SRI VASAVI ENGINEERING COLLEGE (Autonomous)

(Permanent Affiliation to JNTUK, Kakinada),
PEDATADEPALLI, TADEPALLIGUDEM-534 101

A.Y: 2022-23

IV SEM CST Handbook

(V20 Regulation)

Department of Computer Science and Technology

Pedatadepalli, Tadepalligudem-534101, A.P

INDEX

INSTITUTE

VISION MISSION

INSTITUTE VISION AND MISSION

VISION

To be a premier technological institute striving for excellence with global perspective and commitment to the nation.

MISSION

➢ To produce engineering graduates of professional quality and global perspective through Learner Centric Education.

➢ To establish linkages with government, industry and research laboratories to promote R&D activities and to disseminate innovations.

➢ To create an eco-system in the institute that leads to holistic development and ability for life-long learning.

DEPARTMENT

VISION
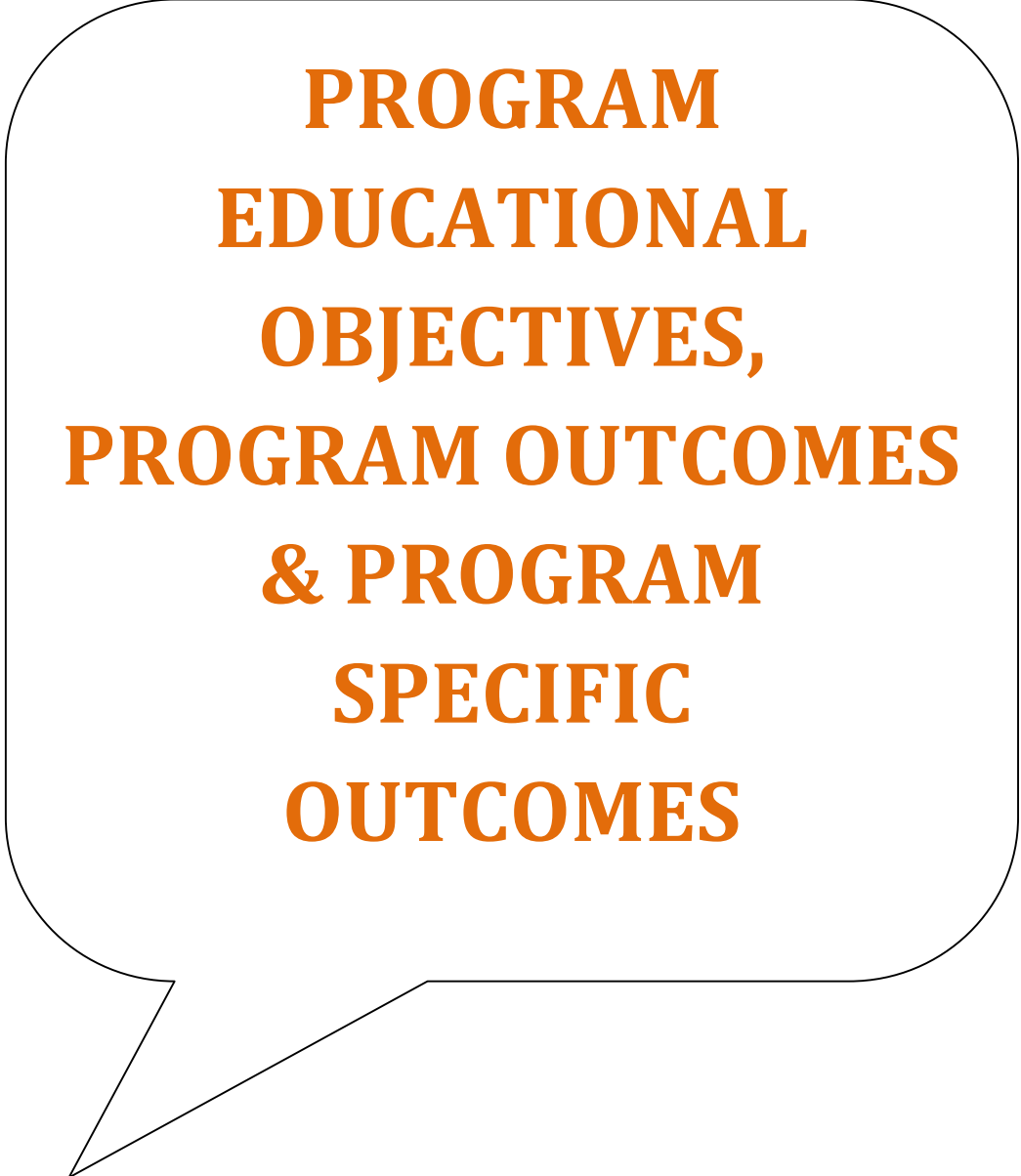
MISSION

DEPARTMENT
VISION AND MISSION

Vision:

- To evolve as a centre of academic and research excellence in the area of Computer Science and Technology.

Mission :

➢ To utilize innovative learning methods for academic improvement.

➢ To encourage higher studies and research to meet the futuristic requirements of Computer Science and Technology.

➢ To inculcate Ethics and Human values for developing students with good character

PROGRAM EDUCATIONAL OBJECTIVES, PROGRAM OUTCOMES & PROGRAM SPECIFIC OUTCOMES

Program Educational Objectives (PEOs)

Graduates of this programme will :

PEO 1: Adapt to evolving technology.

PEO 2: Provide optimal solutions to real time problems.

PEO 3: Demonstrate his/her abilities to support service activities with due consideration for Professional and Ethical Values.

Programme Specific Outcomes (PSO s):

A graduate of the Computer Science and Technology Program will be able to:

PSO 1: Use Mathematical Abstractions and Algorithmic Design along with Open Source Programming tools to solve complexities involved in Programming. [K3]

PSO 2: Use Professional engineering practices and strategies for development and maintenance of software. [K3]

Program Outcomes (POs):

Computer Science Technology Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of Mathematics, Science, Engineering Fundamentals and Concepts of Computer Science Engineering to the solution of complex Engineering problems. **[K3]**

2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of Mathematics, Natural Sciences and Computer Science. **[K4]**

3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations. **[K5]**

4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **[K5]**

5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex Engineering activities with an understanding of the limitations**. [K3]**

6. **The Engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Engineering practice. **[K3]**

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **[K3]**

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the Engineering practice. **[K3]**

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **[K6]**

10. **Communication**: 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. **[K2]**

11. **Project management and finance**: Demonstrate knowledge and understanding of the Engineering and Management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **[K6]**

12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. **[K1]**

ACADEMIC CALENDAR

✉ : principal@srivasaviengg.ac.in
svec.a8@gmail.com

☎ : 08818- 284344, 355

SRI VASAVI ENGINEERING COLLEGE (AUTONOMOUS)

(Sponsored by Sri Vasavi Educational Society)
(Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada)
(Accredited by NAAC with 'A' Grade ,Recognized by UGC under section 2(f) & 12(B))
(**NBA** Accreditation to B.Tech., EEE,CSE, ME and ECE Branches for 3 Years)
Pedatadepalli, **TADEPALLIGUDEM** – 534 101. W.G.Dist. (A.P)

Principal's Office
Date: 15-02-2023

Revised Academic Calendar
For B.Tech IV Semester, Academic Year 2022-23

IV Semester			
Description	From	To	Weeks
Commencement of Class Work	27.02.2023		
I Unit of Instructions	27.02.2023	08.04.2023	6 W
I Mid Examinations	10.04.2023	15.04.2023	1 W
II Unit of Instructions	17.04.2023	27.05.2023	6 W
II Mid Examinations	29.05.2023	03.06.2023	1 W
Preparation & Practicals	05.06.2023	10.06.2023	1 W
End Examinations	12.06.2023	24.06.2023	2 W
Summer Internship/ Mini Project	26.06.2023	29.07.2023	
Commencement of Next Semester Class Work (V Semester)	31.07.2023		

PRINCIPAL

Copy to : ALL

Vision
To be a premier technological institute striving for excellence with global perspective and commitment to the nation.
Mission
• To produce Engineering graduates of professional quality and global perspective through learner-centric education.
• To establish linkages with government, industry and Research laboratories to promote R&D activities and to disseminate innovations.
• To create an eco-system in the institute that leads to holistic development and ability for life-long learning.

