



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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

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

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

Phone: 08659-222 933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (AIML)

COURSE HANDOUT

PART-A

Name of Course Instructor : Dr. P. Bhagath
Course Name & Code : Deep Learning & 20AD07
L-T-P Structure : 3-0-0 **Credits: 3**
Program/Sem/Sec : B.Tech/VI **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	PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	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	07-12-23		TLM1,2	
2.	Multiplying Matrices and Vectors	2	08-12-23 09-12-23		TLM1,2	
3.	Identity and Inverse Matrices	1	13-12-23		TLM1,2	
4.	Linear dependence and span	2	14-12-23 15-12-23		TLM1,2	
5.	Norms	2	16-12-23 20-12-23		TLM1,2	
6.	Special kinds of matrices and vectors	1	21-12-23		TLM1,2	
7	Trace operations	1	22-12-23		TLM1,2	
8	Eigen Decomposition	2	23-12-23 27-12-23		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	28-12-23 29-12-23 30-12-23 03-01-24		TLM1,2	
8.	Training Deep Networks: Cost Functions, Optimizers	3	04-01-24 05-01-24 06-01-24		TLM1,2	
9.	Types of Deep Neural Networks	2	10-01-24 11-01-24		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	12-01-24		TLM1,2	
11.	Convolution Operation	1	18-01-24		TLM1,2	
12.	Types of layers	2	19-01-24 20-01-24		TLM1,2	
13.	Pooling	2	24-01-24 25-01-24		TLM1,2	
14.	LENET5 Architecture	3	27-01-24 07-02-24		TLM1,2	
No. of classes required to complete UNIT-III: 09				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	08-02-24 09-02-24		TLM1,2	
16.	Types and applications of RNN	2	14-02-24 15-02-24		TLM1,2	
17.	Variants of RNNs	2	16-02-24 17-02-24		TLM1,2	
18.	Word Embedding using Word2vec	4	21-02-24 22-02-24 23-02-24 24-02-24		TLM1,2	
No. of classes required to complete UNIT-IV: 9				No. of classes taken:		

UNIT-V: Regularization and Autoencoders

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 01-03-24		TLM1,2	
21.	Dropout	1	02-03-24		TLM1,2	
22.	Data Augmentation and Early Stopping	2	06-03-24 07-03-24		TLM1,2	
23.	Case study on MNIST data	2	08-03-24 13-03-24		TLM1,2	
24.	Introduction to Autoencoders	1	14-03-24		TLM1,2	
25.	Architecture and Implementation	2	15-03-24 16-03-24		TLM1,2	
26.	Denosing Autoencoders	1	20-03-24		TLM1,2	
27.	Sparse Autoencoders	1	21-03-24		TLM1,2	

28	Use cases	1	22-03-24		TLM1,2	
29	Projects and evaluation	05	23-03-24 27-03-24 28-03-24 29-03-24 30-03-24		TLM1,2	
No. of classes required to complete UNIT-V: 19				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	Dr. P Bhagath	Dr. P Bhagath	Dr. K. Naga Prashanthi	Dr. S. Jayaprada
Signature				



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (AI&ML)

COURSE HANDOUT

PART-A

Name of Course Instructor :Dr.D.Venkata Subbaiah

Course Name & Code : Pattern Recognition (20CS20)

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

Program/Sem/Sec : B.Tech., CSE(AI&ML), VI-Sem., Section – A A.Y : 2023 - 2024

Pre-Requisite: Basic knowledge of probability & statistics

Course Educational Objectives (CEOs):

The main objective of this 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, students are able to

CO1	Understand the primitives of Pattern Recognition. (Understand- L2)
CO2	Understand the fundamental concepts of Bayesian approach (Understand – L2)
CO3	Understand Bayesian classifier with respect to its parameter estimation. (Understand-L2)
CO4	Gain knowledge of Mixture densities and clustering techniques. (Understand- L2)
CO5	Develop a statistical framework 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	3	3	2	1	-	-	-	-	-	-	-	-	-	3	
CO2	3	2	2	1	-	-	-	-	-	-	-	-	-	3	
CO3	2	2	3	1	-	-	-	-	-	-	-	-	-	3	
CO4	2	3	3	1	-	-	-	-	-	-	-	-	-	3	
CO5	2	2	3	1	-	-	-	-	-	-	-	-	-	3	

