

SRI VASAVI ENGINEERING COLLEGE (Autonomous)

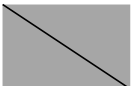
**(Permanent Affiliation to JNTUK, Kakinada),
PEDATADEPALLI, TADEPALLIGUDEM-534 101**

A.Y: 2023-24

VI SEM AIML Handbook



**Department of
Artificial Intelligence & Machine Learning
Pedatadepalli, Tadepalligudem-534101, A.P**



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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..

ACADEMIC CALENDAR

✉ : principal@srivasaviengg.ac.in
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☎ : 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: 15-07-2023

Academic Calendar

For III B.Tech. (V and VI Semesters), Academic Year 2023-24

V Semester			
Description	From	To	Weeks
Commencement of Class Work	31.07.2023		
I Unit of Instructions	31.07.2023	23.09.2023	8 W
I Mid Examinations	25.09.2023	30.09.2023	1 W
II Unit of Instructions	03.10.2023	25.11.2023	8 W
II Mid Examinations	27.11.2023	02.12.2023	1 W
Preparation & Practicals	04.12.2023	09.12.2023	1 W
End Examinations	11.12.2023	23.12.2023	2 W
Commencement of Next Semester Class Work (VI Semester)	26.12.2023		
VI Semester			
I Unit of Instructions	26.12.2023	17.02.2024	8 W
I Mid Examinations	19.02.2024	24.02.2024	1 W
II Unit of Instructions	26.02.2024	20.04.2024	8 W
II Mid Examinations	22.04.2024	27.04.2024	1 W
Preparation & Practicals	29.04.2024	04.05.2024	1 W
End Examinations	06.05.2024	18.05.2024	2 W


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 Artificial Intelligence & Machine Learning



CLASS CONSOLIDATED TIME TABLE

Class: VI Semester

Section: A

Class Coordinator: Mr.M.Yesu Sekharam

w.e.f:27-12-2023

Room No: B-301

Periods	1	2	3	4	1:00PM 2:00PM	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)		(02.00 PM- 02.50 PM)	(02.50 PM- 03.40 PM)	(03.40 PM- 04.30 PM)
Mon	DL	MCCP-II			Lunch Break	OOSE	DS	CN
Tue	DS	CN	DL	OOSE		MCCP-II		
Wed	OOSE	OOSE LAB				CN	DL	CN
Thu	CN	DL	CN	DS		DS	OOSE	LIBRARY
Fri	PEHV	PEHV	DS	DL		DL LAB		
Sat	DL	CN LAB				OOSE	DS	SPORTS

Staff Details:

S. No.	Course Code	Course Name	Faculty Name
1.	V20AIT12	Computer Networks	Mr.M.Yesu Sekharam
2.	V20AIT13	Object Oriented Software Engineering	Mr.P Kalyan babu
3.	V20AIT14	Deep Learning	Dr.K.Srinivasa Rao
4.	V20AITPE06	Master Coding and Competitive Programming-II (Job Oriented Elective-II)	Dr.V.Venkateswara Rao Ms.T.Pranusha
5.	V20AITPE07	Professional Elective-II Data Science	Mr.R.L.Phani Kumar
6.	V20AIL11	Computer Networks Lab	Mr.M.Yesu Sekharam Mr.P.Kalyan Babu
7.	V20AIL12	Deep Learning Lab	Dr.K.Srinivasa Rao Ms.T.Pranusha
8.	V20AIL13	Object Oriented Software Engineering Lab	Mr.P.Kalyan Babu Ms.Y.DivyaVani
9.	V20SOC04	Skill Oriented Course-IV	Mr.M.Yesu Sekharam
10.	V20CEMC02	Professional Ethics & Human Values	Mr. T.Dileep

Lab Venues:

S.No.	Name of the Lab Course	Lab Venue
1	Computer Networks Lab	PG CP Lab
2	Deep Learning Lab	Linus Torvalds Lab
3	Object Oriented Software Engineering Lab	PG CP Lab
4	MCCP Lab	Yellow Seminar Hall

Date: 24-01-2024

Head of the Department

Head of the Department
Department of the CSE (AI) & AIML
Sri Vasavi Engineering College
TADEPALLIGUDEM-534 101

COURSE STRUCTURE

VI - SEMESTER

S.No.	Course Code	Name of the Course		L	T	P	C
1	V20AIT12	Computer Networks	PCC	3	0	0	3
2	V20AIT13	Object Oriented Software Engineering	PCC	3	0	0	3
3	V20AIT14	Deep Learning	PCC	3	0	0	3
4		Open Elective -II / Job Oriented Elective-II	OEC	3	0	0	3
			JOE	0	0	6	
5	Professional Elective-II		PEC	3	0	0	3
	V20AITPE05	i) Cyber Security					
	V20AITPE06	ii) Cloud Computing					
	V20AITPE07	iii) Data Science					
	V20AITPE08	iv) Social Networks and Semantic Web					
6	V20AIL11	Computer Networks Lab	PCC	0	0	3	1.5
7	V20AIL12	Object Oriented Software Engineering Lab	PCC	0	0	3	1.5
8	V20AIL13	Deep Learning Lab	PCC	0	0	3	1.5
9	V20SOC04	Skill Oriented Course-IV*	SOC	1	0	2	2
10	V20CEMC02	Professional Ethics & Human Values	MNC	2	0	0	0
Total:				15	0	7	21.5