SRI VASAVI ENGINEERING COLLEGE (Autonomous)
Pedatadepalli, TADEPALLIGUDEM-534 101, W.G. Dist.
Department Of Computer Science &Technology

CLASS CONSOLIDATED TIME TABLE

Class:IV Semester   w.e.f.: 27.02.2023

Section: A   **Class Coordinator:** Mr. M Bhanu Ranga Rao   **Room No: G-201**

Periods	1	2	3	4		5	6	7
Time / Day	(09.30 AM-10.30 AM)	(10.30 AM-11.20 AM)	(11.20 AM-12.10 PM)	(12.10 PM-01.00 PM)	1:00PM 2:00PM	(02.00 PM-02.50 PM)	(02.50 PM-03.40 PM)	(03.40 PM-04.30 PM)
Mon	SVR LAB				Lunch Break	P&S	SE	DBMS
Tue	*PCS-II(APTITUDE)*		SE	DAA		JAVA	*PCS-II(VERBAL)*	
Wed	DAA	JAVA	DBMS	P&S		SE	SVR LAB	*SPORTS*
Thu	P&S	SE	JAVA	*LIBRARY*		DBMS	DAA	SE
Fri	JAVA	DBMS	DAA	P&S		DBMS LAB		
Sat	DBMS	P&S	DAA	JAVA		JAVA LAB		

Staff Details:

S. No.	Course Code	Course Name	Section
1.	V20CST06	Design and Analysis of Algorithms **(DAA)**	Dr.V.S.Naresh
2.	V20CST07	Software Engineering **(SE)**	Ms. Y.Divya Vani
3.	V20CST08	Database Management Systems **(DBMS)**	Mr. M Bhanu Ranga Rao
4.	V20CST09	Java Programming (**JP**)	Mr. R. Leela Phani Kumar
5.	V20MAT04	Probability and Statistics **(P&S)**	Mr. DNV Rama Krishna
6.	V20CSL06	Statistical Visualization using R Lab**(SVR LAB)**	Mr. N V Ratna Kishore Gade/ Mr. R. L. Phani Kumar
7.	V20CSL07	Database Management Systems Lab **(DBMS LAB)**	Mr. M Bhanu Ranga Rao/ Mr. G. Sriram Ganesh
8.	V20CSL08	Java Programming Lab **(JAVA LAB)**	Mr. R. Leela Phani Kumar/ Mr. M. Yesu Shekharam
9.	V20ENT03	Professional Communication Skills –II **(PCS-II)**	Mrs. K Radha Madhavi / Mr. M Venkata Ramana

Lab Venues:

S.No.	Name of the Lab Course	Lab Venue
1	Statistical Visualization using R Lab**(SVR LAB)**	Linus Torvalds Lab
2	Database Management Systems Lab**(DBMS LAB)**	Linus Torvalds Lab
3	Java Programming Lab **(JAVA LAB)**	James Gosling Lab

NOTE: Part of Curriculum you have to study **Skill Oriented Course-II** (V20SOC02) also, It will be conducted   **any 1 Week** during the semester.

Head of the Department

COURSE STRUCTURE

IV Semester

SEMESTER - IV (SECOND YEAR)

S.No.	Code	Name of the Course		L	T	P	C
1	V20CST06	Design and Analysis of Algorithms	PCC	3	-	-	3
2	V20CST07	Software Engineering	PCC	3	-	-	3
3	V20CST08	Database Management Systems	PCC	3	-	-	3
4	V20CST09	Java Programming	PCC	3	-	-	3
5	V20MAT04	Probability and Statistics	BSC	**3**	-	-	**3**
6	V20CSL06	Statistical Visualization using R Lab	BSC	-	-	3	1.5
7	V20CSL07	Database Management Systems Lab	PCC	-	-	3	1.5
8	V20CSL08	Java Programming Lab	PCC	-	-	3	1.5
9		**Skill Oriented Courses (See Annexure-I)**	SO	1	-	2	2
			Total:	**18**	**0**	**11**	**21.5**
10	V20ENT03	Professional Communication Skills -II	**MNC**	**2**	**-**	**-**	**0**
11		Honors/Minors Courses **(The hours distribution can be 3-0-2 or 3-1-0 also)**		**4**	**-**	**-**	**4**
		Student have to do Mini Project / Internship (2 Months) during summer					

LESSON PLANS

Design and Analysis of Algorithms

LESSON PLAN

Academic Year: 2022-23   Programme: B.Tech

Year/ Semester: IV   Section: -

Name of the Course: Design and Analysis of Algorithms Course Code: V20CST06/C211

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S.No.	CO No.	Course Outcome
1	C211.1	Demonstrate asymptotic notation and divide and conquer technique [K3]
2	C211.2	Use greedy technique to solve various problems [K3]
3	C211.3	Demonstrate dynamic programming technique to various problems [K3]
4	C211.4	Develop algorithms using backtracking technique [K3]
5	C211.5	Demonstrate branch and bound technique to various problems [K3]

Text Books:

1. Fundamentals of computer algorithms E. Horowitz S. Sahni, University Press.

Reference Books:

1. Introduction to Algorithms Thomas H. Cormen, PHI Learning.

2. The Design and Analysis of Computer Algorithms, Alfred V. Aho, John E. Hopcroft, Jeffrey D.Ullman.

3.Fundamentals of Data Structures and algorithms by C V Sastry, Rakesh Nayak, Ch. Raja Ramesh, Distributed by WILEY publications, New Delhi.

