

Lesson Plan

Name of faculty: - **Dr. Alka Leekha**
Teaching Scheme:- **Web Technology**
Total Lecture: - **40**

Dept.: - **Information Technology**
Paper Code: **CIE-356T**

Book Download Link: [Web-Technologies-A-Computer-Science-Perspective-J.-Jackson-Pearson-2007-BBS.pdf](#)

PHP Book: **PHP and MySQL Web Development**, by Luke Welling and Laura Thomson,

S.No.	Topic Details	No. of Lecture Alloted	Reference Book Name With Chapter& Page No.
1.	Introduction to HTML, basics of XHTML, HTML elements	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 02, pp. 56-81
2.	HTML tags, lists, tables, frames, forms	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 02, pp. 83-98
3.	defining XHTML's abstract syntax, defining HTML documents	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 02, pp. 98-107
4.	CSS style sheets: Introduction, CSS core syntax,	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 03, pp. 121-132
5.	Text properties	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 03, pp. 140-151
6.	CSS box model, normal flow box layout	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 03, pp. 151-165
7.	Some Other Useful Style Properties	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 03, pp. 176-177
8.	XML, XML documents & vocabulary	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 07, pp. 364-369
9.	XML versions & declarations	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 07, pp. 369-370
10.	Client Side Programming: JAVA Scripts, basic syntax, variables & data-types	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 04, pp.192-202

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11.	Literals, functions, objects, arrays	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 04, pp. 208-219
12.	Built-in objects	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 04, pp. 228-236
13.	JAVA Script form programming, Intrinsic event handling	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 04, pp. 249-254
14.	modifying element style	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 04, pp. 254-257
15.	Document Tree	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 04, pp. 257-263
16.	Server side programming – Java Servlets: Servlet architecture	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 06, pp. 307-311
17.	Servlets Generating Dynamic Content	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 06, pp. 311-313
18.	Servlet life cycle	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 06, pp. 313-314
19.	parameter data, sessions, cookies	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 06, pp. 314-318, 322-332
20.	servlets capabilities, servlets & concurrency	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 06, pp. 334-338, 339-341
21.	Introduction to JSP	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 08, pp. 432-435
22.	JSP Tags, JSP life cycle, custom tags, Connecting to database in JSP.	01	Book Name: <i>WEB TECHNOLOGIES A Computer Science Perspective</i> , Jeffrey C. Jackson, Chapter 08, pp. 435-438
23.	Introduction to server side, Development with PHP, A Web Server responsibilities. Quick tour of PHP	02	Book Name: <i>PHP Programming Cookbook</i> Chapter 1, pp. 1-5 PHP Book: Chapter 2 (pp.57–61), Chapter 3 (pp.69–74)

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24	Basic syntax of PHP, decision and looping with examples	02	<i>Book Name: PHP Programming Cookbook</i> Chapter 1, pp. 5-10 <i>Chapter 2 (pp.37-48)</i>
25	PHP and HTML Arrays, Functions, Browser control and detection, string from processing files,	02	<i>Book Name: PHP Programming Cookbook</i> Chapter 1, pp. 15-17 <i>Chapter 2 (pp.52-56); Functions: Chapter 2 (pp.56-59)</i>
26	Advance features, cookies and sessions	02	<i>Book Name: PHP Programming Cookbook</i> Chapter 2, pp. 22-27 <i>Chapter 2 (pp.41-42); File Handling: Chapter 2 (pp.63-66)</i>
27	PHP and MySQL: Basic commands with PHP examples, Connection to the server, creating a database, selecting a database, listing database, listing table names	03	<i>Book Name: PHP Programming Cookbook</i> Chapter 8, pp. 61
28	Creating a table, inserting data, altering tables, queries, deleting the database, deleting data, and tables, PHP my admin and database bugs	03	<i>Book Name: PHP Programming Cookbook</i> Chapter 8, pp. 15-20 and 60-63
29	Managing State, The Problem of State in Web Applications, Passing Information via Query Strings, Passing Information via the URL Path, Cookies, Serialization, Session State.	03	<i>Book Name: PHP Programming Cookbook</i> Chapter 8, pp. 50-55


