2	Chalk& Board exercise
43	Schema refinement in Data base Design	50 min	TB1,TB2	Chalk& Board exercise
44	Multi valued Dependencies	50 min	TB1,TB2	Chalk& Board exercise
45	FOURTH Normal Form	50 min	TB1,TB2	Chalk& Board exercise

On completion of this lesson the student shall be able to (Outcomes)

1. Learns DDL, DML CMDS
2. Understands & learns the queries
3. Implementation of the queries in various real time applications
4. Understand the necessity of schema refinement
5. Learn & understand about the normal forms
6. Analyze & implementation of normal forms

	<b>ASSIGNMENT</b> <b>Unit-III</b>	2015-16
		Regulation: R14

#### Assignment / Questions

1. Consider the following Schema:

Suppliers (sid: integer, sname: string, address: string)

Parts (pid: integer, pname: string, color: string)

Catalog (sid: integer, pid: integer, cost: real)

(a) The key fields are underlined. The catalog relation lists the price changes for parts by supplies. Write the following queries in SQL.

- i. Find the pnames of parts for which there is some supplier.
- ii. Find the snames of suppliers who supply every part.
- iii. Find the pnames of parts supplied by raghu supplier and no one else.

iv. Find the sids of suppliers who supply only red part.

(b) The key fields are underlined. The catalog relation lists the price changes for parts by supplies. Write the following queries in SQL.

i. Find sids of suppliers who supply a red part and a green part.

ii. Find sids of suppliers who supply a red part or a green part.

iii. For every suppliers that only supplies green parts, print the name of the supplier.

2. Explain the following in SQL with examples.

(a) Nested Queries

(b) Correlated Queries

(c) Group by and Having Clauses

(d) Triggers

3. What is correlated nested query? Explain with an example.

4. What is normalization?


5. Explain 1NF, 2NF, 3NF and BCNF with suitable example.

6. Explain non-loss decomposition and functional dependencies with suitable examples

7. Discuss how schema refinement an improve schemas obtained through ER design

**Signature of Faculty**

Note: Mention for each question the relevant objectives and outcomes.

	<b>LESSON PLAN</b> <b>Unit-IV</b>	2015-16
		Regulation: R14

Name of the Faculty: B.VIJAY KUMAR

Subject DBMS


Subject Code

**INSTRUCTIONAL OBJECTIVES:**

Session No	Topics to be covered	Time	Ref	Teaching Method
46	Transaction Concept and Transaction Stat	50 min	TB1,TB2	Chalk & board,
47	Implementation of Atomicity and Durability	50 min	TB1,TB2	Chalk & board
48	Concurrent Executions	50 min	TB1,TB2	Chalk & board,
49	Serializability Recoverability	50 min	TB1,TB2	Chalk & board
50	Implementation of Isolation Testing for serializability	50 min	TB1,TB2	PPTs, Chalk & board,
51	Lock Based Protocols	50 min	TB1,TB2	Chalk & board
52	Timestamp Based Protocols	50 min	TB1,TB2	PPTs, Chalk & board,
53	Validation- Based Protocols	50 min	TB1,TB2	Chalk & board
54	Multiple Granularity	50 min	TB1,TB2	Chalk & board,
55	Recovery and Atomicity	50 min	TB1,TB2	Chalk & board
56	Log Based Recovery	50 min	TB1,TB2	Chalk & board
57	Recovery with Concurrent Transactions	50 min	TB1,TB2	Chalk & board
58	Buffer Management & Failure with loss of nonvolatile storage	50 min	TB1,TB2	Chalk & board
59	Advance Recovery systems Remote Backup systems	50 min	TB1,TB2	Chalk & board

On completion of this lesson the student shall be able to (Outcomes)

1. Learn and Understand the ACID properties
2. Analyze about transaction mgmt
3. Understand the concept about transaction mgmt.
4. Understands about the recovery management
5. Learns about the buffer management


	<b>ASSIGNMENT</b> <b>Unit-IV</b>	2015-16
		Regulation: R14

**Assignment / Questions**

1. Discuss about Lock based protocols and validation based protocols in transaction management.
2. What is meant by transaction state? Discuss about Timestamp based protocols
3. What is a schedule? Explain the distinction between the terms serial schedule and serializable and schedule.
4. Discuss about the performance of locking.
5. What is a transaction? Explain ACID properties.
6. Discuss the transaction support in SQL.
7. Briefly discuss ARIES algorithm. [15]
8. What is an index? Differentiate between sparse and dense indices.
9. Make a comparison of sorted file organization with heap file organization.
10. Explain dead lock prevention policies employed in databases.

**Signature of Faculty**

Note: Mention for each question the relevant objectives and outcomes.

	<b>LESSON PLAN</b> <b>Unit-V</b>	2015-16
		Regulation: R14

Name of the Faculty: B.VIJAY KUMAR

Subject DBMS

Subject Code


**INSTRUCTIONAL OBJECTIVES:**

Session No	Topics to be covered	Time	Ref	Teaching Method
60	Data on External Storage	50 min	TB1,TB2	Chalk & board, PPTs

61	File Organization and Indexing	50 min	TB1,TB2	Charts, Chalk & board
62	Cluster Indexes	50 min	TB1,TB2	Chalk & board, PPTs
63	Primary and Secondary Indexes	50 min	TB1,TB2	Charts, Chalk & board
64	Index data Structures	50 min	TB2	Chalk & board, PPTs
65	Hash Based Indexing	50 min	TB2	Charts, Chalk & board
66	Tree base Indexing	50 min	TB2	Chalk & board, PPTs
67	Comparison of File Organizations	50 min	TB2	Charts, Chalk & board
68	Indexes and Performance Tuning	50 min	TB2	Chalk & board, PPTs
69	Intuitions for tree Indexes	50 min	TB2	Charts, Chalk & board
70	Indexed Sequential Access Methods (ISAM)	50 min	TB2	Chalk & board, PPTs
71	B+ Trees: A Dynamic Index Structure	50 min	TB2	Charts, Chalk & board
72	Introduction to Distributed Database and architecture	50 min	TB2	Charts, Chalk & board
73	Fragmentation, Allocation and Joins	50 min	TB2	Charts, Chalk & board

On completion of this lesson the student shall be able to

1. Understands the storage & file organization
2. Learns and understands the different methods for access of the files.

	<b>ASSIGNMENT</b> <b>Unit-V</b>	2015-16
		Regulation: R14

**Assignment / Questions**

1. Explain about Indexed sequential access methods.
2. Explain with examples primary, secondary indexes
3. Explain B<sup>+</sup> - trees.

**Signature of Faculty**

Note: Mention for each question the relevant objectives and outcomes.