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

1- Low

2 –Medium

3 High

TEXT BOOKS:

T1	Pattern classifications, Richard O. Duda, Peter E. Hart, David G. Stroke. Wiley student edition, Second Edition.
T2	Pattern Recognition, an Introduction, V Susheela Devi, M Narsimha Murthy, University Press.
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, Addison Wesley, 1992.
R2	Earl Gose, Richard John baugh, Steve Jos, “Pattern Recognition and Image Analysis”, PHI 2004.
R3	SergiosTheodoridis, Konstantinos Koutroumbas, “Pattern Recognition”, Academic Press, Elsevier, 4ed.

COURSE DELIVERY PLAN (LESSON PLAN):**UNIT-I: Introduction to 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.	Introduction to Pattern Recognition	1	04-12-2023		TLM2	
2.	Machine perception	1	05-12-2023		TLM2	
3.	pattern recognition example, pattern recognition systems	1	07-12-2023		TLM2	
4.	Design cycle, learning and adaptation	1	08-12-2023		TLM2	
5.	Bayesian Decision Theory	2	11-12-2023 &12-12-2023		TLM2	
6.	continuous features – two categories classifications	1	14-12-2023		TLM2	
7.	minimum error-rate classification-zero-one loss function, classifiers	1	15-12-2023		TLM2	
8.	Problems with Bayes classifier	1	18-12-2023		TLM2	
9.	Discriminant functions, and decision surface	2	19-12-2023 &21-12-2023		TLM2	
No. of classes required to complete UNIT-I		11		No. of classes taken:		

UNIT-II: Density Functions

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.	Normal density	1	22-12-2023		TLM1	
11.	Univariate and multivariate density	1	26-12-2023		TLM1	
12.	discriminant functions for the normalDensity different cases	2	28-12-2023& 29-12-2023		TLM1	

13.	Example problems	2	02-01-2024 &04-01-2024		TLM1	
14.	Bayes decision theory - discrete features	1	05-01-2024		TLM1	
15.	Example problems	1	08-01-2024		TLM1	
16.	Compound Bayesian decision theory and context	1	09-01-2024		TLM1	
17.	Example problems	2	11-01-2024 &12-01-2024		TLM1	
No. of classes required to complete UNIT-II		11		No. of classes taken:		

UNIT-III: 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
18.	Parameter Estimation under Normal density function	1	18-01-2024		TLM1	
19.	What is maximum likelihood estimation	1	19-01-2024		TLM1	
20.	Maximum likelihood estimation	1	22-01-2024		TLM1	
21.	Example problems	2	23-01-2024 &25-01-2024		TLM1	
22.	MID -1 EXAMS	29-01-2024 To 03-02-2024				
23.	Bayes likelihood estimation	1	05-02-2024		TLM1	
24.	Bayes parameter estimation	1	06-02-2024		TLM1	
25.	Bayes parameter estimation – Gaussian distribution	2	08-02-2024 & 09-02-2024		TLM1	
26.	Example problems	1	12-02-2024		TLM1	
No. of classes required to complete UNIT-III		10		No. of classes taken:		

UNIT-IV: Unsupervised 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
27.	Unsupervised Learning	1	13-02-2024		TLM1	
28.	Mixture densities and identifiability	1	15-02-2024		TLM1	
29.	Maximum likelihood estimates	1	16-02-2024		TLM1	
30.	Application to normal mixtures	2	19-02-2024 &20-02-2024		TLM1	
31.	K-means clustering	2	22-02-2024 &23-02-2024		TLM1	
32.	Data description and clustering	1	26-02-2024		TLM1	

