



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC & NBA (Under Tier - I), ISO 9001:2015 Certified Institution

Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada

L.B. REDDY NAGAR, MYLAVARAM, KRISHNA DIST., A.P.-521 230.

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor: K. VINAYA SREE BAI

Course Name & Code : BIGDATA ANALYTICS & 20CS19

L-T-P Structure : 3-0-0

Credits: 3

Program/Sem/Sec : BTECH/VI SEM-B SEC

A.Y.: 2023-24

PREREQUISITE: Should have knowledge of one Programming Language (Java preferably), Practice of SQL (queries and sub queries), exposure to Linux Environment.

COURSE EDUCATIONAL OBJECTIVES (CEOs):

Understanding the process of distributed data (Structured, Semi-Structured and Unstructured) that process the Terabytes of data using Hadoop Eco System Tools.

COURSE OUTCOMES (COs): At the end of the course, student will be able to

CO1	Identify Big Data and its Business Implications. (Understand-L2)
CO2	Process of distributed file system using Hadoop. (Apply-L3)
CO3	Illustrate the Map Reduce mechanism. (Apply-L3)
CO4	Develop Structured data processing tools. (Apply-L3)
CO5	Develop semi/ unstructured data processing tools. (Apply- L3)

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	-	-	-	-	-	-	-	-	-	2	-	-	-
CO2	2	-	2	-	-	-	-	-	-	-	-	2	3	-	-
CO3	2	-	2	-	-	-	-	-	-	-	-	2	-	-	-
CO4	2	3	-	-	1	-	-	-	-	-	-	2	-	-	-
CO5	2	3	-	-	1	-	-	-	-	-	-	2	-	-	-
			1 - Low				2 -Medium				3 - High				

TEXTBOOKS:

T1 Tom White" Hadoop: The Definitive Guide" Third Edit, O'reilyMedia,2012.

T2 Big Data and Analytics, 2ed Seema Acharya, Subhashini Chellappan, Wiley2015.

REFERENCE BOOKS:

R1 Michael Berthold, DavidJ.Hand,"IntelligentDataAnalysis", Springer,2007.

R2 Jay Liebowitz ,"Big Data and Business Analytics" Auerbach Publications ,CRCpress (2013).

R3 Tom Plunkett, Mark Hornick, "Using R to Unlock the Value of Big Data: Big Data Analytics with Oracle R Enterprise and Oracle R Connector for Hadoop",McGraw-Hill/Osborne Media(2013),Oracle press.

R4 Anand Raja ramanand Jeffrey David Ulman,"Mining of Massive Datasets", CambriDge University Press, 2012

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Introduction to Big data

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Big data, CEOs and Cos discussion	1	4-12-23		TLM1	
2.	Types of Digital Data	1	6-12-23		TLM1	
3.	Classification of Digital Data	1	7-12-23		TLM1	
4.	Characteristics of Data	1	11-12-23		TLM1	
5.	Evolution of Big Data	1	13-12-23		TLM1	
6.	Definition of Big Data, Challenges with Big Data	1	14-12-23		TLM1	
7.	What is Big Data? Other Characteristics of Data Which are not Definitional Traits of Big Data	1	16-12-23		TLM1	
8.	Why Big Data? analyzing Data with Unix tools	1	18-12-23		TLM1	
9.	Analyzing Data with Hadoop	1	20-12-23		TLM1	
10.	Hadoop Streaming	1	21-12-23		TLM1	
11.	Hadoop Echo System	1	23-12-23		TLM1	
No. of classes required to complete UNIT-I: 11				No. of classes taken:		

UNIT-II: Hadoop Distributed File System

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
12.	The Design of HDFS	1	27-12-23		TLM1	
13.	HDFS Concepts	1	28-12-23		TLM1	
14.	Command Line Interface	1	30-12-23		TLM1	
15.	Hadoop file system interfaces	1	3-1-24		TLM1	
16.	Dataflow, Data Ingestion with Sqoop and Hadoop archives,	1	4-1-24		TLM1	
17.	Dataflow, Data Ingestion with Sqoop and Hadoop archives,	1	6-1-24		TLM1	
18.	Hadoop I/O: Compression	1	8-1-24		TLM1	
19.	Serialization	1	10-1-24		TLM1	
20.	Avro and File-Based Data structures	1	11-1-24		TLM1	
21.	Bigdata Applications	1	18-1-24		TLM1	
22.	Bigdata Analytics Use cases	1	20-1-24		TLM1	
23.	Bigdata Analytics Use cases	1	22-1-24		TLM1	
24.	Bigdata Analytics Challenges	1	24-1-24		TLM1	
No. of classes required to complete UNIT-II: 13				No. of classes taken:		

UNIT-III: Map Reduce Technique

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
25.	How Map Reduce works?	1	25-1-24		TLM1	
26.	Anatomy of a Map Reduce Job Run	1	26-1-24		TLM1	
27.	Job Failures	1	27-1-24		TLM1	
28.	Job Scheduling	1	27-1-24		TLM1	
29.	Shuffle and Sort	1	5-2-24		TLM1	
30.	Task Execution	1	7-2-24		TLM1	

31.	Map Reduce Types and Formats	1	8-2-24		TLM1	
32.	Map Reduce Features	1	12-2-24		TLM1	
No. of classes required to complete UNIT-III: 08				No. of classes taken:		

UNIT-IV: Structured Data Processing Tools

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
33.	Hive: Installation	1	14-2-24		TLM1	
34.	Running Hive	1	15-2-24		TLM1	
35.	Hive QL	1	17-2-24		TLM1	
36.	Tables, Querying Data	1	19-2-24		TLM1	
37.	User Defined functions	1	21-2-24		TLM1	
38.	Sqoop: Introduction	1	22-2-24		TLM1	
39.	generate code	1	24-2-24		TLM1	
40.	Database import	1	26-2-24		TLM1	
41.	working with imported data	1	28-2-24		TLM1	
42.	Importing large objects	1	29-2-24		TLM1	
43.	performing an export	1	2-3-24		TLM1	
44.	Applications	1	4-3-24		TLM1	
No. of classes required to complete UNIT-IV: 12				No. of classes taken:		

UNIT-V: Semi-structured and unstructured Data Processing Tools Pig

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
45.	Introduction to PIG	1	6-3-24		TLM1	
46.	Execution Modes of Pig	1	7-3-24		TLM1	
47.	Comparison of Pig with Databases	1	11-3-24		TLM2	
48.	Grunt, Pig Latin	1	13-3-24		TLM2	
49.	User Defined Functions	1	14-3-24		TLM2	
50.	Data Processing operators	1	16-3-24		TLM2	
51.	HBase: Basics	1	18-3-24		TLM2	
52.	Concepts, Clients	1	20-3-24		TLM2	
53.	Example	1	21-3-24		TLM2	
54.	HBase Versus RDBMS	1	23-3-24		TLM2	
No. of classes required to complete UNIT-V: 10				No. of classes taken:		