4. Algorithm Design, Jon Kleinberg, Pearson.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level (Marks In %)		60	60	60	60	60
Targeted level of Attainment	Level 3	60	60	60	60	60
	Level 2	50	50	50	50	50
	Level 1	40	40	40	40	40

Lecture Plan:

UNIT - 1: Introduction , Divide & Conquer						
S. No.	**Course Outcome**	**Intended Learning Outcome (ILO)**	**Knowledge Level of ILO**	**No. of Hours Required**	**Pedagogy**	**Teaching Aid**
1		Dissemination of Department Vision, Mission PO's, PSO's and CO's. Define Algorithm, Properties of Algorithm	K1	01	Lecture	ICT/BB
2		Discuss Algorithm Specification-Pseudo Code Conventions, Recursive Algorithms	K2	02	Lecture	ICT/BB
3		Explain Performance Analysis-Space Complexity, Time Complexity	K2	02	Lecture	ICT/BB
4	V20CST06.1	Describe Asymptotic Notations- Big oh notation, Omega notation, Theta notation and Little oh notation	K2	02	Lecture	ICT/BB
5		Estimate Practical Complexities, Estimate Performance Measurement	K2	02	Lecture	ICT/BB
6		Describe General Method of DAC	K1	01	Lecture	ICT/BB
7		Use Divide and Conquer to Binary Search	K3	02	Lecture + Discussion	ICT/BB
8		Use D&C to Find the minimum and maximum	K2	02	Lecture	ICT/BB
9		Apply Divide and Conquer to Merge Sort	K3	02	Lecture + Discussion	ICT/BB
10		Apply Divide and Conquer to Quick Sort, Performance Measurement	K3	02	Lecture + Discussion	ICT/BB
			Total	**18**		

		UNIT - 2: The Greedy Method				
S. No.	Course Outcome	Intended Learning Outcome (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching Aid
1	V20CST06.2	Describe General Method	K1	01	Lecture	ICT/BB
2		Solve Knapsack Problem	K3	02	Lecture + Discussion	ICT/BB
3		Solve Job Sequencing with deadlines	K3	02	Lecture + Discussion	ICT/BB
4		Explain Spanning Trees, Find Minimum Cost Spanning Trees(Prim's and Kruskal's algorithms)	K3	02	Lecture + Discussion	ICT/BB
5		Choose Optimal Merge Patterns	K3	02	Lecture + Discussion	ICT/BB
6		Solve Single Source Shortest Path Problem	K3	02	Lecture + Discussion	ICT/BB
			Total:	11		

		UNIT - 3: Dynamic Programming				
S. No.	Course Outcome	Intended Learning Outcome (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching Aid
1	V20CST06.3	Solve Single Source shortest Paths General Weights	K3	02	Lecture + Discussion	ICT/BB
2		Solve All Pairs Shortest Path Problem	K3	02	Lecture + Discussion	ICT/BB
3		Solve 0/1 Knapsack Problem	K3	02	Lecture + Discussion	ICT/BB
4		Explain Optimal Binary Search Trees	K3	02	Lecture + Discussion	ICT/BB
5		Explain String Edition	K3	02	Lecture + Discussion	ICT/BB
6		Solve Reliability Design	K3	03	Lecture + Discussion	ICT/BB
			Total:	13		

		UNIT - 4: Backtracking				
S. No.	Course Outcome	Intended Learning Outcome (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching Aid
1	V20CST06.4	Explain General method	K2	01	Lecture	ICT/BB

S. No.	Course Outcome	Intended Learning Outcome (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching Aid
2		Solve N-Queen Problem	K3	01	Lecture + Discussion	ICT/BB
3		Employ Backtracking to solve Sum of Subsets Problem	K3	02	Lecture + Discussion	ICT/BB
4		Demonstrate Graph Coloring	K3	02	Lecture + Discussion	ICT/BB
5		Demonstrate Hamiltonian Cycles	K3	02	Lecture + Discussion	ICT/BB
			Total:	**08**		

UNIT - 5: Branch and Bound						
S. No.	Course Outcome	Intended Learning Outcome (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching Aid
1		Describe the General method of Branch and Bound technique	K1	01	Lecture	ICT/BB
2		The 15-Puzzle: an Example, Bounding		01	Lecture + Discussion	ICT/BB
3		Demonstrate the FIFO Branch and Bound solution	K3	01	Lecture + Discussion	ICT/BB
4	V20CST06.5	Apply Branch and Bound to 0/1 Knapsack problem using LC BB &FIFO BB	K3	03	Lecture + Discussion	ICT/BB
5		Solve Travelling Salesperson problem using LC BB	K3	02	Lecture + Discussion	ICT/BB
6		Basic Concepts of NP-hard and NP-complete problems.		02	Lecture	ICT/BB
			Total:	**10**		

Total Number of Hours: 60

Software Engineering

LESSON PLAN

Academic Year: 2022-23   **Programme: B.Tech**
Year/ Semester: IV   **Section: -**
Name of the Course: Software Engineering   **Course Code: V20CST07/C212**

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S.No.	CO No.	Course Outcome
1	C212.1	Demonstrate the Software Development life cycle Models.[K3]
2	C212.2	Illustrate the Requirements engineering process and SRS document. [K3]
3	C212.3	Develop the Software Architecture and Design Modeling. [K2]
4	C212.4	Apply the Coding & Testing techniques and Risk management strategies (K3)
5	C212.5	Describe Project estimation techniques and Quality Management& Metrics [K2]

Text Books:

1. Software Engineering, A practitioner's Approach- Roger S.Pressman, 7th Edition,

   McGrawHill International Edition

2. Software Engineering, 9/e, Sommerville, Pearson.

3. Software Engineering, A Precise approach, PankajJalote, Wiley

REFERENCES

1. CMMI and Six Sigma: Partners in Process Improvement, Jeannine M. Siviy, M.

Lynn Penn, Robert W. Stoddard, 1st edition, Addison Wesley.

2. Software Engineering principles and practice, W S Jawadekar, 3rdEdition,TMH.

Targeted Proficiency and Attainment Levels (for each course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		65	65	65	60	60
Targeted level of Attainment	Level 3	65	65	65	60	60
	Level 2	55	55	55	50	50
	Level 1	45	45	45	40	40

Lesson Plan:

Unit-I

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		**Dissemination of Department Vision, Mission, PEOs, POs, PSOs, COs**	-	**1**	**Lecture**	**BB+ICT**
2		Defining Software, Software application Domains	K1	1	Lecture	BB
3		Describe Legacy software. Software engineering	K1	2	Lecture	BB
4		Describe the software process	K1	1	Lecture	BB
5		Outline Essence of Practice, List General Principles	K1	1	Lecture	BB
6		Describe software Myths.	K1	1	Lecture	BB
7	CO 1	Demonstrate Waterfall model, Prototyping	K3	2	Lecture with Discussion and in class Assignment	BB
8		Demonstrate Iterative development	K3	1	Lecture with Discussion and in class Assignment	BB
9		Demonstrate Unified process	K3	1	Lecture with Discussion and in class Assignment	BB
10		Demonstrate RAD Model	K3	1	Lecture with Discussion and in class Assignment	BB
11		Demonstrate Spiral Model	K3	1	Lecture with Discussion	BB
12		Demonstrate Agile Process	K3	1	Lecture with Discussion	BB
Total Hours				**14 Hours**		

Unit-II

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Illustrate Functional and non-functional requirements	K3	2	Lecture with Discussion and in class Assignment	BB
2		Illustrate User requirements, System requirements	K3	1	Lecture with Discussion and in class Assignment	BB
3		Explain Interface specification	K2	1	Lecture with Discussion	BB
4	CO 2	Explain the Software requirements document	K2	1	Lecture with Discussion	BB
5		Explain Feasibility studies	K2	1	Lecture with Discussion	BB
6		Explain Requirements elicitation and analysis	K2	1	Lecture with Discussion	BB
7		Explain Requirements validation	K2	1	Lecture with Discussion	BB
8		Explain Requirements management	K2	1	Lecture with Discussion	BB
	Total Hours			**9 Hours**		