33.	Similarity measures	1	27-02-2024		TLM1	
34.	Criteria function for clustering	1	29-02-2024		TLM1	
35.	Example Problems	1	01-03-2024		TLM1	
No. of classes required to complete UNIT-IV		11				

UNIT-V: 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
36.	Hidden Markov Model	1	04-03-2024		TLM1	
37.	Discrete-time Markov process	2	05-03-2024 &07-03-2024		TLM1	
38.	Extensions to hidden Markov models	1	11-03-2024		TLM1	
39.	Three basic problems of HMMs&types of HMMs	2	12-03-2024 &14-03-2024		TLM1	
40.	Three basic problems of HMMs&types of HMMs	2	15-03-2024 &18-03-2024		TLM1	
41.	Continuous observation densitiesmultiple mixtures perstate	2	19-03-2024 &21-03-2024		TLM1	
42.	Continuous observation densitiesmultiple mixtures perstate	2	22-03-2024 &25-03-2024		TLM1	
43.	speech recognition applications	2	26-02-2024 & 28-03-2024		TLM1	
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 Regulations):

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 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.

Course Instructor	Course Coordinator	Module Coordinator	HOD
Dr. D.V.Subbaiah	Dr. D.V.Subbaiah	Dr.K.Naga Prasanthi	Dr. D.VEERAI AH



PART-A

Name of Course Instructor: Mr.L.Narendra

Course Name & Code : BIGDATA ANALYTICS & 20CS19

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

Credits: 3

Program/Sem/Sec : B.Tech/VI

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 AnandRajaramanandJefreyDavidUlman,"MiningofMassiveDatasets",Cambri dgeUniversityPress,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	04-12-2023		TLM1	
2.	Types of Digital Data	1	06-12-2023		TLM1	
3.	Classification of Digital Data	1	08-12-2023		TLM1	
4.	Characteristics of Data	1	09-12-2023		TLM1	
5.	Evolution of Big Data	1	11-12-2023		TLM1	
6.	Definition of Big Data, Challenges with Big Data	1	13-12-2023		TLM1	
7.	What is Big Data? Other Characteristics of Data Which are not Definitional Traits of Big Data	1	15-12-2023		TLM1	
8.	Why Big Data? analyzing Data with Unix tools	1	16-12-2023		TLM1	
9.	Analyzing Data with Hadoop	1	18-12-2023		TLM1	
10.	Hadoop Streaming	1	20-12-2023		TLM1	
11.	Hadoop Echo System	1	22-12-2023		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	23-12-2023		TLM1	
13.	HDFS Concepts	1	27-12-2023		TLM1	
14.	Command Line Interface	1	29-12-2023		TLM1	
15.	Hadoop file system interfaces	1	30-12-2023		TLM1	
16.	Dataflow, Data Ingestion with Sqoop and Hadoop archives,	1	03-01-2024		TLM1	
17.	Dataflow, Data Ingestion with Sqoop and Hadoop archives,	1	05-01-2024		TLM1	
18.	Hadoop I/O: Compression	1	06-01-2024		TLM1	
19.	Serialization	1	08-01-2024		TLM1	
20.	Avro and File-Based Data structures	1	10-01-2024		TLM1	
21.	HDFS Commands	1	12-01-2024		TLM1	
22.	HDFS Commands	1	15-01-2024		TLM1	
23.	Read operation	1	17-01-2024		TLM1	
24.	Write operation	1	19-01-2024		TLM1	
25.	Bigdata Applications	1	20-01-2024		TLM1	
26.	Bigdata Analytics Challenges	1	22-01-2024		TLM1	
27.	Bigdata Analytics Use cases	1	24-01-2024		TLM1	
28.	Bigdata Analytics Use cases	1	27-01-2024		TLM1	
No. of classes required to complete UNIT-II: 17				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	
29.	How Map Reduce works?	1	05-02-2024		TLM1		
30.	Anatomy of a Map Reduce Job Run	1	07-02-2024		TLM1		
31.	Job Failures	1	09-02-2024		TLM1		
32.	Job Scheduling	1	12-02-2024		TLM1		
33.	Shuffle and Sort	1	14-02-2024		TLM1		
34.	I-MID Examinations		29-01-2024 to 03-02-2024				
35.	Task Execution	1	16-02-2024		TLM1		
36.	Map Reduce Types and Formats	1	17-02-2024		TLM1		
37.	Map Reduce Features	1	19-02-2024		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
38.	Hive: Installation	1	21-02-2024		TLM1	
39.	Running Hive	1	23-02-2024		TLM1	
40.	Hive QL	1	24-02-2024		TLM1	
41.	Tables, Querying Data	1	26-02-2024		TLM1	
42.	User Defined functions	1	28-02-2024		TLM1	
43.	Sqoop: Introduction	1	01-03-2024		TLM1	
44.	generate code	1	02-03-2024		TLM1	
45.	Database import	1	04-03-2024		TLM1	
46.	working with imported data	1	06-03-2024		TLM1	
47.	Importing large objects	1	08-03-2024		TLM1	
48.	performing an export	1	11-03-2024		TLM1	
49.	Applications	1	13-03-2024		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
50.	Introduction to PIG	1	15-03-2024		TLM1	
51.	Execution Modes of Pig	1	16-03-2024		TLM1	
52.	Comparison of Pig with Databases	1	18-03-2024		TLM2	
53.	Grunt, Pig Latin	1	20-03-2024		TLM2	
54.	User Defined Functions	1	22-03-2024		TLM2	
55.	Data Processing operators	1	23-03-2024		TLM2	
56.	HBase: Basics	1	25-03-2024		TLM2	
57.	Concepts, Clients	1	27-03-2024		TLM2	
58.	HBase Versus RDBMS	1	29-03-2024		TLM2	
No. of classes required to complete UNIT-V: 09				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	29-03-2024		TLM2	
2.	BDA Use case - II	1	30-03-2024		TLM2	
				No. of classes taken:		
II-MID Examinations			01-04-2024 to 06-04-2024			