CONTENT BEYOND THE SYLLABUS:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	BDA Use case – I	1	27-3-24		TLM2	
2.	BDA Use case – II	1	28-3-24		TLM2	
3.	BDA Use case - III	1	30-3-24		TLM2	
No. of classes required to complete UNIT-V: 13				No. of classes taken:		

Teaching Learning Methods

TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT(NPTEL/Swayam Prabha/ MOOCS)
TLM3	Tutorial	TLM6	Group Discussion/Project

PART-C

EVALUATION PROCESS (R17 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	M=30
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 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.
PO 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.
PO 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.
PO 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.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 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.
PO 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.
PO 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

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of organization.
PSO 2	The ability to design and develop computer programs in networking, web applications and IOT as per the society needs
PSO 3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Ms. K. Vinaya Sree Bai	Dr. K. Devi Priya	Dr. V. Surya Narayana	Dr. O. Rama Devi
Signature				



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(AUTONOMOUS)

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ISO 21001:2018, 50001:2018, 14001:2015 Certified Institution

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor	: Mrs. K Venkatesh	
Course Name & Code	: Deep Learning & 20AD07	
L-T-P Structure	: 3-0-0	Credits: 3
Program/Sem/Sec	: B.Tech/VI/ B	A.Y.: 2023-24
PREREQUISITES	: Probability and Statistics, LATT, Machine Learning	

COURSE EDUCATIONAL OBJECTIVES (CEOs): The objective of the course is to make students learn the frameworks of deep learning and their application

COURSE OUTCOMES (COs): At the end of the course, student will be able to

CO1	Apply the fundamentals of linear algebra to machine learning algorithms. (Apply- L3)
CO2	Understand the fundamental building blocks of deep learning (Understand- L2)
CO3	Apply the concepts of Convolutional Neural Networks to computer vision applications. (Apply- L3)
CO4	Apply the concepts of Recurrent Neural Networks to Natural Language Processing. (Apply- L3)
CO5	Apply the regularization techniques to improve the model performance. (Apply- L3)

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	1	-	-	-	-	-	-	-	-	1	1	-	3
CO2	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
CO3	2	3	2	2	-	-	-	-	-	-	-	2	-	2	2
CO4	2	2	-	2	-	-	-	-	-	-	-	-	2	-	-
CO5	2	2	2	2	-	-	-	-	-	-	-	2	2	2	-
			1 - Low			2 –Medium			3 - High						

TEXTBOOKS:

T1	Deep Learning, Ian Goodfellow, YoshuaBengio and Aaron Courville, MIT Press, 2016
T2	Deep Learning with Python, Francois Chollet, Manning Publications, Released December 2017.
T3	Deep Learning Illustrated: A Visual, Interactive Guide to Artificial Intelligence – Jon Krohn, Grant Beyleveld, AglaéBassens, Released September 2019, Publisher(s): Addison-Wesley Professional, ISBN: 9780135116821
T4	Deep Learning from Scratch - Seth Weidman, Released September 2019, Publisher(s): O'Reilly Media, Inc., ISBN: 9781492041412

REFERENCE BOOKS:

R1	Artificial Neural Networks, Yegnanarayana, B., PHI Learning Pvt. Ltd, 2009
R2	Matrix Computations, Golub, G.,H., and Van Loan,C.,F, JHU Press,2013.
R3	Neural Networks: A Classroom Approach, Satish Kumar, Tata McGraw-HillEducation, 2004.

PART-B**COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I: Mathematical foundations of Deep Learning**

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Mathematical foundations of Deep Learning	1	04-12-23		TLM1,2	
2.	Multiplying Matrices and Vectors	2	07-12-23 09-12-23		TLM1,2	
3.	Identity and Inverse Matrices	1	11-12-23		TLM1,2	
4.	Linear dependence and Span	2	13-12-23 14-12-23		TLM1,2	
5.	Norms	2	16-12-23 18-12-23		TLM1,2	
6.	Special kinds of matrices and vectors	1	20-12-23		TLM1,2	
7.	Trace operations	1	21-12-23		TLM1,2	
8.	Eigen Decomposition	2	23-12-23 25-12-23		TLM1,2	
No. of classes required to complete UNIT-I: 12				No. of classes taken:		

UNIT-II: Fundamentals of Deep Learning

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
7.	Anatomy of Neural Networks: Layers, Models, Loss functions and optimizers	4	27-12-23 28-12-23 30-12-23 01-01-24		TLM1,2	
8.	Training Deep Networks: Cost Functions, Optimizers	3	03-01-24 04-01-24 06-01-24		TLM1,2	
9.	Types of Deep Neural Networks	2	08-01-24 10-01-24		TLM1,2	
No. of classes required to complete UNIT-II: 09				No. of classes taken:		

UNIT-III: Convolutional Neural Networks

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
10.	Motivation	1	11-01-24		TLM1,2	
11.	Convolution Operation	3	17-01-24 18-01-24 20-01-24		TLM1,2	
12.	Types of layers	2	22-01-24 24-01-24		TLM1,2	
13.	Pooling	2	25-01-24 27-01-24		TLM1,2	
14.	LENET5 Architecture	3	05-02-24 07-02-24 08-02-24		TLM1,2	
No. of classes required to complete UNIT-III: 11				No. of classes taken:		

UNIT-IV: Recurrent Neural Networks

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
15.	Architecture of traditional RNN	2	10-02-24 12-02-24		TLM1,2	
16.	Types and applications of RNN	2	14-02-24 15-02-24		TLM1,2	
17.	Variants of RNNs	2	17-02-24 19-02-24		TLM1,2	
18.	Word Embedding using Word2vec	4	21-02-24 22-02-24 24-02-24 26-02-24		TLM1,2	
No. of classes required to complete UNIT-IV: 10				No. of classes taken:		

UNIT-V: Cluster Analysis

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
19.	Introduction to Regularization for Deep Learning	1	28-02-24		TLM1,2	
20.	L1 and L2 Regularizations	2	29-02-24 02-03-24		TLM1,2	
21.	Dropout	1	04-03-24		TLM1,2	
22.	Data Augmentation and Early Stopping	1	06-03-24		TLM1,2	

23.	Case study on MNIST data	1	07-03-24		TLM1,2	
24	Introduction to Auto encoders	2	09-03-24		TLM1,2	
25	Architecture and Implementation	2	11-03-24 13-03-24 14-03-24 16-04-24		TLM1,2	
26	Denoising Auto encoders	2	18-03-24 20-03-24		TLM1,2	
27	Sparse Auto encoders	2	21-03-24 23-03-24		TLM1,2	
28	Use cases	1	27-03-24		TLM1,2	
29	Projects and evaluation	1	28-03-24 30-03-24		TLM1,2	
No. of classes required to complete UNIT-V: 16				No. of classes taken:		