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Lesson plan

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A-4, Paschim Vihar, Main Rohtak Road, New Delhi – 110 063

Department of Information Technology

Class	B.Tech –4 th Sem	Lesson Plan	Theory of Computation
Name of Faculty	Payal Malik	Teaching Scheme	Theory
Paper Code	CIC-206	Total Lecture	40
Book / Reference- K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008)			

S.No.	Topic Details	No. of Lecture Allotted	Reference Book Name With Chapter & Page No.
1	Introduction to Theory of Computation and terms like symbols, alphabets, strings. Uses and applications of Automata.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 2, pp. 54–56; Ch. 3, pp. 71–73
2	Introduction to languages & Chomsky Classification of Language.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 4, pp. 107–120
3	Finite State Systems – Basic Definitions and finite automata DFA.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 3, pp. 71–80
4	Introduction to NFA, Difference between NFA and DFA.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 3, pp. 78–80
5	Conversion of NFA to DFA, Equivalent states, Minimization of DFA.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 3, pp. 80–92
6	Introduction to Regular Expressions, Algebraic Laws & Simplification of Regular Expressions.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 5, pp. 136–140

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7	Conversion of Regular expression to NFA, and Closure properties of Regular Languages.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 5, pp. 140–153
8	Equivalence of DFA, NFA & regular expressions.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 5, pp. 157–160
9	Non regular languages and Pumping lemma for Regular Sets.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 5, pp. 162–165
10	Grammar Introduction – Types of Grammars.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 4, pp. 107–110, 120–122
11	Context Free Grammar and Language, Closure properties of CFL's.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 6, pp. 180–218; Ch. 8, pp. 267–272
12	Introduction to Pushdown Automata PDA, Definitions and moves. Deterministic and Non-Deterministic PDA.	3	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 7, pp. 227–240
13	Construction of PDA & NPDA.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 7, pp. 227–251
14	Equivalence of CFG's and PDA's.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 7, pp. 240–251
15	Parsing and Construction of LL(K) Grammar.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 7, pp. 251–258; Ch. 8, pp. 267–272

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16	Pumping Lemma for Context free Languages and Problems on that.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 6, pp. 213–218
17	Introduction to Turing Machines & Turing Machine Model.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 9, pp. 277–284
18	Variations of Turing Machines & Universal Turing Machine.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 9, pp. 292–297
19	Design & Techniques of Constructing Turing Machine.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 9, pp. 284–290
20	Equivalence of different Turing Machines.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 9, pp. 277–308
21	Halting Problem of Turing Machine.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 10, pp. 309–315
22	Introduction to Recursive & Recursively Enumerable Language and its Properties.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 10, pp. 309–315; Ch. 4, pp. 124–126
23	Decidable & Undecidable languages. Reducible Problems With Examples.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 10, pp. 310–315
24	Post Correspondence Problem and Rice's Theorem & Church's Hypothesis.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) PCP: Ch. 10, p. 315; Church–Turing Thesis: Ch. 12, p. 362. Rice's Theorem: Not found in 3rd-edition TOC.