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

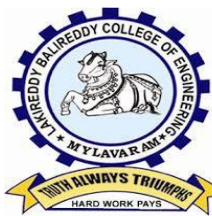
PROGRAMME OUTCOMES (POs):

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 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	Mr.L.Narendra	Dr.k.Devi priya	Dr.K.Naga Prasanthi	Dr. S. Jayaprada
Signature				



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING(AI&ML)

COURSE HANDOUT

PART-A

Name of Course Instructor : Mrs. RAZEENA BEGUM

Course Name & Code : SOFTWARE PROJECT MANAGEMENT(20CS25)

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

Credits : 3

Program/Sem/Sec : B.Tech-CSE(AI&ML)/VI/ A

A.Y: 2023 - 24

PRE-REQUISITE: Software Engineering, Software Testing Methodologies, Object Oriented Analysis and Design.

COURSE EDUCATIONAL OBJECTIVES (CEOs):

This course is centered on unique aspects of software project management at three levels: Organizational management, Infrastructure management and project management and measurement of the Project, and how these are applied to actual software projects

COURSE OUTCOMES (COs):

At the end of the course, students are able to

CO1	Identify the process of Conventional Software Management the Evolution and Improvement of Software Economics. (Remember-L1)
CO2	Describe the basic s/w processes, Cost estimation and improvement in s/w Economics. (Remember-L1)
CO3	Summarize Life cycle phases and Artifacts of the process in Software project management. (Understand-L2)
CO4	Apply Workflows and checkpoints in Iterative Process planning.(Apply-L3)
CO5	Illustrate Project Organizations, process automation building blocks and metrics in assessing Software Quality. (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	2	2	-	-	-	-	-	-	-	-	2	1	-	-	3
CO2	2	2	-	-	-	-	-	-	-	-	3	1	-	-	3
CO3	2	2	1	-	-	-	-	-	-	-	3	1	-	-	3
CO4	3	2	1	-	-	-	-	-	-	-	2	-	-	-	3
CO5	2	2	1	-	-	-	-	-	-	-	3	1	-	-	3

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

1- Low

2 -Medium

3- High

TEXT BOOKS:

T1 Walker Royce ,“Software Project Management”, Pearson Education, 2015.