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of Organization.
PSO 2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs
PSO 3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr.K Venkatesh	Mr.K Venkatesh	Dr. V.Surya Narayana	Dr. O. Rama Devi
Signature				



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(AUTONOMOUS)

Accredited by NAAC & NBA (Under Tier - I), ISO 9001:2015 Certified Institution

Approved by AICTE, New Delhi. and Affiliated to JNTUK, Kakinada

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. NARENDRA BABU P

Course Name & Code : Pattern Recognition (20CS20)

L-T-P Structure : 3-0-0

Credits: 3

Program/Sem/Sec : B.Tech VI Sem AI & DS/ B SEC
2023-24

A.Y.:

PREREQUISITE: Basic knowledge of probability & statistics, Data Mining

The main objective of the course is that the concept of a pattern and the fundamentals of pattern recognition and its relevance to classical and modern problems and to be able to identify where, when and how pattern recognition can be applied.

. **COURSE OUTCOMES (COs):** At the end of the course, student will be able to

CO1	Understand the primitives of Pattern Recognition.(Understand-L2)
CO2	Understand the fundamental concepts of Bayesian approach. (Apply-L3)
CO3	Understand Bayesian classifier with respect to its parameter estimation. (Understand-L2)
CO4	Gain knowledge of Mixture densities and clustering techniques. (Understand- L)
CO5	Develop a statistical frame work for Speech Recognition.(Apply-L3)

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
CO1	2	2	-	2	-	-	-	-	-	-	-	2	-	2	-	
CO2	3	3	-	2	-	-	-	-	-	-	-	2	1	2	-	
CO3	2	2	2	2	-	-	-	-	-	-	-	2	-	2	-	
CO4	2	2	-	2	-	-	-	-	-	-	-	2	2	2	-	
CO5	2	-	2	2	-	-	-	-	-	-	-	2	2	2	-	
	1 - Low			2 -Medium					3 - High							

TEXTBOOKS:

T1: Pattern classifications, Richard.O.Duda, Peter.E..Hart, David.G.Stroke.Wiley's student edition, Second Edition 2004.

T2: Pattern Recognition, an Introduction, V Susheela Devi, M NarasimhaMurthy, University Press, 2010

T3: Fundamentals of speech Recognition, Lawrence Rabiner, Biing-Hwang Juang Pearson Education

Reference Books:

R1: R.C Gonzalez and R.E.Woods,—Digital Image Processing I,Addison Wesley,1992.

R2: Pattern Recognition and Image Analysis—Earl Gose, Richard John baugh, Steve Jost PHI 2004.

R3: Pattern Recognition, Sergios Theodoridis, Konstantinos Koutroumbas, Academic

PART-B**COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I: Pattern Recognition**

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	CEOs and COs discussion, Pattern Recognition Syllabus Discussion	1	04-12-2023		1 & 2	
2.	Introduction	1	05-12-2023		1 & 2	
3.	Pattern Recognition Example	1	06-12-2023		1 & 2	
4.	Example	1	07-12-2023		1 & 2	
5.	Pattern Recognition Systems	1	09-12-2023		1 & 2	
6.	The Design Cycle	1	11-12-2023		1 & 2	
7.	Learning and adaptation	1	12-12-2023		1 & 2	
8.	Bayesian Decision Theory: Introduction	1	13-12-2023		1 & 2	
9.	continuous features–two categories classifications	1	14-12-2023		1 & 2	
10.	minimum error –rate classification	1	16-12-2023		1 & 2	
11.	zero–one loss function	1	18-12-2023		1 & 2	
12.	classifiers	1	19-12-2023		1 & 2	
13.	discriminate functions	1	20-12-2023		1 & 2	
14.	decision Surface	1	21-12-2023		1 & 2	
No. of classes required to complete UNIT-I: 14				No. of classes taken:		

UNIT-II: Normal density

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
15.	Normal density: Univariate density	1	26-12-2023		1 & 2	
16.	multivariate density	1	27-12-2023		1 & 2	
17.	discriminate functions for the normal Density case-1	1	28-12-2023		1 & 2	
18.	Case – 2	1	30-12-2023		1 & 2	
19.	Case – 3	1	02-01-2024		1 & 2	
20.	Bayes decision theory–discrete features	1	03-01-2024		1 & 2	
21.	compound Bayesian decision theory and context	1	04-01-2024		1 & 2	
22.	compound Bayesian decision theory and context	1	06-01-2024		1 & 2	
No. of classes required to complete UNIT-II: 8				No. of classes taken:		

UNIT-III: Maximum likelihood and Bayesian parameter estimation

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly	
23.	Maximum likelihood and Bayesian parameter estimation: Introduction	1	08-01-2024		1 & 2		
24.	maximum likelihood Estimation	1	09-01-2024		1 & 2		
25.	The Gaussian Case : Unknown μ	1	10-01-2024		1 & 2		
26.	The Gaussian μ Case : Unknown μ and Σ	1			1 & 2		
27.	Bayesian parameter estimation–Gaussian case.	1	20-01-2024		1 & 2		
28.	Bayesian estimation,	1	22-01-2024		1 & 2		
29.	Bayesian parameter estimation–Gaussian case	1	23-01-2024		1 & 2		
30.	The Univariate Case : $p(x D)$	1	24-01-2024		1 & 2		
No. of classes required to complete UNIT-III: 8				No. of classes taken:			

UNIT-IV: Un-supervised learning and clustering

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly	
31.	Un-supervised learning and clustering: Introduction	2	06-02-2024 07-02-2024		1 & 2		
32.	mixture densities and identifiability	2	12-02-2024 13-02-2024		1 & 2		
33.	maximum likelihood estimates	2	14-02-2024 15-02-2024		1 & 2		
34.	application to normal mixtures case-1	1	19-02-2024		1 & 2		
35.	Case - 2	1	20-02-2024		1 & 2		
36.	K- means clustering	1	21-02-2024		1 & 2		
37.	Date description and clustering–similarity measures	2	22-02-2024 24-02-2024		1 & 2		
38.	criteria function for clustering.	2	26-02-2024 27-02-2024		1 & 2		
No. of classes required to complete UNIT-IV: 13				No. of classes taken:			