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25	Introduction to Recursive Function Theory.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 11, pp. 322–345
26	Introduction to Complexity Theory, Tractable and Intractable Problems.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 12, pp. 346–349
27	Classes of Problems: Computational, Decision and Optimization Problems.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 12, pp. 346–353
28	Class P, NP & co-NP Problem With Examples.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 12, pp. 349–351; co-NP is discussed in Ch. 12 exercise, p. 371
29	Polynomial Time Reductions, NP Complete & NP Hard Problem With Proves.	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Ch. 12, pp. 352–360; NP-Hard not explicitly listed in the 3rd-edition TOC
30	Cook-Levin Theorem, Savitch Theorem (With Proves).	2	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) Cook's Theorem: Ch. 12, pp. 353–354. Savitch's Theorem: Not found in 3rd-edition TOC.
31	PSPACE & NPSPACE Complexity Classes.	1	K.L.P. Mishra & N. Chandrasekaran, Theory of Computer Science: Automata, Languages and Computation, 3rd Ed., PHI (2008) PSPACE: Ch. 12, pp. 363–364. NPSPACE: Not found in 3rd-edition TOC.

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ECE ①



BVCOE-DELHI

B. Tech. (Electronics and Communication Engineering) 2025-26

Semester: SEMESTER 6 - ECE

Course Code & Name: OCSE310T | RGF0YSBTdHJIY3R1cmUgYW5kIEFsZ29yaXR0bXM=

Course Type: Theory

Course In-charge: Suman Yadav,

Course Syllabus

Sr.No.	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified By
1	Unit 1	1							0			Suman Yadav 30th Jan, 2026 02:43 PM
1.1	Overview of data structure	1		CO1	Power Point Presentation,...	Richard Gilberg Behrouz...			0	1.00	0	Suman Yadav 7th Oct, 2026 03:29 PM
1.2	Basic Data Algorithm Analysis including Running Time Calculations	2		CO1	Power Point Presentation,...				0	1.00	0	Suman Yadav 7th Oct, 2026 03:29 PM
1.3	Abstract Data Type	3		CO1	Power Point Presentation,...				0	1.00	0	Suman Yadav 7th Oct, 2026 04:24 PM
1.4	Array, Strings and Lists	4		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:43 PM
1.5	Multi Dimensional Array	5		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:43 PM
1.6	String processing	6		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:43 PM
1.7	Generic Lists and List	7		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:43 PM

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Sr.No.	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified By
1.8	<u>List Manipulations</u>	8		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:43 PM
1.9	<u>Single, double and circular lists.</u>	9		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:43 PM
1.10	<u>Stacks and Stack ADT, Stack Manipulation</u>	10		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:43 PM
1.11	<u>Prefix, infix and postfix expressions</u>	11		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:43 PM
1.12	<u>Recursion</u>	12		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:43 PM
1.13	<u>Queues and Queue ADT, Queue manipulation</u>	13		CO1					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
2	<u>Unit 2</u>	14							0			Suman Yadav 30th Jan, 2026 02:44 PM
2.1	<u>Trees, Properties of Trees</u>	14		CO2	Power Point Presentation,...	Richard Gilberg , Behrouz			0	1.00	0	Suman Yadav 7th Oct, 2026 03:29 PM
2.2	<u>Binary trees, Binary Tree traversal</u>	15		CO2	Power Point Presentation,...				0	1.00	0	Suman Yadav 7th Oct, 2026 04:25 PM
2.3	<u>Tree manipulation algorithms</u>	17		CO2	Power Point Presentation,...				0	1.00	0	Suman Yadav 7th Oct, 2026 04:25 PM
2.4	<u>Expression trees and their usage</u>	18		CO2					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM


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Sr.No.	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified By
2.5	<u>binary search trees</u>	19		CO2					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
2.6	<u>Heaps and their implementation</u>	23		CO2					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
2.7	<u>Priority Queues</u>	24		CO2					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
3	<u>Unit 3</u>	25							0			Suman Yadav 30th Jan, 2026 02:44 PM
3.1	<u>Sparse Matrix Representation (Array and Link List representation)</u>	25		CO3	Power Point Presentation,	Richard Gilberg, Behrouz			0	1.00	0	Suman Yadav 7th Oct, 2026 03:30 PM
3.2	<u>Polynomials and polynomial arithmetic</u>	26		CO3					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
3.3	<u>Sorting: Selection Sort, Insertion Sort, Bubble Sort</u>	27		CO3					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
3.4	<u>Quick Sort, Merge Sort, Heap Sort</u>	28		CO3					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
3.5	<u>Searching: List Search</u>	29		CO3					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
3.6	<u>Sequential Search, Binary Search</u>	30		CO3					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
3.7	<u>Hashing Methods</u>	34		CO3					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM

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3.5	<u>Collision Resolution in Hashing</u>	35		CO3					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
4	<u>Unit 4</u>	36							0			Suman Yadav 30th Jan, 2026 02:44 PM
4.1	<u>Overview of algorithm design approaches: Divide and Conquer, Greedy, Dynamic Programming</u>	36		CO4	Power Point Presentation...	Richard Gilberg, Behrouz...			0	1.00	0	Suman Yadav 7th Oct, 2026 03:30 PM
4.2	<u>Graphs, Graph representation, Graph Traversal (DFS and BFS) and their implementation using divide and conquer approach</u>	37		CO4	Power Point Presentation...				0	1.00	0	Suman Yadav 7th Oct, 2026 04:25 PM
4.3	<u>Minimum Spanning Tree algorithms: Prim's algorithm using Greedy approach</u>	38		CO4					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
4.4	<u>Kruskal's algorithm</u>	39		CO4					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM
4.5	<u>Shortest Path Algorithms: Dijkstra's, Bellman Ford</u>	40		CO4					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM

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Sr.No.	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified By
4.6	<u>Floyd Warshall's algorithm</u> (<u>implement using dynamic programming approach</u>).	41		CO4					0	1.00	0	Suman Yadav 30th Jan, 2026 02:44 PM


[Subject Teacher]


[HOD, ECE]


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Semester: SEMESTER 4 - CSE4

Course Code & Name: CIC-210 | IERhdGFiyXNIIIE1hbmFnZWllbnQgU3lzdGVtcw==

Course Type: PC

Course In-charge: Rachna Narula,

Course Syllabus

Sr.No.	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified E
1	Unit 1	1										Rachna Narula 9th Mar, 2026 03:20 PM
1.1	Database & database users, characteristics of the database systems	1			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.2	Concepts and architecture, data models	2			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.3	Schemas & instances, DBMS architecture & data independence	3			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.4	Database languages & interfaces, data modelling using the entity relationship approach	4			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.5	Enhanced ER concepts, Specialization/ Generalization, Aggregation, Mapping of ER model to Relational Model	5			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.6	SQL - DDL, DCL & DML views and	6			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM

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Sr.No	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified E
1.7	<u>Basics of SQL, DDL, DML, DCL, structure - creation, alteration</u>	7			Lecture Method	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.8	<u>Defining constraints - Primary key, foreign key, unique, not null, check, IN operator</u>	8			Lecture Method	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2	<u>Unit 2</u>	9							0			Rachna Narula 9th Mar, 2026 03:20 PM
2.1	<u>Relational model concepts, relational model constraints,</u>	9			Lecture Method	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.2	<u>SQL</u>	10			Power Point Presentation	Page no.150 to 165			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.3	<u>relational algebra, relational calculus.</u>	11			Power Point Presentation	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.4	<u>SQL - Functions - aggregate functions, Built-in functions - numeric, date, string functions</u>	12			Problem-Based Learning	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.5	<u>set operations, sub-queries</u>	13			Lecture Method	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.6	<u>Correlated sub-queries, Use of group by, having, order by, join and its types</u>	14			Lecture Method	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.7	<u>Exist, Any, All, view and its types</u>	15			Power Point Presentation	FUNDAMENTALS OF DBMS by N...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM

Sr.No	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified E
28	<u>Transaction control commands - Commit, Rollback, Save point, And Previous Revision</u>	16			Power Point Presentation	FUNDAMENTALS OF DBMS by N...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
29	<u>model constraints.</u>	17			Problem-Based Learning					1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
210	<u>Relational database design</u>	18			Problem-Based Learning	FUNDAMENTALS OF DBMS by N...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3	<u>Unit 3</u>	19										Rachna Narula 9th Mar, 2026 03:20 PM
3,1	<u>Functional dependencies & Normalization</u>	19			Lecture Method	FUNDAMENTALS OF DBMS by N...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3,2	<u>Normal Form (1NF, 2NF, 3NF & BCNF)</u>	20			Lecture Method	FUNDAMENTALS OF DBMS by N...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3,3	<u>Lossless join & Dependency Preserving Decompositions</u>	21			Lecture Method	DATABASE SYTEM CONCEPT by...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3,4	<u>Transaction State and Schedule</u>	22			Problem-Based Learning	DATABASE SYTEM CONCEPT by...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3,5	<u>Serializability, concurrency Control and locking technique</u>	23			Power Point Presentation	DATABASE SYTEM CONCEPT by...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3,6	<u>Recoverable Schedules Deadlock Detection and Recovery</u>	24			Power Point Presentation	DATABASE SYTEM CONCEPT by...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3,7	<u>Recoverable</u>	25			Power Point Presentation	DATABASE SYTEM CONCEPT				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM


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Sr.No.	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified E
3.8	<u>Control Structures</u> <u>Exception Handling</u> <u>stored Procedures</u> <u>and Triggers</u>	26			Lecture Method	FUNDAMENTALS OF DBMS by N...				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4	<u>Unit 4</u>	27							0			Rachna Narula 9th Mar, 2026 03:20 PM
4.1	<u>File structures and</u> <u>Indexing</u>	27			Lecture Method	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.2	<u>Second Storage</u> <u>Devices</u>	28			Lecture Method	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.3	<u>Operation on files</u>	29			Power Point Presentation	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.4	<u>Heap and Sorted</u> <u>files</u>	30			Power Point Presentation	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.5	<u>Hashing Distributed</u> <u>DBMS</u>	31			Power Point Presentation	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.6	<u>Single and Multi</u> <u>level indexing</u>	32			Power Point Presentation	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.7	<u>B and B+ indexing</u>	33			Lecture Method	DATABASE SYSTEM CONCEPT by...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.8	<u>Concept of Object</u> <u>Oriented DBMS</u>	34			Lecture Method	Korth chap 18			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.9	<u>Revision of Unit 1</u>	36			Power Point Presentation	FUNDAMENTALS OF DBMS by N...			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM

Sr.No.	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified E
4.10	<u>Revision of Unit 2</u>	37			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.11	<u>Revision of Unit 3</u>	38			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.12	<u>Revision of Unit 4</u>	39			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM

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BVCOE-DELHI

B. Tech (Computer Science and Engineering) 2025-26

Semester: SEMESTER 4 – CSE4

Course Code & Name: CIC-210 | IERhdGFYXNlIEhbmFnZWllbnQgU3ZldGVtcw==

Course Type: PC

Course In-charge: Rachna Narula,

Course Syllabus

Sr.No.	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified By
1	<u>Unit 1</u>	1										Rachna Narula 9th Mar, 2026 03:20 PM
1.1	<u>Database & database users characteristics of the database systems</u>	1			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.2	<u>Concepts and architecture, data models</u>	2			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.3	<u>Schemas & instances DBMS architecture & data independence</u>	3			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.4	<u>Database languages & interfaces, data modelling using the entity-relationship approach</u>	4			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.5	<u>Enhanced ER concepts - Specialization/ Generalization, Aggregation, Mapping of ER model to Relational Model</u>	5			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.6	<u>SQL – DDL, DCL & DML views and indexes in SQL</u>	6			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM

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Sr.No.	Topic	Order No	Assigned faculty	Outco	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified By
1.7	<u>Basis of SQL DDL</u> <u>DM, DCL structure</u> <u>- creation</u> <u>alteration</u>	7			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
1.8	<u>Defining constraints</u> <u>- Primary key,</u> <u>foreign key, unique</u> <u>not null, check, IN</u> <u>operator</u>	8			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2	<u>Unit 2</u>	9										Rachna Narula 9th Mar, 2026 03:20 PM
2.1	<u>Relational model</u> <u>concepts, relational</u> <u>model constraints,</u>	9			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.2	<u>SQL</u>	10			Power Point Presentation	Page no. 150 to 165				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.3	<u>relational algebra,</u> <u>relational calculus.</u>	11			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.4	<u>SQL - Functions -</u> <u>aggregations</u> <u>functions, Built-in</u> <u>functions - numeric</u> <u>data, string, logical</u> <u>and</u>	12			Problem-Based Learning	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.5	<u>set operations, sub-</u> <u>queries</u>	13			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.6	<u>operational sub-</u> <u>queries, use of</u> <u>group by, having,</u> <u>order by, join and</u> <u>its types</u>	14			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.7	<u>Exist, Any, All, view</u> <u>and its types</u>	15			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM

Sl No.	Topic	Order No	Assigned faculty	Outcomes	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified By
2.8	<u>Transaction Control commands - Commit, Rollback, Save point And Perivious Revision</u>	16			Power Point Presentation	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.9	<u>model constraints</u>	17			Problem-Based Learning					1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
2.10	<u>Relational database design</u>	18			Problem-Based Learning	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3	<u>Unit 3</u>	19										Rachna Narula 9th Mar, 2026 03:20 PM
3.1	<u>Functional dependencies & Normalization</u>	19			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3.2	<u>Normal form (1NF, 2NF, 3NF & BCNF)</u>	20			Lecture Method	FUNDAMENTALS OF DBMS by N.				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3.3	<u>Lossless join & Dependency Preserving Decompositions</u>	21			Lecture Method	DATABASE SYTEM CONCEPT by				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3.4	<u>Transaction State and Schedule</u>	22			Problem-Based Learning	DATABASE SYTEM CONCEPT by				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3.5	<u>Serializability, concurrency Control and locking technique</u>	23			Power Point Presentation	DATABASE SYTEM CONCEPT by				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3.6	<u>Recoverable Schedules, Deadlock Detection and Recovery</u>	24			Power Point Presentation	DATABASE SYTEM CONCEPT by				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
3.7	<u>Recoverable concept and Techniques</u>	25			Power Point Presentation	DATABASE SYTEM CONCEPT by				1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM

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Sr.No	Topic	Order No	Assigned faculty	Outcomen	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Library Reference	Hours	Minutes	Last Modified By
3.8	<u>Course Structure</u> <u>Database designing</u> <u>Storage Structures</u> <u>and Indexing</u>	26			Lecture Method	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4	<u>Unit 4</u>	27							0			Rachna Narula 9th Mar, 2026 03:20 PM
4.1	<u>File structures and</u> <u>Indexing</u>	27			Lecture Method	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.2	<u>Second Storage</u> <u>Devices</u>	28			Lecture Method	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.3	<u>Operation on files</u>	29			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.4	<u>Heap and Sorted</u> <u>files</u>	30			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.5	<u>Handling Distributed</u> <u>DBMS</u>	31			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.6	<u>Single and Multi</u> <u>user indexing</u>	32			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.7	<u>B and B+ indexing</u>	33			Lecture Method	DATABASE SYSTEM CONCEPT by			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.8	<u>Revision of Object</u> <u>Oriented DBMS</u>	34			Lecture Method	Korth chap 18			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.9	<u>Revision of Unit 1</u>	36			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.10	<u>Revision of Unit 2</u>	37			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM
4.11	<u>Revision of Unit 3</u>	38			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	1.00	0	Rachna Narula 9th Mar, 2026 03:20 PM