Total Contact Hours: 32

Total Credits: 21.5

**The Student need to select one Skill Oriented Course from the given pool of courses.*



LESSON
PLANS

Computer Networks

LESSON PLAN

Academic Year : 2023-24

Semester : VI

Name of the Course: Computer Networks

Programme: B.Tech

Section : AIM

Course Code: V20AIT12

Course Outcomes (Along with Knowledge Level):

S.No.	CO No.	Course Outcome	BTL
1.	CO1	Discuss fundamentals of network concepts and Reference Models	K2
2.	CO2	Discuss Communication media and switching techniques	K2
3.	CO3	Demonstrate Error control and Data link layer protocols	K3
4.	CO4	Apply Routing algorithms and congestion control algorithms	K3
5.	CO5	Discuss Transport layer protocols and Application layer protocols	K2

Text Books:

1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI
2. Data Communications and Networks – Behrouz A. Forouzan, Third Edition TMH

Reference Books:

1. An Engineering Approach to Computer Networks-S.Keshav, 2nd Ed, Pearson Education
2. Understanding communications and Networks, 3rd Edition, W.A. Shay, Thomson

Targeted Proficiency Level (For each course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		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

Lesson Plan:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 1	Dissemination of Vision, Mission of the Dept.and PEOs,Pos,& PSOs of the Programme		1	Lecture	BB+ICT
2		Describe Reference models-The OSI Reference Model	K1	2	Lecture	BB+ICT
3		Discuss TCP/IP Reference Model	K2	1	Lecture with Discussion	BB+ICT
4		Examples of Networks:Novell Networks, ARPANET, INTERNET	K2	2	Lecture	BB+ICT
5		Describe Network Topologies WAN, LAN, MAN.	K1	1	Lecture	ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 2	Describe Physical Layer – Transmission Media	K1	1	Lecture	ICT
2		Explain Different Kinds of Transmission Media	K2	2	Lecture	ICT
3		Describe Multiplexing Techniques: Frequency Division Multiplexing and Wavelength Division Multiplexing	K1	2	Lecture	ICT
4		Discuss Time Division Multiplexing	K2	1	Lecture with Discussion	ICT
5		Explain Circuit Switched Networks	K2	1	Lecture with Discussion	ICT
6		Explain Datagram Networks and Virtual Circuit Networks	K2	2	Lecture with Discussion in class Assignment	ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 3	Describe The Data Link Layer - Services Provided to the Network Layer	K1	1	Lecture	ICT
2		Explain Data Link Layer Design Issues	K2	1	Lecture	ICT
3		Illustrate Framing – Error Control –Flow Control, Error Detection and Correction – Error-Correcting Codes – Error Detecting code	K3	2	Lecture with Discussion and in class Assignment	ICT
4		Discuss MAC Protocols: ALOHA, CSMA	K2	2	Lecture with Discussion	ICT
5		Explain Elementary Data Link Protocols- A Utopian Simplex Protocol	K2	1	Lecture with Discussion	ICT
6		Discuss A Simplex Stop and Wait Protocol for an Error free channel-A Simplex Stop and Wait Protocol for a Noisy Channel.	K2	1	Lecture	ICT
7		Demonstrate Sliding Window Protocols	K3	3	Lecture with Discussion	ICT
8		Discuss HDLC, PPP and Piggybacking	K2	2	Lecture	ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 4	Describe The Network Layer -Design Issues and Services Provided to Transport Layer	K1	2	Lecture	ICT
2		Discuss Implementation of Connectionless Service- Implementation of Connection Oriented Service.	K2	2	Lecture with Discussion	ICT
3		Construct Shortest Path algorithm	K3	1	Lecture with Discussion	ICT

4		Describe Flooding	K2	1	Lecture	ICT
5		Illustrate Distance Vector Routing, Link State Routing, and Hierarchical Routing	K3	2	Lecture and in class Assignment	ICT
6		Differentiate Broadcast and Multicast Routing	K2	1	Lecture	ICT
7		Discuss Congestion Control Algorithms	K2	1	Lecture with Discussion	ICT
8		Demonstrate IP Addressing and Subnet Masking	K3	1	Lecture with Discussion and in class Assignment	ICT
9		Describe Quality of Service	K2	1	Lecture	ICT
10		Discuss QoS Improving Techniques: Leaky Bucket and Token Bucket Algorithms	K2	1	Lecture	ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 5	Describe Transport Layer – Services, Primitives and Sockets	K1	2	Lecture	ICT
2		Discuss Elements of Transport Protocols	K2	2	Lecture	ICT
3		Discuss The Internet Transport Protocols: TCP Segment Header and Primitives	K2	2	Lecture with Discussion	ICT
4		Discuss The Internet Transport Protocols: UDP, RPC, RTP, and RTCP Segment Headers and Primitives	K2	1	Lecture with Discussion	ICT
5		Discuss Congestion Control in TCP	K2	1	Lecture with Discussion	ICT
6		Discuss Application Layer –DNS: The DNS Name Space, Resource Records, Name servers.	K2	1	Lecture	ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
7	CO5	Describe Electronic Mail Message Transfer Agent: SMTP and Message Access Agent: POP	K2	2	Lecture	ICT
8		Discuss FTP: Control Connection and Data Connection	K2	1	Lecture with Discussion	ICT
9		Discuss HTTP: Connections, Methods, Message Headers, and Caching	K2	1	Lecture with Discussion	ICT
10		Explain Cryptography	K2	1	Lecture	ICT
11		Differentiate Public Key(RSA) and Private Key(DES) Cryptographic Algorithms	K2	2	Lecture with Discussion	ICT