UNIT-V: Pattern recognition using discrete hidden Markov models

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
39.	Pattern recognition using discrete hidden Markov models: Discrete-time Markov process	2	28-02-2024 29-02-2024		1 & 2	
40.		3	01-03-2024 02-03-2024 04-03-2024			
41.	Extensions to hidden Markov models	2	05-03-2024 06-03-2024		1 & 2	
42.	Classification using HMMs	2	07-03-2024 11-03-2024		1 & 2	
43.	Three basic Problems using HMMs	2	12-03-2024 13-03-2024		1 & 2	
44.	Types of HMMs	2	16-03-2024		1 & 2	
45.	Revision	3	18-03-2024 19-03-2024 20-03-2024		1 & 2	
No. of classes required to complete UNIT-V: 14				No. of classes taken:		

Teaching Learning Methods			
TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT (NPTEL/Swayam Prabha/MOOCs)
TLM3	Tutorial	TLM6	Group Discussion/Project

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	M=30
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 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.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 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
PO 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.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to
PO 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.
PO 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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of organization.
PSO 2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO 3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr.Narendra Babu P	Mrs.V Sowjanya	Dr.V.Surya Narayana	Dr.O.RamaDevi
Signature				



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr O Rama Devi

Course Name & Code : Software Engineering, 20IT01

L-T-P Structure : 3-0-0

Credits: 3

Program/Sem/Sec : B.Tech, VI,Sec-B

A.Y.: 2023-24

PREREQUISITE : Object Oriented Programming

COURSE EDUCATIONAL OBJECTIVES (CEOs): The objective of the course is to provide understanding of different s/w process models and how to choose one among them by gathering the requirements from a client and specifying them. Using those requirements in the design of the software architecture based on the choices with the help of modules and interfaces. To enable s/w development, by using different testing techniques like unit, integration and functional testing, the quality assurance can be achieved.

COURSE OUTCOMES (COs): At the end of the course, student will be able to

CO1	Understand the fundamentals of software engineering concepts and software process models. (Understand-L2)
CO2	Apply the requirement elicitation techniques for preparing SRS and design engineering. (Apply-L3)
CO3	Understanding the basic building blocks of UML, Class and object diagrams. (Understand-L2)
CO4	Apply the behavioral models for real world applications. (Apply-L3)
CO5	Demonstrate different software testing approaches for testing the real time applications. (Understand-L2)

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	3	--	--	--	--	--	--	2	--	--	3	2	--
CO2	1	2	3	2	--	--	--	--	1	2	--	--	--	3	2
CO3		1	3	--	3	--	--	--	3	1	--	--	1	3	3
CO4		1	3	--	3	--	--	--	3	1	--	--	1	3	3
CO5	1			2	--	--	--	--	--	--	--	--	--	--	2
			1 - Low			2 -Medium			3 - High						

TEXTBOOKS:

- T1** Roger S. Pressman, "Software engineering- A Practitioner 's Approach", TMH International Edition, 6th edition, 2005.
- T2** Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modelling Language User Guide", PEARSON, 4th Impression, 2012.

REFERENCE BOOKS:

- R1** Software Engineering - Concepts and practices: Ugrasen Suman, Cengage learning
- R2** Object-oriented analysis and design using UML", Mahesh P. Matha, PHI
- R3** Fundamentals of Software Engineering, Rajib Mall, Third Edition ,PHI
- R4** [https://nptel.ac.in/courses/106/105/106105182/\[1,2,3\]](https://nptel.ac.in/courses/106/105/106105182/[1,2,3])
- R5** [https://onlinecourses.nptel.ac.in/noc20_cs68 \[1,2,3,4,5\]](https://onlinecourses.nptel.ac.in/noc20_cs68 [1,2,3,4,5])

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Software and software Engineering & Software Process and Process Models

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction, CO's and PO's	1	04.12.23		TLM-1	
2.	The Evolving role of Software	1	05.12.23		TLM-1	
3.	Characteristics of Software	1	06.12.23		TLM-2	
4.	Importance of software Engineering	1	08.12.23		TLM-2	
5.	Changing nature of software, Legacy Software	1	09.12.23		TLM-2	
6.	Software Myths.	1	11.12.23		TLM-2	
7.	Layered technology, Process frame work	2	12.12.23 13.12.23		TLM-2	
8.	The process and Product	1	15.12.23		TLM-1	
9.	Software process models, The water fall model	2	16.12.23 18.12.23		TLM-1	
10.	Incremental model,	1	19.12.23		TLM-2	
11.	Tutorial	1	20.12.23		TLM-3	
12.	The spiral and V Model	1	22.12.23		TLM-2	
13.	Component based s/w development	1	23.12.23		TLM-2	
14.	Unified process model	1	26.12.23		TLM-2	
15.	Tutorial	1	27.12.23		TLM-3	
No. of classes required to complete UNIT-I: 17				No. of classes taken:		

UNIT-II: Requirements Analysis and Software design & Data Engineering

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
16.	Requirements gathering	2	29.12.23 30.12.23		TLM-1	
17.	Requirements analysis	2	02.01.24 03.01.24		TLM-1	
18.	Software requirements specifications (SRS)	3	05.01.24 06.01.24 08.01.24		TLM-1	
19.	Tutorial	1	09.01.24		TLM-3	
20.	Overview of design process	2	10.01.24 12.01.24		TLM-1	
21.	Design Concepts	2	17.01.24		TLM-2	

			19.01.24			
22.	Architectural Concepts	2	20.01.24 22.01.24		TLM-2	
No. of classes required to complete UNIT-II: 16				No. of classes taken:		

UNIT-III: Design Using UML

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
23.	Building Blocks of UML	2	23.01.24 24.01.24		TLM-1	
24.	Defining things	1	27.01.24		TLM-1	
25.	Relationships and diagrams	2	05.02.24 06.02.24		TLM-2	
26.	Tutorial	1	07.02.24		TLM-3	
27.	Common Mechanism in UML	2	09.02.24 10.02.24		TLM-1	
28.	Class Diagrams	2	12.02.24 13.02.24		TLM-2	
29.	Tutorial	1	14.02.24		TLM-3	
30.	Object Diagrams	2	16.02.24 17.02.24		TLM-2	
No. of classes required to complete UNIT-III: 13				No. of classes taken:		

UNIT-IV: Behavioral Modeling

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
31.	Interactions, Interaction diagrams	2	19.02.24 20.02.24		TLM-2	
32.	Tutorial	1	21.02.24		TLM-3	
33.	use cases, Use case Diagrams	2	23.02.24 24.02.24		TLM-2	
34.	Activity Diagrams	2	26.02.24 27.02.24		TLM-2	
35.	Tutorial	1	28.02.24		TLM-3	
36.	Events and signals	2	01.03.24 02.03.24		TLM-2	
37.	state machines	2	04.03.24 05.03.24		TLM-1	
38.	Tutorial	1	06.03.24		TLM-3	
39.	Processes and Threads	2	11.03.24 12.03.24		TLM-2	
40.	Tutorial	1	13.03.24		TLM-3	
41.	Time and space	1	15.03.24		TLM-2	
42.	State chart diagrams	1	16.03.24		TLM-2	
No. of classes required to complete UNIT-IV: 18				No. of classes taken:		