Unit-III

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Explain Role of software architecture, Architecture views	K2	1	Lecture with Discussion	BB
2	CO 3	Describe components and connector view	K1	1	Lecture	BB
3		Explain architecture styles for C & C view	K2	2	Lecture with Discussion	BB
		Explain Cohesion and Coupling	K2	1	Lecture with	BB

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
					Discussion	
4		Explain documenting architecture design	K2	1	Lecture with Discussion	BB
5		Explain Design concepts	K2	2	Lecture with Discussion	BB+ICT
6		Explain Function-oriented design	K2	1	Lecture with Discussion	BB+ICT
7		Demonstrate Object oriented design	K3	1	Lecture with Discussion	BB+ICT
8		Explain different UML diagrams	K2	2	Lecture with Discussion	BB+ICT
9		Demonstrate Data flow Diagram	K3	1	Lecture	BB+ICTI
Total Hours				**13 Hours**		

Unit-IV

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Demonstrate Programming principles and guidelines	K3	1	Lecture with Discussion and in class Assignment	BB
2		Explain incrementally developing code	K2	1	Lecture with Discussion	BB
3		Explain Testing concepts	K2	1	Lecture with Discussion	BB
4	CO 4	Explain testing process	K2	1	Lecture with Discussion	BB
5		Demonstrate Black- box testing	K3	1	Lecture with Discussion and in class Assignment	BB
6		Demonstrate White-box testing.	K3	1	Lecture with Discussion and in class Assignment	BB+ICT
7		Differentiate Reactive vs. Proactive Risk	K2	1	Lecture with	BB

		strategies			Discussion	
8		Describe Software risks, Risk identification	K2	1	Lecture with Discussion	BB
9		Explain Risk projection, Risk refinement	K2	1	Lecture with Discussion	BB
10		Explain RMMM Plan.	K2	1	Lecture with Discussion	BB
Total Hours				**10 Hours**		

Unit-V

S#	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Explain Decomposition techniques	K2	1	Lecture with Discussion	BB
2		Describe Empirical Estimation Models.	K1	1	Lecture	BB
3		Discuss Software Maintenance: Maintenance Process	K2	1	Lecture with Discussion	BB
4		Explain Reengineering	K2	1	Lecture with Discussion	BB
5		Explain Configuration Management	K2	1	Lecture with Discussion	BB
6	CO 5	Describe Software Measurement and Metrics for software quality.	K2	1	Lecture with Discussion	BB
7		Explain Quality concepts	K2	1	Lecture with Discussion	BB
8		Distinguish Software Reviews and Formal technical reviews	K2	2	Lecture with Discussion	BB
9		Explain Statistical Software Quality Assurance and Software reliability	K2	2	Lecture with Discussion	BB
10		Explain SEI-CMM Model,	K2	1	Lecture with Discussion	BB+ICT
11		Explain Six Sigma	K2	1	Lecture with Discussion	BB+ICT
12		Explain ISO 9000 quality standards.	K2	1	Lecture with Discussion	BB+ICT
Total Hours				**14 Hours**		

Total No. of Classes: 60

Database Management Systems

LESSON PLAN

Academic Year: 2022-23   **Programme: B.Tech**
Year/ Semester: IV   **Section: -**
Name of the Course: Database Management Systems   Course Code: V20CST08/C213

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S.No.	CO No.	Course Outcome
1	C213.1	Describe Database Architecture and Data Models. [K2]
2	C213.2	Demonstrate Relational algebra and Relational calculus. [K3]
3	C213.3	Apply Normalization Techniques to Refine Schema. [K3]
4	C213.4	Explain Transaction Management and Concurrency Control. [K2]
5	C213.5	Illustrate various database indexing techniques. [K2]

Text Books:

1. Database Management Systems, Raghu Ramakrishnan, Johannes Gehrke, 3rd Edition TATA McGraw Hill.

2. An Introduction to Database Systems, C.JDate,A.Kannan,S.JSwamynathan 8th Edition, Pearson Education.

Reference Books:

1. Database Systems-Design, Implementation and Management, Peter Rob &Carlos Coronel 7th Edition, Course Technology Inc.

2. Fundamentals of Database Systems, RamezElmasri,Shamkant B. Navathe ,7th Edition,Pearson Education.

 3. Database Systems - The Complete Book, Hector Garcia- Molina, Jeffry D Ullman, Jennifer Widom, 2nd Edition, Pearson.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		65	65	60	60	65
Targeted level of Attainment	Level 3	65	60	60	60	65
	Level 2	60	55	55	55	60
	Level 1	55	50	50	50	55

Lecture Plan:

		UNIT-I: An Overview of Database Systemsand Database Design				
S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Dissemination of vision, mission, PEOs, POs, PSOs		1	Lecture	PPT
2		Define Data, Database, Database Management System	K1	1	Lecture	PPT
3		Describe the disadvantages in Traditional File System and advantages of DBMS over file system	K1	1	Lecture with Discussion	PPT
4		Describe Data models	K2	1	Lecture	PPT
5	CO 1	Discuss levels of abstraction in a DBMS		1	Lecture with Discussion	PPT
6		Describe data independence	K1	1	Lecture with Discussion	PPT
7		Illustrate the structure of DBMS	K2	1	Lecture with Discussion	PPT
8		Explain Client/Server Architecture	K2	1	Lecture with Discussion	PPT
9		Discuss E.F.Codd Rules		1	Lecture with	PPT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
					Discussion	
10		Describe introduction to Database Design: Database Design and ER Diagrams	K1	1	Lecture	PPT
11		Explain Entities, Attributes and Entity Sets	K2	1	Lecture With Discussion	PPT
12		Explain Relationships and Relationship Sets	K2	1	Lecture With Discussion	PPT
13		Illustrate Conceptual Design with the ER Model	K3	2	Lecture With Discussion	PPT
		TOTAL		**14**		

UNIT-II: RELATIONAL MODEL, RELATIONAL ALGEBRA AND RELATIONAL CALCULUS						
S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 2	Explain The Relational Model:Integrity Constraints over Relations: Key Constraints, Foreign Key Constraints, General Constraints	K2	2	Lecture With Discussion	PPT
2		Demonstrate Enforcing Integrity Constraints	K2	1	Lecture With Discussion	PPT
3		Illustrate Querying relational data	K3	1	Lecture With Discussion	PPT
4		Illustrate Relational Algebra: Selection and Projection	K3	1	Lecture With Discussion	PPT
5		Illustrate Set Operations, Renaming, Joins, Division, More Example of Algebra Queries	K3	3	Lecture With Discussion	PPT

					Lecture With Discussion	PPT
6		Describe views,tables	K2	1	Lecture With Discussion	PPT
7		IllustrateDestroying/altering tables and views	K3	1	Lecture With Discussion	PPT
8		Illustrate Relational Calculus:Tuple Relational Calculus	K3	1	Lecture With Discussion	PPT
9		Illustrate Domain Relational Calculus	K3	1	Lecture With Discussion	PPT
		TOTAL		**12**		