Total No. of Classes: 60

Object Oriented Software Engineering

LESSON PLAN

Academic Year: 2023-24

Programme: B.Tech

Year/ Semester: VI SEM

Section : AIM

Name of the Course: Object oriented Software Engineering

Course Code: V20AIT13

Course Outcomes (Along with Knowledge Level):

S.No.	CO No.	Course Outcome	BTL
1.	1	Describe Software process and different life cycle models.	K2
2.	2	Discuss Project Planning, and organization.	K2
3.	3	Apply OO concepts along with their applicability contexts.	K3
4.	4	Demonstrate object oriented analysis and design.	K3
5.	5	Describe Implementation, Integration and Maintenance phases.	K2

Text Books:

1. Object oriented and Classical Software Engineering, 7th edition, Stephen Schach, TMH
2. Object oriented and classical software Engineering, Timothy Lethbridge, Robert Laganieri, TMH, Second Edition

Reference Books:

1. Component-based software engineering: 7th international symposium, CBSE 2004, IvicaCrnkovic, Springer.

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

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		65	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

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO1	Introduction to OBE, Dissemination of Vision, Mission of the Dept.and PEOs,POs & PSOs of the Programme.		1	Lecture	BB
2		Describe the phases in classical life-cycle model.	K1	1	Lecture	BB
3		Classify the object oriented paradigm and classical paradigm.	K2	1	Lecture	BB
4		Discuss iterative and incremental life cycle model of software development.	K2	2	Lecture with discussion	BB
5		Explain waterfall and rapid prototyping life-cycle models.	K2	1	Lecture	BB
6		Illustrate spiral life-cycle model.	K2	1	Lecture	BB
7		Discuss on Extreme programming(XP) agile model.	K2	1	Lecture with Discussion and in class Assignment	BB+ICT
8		Explain the strengths and weaknesses of various life cycle models.	K2	1	Lecture	BB

Total 9

Unit- 2

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO2	Outline the importance of project planning.	K1	1	Lecture	BB
2		Explain the metrics used for measuring size of a product.	K2	2	Lecture	BB
3		Explain techniques used for cost estimation.	K2	2	Lecture	BB
4		Illustrate Intermediate COCOMO model	K2	1	Lecture	BB+ICT
5		Explain COCOMO-II model of estimation.	K2	1	Lecture with discussion and in class Assignment	BB
6		Identify the components of software project management plan.	K1	2	Lecture	BB+ICT
7		Explain project organization structure and communication concepts.	K2	2	Lecture	BB+ICT

Total

12

Unit-3

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO3	Define coupling and cohesion.	K1	1	Lecture	BB
2		Demonstrate various levels of cohesion.	K3	1	Lecture with Discussion and in class Assignment	BB+ICT
3		Demonstrate various levels of coupling.	K3	1	Lecture	BB+ICT
4		Describe the need of information hiding.	K1	1	Lecture	BB
5		Explain the implications of inheritance, polymorphism, Dynamic Binding in OOP.	K2	1	Lecture	BB
6		Define Reusability and identify the impediments to reuse.	K1	1	Lecture	BB
7		Explain the techniques for achieving reusability during various workflows.	K2	2	Lecture with Discussion and in class Assignment	BB+ICT
8		Describe the need of portability.	K1	1	Lecture	BB
9		Explain the techniques for achieving portability.	K2	1	Lecture	BB
10		Discuss the behavioral properties to be tested for a software product.	K2	2	Lecture	BB

Total 12

Unit- 4

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO4	Describe rapid prototyping method for developing user interface of product.	K1	1	Lecture	BB
2		Demonstrate structured systems Analysis with case study.	K3	2	Lecture	BB
3		Apply Finite state machine method for requirements specification.	K3	1	Lecture	BB
4		Demonstrate Petri Nets method of specification.	K3	2	Lecture with Discussion and in class Assignment	BB+ICT
5		Discuss use-case modeling.	K2	2	Lecture	BB+ICT
6		Explain class modeling during analysis phase.	K2	2	Lecture	BB+ICT
7		Explain dynamic modeling during analysis phase.	K2	2	Lecture	BB+ICT

Total 12

Unit-5

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO5	Describe data oriented design process.	K1	1	Lecture	BB
2		Explain object oriented design process with an example.	K2	2	Lecture	BB
3		Discuss formal techniques for detailed design.	K2	1	Lecture	BB
4		Describe the challenges in design phase.	K1	1	Lecture	BB
5		Explain Top-down and Bottom-up integration methods.	K2	2	Lecture with Discussion and in class Assignment	BB+ICT
6		Explain various activities of implementation process.	K2	2	Lecture	BB
7		Discuss maintenance implications of OO paradigm.	K2	1	Lecture	BB

Total 10

Total No. of Classes: 55

Deep Learning

LESSON PLAN

Academic Year: 2023-24

Programme: B.Tech

Year/ Semester: VI

Section : AIM

Name of the Course: Deep Learning

Course Code: V20AIT14

Course Outcomes (Along with Knowledge Level):

CO No.	Course Outcome	BTKL
1	Describe the fundamentals of deep learning	K2
2	Illustrate the working of deep feed forward neural networks.	K2
3	Discuss regularization and optimization techniques used in deep neural networks.	K2
4	Illustrate the working of convolution neural networks.	K2
5	Explain about recurrent and recursive neural networks.	K2

Text Books:

1. Deep Learning, Ian Goodfellow, YoshuaBengio, and Aaron Courville, MIT Press.

Reference Books:

1. Neural Networks and Deep Learning, Charu C. Aggarwal, Springer.
2. Fundamentals of Deep Learning, Nikhil Buduma, 1st Edition, O_Reilly.

