LAKIREDDYBALIREDDYCOLLEGEOFENGINEERING

(AUTONOMOUS)

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L.B.REDDYNAGAR,MYLAVARAM,KRISHNADIST.,A.P.-521230.

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DEPARTMENTOFARTIFICIALINTELLIGENCE&DATASCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr. Narendra Babu Pamula
Course Name & Code :Distributed Operating Systems(20CS22)
L-T-P Structure : 3-0-0 **Credits:**3
Program/Sem/Sec : B.Tech /VII Sem /B-Sec **A.Y.:**2025-26

PREREQUISITE: Knowledge of Operating Systems, Computer Networks

COURSE EDUCATIONAL OBJECTIVES (CEOs):

This course enables the students to know about a comprehensive introduction to understand the underlying principles, techniques and approaches which constitute a coherent body of knowledge in operating systems. In particular, the course will consider inherent functionality and processing of program execution. The emphasis of the course will be placed on understanding.

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

CO1	Identify the hardware and software concepts to design the communication model in Distributed System**. (L2- Understanding)**
CO2	Illustrate the processor allocation and process scheduling algorithms in Distributed system**. (L2- Understanding)**.
CO3	Apply the Clock Synchronization protocols and Deadlock handling mechanism in Distributed System**.(L3- Apply)**
CO4	Analyze the implementation of Distributed Shared memory for real world Problems**.(L2- Understanding)**
CO5	Demonstrate the implementation of Distributed File System and CHROUS,MACH Distributed operating systems.**(L3- Apply)**

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	-	-	-	-	-	-	-	-	-	-	-	1
CO2		1	2	-	-	-	-	-	-	-	-	-		-	-
CO3			2	-	-	-	-	-	-	-	-	-		-	-
CO4			-	2	-	-	-	-	-	-	-	-		1	-
CO5	1	1	2	-	-	-	-	-	-	-	-	-		-	-
1-Low **2 –**Medium **3–**High															

TEXTBOOKS:

T1 T Andrew STanenbaum,"Distributed Operating Systems",3rd edition, Pearson publication,2007[**units– 1,2,3,4,5**]

REFERENCEBOOKS:

R1 Sunita Mahajan, Seema Shan, Distributed Computing, Oxford University Press,2015.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Introduction to Distributed Systems

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 and DOS Syllabus discussion	1	30-06-2025		TLM1& TLM2	
2.	Introduction	1	30-06-2025		TLM1& TLM2	
3.	Definition,goals	1	01-07-2025		TLM1& TLM2	
4.	Hardware concepts	1	02-07-2025		TLM1& TLM2	
5.	software concepts	1	05-07-2025		TLM1& TLM2	
6.	design issues	1	07-07-2025		TLM1& TLM2	
7.	design issues	1	08-07-2025		TLM1& TLM2	
8.	Layered protocols	1	09-07-2025		TLM1& TLM2	
9.	ATM Networks	1	12-07-2025		TLM1& TLM2	
10.	Client Server model	1	14-07-2025		TLM1& TLM2	
11.	Client Server model	1	15-07-2025		TLM1& TLM2	
12.	Remote Procedure Call	2	16-07-2025 19-07-2025		TLM1& TLM2	
13.	Group Communication	2	21-07-2025 22-07-2025		TLM1& TLM2	
No. of classes required to complete UNIT-I:15				**No. of classes taken:**		

UNIT-II: Processes and Processors in Distributed Systems

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
14.	Threads, System models	2	23-07-2025 26-07-2025		TLM1&	

					TLM2	
15.	Processor allocation	2	28-07-2025 29-07-2025		TLM1& TLM2	
16.	Scheduling	1	30-07-2025		TLM1& TLM2	
17.	Fault Tolerance	2	02-08-2025 04-08-2025		TLM1& TLM2	
18.	Real Time Distributed Systems.	3	05-08-2025 06-08-2025 09-08-2025		TLM1& TLM2	
No. of classes required to complete UNIT-II:9				**No. of classes taken:**		