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
		UNIT-III: QUERIES, CONSTRAINTS, TRIGGERS AND SCHEMA REFINEMENT(NORMALIZATION)				
1		Explain the Form of a Basic SQL Query	K2	1	Lecture with Demonstration	PPT
2		Illustrate Union,Intersect, Except and Nested Queries	K3	2	Lecture with Demonstration	PPT
3		Illustrate Aggregate Operators	K3	1	Lecture with Demonstration	PPT
4		Interpret Null Values	K2	1	Lecture with Demonstration	PPT
5		Illustrate Complex Integrity Constraints in SQL	K3	1	Lecture with Demonstration	PPT
6		Illustrate Triggers and Active Databases	K3	2	Lecture with Demonstration	PPT
7	CO 3	Explain problems caused by Redundancy, Decomposition	K2	1	Lecture with Demonstration	PPT
8		Explain Purpose of Normalization or Schema Refinement	K2	1	Lecture With Discussion	PPT
9		Explain the Concept of Functional Dependency	K2	1	Lecture With Discussion	PPT
10		Illustrate Normal Forms Based on Functional Dependency (1NF, 2NF and 3 NF)	K3	2	Lecture With Discussion	PPT
11		Demonstrate Concept of Surrogate Key, Boyce-Codd Normal Form (BCNF)	K3	1	Lecture With Discussion	PPT
12		Illustrate Lossless Join and Dependency Preserving Decomposition, Fourth Normal Form (4NF)	K3	2	Lecture With Discussion	PPT
		TOTAL		**16**		

**UNIT-IV: TRANSACTION MANAGEMENT AND CONCURRENCY CONTROL**
S.No	**Course Outcome**	**Intended Learning Outcomes (ILO)**	**Knowledge Level of ILO**	**No. of Hours**	**Pedagogy**	**Teaching aids**
1	CO 4	Describe Transaction, Properties of Transactions,Transaction Log	K2	1	Lecture With Discussion	PPT
2		Explain Transaction Management with SQL Using Commit, Rollback and Savepoint.	K2	2	Lecture With Discussion	PPT
3		Describe Concurrency Control for Lost Updates, Uncommitted Data, Inconsistent Retrievals and The Scheduler	K2	2	Lecture With Discussion	PPT
4		Explain Concurrency Control with Locking Methods: Lock Granularity, Lock Types, Two Phase Locking for Ensuring Serializability	K2	3	Lecture With Discussion & Seminar	PPT
5		Explain Deadlocks, Concurrency Control with Time Stamp Ordering	K2	2	Lecture With Discussion	PPT
7		Describe Database Recovery Management: Transaction Recovery	K2	1	Lecture With Discussion	PPT
		TOTAL		**11**		

		UNIT-V: STORAGE AND INDEXING				
S.No	**Course Outcome**	**Intended Learning Outcomes (ILO)**	**Knowledge Level of ILO**	**No. of Hours**	**Pedagogy**	**Teaching aids**
1		Describe Overview of Storages and Indexing	K1	1	Lecture With Discussion	PPT
2		Describe data on External Storage	K1	1	Lecture With Discussion	PPT
3	CO 5	Explain File Organizations and Indexing: Clustered Indexes, Primary and Secondary Indexes	K2	2	Lecture With Discussion	PPT
4		Explain Index Data Structures: Hash-Based Indexing, Tree-Based Indexing	K2	2	Lecture With Discussion	PPT
5		Explain Comparison of File Organizations	K2	2	Lecture With Discussion	PPT
		TOTAL		**8**		

TOTAL HOURS:61

Java Programming

Academic Year: 2022-23   Programme: B.Tech

Year/ Semester: IV   Section: -

Name of the Course: Java Programming   Course Code: **V20CST09/C214**

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S.No.	CO No.	Course Outcome
1	C214.1	Describe Java Virtual Machine and Type Casting. [K2]
2	C214.2	Demonstrate Concepts like Constructors, Arrays, Nested Classes and Command Line Arguments. [K3]
3	C214.3	Implement Concepts of Inheritance and Exception Handling.. [K3]
4	C214.4	Develop Programs on Multi-Threading and Files. [K3]
5	C214.5	Implement Event Handling and Swings [K3]

Text Books:

1. Java Programming, E. Balagurusamy, 4thEdition, TMH.

2. The complete Reference Java, 8thEdition, Herbert Schildt,TMH.

3. Introduction to java programming, Y Daniel Liang, 7 Edition, Pearson.

Reference Books:

1. Core Java: An Integrated Approach, R Nageswara Rao, 7thEdition, Dream Tech

2. Head First Java , Kathy Sierra and Bert Bates, 2nd Edition O'reilly

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		65	65	60	60	65
Targeted level of Attainment	Level 3	65	60	60	60	65
	Level 2	60	55	55	55	60
	Level 1	55	50	50	50	55

Lecture Plan:

		UNIT-I: INTRODUCTION TO JAVA				
S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Dissemination of vision, mission, PEOs, POs, PSOs		1	Lecture	PPT
2		Recall the Need of Object Oriented Programming and the Principles of Object Oriented Languages	K1	1	Lecture	PPT
3		Explain different applications of OOP	K2	1	Lecture with Discussion	PPT
4		Describe the history of Java	K2	1	Lecture	PPT
5		Discuss about different features of java	K2	1	Lecture with Discussion	PPT
6	CO 1	Explain about Java Virtual Machine	K2	1	Lecture with Discussion	PPT
7		Discuss about Java Program Structure	K2	1	Lecture with Discussion	PPT
8		Discuss about Variables, Primitive Data types and Identifiers	K2	2	Lecture with Discussion	PPT
9		Discuss about String Class	K2	1	Lecture with Discussion	PPT
10		Discuss Precedence Rules and Associativity	K2	1	Lecture	PPT
11		Illustrate Primitive Type conversion and casting with an example	K2	1	Lecture With Discussion	PPT
12		Discuss briefly about control structures	K2	1	Lecture With Discussion	PPT
		TOTAL		**13**		

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
		UNIT-II: CLASSESANDOBJECTS				
1	CO 2	Explain about classes and objects	K2	2	Lecture With Discussion	PPT
2		Discuss about how to create objects and method declaration	K2	1	Lecture With Discussion	PPT
3		Describe Constructors and Constructor Overloading	K2	2	Lecture With Discussion	PPT
4		Illustrate the use of this keyword with examples	K2	1	Lecture With Discussion	PPT
5		Discuss about the importance of Static keyword	K2	2	Lecture With Discussion	PPT
6		Explain about different types of Arrays	K2	2	Lecture With Discussion	PPT
7		Interpret Command line arguments	K3	1	Lecture With Discussion	PPT
8		Demonstrate Nested Classes	K3	1	Lecture With Discussion	PPT
9		Demonstrate Garbage Collector	K3	1	Lecture With Discussion	PPT
		TOTAL		**13**		

		UNIT-III: INHERITANCE AND EXCEPTION HANDLING				
S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 3	Explain about different types of Inheritance	K2	1	Lecture with Demonstration	PPT
2		Illustrate the use of super keyword and final keyword	K2	1	Lecture with Demonstration	PPT
3		Explain the concept of Method Overriding	K2	1	Lecture with Demonstration	PPT
4		Explain about Abstract class	K2	1	Lecture with Demonstration	PPT
5		Explain about interface	K3	2	Lecture with Demonstration	PPT
6		Illustrate the procedure of creating packages and using packages	K3	2	Lecture with Demonstration	PPT
7		Explain the importance of C LASSPATH	K2	1	Lecture with Demonstration	PPT
8		Describe different types of Exceptions and procedure of Exception Handling	K2	2	Lecture With Discussion	PPT
9		Construct programs using Exception handling techniquesliketry… catch and finally block	K2	3	Lecture With Discussion	PPT
10		Interpret throw and throws statements with examples	K3	1	Lecture With Discussion	PPT
11		Interpret finally block with examples	K3	1	Lecture With Discussion	PPT
		TOTAL		16		