Targeted Proficiency Level (For each course Outcome):

COs		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		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

Lesson Plan:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 1	Data Engineering Lifecycle, Evolution, Data Engineering and Data Science; Skills & Activities		1	Lecture	ICT Chalk &Talk
2		Data Maturity and the Data Engineer, The Background and Skills of a Data Engineer	K2	2	Lecture	ICT Chalk & Talk
3		Data Engineers Inside an Organization	K2	2	Lecture with Discussion	ICT Chalk & Talk
4		The Data Engineering Life Cycle	K2	2	Lecture	ICT
5		The Data Lifecycle versus the Data Engineering Lifecycle	K2	2	Lecture with Discussion	Chalk & Talk
6		Storage, Ingestion, Transformation, Serving Data	K2	2	Lecture	Chalk & Talk
7		Major Undercurrents across the Data Engineering Lifecycle.	K2	2	Lecture	Chalk & Talk
8	CO 2	Designing Good Data Architecture: Enterprise Architecture, Data Architecture, Good Data Architecture, Principles of Good Data Architecture, Major Architecture Concepts	K2	2	Lecture	Chalk & Talk
9		Examples and Types of Data Architecture, Who's Involved with Designing a Data Architecture. Data Generation in Source Systems: Sources of Data, Source Systems, Source System Practical DetailsDatabases	K2	3	Lecture	ICT
10		APIs, Data Sharing, Third-Party Data Sources, Message Queues and Event-Streaming Platforms, Whom You'll Work With, Undercurrents and Their Impact on Source Systems.	K2	1	Lecture	ICT
11	CO 3	Storage: Raw Ingredients of Data Storage, Data Storage Systems-Single Machine Versus Distributed Storage, Eventual Versus Strong Consistency	K2	3	Lecture with Discussion	ICT Chalk & Talk
12		File Storage, Block Storage, Object Storage, Cache and Memory-Based Storage Systems	K2	3	Lecture	ICT Chalk & Talk

13		The Hadoop Distributed File System, Streaming Storage, Data Engineering Storage Abstractions	K2	3	Lecture	Chalk & Talk
14		Big Ideas and Trends in Storage-Data Catalog, Data Sharing, Schema, Separation of Compute from Storage,	K2	2	Lecture	ICT
15		Data Storage Lifecycle and Data Retention, Single-Tenant Versus Multitenant Storage; Whom You__ll Work With, Undercurrents	K2	2	Lecture	ICT
16	CO 4	Ingestion: What is Data Ingestion, Key Engineering Considerations, Batch Ingestion Considerations, Message and Stream Ingestion Considerations.	K2	3	Lecture	Chalk &Talk
17		Ways to Ingest Data- Direct Database Connection, Change Data Capture, APIs, Message Queues and Event-Streaming Platforms, Managed Data Connectors	K2	2	Lecture	Chalk &Talk
18		Managed Data Connectors, Moving Data with Object Storage, EDI, Databases and File Export, Practical Issues with Common File Formats	K2	2	Lecture	ICT Chalk & Talk
19		Shell, SSH, SFTP and SCP, Web hooks, Web Interface, Web Scraping Implementation	K2	2	Lecture with Discussion	ICT Chalk & Talk
20		Transfer Appliances for Data Migration	K2	1	Lecture	ICT Chalk &Talk
21		Data Sharing; Whom You__ll Work With, Undercurrents.	K2	2	Lecture	ICT Chalk &Talk
22		Queries, Modeling, and Transformation: Queries, Data Modeling, Transformations- Batch Transformations,	K2	2	Lecture	ICT
23		Materialized Views, Federation, and Query Virtualization, Streaming Transformations and Processing	K2	2	Lecture	ICT Chalk &Talk
24	CO 5	Whom You__ll Work With, Undercurrents. Serving Data for Analytics, Machine Learning:	K2	3	Lecture with Discussion	ICT Chalk &Talk
25		General Considerations for Serving Data, AnalyticsBusiness, Operational, and Embedded;	K2	3	Lecture with Discussion	ICT Chalk &Talk
26		Machine Learning- What a Data	K2	3	Lecture with Discussion	ICT Chalk &Talk

		Engineer Should Know About ML				
27		Ways to Serve Data for Analytics and ML, Whom You'll Work With, Undercurrents	K2	3	Lecture	ICT

Total No. of Classes: 60

Master Coding & Competitive Programming-2

LESSON PLAN

Academic Year: 2023-24

Programme: B.Tech

Year/ Semester: VI

Section: AIM

Name of the Course: Master Coding & Competitive Programming-2

CourseCode:V20AITJE02

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

CO1	Apply Divide and Conquer algorithm technique to solve complex in logarithmic time.	[K3]
CO2	Apply Greedy method to solve Optimization and decision making problems.	[K3]
CO3	Apply Backtracking Algorithm technique to find combinatorial problems.	[K4]
CO4	Experiment with Dynamic Programming Algorithm technique to solve Problems that uses Optimal substructures.	[K3]
CO5	Develop programs using Linked List Graphs, DFS and BFS techniques.	[K3]

Text Books:

1. Introduction to Algorithms, Second Edition, Thomas H. Cormen Charles E. Leiserson.
2. Data Structures and Algorithms Made Easy: Narasimha Karumanchi
3. The Algorithm Design Manual, Springer series, Steven Skiena.