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Sl No	Topic	Order No	Assigned faculty	Outc	Teaching Methodology/ Pedagogy	Book Reference	Skill	Syllabus Type	Library Reference	Hours	Minutes	Last Modified By
412	<u>Revision of Unit 4</u>	39			Power Point Presentation	FUNDAMENTALS OF DBMS by N.			0	100	0	Rachna Narula [9th Mar, 2026 03:20 PM

Rachna
Ms. Rachna Narula

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Dr. Srishti Vashishta

~~Dr. Srishti Vashishta~~

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New Delhi-63

Semester: SEMESTER 4 - CSE-AIML

Course Code & Name: CIC 210 | Database Management Systems

Course Type: PC

Course In-charge: Vishal Sharma,

Course Syllabus

Sr.No.	Topic	Order No.	Assigned faculty	Outcome	Teaching Methodology/ Pedagogy	Book Reference	Skills	Syllabus Type	Hours	Minutes	Last Modified
1.1	<u>Unit I- Basic concepts: database & database users characteristics of the database systems</u>	1	Vishal Sharma x	CO1	Power Point Presentation	A. Silberschatz, H. F. Ko...			1.00	0	Vishal Sharma 12th Feb, 2026 12:14 PM
1.2	<u>Concepts and architecture, data models</u>	2	Vishal Sharma x	CO1	Power Point Presentation	FUNDAMENTALS OF DBMS by N...			1.00	0	Vishal Sharma 12th Feb, 2026 12:16 PM
1.3	<u>Schemas & instances, DBMS architecture & data independence</u>	3	Vishal Sharma x	CO1	Question and Answers, Pow...	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 19th Feb, 2026 03:20 PM
1.4	<u>Database languages & functions: data modelling using the entity-relationship approach</u>	4	Vishal Sharma x	CO2, CO3	Question and Answers, Pow...	FUNDAMENTALS OF DBMS by N...			1.00	0	Vishal Sharma 24th Feb, 2026 12:57 PM
1.5	<u>Enhanced ER concepts: Specialization/Generalization, Aggregation</u>	5	Vishal Sharma x	CO2, CO3	Question and Answers, Pow...	FUNDAMENTALS OF DBMS by N...			1.00	0	Vishal Sharma 24th Feb, 2026 01:23 PM
1.6	<u>Mapping of ER model to Relational Model</u>	6	Vishal Sharma x	CO2, CO3, CO1	Power Point Presentation...	FUNDAMENTALS OF DBMS by N...			1.00	0	Vishal Sharma 24th Feb, 2026 01:57 PM
1.7	<u>SQL - DDL, DCL & DML views and indexes in SQL</u>	7	Vishal Sharma x	CO2, CO3, CO1	Lecture Method	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 25th Feb, 2026 11:36 AM
1.8	<u>Principles of SQL, DDL, DML, DCL, structure - creation, alteration</u>	8	Vishal Sharma x	CO1, CO2, CO3	Power Point Presentation...	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 25th Feb, 2026 12:06 PM
1.9	<u>Defining constraints - Primary key, foreign key</u>	9	Vishal Sharma x	CO1, CO2, CO3	Lecture Method	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 25th Feb, 2026 04:07 PM
1.10	<u>Defining constraints: Unique, not null, check, IN operator</u>	10	Vishal Sharma x	CO1, CO2, CO3	Power Point Presentation...	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 25th Feb, 2026 04:25 PM
2.1	<u>Unit II-Relational model concepts, relational model co</u>	11	Vishal Sharma x	CO2, CO1	Lecture Method	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 11th Mar, 2026 01:00 PM
2.2	<u>Relational algebra, relational calculus</u>	12	Vishal Sharma x	CO1, CO2	Question and Answers, Pow...	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 11th Mar, 2026 01:39 PM
2.3	<u>SQL - Functions - aggregate functions, Built-in functions - numeric, date, string functions</u>	13	Vishal Sharma x	CO2	Question and Answers, Pow...	SQL/ PL/SQL, The programm...			1.00	0	Vishal Sharma 11th Mar, 2026 01:42 PM
2.4	<u>Set operations, subqueries, correlated sub-queries</u>	14	Vishal Sharma x	CO2	Question and Answers, Pow...	SQL/ PL/SQL, The programm...			1.00	0	Vishal Sharma 11th Mar, 2026 01:55 PM
2.5	<u>Use of group by, having, order by</u>	15	Vishal Sharma x	CO2	Question and Answers, Pow...	SQL/ PL/SQL, The programm...			1.00	0	Vishal Sharma 11th Mar, 2026 01:59 PM
2.6	<u>Join and its types, Exist, Any, All, view and its types</u>	16	Vishal Sharma x	CO2, CO1	Question and Answers, Pow...	SQL/ PL/SQL, The programm...			1.00	0	Vishal Sharma 11th Mar, 2026 02:07 PM
2.7	<u>Transaction control statements - Commit, Rollback, Save point</u>	17	Vishal Sharma x	CO3	Question and Answers, Pow...	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 11th Mar, 2026 02:17 PM
3.1	<u>Unit-III Relational data base design: functional dependencies</u>	18	Vishal Sharma x	CO3	Lecture Method	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 25th Mar, 2026 03:34 PM
3.2	<u>Normalization for relational databases</u>	19	Vishal Sharma x	CO3	Question and Answers, Pow...	R. Elmsari and S. B. Nava...			1.00	0	Vishal Sharma 25th Mar, 2026 03:36 PM