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
		UNIT-IV: MULTI-THREADING AND FILES				
1	CO 4	Discuss about thread lifecycle	K3	1	Lecture With Discussion	PPT
2		Illustrate creation of Threads	K3	1	Lecture With Discussion	PPT
3		Interpret Thread Priorities and Thread Synchronization with examples	K3	2	Lecture With Discussion	PPT
4		Illustrate Communication between threads with example program	K3	2	Lecture With Discussion & Seminar	PPT
5		Illustrate various file operations like Reading data from and writing data to files	K3	3	Lecture With Discussion	PPT
7		Demonstrate Random Access Files	K3	1	Lecture With Discussion	PPT
		TOTAL		**10**		

		UNIT-V: EVENT HANDLING AND SWINGS				
S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Explain about applet class and its life cycle	K2	1	Lecture With Discussion	PPT
2		Discuss about AWT ,Components and Containers of AWT	K2	2	Lecture With Discussion	PPT
3		Illustrate various Swings Components like Button,label,Checkbox, List boxes, Menu and Scrollbar with example programs	K3	3	Lecture With Discussion	PPT
4	CO 5	Interpret different types of layout managers with examples	K3	1	Lecture With Discussion	PPT
5		Describe Event Delegation Model	K3	1	Lecture With Discussion	PPT
6		Illustrate Source of Events and Event Listeners	K3	2	Lecture With Discussion	PPT
7		Illustrate Adapter classes with example programs	K3	1	Lecture With Discussion	PPT
		TOTAL		**11**		

TOTAL HOURS:63

Probability and Statistics

Academic Year: 2022-23   **Programme:** B.Tech

Year/ Semester: IV   **Section:** -

Name of the Course: Probability and Statistics   **Course Code:** V20MAT04/C215

Course Outcomes (Along with Knowledge Level):

After Completing the course Student will be able to:

S.No.	CO No.	Course Outcome
1	C215.1	Find the Expectation of Random variables. [K3]
2	C215.2	Apply probability distribution to real time problems. [K3]
3	C215.3	Plot a best fit curve to an experimental data and find the correlation and regression. [K3]
4	C215.4	Create good estimators to various parameters. [K6]
5	C215.5	Apply the principles of Statistical Inference to practical problems. [K3]

Text Books:

1. **B. V. Ramana**, A text Book of Engineering Mathematics, Tata McGraw Hill.
2. **Miller & Freund's**, Probability & Statistics for Engineers – Eighth Edition, Richard. A. Johnson

Reference Books:

1. **S. Ross,** "A First Course in Probability", Pearson Education India, 2002.
2. **Dr.T.S.R.Murthy**, Probability and Statistics for Engineers, BS Publications.
3. **T. Veerarajan**, "Engineering Mathematics", Tata McGraw-Hill, New Delhi, 2010.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5	CO6
Targeted Proficiency Level		55	55	55	55	55	55
Targeted level of Attainment	Level 3	70	70	70	70	70	70
	Level 2	65	65	65	65	65	65
	Level 1	60	60	60	60	60	60

Lecture Plan:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching aids
		UNIT-I: Random variables and Expectation	**K3**	**10**		
1	**CO1**	Define random variables: discrete and continuous with examples	K1	**1**	Lecture	Black Board
2	**CO1**	Explain discrete probability distribution, probability function, density function and their properties	K2	**1**	Lecture with Discussion	Black Board
3	**CO1**	Explain expectation , mean , variance, standard deviation of a probability distribution	K2	**1**	Lecture with Discussion	Black Board
4	**CO1**	Find the probabilities using discrete probability function	K3	1	Lecture with Discussion and in class Assignment	Black Board
5	**CO1**	Calculate expectation , mean , variance and standard deviation of discrete distribution	K3	**1**	Lecture with Discussion and in class Assignment	Black Board
6	**CO1**	Explain continuous probability distribution, probability function, density function and their properties	K2	1	Lecture with Discussion	Black Board
7	**CO1**	Find the probabilities using continuous probability function	K3	1	Lecture with Discussion and in class Assignment	Black Board
8	**CO1**	Find the mean, median , mode , variance and standard deviation of continuous probability distribution	K3	1	Lecture with Discussion and in class Assignment	Black Board
9	**CO1**	Explain moments and Chebyshev's Inequality	K2	1	Lecture with Discussion	Black Board

					Lecture with Discussion and in class Assignment	Black Board
10	**CO1**	Find moments of given data	K3	1	Lecture with Discussion and in class Assignment	Black Board
		UNIT II: Probability Distributions	**K3**	**10**		
11	**CO2**	Explain Binomial distribution and its properties	K2	1	Lecture with Discussion	Black Board
12	**CO2**	Find the probability using Binomial distribution	K3	1	Lecture with Discussion and in class Assignment	Black Board
13	**CO2**	Explain Poisson distribution and its properties	K2	1	Lecture with Discussion	Black Board
14	**CO2**	Find the probability using Poisson distribution	K3	1	Lecture with Discussion and in class Assignment	Black Board
15	**CO2**	Explain Normal distribution and its properties	K2	1	Lecture with Discussion	Black Board
16	**CO2**	Find the probabilities by using Normal distribution	K3	1	Lecture with Discussion and in class Assignment	Black Board
17	**CO2**	Find the probabilities by using Normal distribution	K3	1	Lecture with Discussion and in class Assignment	Black Board
18	**CO2**	Explain Exponential distribution and weibull distribution	K2	1	Lecture with Discussion	Black Board
19	**CO2**	Explain Gamma distribution	K2	1	Lecture with Discussion	Black Board
20	**CO2**	Find the probabilities using Exponential,Weibull and Gamma distributions	K3	1	Lecture with Discussion and in class Assignment	Black Board
		UNIT III: Bivariate Distribution	**K3**	**10**		
21	**CO3**	Explain Least- Squares	K2	1	Lecture	Black

		method to fit a curve to the given data			with Discussion	Board
22	**CO3**	Apply the Method of Least-Squares to fit a straight line for the given data	K3	1	Lecture with Discussion and in class Assignment	Black Board
23	**CO3**	Apply the Method of Least-Squares to fit a Second degree curve for the given data	K3	1	Lecture with Discussion and in class Assignment	Black Board
24	**CO3**	Apply the Method of Least-Squares to fit a Exponential and power curve for the given data	K3	1	Lecture with Discussion and in class Assignment	Black Board
25	**CO3**	Define correlation and types of correlation, correlation coefficient	K1	1	Lecture	Black Board
26	**CO3**	Calculate Karl Pearson's coefficient of correlation for given data	K3	1	Lecture with Discussion and in class Assignment	Black Board
27	**CO3**	Discuss Spearman's rank correlation coefficient	K2	1	Lecture with Discussion	Black Board
28	**CO3**	Find the rank correlation coefficient	K3	1	Lecture with Discussion and in class Assignment	Black Board
29	**CO3**	Discuss regression	K2	1	Lecture with Discussion	Black Board
30	**CO3**	Calculate the regression equation for given data	K3	1	Lecture with Discussion and in class Assignment	Black Board
		UNIT-IV: Sampling Distribution and Estimation	**K6**	**10**		
31	**CO4**	Define population and samples, sampling theory	K1	1	Lecture	Black Board
32	**CO4**	Define sampling distribution of means (σ known)	K1	1	Lecture	Black Board
33	**CO4**	Calculate mean, variance	K3	1	Lecture	Black