Tools:

1. practice.geeksforgeeks.com
2. leetcode.com
3. codingninjas.com
4. hackerrank.com
5. interviewbit.com

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

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		80%	80%	80%	80%	80%
Targeted level of Attainment	Level 3	80%	80%	80%	80%	80%
	Level 2	70%	70%	70%	70%	70%
	Level 1	60%	60%	60%	60%	60%

Lecture Plan:

S.N O	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours required	Pedagogy	Teaching aids
1	CO1	Develop Programs to solve problems based on Divide and Conquer Algorithm Technique	K3	10	Lecture With Discussion	ICT
2	CO2	Develop programs using two pointer and sliding window algorithms	K3	10	Lecture With Discussion	ICT
3	CO3	Problem Solving using Greedy Algorithm technique.	K4	16	Lecture With Discussion	ICT
		Problem Solving using Backtracking.				
4	CO4	Develop programs using Dynamic Programming and Kadane Algorithm.	K3	8	Lecture With Discussion	ICT
5	CO5	Develop programs using LinkedList and its applications	K3	16	Lecture With Discussion	ICT
		Develop programs using Graphs and Graph Searching Techniques.	K3			

Total No. of Classes: 60

Data Science

LESSON PLAN

Academic Year: 2023-24

Year/ Semester: VI

Name of the Course: **DATA SCIENCE**

Programme: B.Tech

Section: AIM

Course Code: **V20AITPE07**

Course Outcomes (Along with Knowledge Level):

S.No.	CO No.	Course Outcome	BTL
1.	CO1	Discuss the fundamental concepts of Data Science	K2
2.	CO2	Illustrate Exploratory Data Analysis	K2
3.	CO3	Explain the Concepts of Recommendation Engines	K2
4.	CO4	Explain various Anomaly Detection Techniques	K2
5.	CO5	Discuss Feature Selection techniques	K2

Text Books:

1. Data Science Concepts and Practice, Vijay Kotu, BalaDeshpande, 2nd Edition, Morgan Kaufmann Publishers

Reference Books:

1. An Introduction to Data Science, Jeffrey S. Saltz, Jeffrey M. Stanton, Sage Publications.
2. The Art of Data Science, Roger D Peng, Elizabeth Matsui, Lean Publishing.
3. Data Science for Business, Foster Provost, Tom Fawcett, O'Reilly Media.

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

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

Lecture Plan:

SNO	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching aids
1	Learning	Dissemination of vision, mission, PEO's, PO's, PSO's		1	IIP	PPT
2	CO1:	AI, Machine Learning and Data Science, What is Data Science?	K1	1	IIP	PPT
3		Case for Data Science	K2	1	IIP	PPT
4		Data Science Classification	K2	1	IIP	PPT
5		Data Science Algorithms	K2	1	IIP	PPT
6		Data Science Process: Prior Knowledge, Data Preparation	K2	1	IIP	PPT
7		Modeling-Training and Testing Datasets	K2	1	IIP	PPT
8		Learning Algorithms	K2	1	IIP	PPT
9		Evaluation of the Model	K2	1	IIP	PPT
10		Applications and knowledge	K2	1	IIP	PPT
			Total		10	
1	CO2:	Data Exploration: Objectives of Data Exploration	K2	1	IIP	PPT
2		Datasets- Types of Data	K2	1	IIP	PPT
3		Descriptive Statistics	K2	1	IIP	PPT
4		Univariate Exploration	K2	1	IIP	PPT
5		Multivariate Exploration	K2	1	IIP	PPT
6		Data Visualization	K2	1	IIP	PPT
7		Roadmap of Data Exploration	K2	1	IIP	PPT
			Total		7	
1		Recommendation	K2	1	IIP	PPT

		Engines: Need				
2	CO3:	Applications	K2	1	IIP	PPT
3		Concepts, Types	K2	1	IIP	PPT
4		Collaborative Filtering-Neighbourhood-Based Methods	K2	1	IIP	PPT
5		Matrix Factorization	K2	1	IIP	PPT
6		Content-Based Filtering	K2	1	IIP	PPT
7		Building an Item Profile	K2	1	IIP	PPT
8		User Profile Computation	K2	1	IIP	PPT
9		Implementation Steps, Hybrid Recommenders	K2	1	IIP	PPT
			Total		9	
1	CO4:	Anomaly Detection: Concepts	K2	1	IIP	PPT
2		Causes of Outliers	K2	1	IIP	PPT
3		Anomaly Detection Techniques	K2	1	IIP	PPT
4		Distance-Based Outlier Detection-Working	K2	1	IIP	PPT
5		Implementation Steps	K2	1	IIP	PPT
6		Density-Based Outlier Detection	K2	1	IIP	PPT
7		Implementation Steps	K2	1	IIP	PPT
8		Local Outlier Factor	K2	1	IIP	PPT
9		Implementation Steps	K2	1	IIP	PPT
		Total		9		
1	CO5:	Feature Selection: Classifying Feature Selection Methods	K2	1	IIP	PPT
2		Principal Component Analysis	K2	1	IIP	PPT
3		Information Theory-Based	K2	1	IIP	PPT