UNIT-V: Testing Techniques

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
43.	Software testing fundamentals	1	18.03.24		TLM-2	
44.	Unit testing	1	19.03.24		TLM-2	
45.	Integration testing	1	20.03.24		TLM-2	
46.	Black box testing	1	22.03.24		TLM-2	
47.	white box testing	1	23.03.24		TLM-2	

48.	Tutorial	1	25.03.24		TLM-3
49.	Debugging	1	26.03.24		TLM-2
50.	System testing	1	27.03.24		TLM-2
No. of classes required to complete UNIT-V: 8				No. of classes taken:	

Teaching Learning Methods			
TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT (NPTEL/ Swayam Prabha /MOOCS)
TLM3	Tutorial	TLM6	Group Discussion/Project

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	M=30
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
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PO 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.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
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PO 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.
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PO 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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of organization.
PSO 2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO 3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Dr O Rama Devi	Dr M.S.Rao	Dr O Rama Devi	Dr O Rama Devi
Signature				



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)

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DEPARTMENT OF CIVIL ENGINEERING

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COURSE HANDOUT

PART-A

Name of Course Instructor : Eeshwar Ram .J
Course Name & Code : DISASTER MANAGEMENT & 20CE82
L-T-P Structure : 3-0-0 Credits : 3
Program/Sem/Sec. : B.Tech., AIDS(A/B)VI-Sem., A.Y : 2023-24

PRE-REQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): This course deals with different types of disasters, impacts of disasters, importance of technology in handling disaster management situations, importance of planning and risk prevention in case of occurrence of disaster, importance of education and community approach for the responsive actions to be taken in case of occurrence of disaster.

COURSE OUTCOMES (COs): At the end of the course, students are able to

CO 1	Identify the basic terms, types of disasters and their impact (Understand – L2)
CO 2	Illustrate the role of technology in handling disaster management situations (Understand-L2)
CO 3	Identify the stake-holders concerned and design the different action plans for responding in case of disaster occurrence (Understand – L2)
CO 4	Evaluate the importance of education and community approach for the responsive actions to be taken in case of disaster occurrence (Understand – L2)

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	-	1	2	1	-	-	-	-	-	1	2	1	2
CO2	1	1	1	2	2	1	-	-	-	-	-	1	2	1	2
CO3	1	-	-	1	2	1	1	1	-	-	-	1	1	1	2
CO4	1	-	-	1	1	1	1	1	1	1	1	1	1	1	2

Note: Enter Correlation Levels 1 or 2 or 3. If there is no correlation, put ‘-’

1- Slight (Low), 2 – Moderate (Medium), 3 - Substantial (High).

TEXT BOOKS:

- T1 Tushar Bhattacharya, “Disaster Science and Management”, Tata McGraw Hill Publications, New Delhi, 2012.
T2 R.Subramanian, “Disaster Management ”, Vikas Publishing house Pvt. Ltd, 2022.

REFERENCE BOOKS:

- R1 G.K. Ghosh, “Disaster Management”, APH Publishing Corporation, 2006.
R2 U.K. Chakrabarty, “Industrial Disaster Management and Emergency Response”, Asian Books Pvt. Ltd., New Delhi 2007.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT –I: DEFINITIONS & TYPES OF DISASTER

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Disaster Management	1	06.12.2023		TLM2	
2.	Basic definitions	1	08.12.2023		TLM2	
3.	Types of Disasters	1	08.12.2023		TLM2	
4.	Concept of disaster management	1	09.12.2023		TLM2	
5.	Disaster management cycle	1	13.12.2023		TLM2	
6.	Vulnerability	1	14.12.2023		TLM2	
7.	Mitigation	1	15.12.2023		TLM2	
8.	Natural disasters: Drought and cyclone	1	15.12.2023		TLM2	
9.	Natural disasters: Earthquake and landslides	1	16.12.2023		TLM2	
10.	Engineering and technical failure	1	20.12.2023		TLM2	
11.	Nuclear and chemical disaster	1	22.12.2023		TLM2	
12.	Accident-related disasters	1	22.12.2023		TLM2	
13.	HPC on DM in India- DM Act 2005	1	23.12.2023		TLM2	
14.	Revision		27.12.2023		TLM2	
No. of classes required to complete UNIT-I:14				No. of classes taken:		

UNIT-II: IMPACT OF DISASTERS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Impacts due to earthquake and cyclone	1	29.12.2024		TLM2	
2.	Impacts due to landslides and fire hazards	1	29.12.2024		TLM2	
3.	Impacts due to life &live stock and habitation	1	30.12.2024		TLM2	
4.	Agriculture & livelihood loss- health hazards	1	03.01.2024		TLM2	
5.	Malnutrition problems	1	05.01.2024		TLM2	
6.	Contamination of water	1	06.01.2024		TLM2	
7.	Impact on children- environmental loss	1	10.01.2024		TLM2	
8.	Revision		19.01.2024		TLM2	
No. of classes required to complete UNIT-II:07				No. of classes taken:		

UNIT-III: ROLE OF TECHNOLOGY IN DISASTER MANAGEMENT

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Role of remote sensing	1	19.01.2024		TLM2	
2.	Information system and decision-making tool	1	20.01.2024		TLM2	
3.	DM for infra structure	1	24.01.2024		TLM2	
4.	DM for electrical substances	1	27.01.2024		TLM2	
5.	DM for roads and bridges	1			TLM2	

6.	Mitigation programme for earthquakes	1	07.02.2024		TLM2
7.	Geospatial information in agriculture drought assessment	1	09.02.2024		TLM2
8.	Multimedia technology in disaster risk management and training	1	09.02.2024		TLM2
9.	Transformable indigenous knowledge in disaster reduction	1	10.02.2024		TLM2
10.	Transformable indigenous knowledge in disaster reduction	1	14.02.2024		TLM2
11.	Revision		16.02.2024		TLM2
No. of classes required to complete UNIT-III:10				No. of classes taken:	

UNIT- IV: PLANNING & RISK PREVENTION

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction	1	16.02.2024		TLM2	
2.	Planning	1	17.02.2024			
3.	Early warning system	1	21.02.2024		TLM2	
4.	Crisis intervention and management	1	23.02.2024		TLM2	
5.	Response and Rehabilitation after Disasters	1	23.02.2024		TLM2	
6.	Temporary shelter – food and nutrition-safe drinking water	1	24.02.2024		TLM2	
7.	Rehabilitation after cyclones	1	28.02.2024		TLM2	
8.	Response to drought	1	01.03.2024		TLM2	
9.	Response to river erosion	1	02.03.2024		TLM2	
10.	Response after earthquake	1	06.03.2024		TLM2	
11.	Response after Tsunami- Hunger and Disaster	1	08.03.2024		TLM2	
No. of classes required to complete UNIT-IV:10				No. of classes taken:		