		and standard deviations of sampling distributions of means			with Discussion and in class Assignment	Board
34	**CO4**	Calculate mean, variance and standard deviations of sampling distributions of means	K3	1	Lecture with Discussion and in class Assignment	Black Board
35	**CO4**	Define sampling distribution of mean (σ unknown)	K1	1	Lecture	Black Board
36	**CO4**	Explain t- distribution, F-distribution and chi-square distribution	K2	1	Lecture with Discussion	Black Board
37	**CO4**	Explain Estimation, criteria of a good estimator , point and interval estimation	K2	1	Lecture with Discussion	Black Board
38	**CO4**	Define the maximum error and confidence interval for the mean of a populations	K1	1	Lecture	Black Board
39	**CO4**	Estimate the maximum error and the confidence interval for the mean of a population using various distributions	K2	1	Lecture with Discussion	Black Board
40	**CO4**	Estimate the confidence interval for the mean of a population using various distributions	K2	1	Lecture with Discussion	Black Board
		UNIT-V Tests of Hypothesis	K3	13		
41	**CO5**	Define Null and alternative Hypothesis	K1	1	Lecture	Black Board
42	**CO5**	Explain Type-1,Type II errors and one tail and two tail test	K2	1	Lecture with Discussion	Black Board
43	**CO5**	Examine the hypothesis concerning mean and proportion using z-test	K3	1	Lecture with Discussion and in class Assignment	Black Board
44	**CO5**	Examine the hypothesis concerning mean and proportion using z-test	K3	1	Lecture with Discussion and in class Assignment	Black Board

45	**CO5**	Examine the hypothesis concerning two means and their differences	K3	1	Lecture with Discussion and in class Assignment	Black Board
46	**CO5**	Examine the hypothesis concerning two proportions and their differences	K3	1	Lecture with Discussion and in class Assignment	Black Board
47	**CO5**	Examine the hypothesis concerning small samples using t-test	K3	1	Lecture with Discussion and in class Assignment	Black Board
48	**CO5**	Examine the hypothesis concerning small samples using t-test	K3	1	Lecture with Discussion and in class Assignment	Black Board
49	**CO5**	Examine the hypothesis concerning small samples using t-test	K3	1	Lecture with Discussion and in class Assignment	Black Board
50	**CO5**	Examine the hypothesis concerning variance using F-test	K3	1	Lecture with Discussion and in class Assignment	Black Board
51	**CO5**	Examine the hypothesis concerning variance using F-test	K3	1	Lecture with Discussion and in class Assignment	Black Board
52	**CO5**	Examine the hypothesis using chi-square test	K3	1	Lecture with Discussion and in class Assignment	Black Board
53	**CO5**	Examine the hypothesis using chi-square test	K3	1	Lecture with Discussion and in class Assignment	Black Board

Statistical Visualization using R Lab

LESSON PLAN

After completion of this course, the students will be able to:

Academic Year: 2022-23   **Programme: B.Tech**
Year/ Semester: IV   **Course Code: V20CSL06/C216**
Name of the Course: Statistical Visualization using R Lab

After completion of this course, the students will be able to:

S.No.	CO No.	Course Outcome
1	C216.1	Employ math and simulation in R. [K2]
2	C216.2	Demonstrate various types of data structures in R [K3]
3	C216.3	Apply appropriate control structures to solve a particular Programming problem [K3]
4	C216.4	Use R to graphically visualize data and results of statistical calculations [K3]

Text Books:

1. R for Everyone, Jared P Lander, Pearson
2. R in Action, Rob I Kabacoff, Manning.

Reference Books:

1. The Art of R Programming, Norman Matloff, No Starch Press.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4
Targeted Proficiency Level		70	65	65	65
Targeted level of Attainment	Level 3	70	65	65	60
	Level 2	60	55	55	50
	Level 1	50	45	45	40

Lecture Plan:

CO1:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO1	Exp 1: Demonstrate the basic math functions in R	**K2**	4	Demonstration & Experiment	PPT

CO2:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
2 3 4 5 6	CO2	Exp1: Demonstrate Vector operations in R Exp2: Demonstrate Matrix operations in R Exp3: Demonstrate Array operations in R Exp4: Demonstrate Dataframes in R Exp5: Demonstrate Lists in R	**K3**	12	Lecture& Experiment	PPT

CO3:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
7 8	CO3	Exp1: Illustrate the following controls statements in R a. if and else b. ifelse c. switch Exp2: Demonstrate for and while loops in R	**K3**	8	Demonstration& Experiment	PPT

CO4:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids

9
 	
10
 	
11
 	
12
 	
13
 	
14
 	
15
	CO5	Exp1: Demonstrate importing and exporting data using R
		Exp2: Illustrate the descriptive statistics using summary() in R
		Exp3: Demonstrate the following statistical distribution functions in R:
		  a. Normal Distribution
		  b. Binomial Distribution
		  c. Poisson Distribution
		  d. Chi Square Distribution
		Exp4: Illustrate the following basic graphics in R:
		  a. Bar plots
		  b. Pie Charts
		  c. Histograms
		  d. Kernel density plots
		  e. Boxplots
		  f. Dotplots
		Exp5: Illustrate the Correlation and Covariance analysis using R
		Exp6: Illustrate the different types of t-tests using R
		Exp7: Illustrate the ANOVA test using R
			K3	24	Demonstration& Experiment	PPT

Total no of hours: 48

Database Management Systems Lab

Academic Year: 2022-23   **Programme**:B.Tech.

Year/Sem: IV

Name of the Course: **Database Management Systems Lab**

Course Code: V20CSL07/C217

Course Outcomes (Along with Knowledge Level):

After Completing the course Student will be able to:

S.No.	CO No.	Course Outcome
1	C217.1	Construct SQL Queries to perform different database operations [K3]
2	C217.2	Experiment with various Constraints and Database Indexing Techniques. [K3]
3	C217.3	Construct PL/SQL Cursors and Exceptions [K3]
4	C217.4	Develop PL/SQL Functions, Procedures, Packages. [K3]
5	C217.5	Apply basic operations on collections of Mongo DB database [K3]

Text Books:

1. Oracle Database 11g the Complete Reference by Oracle Press, Kevin Loney
2. Database Systems Using Oracle, Nilesh Shah, 2nd Edition ,PHI.
3. Introduction to SQL, Rick F Vander Lans, 4th Edition, Pearson Education.