3.3	<u>Normal forms based on functional dependencies</u>	20	Vishal Sharma x	CO3	Question and Answers, Pow	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 25th Mar, 2026 03:53 PM
3.4	<u>4NF, 5NF & BCNF</u>	21	Vishal Sharma x	CO3	Question and Answers, Pow	A. Silberschatz, H. F. Ko...	1.00	0	Vishal Sharma 9th Apr, 2026 03:55 PM
3.5	<u>lossless join and dependency preserving decomposition</u>	22	Vishal Sharma x	CO3	Power Point Presentation	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:05 AM
3.6	<u>normal forms based on multivalued & join dependencies (4NF & 5NF) & domain key normal form</u>	23	Vishal Sharma x	CO3	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:07 AM
3.7	<u>Properties of Transaction, transaction states</u>	24	Vishal Sharma x	CO3	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:08 AM
3.8	<u>Transaction Schedules, serializability</u>	25	Vishal Sharma x	CO3	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:08 AM
3.9	<u>Concurrency control, locking techniques, time stamp ordering, B-trees, B+ trees, schedules, granularity of data items</u>	26	Vishal Sharma x	CO1,CO3,CO4	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:10 AM
	<u>Deadlock detection and recovery, recovery techniques</u>	27	Vishal Sharma x	CO4,CO3	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:11 AM
3.11	<u>Database Programming - control structures, exception handling, stored procedures, Triggers</u>	28	Vishal Sharma x	CO3,CO4	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:12 AM
4.1	<u>File Structures and Indexing, Secondary Storage Devices, Operations on Files</u>	29	Vishal Sharma x	CO4,CO1,CO3	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:14 AM
4.2	<u>Heap Files, Sorted Files, Hashing</u>	30	Vishal Sharma x	CO4	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:15 AM
4.3	<u>Sorted File Structures, Multi-level indexes, B and B tree indexes</u>	31	Vishal Sharma x	CO4	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:16 AM
4.4	<u>Concepts of Object Oriented Database Management systems & Distributed Database Management Systems</u>	32	Vishal Sharma x	CO4	Lecture Method	R. Elmsari and S. B. Nava...	1.00	0	Vishal Sharma 21st Apr, 2026 08:17 AM

17/04/2026
7/10/2026

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New Delhi-63