		Filtering				
4		Chi-Square-Based Filtering	K2	1	IIP	PPT
5		Wrapper-Type Feature Selection	K2	1	IIP	PPT
6		Backward Elimination	K2	1	IIP	PPT
		Total		6		

Total No. of Classes: 41

Computer Network Lab

LESSON PLAN

Academic Year: 2023-24

Programme: B.Tech (AIM)

Year/ Semester: III/VI

Section: AIM

Name of the Course: **Computer Networks Lab**

Course Code: V20AIL11

Course Outcomes (Along with Knowledge Level):

CO 1	Implement Error Detection Techniques	K3
CO 2	Implement Routing Algorithms	K3
CO 3	Implement Congestion Algorithms	K3
CO 4	Implement Sliding window algorithms	K3
CO 5	Implement Socket programming	K3

TEXT BOOKS:

1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI
2. Data Communications and Networks – Behrouz A. Forouzan. Third Edition TMH

REFERENCES:

1. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition, Pearson Education
2. Understanding communications and Networks, 3rd Edition, W.A. Shay, Thomson

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

COs		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		75	75	75	75	75
Targeted level of Attainment	Level 3	70	70	70	70	70
	Level 2	65	65	65	65	65
	Level 1	55	55	55	55	55

Lecture Plan:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 1	Study of basic network commands and Network configuration commands. a) Ping b) Tracert/Traceroute c) Ipconfig/ifconfig d) Hostname e) Nslookup f) Netstat	K3	3	Lecture With Discussion	ICT
2	CO 2	Implementation of Bit Stuffing	K3	3	Lecture With Discussion	ICT
3		Implementation of Character Stuffing.	K3	3	Lecture With Discussion	ICT
4		Implementation of CRC	K3	3	Lecture With Discussion	ICT
5		Implementation of stop and wait protocol	K3	3	Lecture With Discussion	ICT
6	CO 3	Implementation of Dijkstra's algorithm	K3	3	Lecture With Discussion	ICT
7		Implementation Distance vector algorithm	K3	3	Lecture With Discussion	ICT
8	CO 4	Implementation of Congestion control using leaky bucket algorithms	K3	3	Lecture With Discussion	ICT
9	CO 5	Implementation of TCP	K3	3	Lecture With Discussion	ICT
10		Implementation of UDP	K3	3	Lecture With Discussion	ICT

Total No. of Classes: 30

Deep Learning Lab

LESSON PLAN

Academic Year: 2023-24

Programme: B.Tech (AIM)

Year/ Semester: III/VI

Section: AIM

Name of the Course: Deep Learning Lab

Course Code: : V20AIL13

COURSE OUTCOMES (Along with Knowledge Level):

After successful completion of the Course, the student will be able to:

CO 1	Demonstrate feed-forward neural network using Tensor flow and Keras.	K3
CO 2	Construct a regression model using artificial neural network	K3
CO 3	Construct a classification model using convolutional neural network.	K3
CO 4	Construct text classification model using neural network	K3
CO 5	Demonstrate neural network with custom layers and custom training	K3

CO-PO & CO-PSO matrix:

COs/POs, PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	PO11	PO12	PSO1	PSO2
CO 1	1	1	1		1				2				2	
CO 2	2	2	2	2	1				2				2	
CO 3	1	2	2	2	1				2				2	
CO 4	1	2	2	2	1				2				2	
CO 5	1	2	2	1	1				2				2	
V20CSL12	1.2	1.8	1.8	1.75	1				2				2	

Lecture Plan:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 1	Dissemination of Department Vision, Mission, PEOs, POs, PSOs	-	1	Lecture With Discussion	ICT
		Working with Numpy & Pandas libraries	K2	4	LectureWith Discussion	ICT
2		Working with TensorFlow and Keras, Matplotlib & sklearn	K2	4	LectureWith Discussion	ICT

		libraries				
3		Importing, preprocessing and splitting datasets	K2	3	Lecture With Discussion	ICT
4	CO 2	Single layer Perceptron implementation	K3	3	Lecture With Discussion	ICT
5		Logistic regression implementation.	K3	3	Lecture With Discussion	ICT
6	CO 3	Creation of neural network implementation.	K3	3	Lecture With Discussion	ICT
7		a feed-forward neural network implementation.	K3	3	Lecture With Discussion	ICT
8		Convolutional neural network implementation.	K3	3	Lecture With Discussion	ICT
9		VGG-16 network implementation.	K3	3	Lecture With Discussion	ICT
10		neural network with an Embedding layer implementation.	K3	3	Lecture With Discussion	ICT
11	CO 4	Text classification model using a neural network implementation	K3	3	Lecture With Discussion	ICT
12	CO 5	Demonstration of Multi-layer perceptron	K3	3	Lecture With Discussion	ICT

Total No. of Classes: 36

Object Oriented Software Engineering Lab

LESSON PLAN

Academic Year: **2023-24**

Programme: **B.Tech (AIM)**

Year/ Semester: III/VI

Section: AIM

Name of the Course: **OOSE Lab**

Course Code: : V20AIL12

COURSE OUTCOMES (Along with Knowledge Level):