REFERENCE BOOKS:

R1 Robert K. Wysocki, “Effective Software Project Management”, Wiley Publication,2011.

R2 Walker Royce, “Software Project Management”, Addison-Wesley, 1998.

R3 Bob Hughes and Mike Cotter ell, “Software Project Management”, Tata McGraw HillEdition,2000

PART-B**COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I: Conventional Software Management, Evolution of Software Economics, Improving Software Economics**

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.	The waterfall model	2	4/12/2023		TLM1, TLM2	
2.	conventional Software Management performance	2	7/12/2023		TLM1, TLM2	
3.	Software Economics	2	9/12/2023		TLM1, TLM2	
4.	pragmatic software cost estimation	1	11/12/2023		TLM1, TLM2	
5.	Reducing Software product size	2	14/12/2023		TLM1, TLM2	
6.	improving software processes	1	16/12/2023		TLM1, TLM2	
7.	The principles of conventional software Engineering	2	18/12/2023		TLM1, TLM2	
8.	principles of modern software management	2	21/12/2023		TLM1, TLM2	
9.	transitioning to an iterative process.	1	23/12/2023		TLM1, TLM2	
10.	Assignment-1/Tutorial-1	1	28/12/2023		TLM3	
No. of classes required to complete UNIT-I		16		No. of classes taken:		

UNIT-II: Life cycle phases, Artefacts of the process.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
11.	Engineering and production stages	1	30/12/2023		TLM1, TLM2	
12.	Inception, Elaboration	2	04/01/2024		TLM1, TLM2	
13.	Construction, transition phases	3	06/01/2024		TLM1, TLM2	
14.	artifact sets, Management artifacts	2	08/01/2024		TLM1, TLM2	
15.	Engineering artifacts, programmatic artifacts	2	11/01/2024		TLM1, TLM2	
16.	A Management perspective and technical perspective	2	18/01/2024		TLM1, TLM2	
17.	Assignment-2/Tutorial-2	1	20/01/2024		TLM1, TLM2	
No. of classes required to complete UNIT-II		13		No. of classes taken:		

UNIT-III: Work Flows of the process, Checkpoints of the process, Iterative Process Planning.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
18.	Software process workflows	2	22/01/2024		TLM1, TLM2	
19.	Iteration workflows.	1	22/01/2024		TLM1, TLM2	
20.	Major milestones, Minor Milestones	2	25/01/2024		TLM1, TLM2	
21.	Periodic status assessments.	2	27/01/2024		TLM1, TLM2	
I MID EXAMINATIONS						
22.	Work breakdown structures, planning guidelines	1	05/02/2024 & 08/02/2024		TLM1, TLM2	

23.	cost and schedule estimating,	1	12/02/2024 & 15/02/2024		TLM1, TLM2	
24.	Iteration planning process, Pragmatic planning	1	17/02/2024 & 19/02/2024		TLM1, TLM2	
25.	Assignment-3/Tutorial-3	1	22/02/2024		TLM3	
No. of classes required to complete UNIT-III		11		No. of classes taken:		

UNIT-IV: Project Organizations and Responsibilities, Process Automation, Project Control and Process instrumentation.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
26.	Line-of-Business Organizations	1	24/02/2024		TLM1, TLM2	
27.	Project Organizations	2	26/02/2024		TLM1, TLM2	
28.	evolution of Organizations	1	29/02/2024		TLM1, TLM2	
29.	Automation Building blocks, Project Environment	2	02/03/2024		TLM1, TLM2	
30.	seven core Metrics	2	04/03/2024		TLM1, TLM2	
31.	Management indicators	2	07/03/2024		TLM1, TLM2	
32.	quality indicators, life cycle expectations	3	11/03/2024		TLM1, TLM2	
33.	pragmatic Software Metrics.	2	14/03/2024		TLM1, TLM2	
34.	Assignment-4/Tutorial-4	1	16/03/2024		TLM3	
No. of classes required to complete UNIT-IV		16		No. of classes taken:		