UNIT-V: EDUCATION AND COMMUNITY PREPAREDNESS & CASE STUDIES

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction	1	08.03.2024		TLM2	
2.	Essentials of disaster education	1	09.03.2024			
3.	School awareness and safety programs, Community based disaster recovery	1	13.03.2024		TLM2	
4.	Voluntary agencies and community participation at various stages of disaster management	1	15.03.2024		TLM2	
5.	Building community capacity for action	1	15.03.2024		TLM2	
6.	Corporate sector and disaster risk reduction	1	16.03.2024		TLM2	
7.	A community focused approach	1	20.03.2024		TLM2	
8.	Case studies on different disasters in the world-1	1	22.03.2024		TLM2	
9.	Case studies on different disasters in the world-2	1	23.03.2024		TLM2	

10.	Case studies on different disasters in the world-3	1	27.03.2024		TLM2	
11.	Case studies on different disasters in the world-4	1	30.03.2024		TLM2	
No. of classes required to complete UNIT-V:10				No. of classes taken:		

Teaching Learning Methods			
TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT (NPTEL/Swayam Prabha/MOOCs)
TLM3	Tutorial	TLM6	Group Discussion/Project

PART-C

EVALUATION PROCESS (R17 Regulations):

Evaluation Task	Marks
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=15
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=15
II-Quiz Examination (Units-III, IV & V)	Q2=10
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
CIE-I (Mid-I, Assignment-I, Quiz-I)	30
CIE-II (Mid-II, Assignment-II, Quiz-II)	30
Cumulative Internal Examination (CIE): 80% best and 20% least	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 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.
PO 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.
PO 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.
PO 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.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 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.
PO 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.
PO 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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	Possesses necessary skill set to analyze and design various systems using analytical and software tools related to civil engineering
PSO 2	Possesses ability to plan, examine and analyze the various laboratory tests required for the professional demands
PSO 3	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain

Course Instructor
(J. Eeshwar Ram)

Course Coordinator
(J. Eeshwar Ram)

Module Coordinator
(J. Eeshwar Ram)

HOD
(Dr.J.V.R)



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada

L.B. REDDY NAGAR, MYLAVARAM, KRISHNA DIST., A.P.-521 230.

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor: K. VINAYA SREE BAI

Course Name & Code : DATA ANALYTICS AND VISUALIZATION LAB & 20CS62

L-T-P Structure : 0-0-3

Credits: 1.5

Program/Sem/Sec : BTECH/VI/B

A.Y.: 2023-24

PREREQUISITE: Should have knowledge of one Programming Language (Java preferably), Practice of SQL (queries and sub queries), exposure to Linux Environment

COURSE EDUCATIONAL OBJECTIVE(CEO):

The Objective of the course is to provide practical, foundation level training that enables immediate and effective participation in Big Data and other Analytics projects using Hadoop and Data Visualization using Tableau.

COURSE OUTCOMES (CO):

CO1: Demonstrate the installation of Big data analytic tools. (**Understand–L2**)

CO2: Apply data modeling techniques to large datasets. (**Apply–L3**)

CO3: Conduct exploratory data analysis using visualization. (**Understand–L2**)

CO4: Improve individual / teamwork skills, communication & report writing skills with ethical values.

COURSE ARTICULATION MATRIX (Correlation between Cos, POs & PSOs):

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO1	2	1	-	2	2	-	-	-	-	-	-	1	-	-	-
CO2	2	-	-	3	-	-	-	-	-	-	-	1	-	-	-
CO3	2	1	-	2	2	-	-	-	-	-	-	1	-	-	-
CO4	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-

Note: 1 - Slight (Low), 2 - Moderate (Medium), 3 - Substantial (High)

PART-B

COURSE DELIVERY PLAN (LESSON PLAN): Section-B

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	HOD Sign
1.	Refreshing Linux Commands and Installation of Hadoop	3	8-12-23 & 15-12-23		
2.	Implementation of Run a basic Word Count Map Reduce program	3	22-12-23		

3.	Implementation of Matrix Multiplication with Hadoop Map Reduce	3	29-12-23		
4.	Implementation of Weather mining by taking weather dataset using Map Reduce	3	5-1-24		
5.	Installation of Hive along with practice examples	3	12-1-24 & 19-1-24		
6.	Installation of Sqoop along with Practice examples	3	19-1-24 & 9-2-24		
7.	Downloading and installing Tableau Understanding about importing data, saving, opening, and sharing work books	3	16-2-24		
8.	Data Preparation with Tableau	3	23-2-24		
9.	Charts: Bar Charts, Legends, Filters, and Hierarchies, Step Charts, Line Charts	3	1-3-24		
10.	Maps: Symbol Maps, Filled Maps, Density Maps, Maps with Pie Charts	3	15-3-24		
11.	Interactive Dash boards	3	15-3-24		
12.	Interactive Dash boards	3	22-3-24		
13.	Interactive Dash boards	3	22-3-24		
14.	Lab Internal Exam	3	28-3-24		

PART-C

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
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PO 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.
PO 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

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	The ability to apply Software Engineering practices and strategies in software project. development using open-source programming environment for the success of organization.
PSO 2	The ability to design and develop computer programs in networking, web applications and IOT as per the society needs.
PSO 3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Ms. K. Vinaya Sree Bai	Dr. K. Devi Priya	Dr. V. Surya Narayana	Dr. O. Rama Devi
Signature				



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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr. K Venkatesh
 Course Name & Code : Deep Learning using TensorFlow Lab (20AD56)
 L-T-P Structure : 0-0-3
 Program/Sem/Sec : A I & D S , VI-Sem., Sec-B

Credits: 1.5
A.Y : 2023-24

PRE-REQUISITE : Python Programming

COURSE EDUCATIONAL OBJECTIVES (CEOs): The Objective of the course is to provide practical, foundation level training that enables to handle various high dimensional data sets using various deep learning techniques

COURSE OUTCOMES (COs): At the end of the course, students can

CO 1	Implement deep neural networks to solve real world problems (Apply-L3)
CO 2	Choose an appropriate pre-trained model to solve real-time problems. (Analyze – L4)
CO 3	Interpret the results of two different deep learning models. (Analyze – L4)
CO 4	Improve individual / teamwork skills, communication & report writing skills with ethical values.