UNIT-III: Synchronization in Distributed Systems

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD SignWeekly
19.	Clock synchronization Introduction	2	11-08-2025 12-08-2025		TLM1& TLM2	
20.	Mutual Exclusion	1	13-08-2025		TLM1& TLM2	
21.	Mutual Exclusion	1	18-08-2025		TLM1& TLM2	
22.	Election Algorithms	1	19-08-2025		TLM1& TLM2	
23.	Election Algorithms	1	20-08-2025		TLM1& TLM2	
24.	Atomic Transactions	2	15-09-2025 16-09-2025		TLM1& TLM2	
25.	Dead locks.	1	16-09-2025		TLM1& TLM2	
26.	Dead locks.	1	17-09-2025		TLM1& TLM2	
No. of classes required to complete UNIT-III:10				**No. of classes taken:**		

UNIT-IV: Distributed Shared Memory

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.	Introduction	1	20-09-2025		TLM1& TLM2	
28.	Consistency Models	2	22-09-2025 23-09-2025		TLM1&	

					TLM2	
29.	Page based Distributed Shared Memory	2	27-09-2025 03-10-2025		TLM1& TLM2	
30.	Shared Variable Distributed Shared Memory	2	04-10-2025 05-10-2025		TLM1& TLM2	
31.	Object based Distributed Shared Memory	2	08-10-2025 10-10-2025		TLM1& TLM2	
No. of classes required to completeUNIT-IV:9				**No. of classes taken:**		

UNIT-V: Distributed File Systems

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD SignWeekly
32.	Distributed File system design	2	07-10-2025 10-10-2025		TLM1& TLM2	
33.	Distributed File system implementation	2	11-10-2025 12-10-2025		TLM1& TLM2	
34.	Trends in Distributed File Systems	2	15-10-2025 17-10-2025		TLM1& TLM2	
35.	CaseStudy:MACH	3	18-10-2025 21-10-2025 22-10-2025		TLM1& TLM2	
36.	Case Study: CHORUS	2	25-10-2025 27-10-2025		TLM1& TLM2	
37.	Revision of Unit-1	2	28-10-2025 29-11-2025		TLM1& TLM2	
38.	Revision of Unit-2	2	01-11-2025 03-11-2025		TLM1& TLM2	
39.	Revision of Unit-3	2	04-11-2025 05-11-2025		TLM1& TLM2	
40.	Revision of Unit-4	2	08-11-2025 10-11-2025		TLM1& TLM2	
41.	Revision of Unit-5	1	11-11-2025		TLM1& TLM2	
No. of classes required to complete UNIT-V:11+9				**No. of classes taken:**		

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

PART-C

EVALUATION PROCESS (R20 Regulation):

EvaluationTask	**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
MidMarks=80%ofMax((M1+Q1+A1),(M2+Q2+A2))+20%ofMin((M1+Q1+A1),(M2+Q2+A2))	M=30
CumulativeInternalExamination(CIE):M	30
SemesterEndExamination(SEE)	70
TotalMarks=CIE+ SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	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.
PO3	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 environmentalconsiderations.
PO4	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.
PO5	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
PO6	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
PO7	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.
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to
PO11	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 multi disciplinary environments.
PO12	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):

PSO1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of organization.
PSO2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO3	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. Narendra Babu**	**Mr. P. Narendra Babu**	**Dr.Ch.Rajendra Babu**	**Dr.P.Bhagath**
Signature				

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr Dr.V.Suryanarayana
Course Name & Code : Software Project Management & 20CS25
L-T-P Structure : 3-0-0 Credits : 3
Program/Sem/Sec : B.Tech., AI&DS., VII-Sem., Sec-A A.Y: 2025-26

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

CO 1	Identify the process of Conventional Software Management the Evolution and Improvement of Software Economics.
CO 2	Describe the basic s/w processes, Cost estimation and improvement in s/w Economics.
CO 3	Summarize Life cycle phases and Artifacts of the process in Software project management.
CO 4	Apply Workflows and checkpoints in Iterative Process planning.
CO5	Illustrate Project Organizations, process automation building blocks and metrics in assessing Software Quality.