UNIT-V: Tailoring the Process, Future Software Project Management, Case Study.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
35	Process discriminates	3	18/03/2024		TLM1, TLM2	
36	Modem Project Profiles	3	21/03/2024		TLM1, TLM2	
37	Next generation Software economics	2	23/03/2024		TLM1, TLM2	
38	modern process transitions.	3	25/03/2024		TLM1, TLM2	
39	Command Centre Processing and Display system- Replacement(CCPDS)	2	28/03/2024		TLM1, TLM2	
40	Assignment-5/Tutorial-5	1	30/03/2024		TLM3	
II MID EXAMINATIONS						
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 Regulations):

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, demonstrate the knowledge of, and need for sustainable development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics, responsibilities, and norms of the engineering practice.
PO 9	Individual and teamwork: 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, 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.
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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	Mrs.Razeena Begum	Mrs.Razeena Begum	Dr.Y.Vijaya Bhaskar Reddy	Dr.S.Jayaprada
Signature				



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)

L.B. Reddy Nagar, Mylavaram-521230. A.P, INDIA

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NAAC Accredited New Delhi & Certified by ISO 9001:2015

DEPARTMENT OF CIVIL ENGINEERING

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COURSE HANDOUT PART-A

Name of Course Instructor : J. Eeshwar Ram
Course Name & Code : DISASTER MANAGEMENT & 20CE82
L-T-P Structure : 3-0-0 Credits : 3
Program/Sem/Sec : B.Tech., AI-ML(A)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	04.12.2023		TLM2	
2.	Basic definitions	1	05.12.2023		TLM2	
3.	Types of Disasters	1	07.12.2023		TLM2	
4.	Concept of disaster management	1	11.12.2023		TLM2	
5.	Disaster management cycle	1	12.12.2023		TLM2	
6.	Vulnerability	1	14.12.2023		TLM2	
7.	Mitigation	1	16.12.2023		TLM2	
8.	Natural disasters: Drought and cyclone	1	18.12.2023		TLM2	
9.	Natural disasters: Earthquake and landslides	1	19.12.2023		TLM2	
10.	Engineering and technical failure	1	21.12.2023		TLM2	
11.	Nuclear and chemical disaster	1	23.12.2023		TLM2	
12.	Accident-related disasters	1	26.12.2023		TLM2	
13.	HPC on DM in India- DM Act 2005	1	28.12.2023		TLM2	
14.	Revision		30.12.2023		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	02.01.2024		TLM2	
2.	Impacts due to landslides and fire hazards	1	04.01.2024		TLM2	
3.	Impacts due to life & live stock and habitation	1	06.01.2024		TLM2	
4.	Agriculture & livelihood loss- health hazards	1	08.01.2024		TLM2	
5.	Malnutrition problems	1	09.01.2024		TLM2	
6.	Contamination of water	1	11.01.2024		TLM2	
7.	Impact on children- environmental loss	1	18.01.2024		TLM2	
8.	Revision		20.01.2024		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	22.01.2024		TLM2	
2.	Information system and decision-making tool	1	23.01.2024		TLM2	
3.	DM for infra structure	1	25.01.2024		TLM2	
4.	DM for electrical substances	1	27.01.2024		TLM2	
5.	DM for roads and bridges	1	05.02.2024		TLM2	