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	1	-	-	-	-	-	-	-	-	1	1	-	3
CO2	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
CO3	2	3	2	2	-	-	-	-	-	-	-	2	-	2	2

Note: Enter Correlation Levels 1 or 2 or 3. If there is no correlation, put '-'

1- Slight (Low), 2 – Moderate (Medium), 3 - Substantial (High).

PART-B

COURSE DELIVERY PLAN (LESSON PLAN): Section-B

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Numerical Methods to solve matrix problems in Python	6	12-12-23 19-12-23		TLM4	
2	Eigen Value decomposition techniques	3	26-12-23		TLM4	
3	Dimensionality Reduction-PCA	6	02-01-24 09-01-24		TLM4	
4	Fundamentals of Tensor flow	6	16-01-24 23-01-24		TLM4	
5	Build a Convolution Neural Network for MNIST Handwritten Digit Classification	6	06-02-24 13-02-24		TLM4	
6	Build a Convolution Neural Network for simple image Classification	6	20-02-24		TLM4	
7	Implement one hot encoding of words or characters	3	27-02-24		TLM4	
8	Word2vec Framework	3	05-03-24		TLM4	
9	Implement word embeddings for IMDB dataset.	6	12-03-24 19-03-24		TLM4	
10	Implement a Recurrent Neural Network for IMDB movie review classification problem	3	26-03-24		TLM4	

Teaching Learning Methods			
TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT (NPTEL/Swayam Prabha/MOOCs)
TLM3	Tutorial	TLM6	Group Discussion/Project

PART-C

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
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PO 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.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 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
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PO 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.
PO 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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	The ability to apply Software Engineering practices and strategies in software project development using open source programming environment for the success of organization.
PSO 2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO 3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr.K Venkatesh	Mr.K Venkatesh	Dr. V.Surya Narayana	Dr. O. RamaDevi
Signature				



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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSEHANDOUT

PART-A

Name of Course Instructor: Dr.M.Srinivasa Rao / P. Narendra Babu

Course Name & Code : CASE TOOLS LAB (20AD 55)

L-T-P Structure : 0-0-3

Program/Sem/Sec : B.Tech VI Sem AI&DS-A

Credits:1.5

A.Y.:2023-24

PRE-REQUISITE: Object Oriented Programming

COURSE EDUCATIONAL OBJECTIVES (CEOs): The main objective of this course is that a student will be familiar with principles behind the Object-Oriented Design and able to apply those principles in a project setting. Students will analyze applications and know how to take a pragmatic approach to software design and development.

COURSE OUTCOMES (COs): At the end of the course, students are able to

CO1	Analyze Software Requirements for the given Real-World Application using Use Cases. (Analyze-L4)
CO2	Develop the UML Diagrams to view Software System in static aspects. (Analyze-L4)
CO3	Develop the UML Diagrams to view Software System in dynamic aspects. (Analyze-L4)
CO4	Improve individual /team work skills, communication & report writing skills with Ethical values.

COURSE ARTICULATION MATRIX (Correlation between COs, PO's & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	3	2	-	-	-	-	-	-	-	-	1	1	-	-
CO2	-	2	1	-	-	-	-	-	-	-	-	1	1	-	-
CO3	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-
CO4	-	2	-	-	-	-	-	-	3	-	-	-	-	1	-

Note: Enter Correlation Levels 1 or 2 or 3.

If there is no correlation, put '-'

1-Slight(Low), 2 – Moderate (Medium), 3 -Substantial (High).

PART-B

COURSE DELIVERY PLAN (LESSONPLAN):

S.No.	Topics to be covered	No.of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Introduction to CO's & PO's	3	06.12.23			
2	Cycle-1: Analyze the Requirements for the following Case Studies. 1) Automated Teller Machine (ATM) 2) Library Management System 3) Railway Ticket Reservation System	6	13.12.23 20.12.23		TLM4	
3	Cycle-2: Analyze the Requirements for the following Case Studies. 1) Point-of-Sale Terminal 2) Customer Support Service Operations 3) Cab Booking Service	6	27.12.23 03.01.23		TLM4	
4	Cycle-3: Basics of UML 1) Introduction to UML 2) Familiarization with any one of the Software such as Rational Rose or Umbrella or Gliffy Diagram etc.	6	10.01.23 17.01.23		TLM4	
5	Cycle-4: For each case study given earlier, Construct Use Case Diagram for following: 1) Identify and Analyze the Actors. 2) Identify the Actions. 3) Analyze the Relationships between Actors and Actions. 4) Sketch the Use Case Diagram.	3	24.01.23		TLM4	
6	Cycle-5 and Cycle-6: For each case study given earlier, Construct Class Diagram in the following manner: 1) Identify and Analyze the Classes related to your problem. 2) Analyze the Attributes and Operations 3) Analyze the Relationships between Classes 4) Sketch the Class Diagram	6	07.02.23 14.02.23		TLM4	
7	Cycle7: For each case study given earlier, Construct Interaction Diagrams in the following manner: 1) Identify the Objects participating in Communication. 2) Identify the Messages between the objects. 3) Give numbering to messages. 4) Use Flat Sequencing or Procedural Sequencing for numbering.	3	21.02.23		TLM4	
8	Cycle-8: For each case study given earlier, Construct Activity Diagram in the following manner: 1) Identify activities in your case	3	28.02.23		TLM4	

	study. 2) Identify relationships among activities. 3) Use Fork or Join, if necessary. 4) Sketch the diagram.					
9	Cycle9: For each case study given earlier, Construct State Chart Diagram in the following manner: 1) Identify the different states in your case study. 2) List out the different sub-states present in the state. 3) Identify relationships among the state to state. 4) Sketch the diagram.	3	06.03.23		TLM4	
10	Cycle10: For each case study given earlier, Construct Component Diagram in the following manner: 1) Identify the different components in your case study. 2) Create a visual for each of the component. 3) Describe the organization and relationships between components using interfaces, ports etc. 4) Sketch the diagram.	3	13.03.23		TLM4	
11	Cycle11: For each case study given earlier, Construct Deployment Diagram in the following manner: 1) Identify the nodes. 2) Identify the relationships among the nodes. 3) Sketch the Diagram.	3	20.03.23		TLM4	
12	Internal Exam	3	27.03.23			

Teaching Learning Methods			
TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT (NPTEL/Swayam Prabha/ MOOCS)
TLM3	Tutorial	TLM6	Group Discussion/Project

PART-C

EVALUATION PROCESS (R20Regulations):

According to Academic Regulations of R20 Distribution and Weight age of Marks for Laboratory Courses is as follows

(a) Continuous Internal Evaluation (CIE): The Continuous Internal Evaluation (CIE) is based on the following parameters:

Parameter	Marks
Day to Day work	05
Record	05
Internal Test	05
Total	15

(b) Semester End Examinations (SEE): The Semester End examinations (SEE) for laboratory courses shall be jointly conducted by internal and external examiners with 3hours duration and evaluated for 35marks. The performance of the student shall be evaluated as per the parameters indicated below:

Parameter	Marks
Procedure/Algorithm	05
Experimentation/ Program execution	10
Observations/Calculations/Validation	10
Result/Inference	05
Viva voce	05
Total	35

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, Engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem analysis: Identify, formulate, review research literature, and analyze Complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs With appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 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.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and Modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 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
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PO 11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply the same to one's own work, as a Member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	Life-long learning: Recognize the need for and have the preparation and ability to Engaging independent and life-long learning in the broadest context of technological change.