After successful completion of the Course, the student will be able to:

V20AIL12.1	Illustrate Class diagrams	K4
V20AIL12.2	Examine Use case diagrams	K4
V20AIL12.3	Illustrate Interaction diagrams	K4
V20AIL12.4	Outline State chart, Activity diagrams	K4
V20AIL12.5	Outline Component and Deployment diagrams.	K4

TEXT BOOKS:

1. The Unified Modeling Language User Guide, Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson Education.

REFERENCE BOOKS:

1. UML 2 Toolkit, Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado, WILEY-Dreamtech India Pvt.Ltd.
2. Fundamentals of Object Oriented Design in UML, Meilir Page-Jones, Pearson Education.
3. Modeling Software Systems Using UML2, Pascal Roques, WILEY- Dreamtech India Pvt. Ltd.

Lecture Plan:

S.No.	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours required	Pedagogy	Teaching aids
1	CO1	Illustrate the Class Diagram for Library management System, Railway reservation System.	K4	3	Lecture With Discussion	BB
		Illustrate the Class Diagram for Hospital Management system	K4	3	Lecture With Discussion	ICT
2	CO2	Illustrate the Usecase Diagram for Library management System, Railway reservation System	K4	3	Lecture With Discussion	BB

		Illustrate the Usecase Diagram for Hospital Management system	K4	3	Lecture With Discussion	ICT
3	CO3	Illustrate the Interaction Diagrams for Library management System, Railway reservation System	K4	3	Lecture With Discussion	BB
		Illustrate the Interaction Diagrams for Hospital Management system	K4	3	Lecture With Discussion	ICT
4	CO4	Illustrate the Activity diagrams for Library management System, Railway reservation System	K4	3	Lecture With Discussion	BB
		Illustrate the Activity diagram for Hospital Management system	K4	3	Lecture With Discussion	ICT
5	CO4	Illustrate the State chart for Library management System, Railway reservation System	K4	3	Lecture With Discussion	BB
		Illustrate the State chart Diagram for Hospital Management system	K4	3	Lecture With Discussion	ICT
6	CO5	Illustrate the Component Diagram for Library management System, Railway reservation System	K4	3	Lecture With Discussion	BB
		Illustrate the Component Diagram for Hospital Management system	K4	3	Lecture With Discussion	BB
7	CO5	Illustrate the Deployment Diagram for Library management System, Railway reservation System	K4	3	Lecture With Discussion	ICT
		Illustrate the Deployment Diagram for Hospital Management system	K4	3	Lecture With Discussion	ICT

Total Hours: 45

Skill Oriented Course

LESSON PLAN

Academic Year: **2023-24**

Programme: **B.Tech (AIM)**

Year/ Semester: III/VI

Section: AIM

Name of the Course: **SOC-IV**

Course Code: : V20SOC04

AWS Academy Solutions Architect

Topics Covered:

Module 1 - Welcome to AWS Academy Cloud Architecting

Module 2 - Introducing Cloud Architecting

Module 3 - Adding a Storage Layer

Module 4 - Adding a Compute Layer

Module 5 - Adding a Database Layer

Module 6 - Creating a Networking Environment

Module 7 - Connecting Networks

Module 8 - Securing User and Application Access

Module 9 - Implementing Elasticity, High Availability and Monitoring

Module 10 - Automating Your Architecture

Module 11 - Caching Content

Module 12 - Building Decoupled Architectures

Module 13 - Building Micro services and Serverless Architectures

Module 14 - Planning for Disaster

Module 15 - Bridging to Certification

Course Outcomes: After Successful completion of the Course, the student will be able to: CO1:

Apply best practices for designing scalable, reliable, and cost-effective architectures on AWS. [K3]

CO2 Interpret AWS pricing models and utilizing cost-effective services [K3]

CO3: Construct architectures that ensure high availability and fault tolerance. [K3]

CO4: Interpret with AWS databases, caching, and content delivery services. [K3]

CO5: Develop auto-scaling and load balancing solutions. [K3]

Professional Ethics & Human Values

LESSON PLAN

Academic Year: **2023-24**

Programme: **B.Tech (AIM)**

Year/ Semester: III/VI

Section: AIM

Name of the Course: Professional Ethics & Human Values

Course Code: : V20CEMC02

After successful completion of course the student will able to

S.No.	CO No.	Course Outcome	BTL
1.	CO1	Discuss the importance of human values and their context	K2
2.	CO2	Generalize the professional ethics and norms of engineering practice	K2
3.	CO3	Review the contextual knowledge of engineering practice	K2
4.	CO4	Identify the engineer's responsibility for safety and Risks	K2
5.	CO5	Clarify the professional rights & responsibilities at global level	K2

UNIT I

Human Values: Morals, Values and Ethics – Integrity – Work Ethics – Service Learning –Civic Virtue – Respect for others – Living Peacefully – Caring – Sharing –Honesty –Courage – Value time – Co-operation – Commitment – Empathy –Self-confidence–Spirituality-Character.

UNIT II

Engineering Ethics: The History of Ethics, Purposes for Engineering Ethics, Consensus and Controversy, Professional and Professionalism, Professional Roles to be played by an Engineer –Self Interest, Customs and Religion, Uses of Ethical Theories, Professional Ethics, Types of Inquiry in Engineering Ethics.