Reference Books:

1. Oracle PL/SQL Interactive Workbook, B. Rosenzweig and E. Silvestrova,2nd Edition, Pearson education.
2. SQL & PL/SQL for Oracle 10 g, Black Book, Dr. P. S. Deshpande, Dream Tech.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5	CO6
Targeted Proficiency Level		65	65	65	65	65	60
Targeted level of Attainment	Level 3	65	65	65	60	60	60
	Level 2	55	55	55	50	50	50
	Level 1	45	45	45	40	40	40

Lecture Plan:

CO1:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1 2 3 4 5 6 7 8	CO1	Exp1: Develop a Query to facilitate acquaintance of Built-In Functions, String Functions, Numeric Functions, Date Functions and Conversion Functions. Exp2: Develop queries using operators in SQL Exp3: Develop different queries to Retrieve and Change Data using Select, Insert, Delete, and Update Exp4: Develop different queries using Group By, Order By, and Having Clauses Exp5: Develop queries on Controlling Data(Commit, Rollback, and Save point) Exp6: Develop a Query to Build Report in SQL *PLUS Exp7: Develop queries for Creating, Dropping, and Altering Tables, Views, and Constraints Exp8:Develop queries on joins and Corelated Subqueries	**K3**	12	Demonstration & Experiment	PPT

CO2:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
9	CO2	Exp:1 Develop different queries on Working with Index, Sequence, Synonym, Controlling Access, and Locking Rows for Update, Creating Password and Security features PL/SQL.	K3	6	Lecture& Experiment	PPT

CO3:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
10	CO3	Exp:1 Develop PL/SQL Code using Cursors, Exceptions and Composite Data Types	K3	3	Demonstration & Experiment	PPT

CO4:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
11 12 13	CO4	Exp1: Develop PL/SQL Code using Basic Variable, Anchored Declarations, and Usage of Assignment Operation. Exp2: Develop PL/SQL Code for Bind and Substitution Variables and Printing in PL/SQL Exp3: Develop PL/SQL block using SQL and Control Structures in PL/SQL	K3	9	Demonstration & Experiment	PPT

CO5:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
14	CO5	Develop PL/SQL Code using Procedures, Functions, Packages and Forms	**K3**	3	Demonstration& Experiment	PPT

CO6:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
15 16 17 18	CO6	Exp1: Demonstrate MongoDB Database Exp2: Develop queries to Create and drop database and collection Exp3: Develop queries to Insert,update ,delete,query document Exp4: Develop queries for Projection, limiting records, sorting records and aggregation in MongoDB	**K3**	6	Demonstration & Experiment	PPT

Total no of hours: 39

Java Programming Lab

Academic Year: 2022-23   **Programme**:B.Tech.

Year/Sem: IV

 Name of the Course: Java Programming Lab   **Course Code**: V20CSL08/   **C 218**

Course Outcomes (Along with Knowledge Level):

After Completing the course Student will be able to:

S.No.	CO No.	Course Outcome
1	C218.1	Demonstrate Programs on Classes, Objects, Constructors and Arrays. [K3]
2	C218.2	Demonstrate Inheritance and Exception Handling. [K3]
3	C218.3	Implement programs on Multi-Threading and File Handling.. [K3]
4	C218.4	Implement Event handling using Swings.. [K3]

Text Books:

1. The complete Reference Java, 8th Edition, Herbert Schildt, TMH.

2. Introduction to java programming, Y Daniel Liang, 7 Edition, Pearson.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4
Targeted Proficiency Level		65	65	65	65
Targeted level of Attainment	Level 3	65	65	65	60
	Level 2	55	55	55	50
	Level 1	45	45	45	40

Lecture Plan:

CO1:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1 2 3 4	CO1	**Exp 1:** Develop programs on Control Structures and Type Conversions in java. **Exp 2:** Develop programs using various String handling functions **Exp 3:** Construct programs using the following concepts: a) Classes & Objects b) Usage of static c)Constructors **Exp 4:** Construct programs using the following concepts. a) Arrays b) Nested Classes c) Command Line Arguments	**K3**	12	Demonstration & Experiment	PPT

CO2:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
5 6 7	CO2	**Exp 1:** Construct programs using the following concepts. a) Inheritance b) Usage of super c)Method Overriding **Exp 2:** Construct programs using the following concepts. a) Usage of final b) Abstract class c)Interfaces **Exp 3:** Implement the programs using the concepts a) Packages b) Exception Handling.	**K3**	9	Lecture& Experiment	PPT

CO3:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
8 9 10	CO3	**Exp 1:** Implement the programs on Multi-Threading. a) Multiple Threads on Single Object b) Thread Deadlock **Exp 2:** Construct a program that shows Inter-thread Communication **Exp 3:** Construct programs to perform read and write operations on files. a) Sequential Files b) Random Access files	**K3**	9	Demonstration& Experiment	PPT

CO4:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
11 12	CO4	**Exp 1:** Develop GUI using Swings. **Exp 2:** Construct programs on Event Handling using Listener Interfaces.	**K3**	6	Demonstration& Experiment	PPT

Total no of hours: 36

Professional Communication Skills - II

Academic Year: 2022-23   **Programme**:B.Tech.

Year/Sem: IV   **Course Code**: V18ENT02/C220

 Name of the Course: **Professional Communication Skills - II**

Course Outcomes (Along with Knowledge Level):

After Completing the course Student will be able to:

S.No.	CO No.	Course Outcome
1	C220.1	Recognize the easiest and best possible way of solving problem in the area of Number and Letter Series, Analogy, Classification, Coding & Decoding Symbols, Ranking and Analytical Reasoning.[K1]
2	C220.2	Investigate the different types of logics involved in Mirror and water Images, Logical Reasoning & Arithmetical Reasoning.[K4]
3	C220.3	Find the common traps in the questions and errors likely to be made from the concepts of Blood Relations, Directions, Average, Clock and Calendar, Data Sufficiency, Permutations-Combinations and Probability [K3]

Text Books:

- ➢ Work book-1 on Aptitude prepared by Training & Placement Cell, Sri Vasavi Engineering College.
- ➢ Magical Book on Quicker Maths-Tyra
- ➢ R.S.Agarwal-Sultan Chand Publications

Hyperlinks
1. https://www.indiabix.com/
2. https://www.campusgate.co.in/

Targeted Proficiency Level and Targeted level of Attainment (for each Course Outcome):

Course Outcome	Targeted Proficiency Level (% of Marks)	Targeted level of Attainment (% Students)
3	50	60
4	50	60
5	50	60

CO 3

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Students can Identify the Next letter or Number in a correct Relation.	K1	1	Lecture	PPT/A.V
2	CO 3	Students can justify the relation between words and Numbers.	K1	1	Lecture	PPT/A.V
3		Students can identifying different one from group of terms.	K1	1	Lecture	PPT/A.V
4		Students can Describe their Rank in a class or in a Compitation.	K1	1	Lecture	PPT/A.V

CO 4

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Can Classify the ages in a family members/ Explain the relation between numbers.	K4	1	Lecture	PPT/A.V
2	CO 4	Calculate the Actual time in Mirror and Water/ Classify the Images.	K4	1	Lecture	PPT/A.V
3		Differentiate the logic behind the conclusions.	K4	1	Lecture	PPT/A.V
4		Students can Explain the logic for given problem.	K4	1	Lecture	PPT/A.V

CO 5

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Students can choose the correct relation between the persons.	K3	1	Lecture	PPT/A.V
2		Students can show the correct direction.	K1	1	Lecture	PPT/A.V
3	CO 5	Students can calculate the Average of data.	K1	1	Lecture	PPT/A.V
4		Students can Relate the correct day for given date and angle between two hands of a clock.	K1	2	Lecture	PPT/A.V
5		Students can Intercept data.	K1	1	Lecture	PPT/A.V
6		Students can report the Real Time Scenarios possibility..	K1	2	Lecture	PPT/A.V

Total No. of Classes:16