PROGRAMMESPECIFICOUTCOMES(PSOs):

PSO 1	To apply the fundamental engineering knowledge, computational principles, and methods for extracting knowledge from data to identify, formulate and solve real time problems.
PSO 2	To develop multidisciplinary projects with advanced technologies and tools to address social and environmental issues.
PSO 3	To provide a concrete foundation and enrich their abilities for employment and Higher studies in Artificial Intelligence and Data Science with ethical values.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Dr.O.Rama Devi	Dr M.S.Rao	Dr O Rama Devi	Dr. O.RamaDevi
Signature				



COURSE HANDOUT

PART-A

Name of Course Instructor: ANURADHA M

Course Name & Code : Soft Skills & 20HSS1

L-T-P Structure : 1-0-2

Credits: 02

Program/Sem/Sec : B. Tech- VI SEM AI&DS- B

Academic Year : 2023-24

PREREQUISITE: NIL

Course Educational Objectives:

The Soft Skills Laboratory course equips students with required behavioral, interpersonal & Intrapersonal skills, communication skills, leadership skills etc. It aims at training undergraduate students on soft skills leading to enhanced self-confidence, esteem, and acceptability in professional circles.

COURSE OUTCOMES (COs): At the end of the course, student will be able to

CO1	To Develop self-awareness and personality traits for professional growth.	L2
CO2	Work effectively in multi-disciplinary and heterogeneous teams through knowledge of teamwork, Inter-personal relationships, conflict management and leadership quality.	L3
CO3	Communicate through verbal/oral communication with good listening skills and empathy.	L3
CO4	Apply skills required to qualify in recruitment tests, Interviews & other professional assignments.	L3

COURSE ARTICULATION MATRIX

(Correlation between COs & POs)

Course Outcomes	Programme Outcomes											
	1	2	3	4	5	6	7	8	9	10	11	12
PO's →												
CO1.					2			3	3	3		2
CO2.		2			2			3	3	3		3
CO3.					2			3	3	3		3
CO4.					2			3	3	3		
1 = Slight (Low) 2= Moderate (Medium) 3 = Substantial (High)												

List of Activities:

1. Personality Development Skills

Role of language in Personality – How language reflects, impacts Personality – Using gender- neutral language in MNCs – being Culturally-Sensitive-Personality Traits - Grooming & Dress code

Activities: Group Discussion/Role play/Presentations (authentic materials: Newspapers, pamphlets and News Clippings)

2. Impactful Communication

Activities: Extempore / Story Telling/ Group Discussion (Case studies/Current affairs etc.)/ Elocution on Interpretation of given quotes/ Critical Appreciation and Textual Analysis/ Writing reviews on short story/videos/book/Social Media profiling/ Pronunciation Practice

3. Professional Skills:

Career Planning- job vs. career- goal setting- SWOT Analysis-Time management – self-management – stress-management.

Activities: SWOT analysis of the self/Goal Setting-Presentation/Writing Report/Listening exercises/Effective Resume-Writing and presentation/ Interview Skills: Mock interviews/Video samples.

REFERENCES:

1. Edward Holffman, “Ace the Corporate Personality”, McGraw Hill, 2001
2. Adrian Furnham, Personality and Intelligence at Work, Psyc 2. hology Press, 2008.
3. M.Ashraf Rizvi, “Effective Technical Communication”, 1 st edition, Tata MC GrawHill, 2005.
4. Ace of Soft skills Gopaldaswamy Ramesh, Pearson Education India, 2018
5. Soft Skills for the Workplace, Good heart - Willcox Publisher · 2020.
6. How to Win Friends and Influence People, Dale Carnegie · 2020

Software: Walden InfoTech

COURSE DELIVERY PLAN (LESSON PLAN)

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign
1	Activity-1: Role of language in Personality- How language reflects, impacts Personality – Using gender	1+2	04/12/2023		TLM-1, 2 & 6.	
2	Neutral language in MNCs – being Culturally-Sensitive-Personality Traits - Grooming & Dress code & Role-play	1+2	11/12/2023		TLM-1, 2 & 6.	
3	Group Discussion	1+2	18/12/2023		TLM-1, 2 & 6.	
4	Presentations	1+2	08/01/2024		TLM-1, 2 & 6.	

5	Activity-2: Impactful Communication Extempore - Story Telling	1+2	22/01/2024		TLM-1, 2& 6.	
6	Extempore-Group Discussion	1+2	29-01-2024		TLM-1, 2& 6.	
7	Elocution on Interpretation of given quotes/ Critical Appreciation and Textual Analysis/ Writing	1+2	05/02/2024		TLM-1, 2& 6.	
8	Reviews on short story/ videos/book/Social Media profiling/ Pronunciation Practice	1+2	12/02/20		TLM-1, 2& 6.	
9	Activity-3: Professional Skills: Career Planning- job vs. career- goal setting	1+2	19/02/2024		TLM-1, 2& 6.	
10	SWOT Analysis	1+2	26/02/2024		TLM-1, 2& 6.	
11	Time management – Self-management – stress-management.	1+2	04/03/2024		TLM-1, 2& 6.	
12	Presentation/Writing Report/Listening exercises	1+2	11/03/2024		TLM-1, 2& 6.	
13	Effective Resume-Writing and presentation	1+2	18/03/2024		TLM-1, 2& 6.	
14	Interview Skills: Mock interviews/Video samples.	1+2	25/03/2024		TLM-1, 2& 6.	
15	Interview Skills: Mock interviews/Video samples.	1+2	02/04/2024		TLM-1, 2& 6.	
No. of classes required to complete Syllabus:45						

Teaching Learning Methods			
TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT (NPTEL/Swayam Prabha/MOOCs)
TLM3	Tutorial	TLM6	Group Discussion/Project

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 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.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 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
PO 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
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 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
PO 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.
PO 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.

	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Anuradha M	Dr. R. Padma Venkat	Dr. R. Padma Venkat	Dr. A. Ramireddy
Signature				