6.	Mitigation programme for earthquakes	1	06.02.2024		TLM2
7.	Geospatial information in agriculture drought assessment	1	08.02.2024		TLM2
8.	Multimedia technology in disaster risk management and training	1	12.02.2024		TLM2
9.	Transformable indigenous knowledge in disaster reduction	1	13.02.2024		TLM2
10.	Transformable indigenous knowledge in disaster reduction	1	15.02.2024		TLM2
11.	Revision		17.02.2024		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	19.02.2024		TLM2	
2.	Planning	1	20.02.2024			
3.	Early warning system	1	22.02.2024		TLM2	
4.	Crisis intervention and management	1	24.02.2024		TLM2	
5.	Response and Rehabilitation after Disasters	1	26.02.2024		TLM2	
6.	Temporary shelter – food and nutrition-safe drinking water	1	27.02.2024		TLM2	
7.	Rehabilitation after cyclones	1	29.02.2024		TLM2	
8.	Response to drought	1	02.03.2024		TLM2	
9.	Response to river erosion	1	04.03.2024		TLM2	
10.	Response after earthquake	1	05.03.2024		TLM2	
11.	Response after Tsunami- Hunger and Disaster	1	07.03.2024		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	11.03.2024		TLM2	
2.	Essentials of disaster education	1	12.03.2024			
3.	School awareness and safety programs, Community based disaster recovery	1	14.03.2024		TLM2	
4.	Voluntary agencies and community participation at various stages of disaster management	1	16.03.2024		TLM2	
5.	Building community capacity for action	1	18.03.2024		TLM2	
6.	Corporate sector and disaster risk reduction	1	19.03.2024		TLM2	
7.	A community focused approach	1	21.03.2024		TLM2	
8.	Case studies on different disasters in the world-1	1	23.03.2024		TLM2	
9.	Case studies on different disasters in the world-2	1	26.03.2024		TLM2	
10.	Case studies on different disasters in	1	28.03.2024		TLM2	

	the world-3				
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 (R20 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

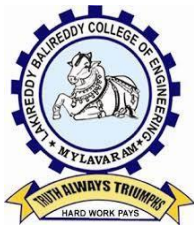
PROGRAMME OUTCOMES (POs):

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	Course Coordinator	Module Coordinator	HOD
J. Eeshwar Ram	J. Eeshwar Ram	J. Eeshwar Ram	Dr.J.V.R



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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

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

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Phone: 08659-222 933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (AIML)

COURSE HANDOUT

PART-A

Name of Course Instructor : Dr. P. Bhagath
Course Name & Code : Deep Learning using TensorFlow Lab (20AD54)
L-T-P Structure : 0-0-3 Credits: 1.5
Program/Sem/Sec : B.Tech., CSE., VI-Sem., Sec-A 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	23-01-24 06-02-24		TLM4
5	Build a Convolution Neural Network for MNIST Handwritten Digit Classification	6	13-02-24 20-02-24		TLM4
6	Build a Convolution Neural Network for simple image Classification	6	27-02-24 05-03-24		TLM4
7	Implement one hot encoding of words or characters	3	12-03-24		TLM4
8	Word2vec Framework	3	19-03-24		TLM4
9	Implement word embeddings for IMDB dataset.	6	26-03-24 02-04-24		TLM4
10	Implement a Recurrent Neural Network for IMDB movie review classification problem	3	09-04-24		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.
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.
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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 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. P. Bhagath	Dr. P. Bhagath	Dr. K. Naga Prashanthi	Dr. S. Jayaprada
Signature				



COURSE HANDOUT

PART-A

Name of Course Instructor: Mr.L.Narendra
Course Name & Code : DATA ANALYTICS AND VISUALIZATION LAB & 20CS62
L-T-P Structure : 0-0-3 Credits: 1.5
Program/Sem/Sec : B.Tech /VI/ 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	PO 10	PO 11	PO 12	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):**