UNIT III

Engineering as Social Experimentation: Comparison with Standard Experiments –now ledge gained– Conscientiousness–Relevant Information– Learning from the Past–Engineers as Managers, Consultants, and Leaders – Accountability – Role of Codes– odes and Experimental Nature of Engineering.

UNIT IV

Engineers' Responsibility for Safety and Risk: Safety and Risk, Concept of Safety – Types of Risks – Voluntary v/s Involuntary Risk- Short term v/s long term Consequences, Delayed v/s Immediate Risk- Safety and the Engineer – Designing for Safety – Risk-Benefit Analysis-Accidents.

UNIT V

Engineers' Responsibilities, Rights & Global Issues: Collegiality, Senses of Loyalty, professionalism and Loyalty, Professional Rights & Responsibilities– confidential and proprietary information, Bribes/Gifts, Whistle Blowing. Globalization- Cross-culture Issues, Environmental Ethics, Computer Ethics, Weapons Development Ethics and Research Ethics, Intellectual Property Rights.

Text Books:

1. —Engineering Ethics and Human Values| by M. Govindarajan, S.Natarajan and V.S.Senthil Kumar- PHILearningPvt.Ltd-2009.
2. —Professional Ethics and Morals| by Prof.A.R.Aryasri, Dharanikota Suyodhana-Maruthi Publications.

3. —Professional Ethics and Human Values|| by A.Alavudeen, R.Kalil Rahman and M.Jayakumaran- Laxmi Publications.

References:

1. —Professional Ethics and Human Values|by Prof.D.R.Kiran.
2. —Indian Culture, Values and Professional Ethics|by PSRMurthy-BS Publication.
3. —Ethics in Engineering| by Mike W.Martin and Roland Schinzinger–TMH.

Proficiency and Attainment Levels for Course Outcomes in Percentages
Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		50%	50%	50%	50%	50%
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

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching Aids
UNIT-I: Human Values						
1	Discuss the importance of human values and their context (K2)	Definitions of ethics, values and morals.	K1	1	Lecture with Discussion	PPT
		learn Integrity and Trustworthiness	K2	1	Lecture with Discussion	PPT
		Explaining Work Ethics and Service Learning	K2	1	Lecture	PPT
		Explain the concept of Civic Virtue , Respect for others and Living Peacefully	K2	1	Lecture	PPT
		Discuss about Caring, Sharing, Honesty , Courage and Value Time	K2	1	Lecture	PPT
		Discuss about Co-operation, Commitment, Empathy, Self-confidence, character and Spirituality.	K2	1	Lecture with Discussion	PPT

		Number of hours required	6			
UNIT–II: Engineering Ethics						
2	Generalize the professional ethics and norms of engineering practice	History of Ethics and Need of Engineering Ethics	K1	1	Lecture with Discussion	PPT
		Understanding Senses of Engineering Ethics and differentiate Profession and Professionalism	K2	1	Lecture with Discussion	PPT
		Explain Self Interest and Moral Autonomy, different types of Inquiry and Dilemma	K2	1	Lecture	PPT
		Understanding ethical theories like Utilitarianism, Virtue Theory -Kohlberg’s Theory and Gilligan’s Argument	K2	1	Lecture	PPT
		Number of hours required	4			
UNIT–III: Engineering as Social Experimentation						
3	Review the contextual knowledge of engineering practice (K2)	Comparison with Standard Experiments, Knowledge gained, Conscientiousness.	K2	1	Lecture with Discussion	PPT
		Learning from the Past–Engineers as Managers, Consultants, and Leaders	K2	1	Lecture with Discussion	PPT
		Interpret Engineer as responsible experimenters	K2	1	Lecture	PPT
		Discuss Codes of ethics and Experimental Nature of Engineering.	K2	1	Lecture	PPT
		Number of hours required	4			
UNIT–IV: Engineers’ Responsibilities towards Safety and Risk						

4	Identify the engineer's responsibility for safety and Risks (K2)	Understand the Concept of Safety and Risk	K2	1	Lecture with Discussion	PPT
		Understand different Types of Risks –and differentiate Voluntary and Involuntary Risk and Consequences of risks	K2	1	Lecture with Discussion	PPT
		Discuss Risk Assessment, Accountability ,Liability and Threshold Levels of Risk	K2	1	Lecture	PPT
		Determine Delayed and Immediate Risk and the Engineer Designing for Safety	K2	1	Lecture	PPT
		Understand the concept of Risk-Benefit Analysis and Accidents	K2	1	Lecture with discursion	Blackboard & white chalk
Number of hours required				5		
UNIT–V: Engineers' Responsibilities, Rights and Global issues						
5	Clarify the professional rights & responsibilities at global level (K2)	Explain the basic concept of Collegiality, Senses of Loyalty, professionalism and Loyalty, Professional Rights & Responsibilities– confidential and	K2	2	Lecture with Discussion	PPT
		Discuss about Confidentiality , Gifts, Bribes and occupational Crimes, Industrial Espionage, Price Fixing and Whistle Blowing.	K2	1	Lecture with Discussion	PPT
		Understand Globalization- Cross-culture Issues, Environmental Ethics, Computer Ethics, Weapons Development Ethics and Research Ethics.	K2	2	Lecture	PPT
		Explain Intellectual Property Rights.	K2	1	Lecture	PPT
Number of hours required				6		
Total Number of Hours Required				25		