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	04-12-2023		
2.	Implementation of Run a basic Word Count Map Reduce program	3	11-12-2023		
3.	Implementation of Matrix Multiplication with Hadoop Map Reduce	3	18-12-2023		
4.	Implementation of Weather mining by taking weather dataset using Map Reduce	3	08-01-2024		
5.	Installation of Hive along with practice examples	3	15-01-2024		
6.	Installation of Sqoop along with Practice examples	3	22-01-2024		
7.	Downloading and installing Tableau Understanding about importing data, saving, opening, and sharing work books	3	05-02-2024		
8.	Data Preparation with Tableau	3	12-02-2024		
9.	Charts: Bar Charts, Legends, Filters ,and Hierarchies ,Step Charts, Line Charts	3	19-02-2024		
10.	Maps: Symbol Maps, Filled Maps, Density Maps, Maps with Pie Charts	3	26-02-2024		
11.	Interactive Dash boards	3	04-03-2024		
12.	Interactive Dash boards	3	11-03-2024		
13.	Interactive Dash boards	3	18-03-2024		
14.	Lab Internal Exam	3	25-03-2024		

Add on Experiments:

1.	Experiment-1	1	08-01-2024		
2.	Experiment-II	1	18-03-2024		

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 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. L.Narendra	Dr.K.Devi Priya	Dr.K.Naga Prasanti	Dr. S. Jayaprada
Signature				



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hodcse@lbrce.ac.in, cseoffice@lbrce.ac.in, Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING(AI&ML)

COURSE HANDOUT

PART-A

PROGRAM	: B.TECH-CSM-VI-Sem-A-Sec
ACADEMIC YEAR	: 2023-24
COURSE NAME & CODE	: SERVER SIDE SCRIPTING LAB & 20CS63
L-T-P STRUCTURE	: 0-0-3
COURSE CREDITS	: 1.5
COURSE INSTRUCTOR	: Mr. P.Somaraju
COURSE COORDINATOR	: Mr.Md.Amantulla

PREREQUISITE: JAVA Programming & Web Technologies

COURSE EDUCATIONAL OBJECTIVES (CEOs):

Students will learn the importance of client-server architecture in the web application development and able to develop dynamic data driven (server-side) web applications by using advanced technologies (AJAX, PHP)

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

CO1	Understand the differences between server-side and client-side script, develop simple server-server-side web applications. (Understand - L2)
CO2	Identify the importance of AJAX, PHP programming constructs to design server-side web applications. (Remember - L1)
CO3	Develop Dynamic Data Driven (Server-side) Web Applications by using AJAX, PHP. (Apply - L3)
CO4	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	-	3	-	-	-	-	-	-	1	-	1	3
CO2	-	-	2	-	3	-	-	-	-	-	-	1	-	3	-
CO3	-	-	2	-	3	-	-	-	-	-	-	1	-	3	-
CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
	1 - Low			2 -Medium				3 -High							

PART-B

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 Weekly
1.	MODULE-1	3	06-12-2023 & 13-12-2023		DM5	
2.	MODULE-2	3	20-12-2023 & 27-12-2023		DM5	
3.	MODULE-3	3	013-01-2024 & 10-01-2024		DM5	
4.	MODULE-4	3	17-01-2024		DM5	
5.	MODULE-5	3	24-01-2024 & 07-02-2024		DM5	
6.	MODULE-6	3	14-02-2024		DM5	
7.	MODULE-7	3	21-02-2024		DM5	
8.	MODULE-8	3	28-02-2024 & 06-03-2024		DM5	
9.	MODULE-9	3	13-03-2024		DM5	
10.	MODULE-10	3	20-03-2024		DM5	
11.	INTERNAL EXAM	3	27-03-2024			

Teaching Learning Methods

DM1	Chalk and Talk	DM4	Assignment/Test/Quiz
DM2	ICT Tools	DM5	Laboratory/Field Visit
DM3	Tutorial	DM6	Web-based Learning

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	Marks
Day-to-Day Work	A1 = 5
Record & Observation	B1 = 5
Internal Exam	C1 = 5
Cumulative Internal Examination (CIE): (A1+B1+C1)	15
Semester End Examination (SEE)	35
Total Marks = CIE + SEE	50

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 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	An ability to apply software engineering practices and strategies in software project development using open-source programming environment for the success of organization
PSO 2	An 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. P.Somaraju	Mr.Md.Amantulla	Dr. Y. V. B. Reddy	Dr. S.Jayaprada
Signature				