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

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Conventional Software 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.	UNIT - I: The waterfall model	2	30/06/2025 3/07/2025		TLM2	
2.	Conventional software management performance	2	4/07/2025 5/07/2025		TLM2	
3.	**Evolution of Software Economics:** Software Economics	1	7/07/2025		TLM2	
4.	Software cost estimation	2	10/07/2025 11/07/2025		TLM2	
5.	**Improving Software Economics:** Reducing Software product size	2	14/07/2025 17/07/2025		TLM2	
6.	Improving software processes	1	18/07/2025		TLM2	
7.	The principles of conventional software Engineering	1	19/07/2025		TLM2	
8.	Principles of modern software management	2	21/07/2025 24/07/2025		TLM2	
9.	Transitioning to an iterative process.	2	25/07/2025 26/07/2025		TLM2	
No. of classes required to complete UNIT-I:15				No. of classes taken:		

UNIT-II: Life cycle phases

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.	Engineering and production Stages	2	28/07/2025 31/07/2025		TLM2	
2.	Inception	2	1/08/2025 2/08/2025		TLM2	
3.	Elaboration	1	4/08/2025		TLM2	
4.	Construction	1	7/08/2025		TLM2	
5.	Transition phases	1	8/08/2025		TLM2	
6.	**Artifacts of the process:** The artifact sets	1	8/08/2025		TLM2	
7.	Management artifacts	2	14/08/2025 18/08/2025		TLM2	
8.	Engineering artifacts	2	21/08/2025 22/08/2025		TLM2	
9.	Programmatic artifacts	1	23/08/2025		TLM2	
10.	A Management perspective and Technical perspective	2	25/08/2025 28/08/2025		TLM2	
No. of classes required to complete UNIT-II:15				No. of classes taken:		

UNIT-III: Workflows 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
1.	Software process workflows	2	29/08/2025 30/08/2025		TLM2	
2.	Iteration workflows	1	1/09/2025		TLM2	
3.	**Check points of the process:** Major milestones	1	4/09/2025		TLM2	
4.	Minor Milestones	2	6/09/2025 15/09/2025		TLM2	
5.	Periodic status assessments	2	18/09/2025 19/09/2025		TLM2	
I MID EXAMINATIONS FROM 08-09-2025 TO 13-09-2025						
6.	**Iterative Process Planning:** Work break down structures	1	20/09/2025		TLM2	
7.	Planning	1	22/09/2025		TLM2	

	guidelines					
8.	Cost and schedule estimating	2	25/09/2025 26/09/2025		TLM2	
9.	Iteration planning process	2	27/09/2025 29/09/2025		TLM2	
10.	Pragmatic planning	1	03/10/2025		TLM2	
No. of classes required to complete UNIT-III:15				No. of classes taken:		

UNIT-IV : Project Organization sand Responsibilities

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.	Line-of-Business Organizations	1	04/10/2025		TLM2	
2.	Project Organizations	1	06/10/2025		TLM2	
3.	Evolution of Organizations	1	09/10/2025		TLM2	
4.	**Process Automation:** Automation Building blocks	2	10/10/2025 13/10/2025		TLM2	
5.	The Project Environment	1	16/10/2025		TLM2	
6.	**Project Control and Process instrumentation:** The seven core Metrics	1	17/10/2025		TLM2	
7.	Management indicators	1	18/10/2025		TLM2	
8.	Quality indicators	1	23/10/2025		TLM2	
9.	Life cycle expectations	2	24/10/2025 25/10/2025		TLM2	
10.	Pragmatic Software Metrics	1	27/10/2025		TLM2	
No. of classes required to complete UNIT-IV:12				No. of classes taken:		

UNIT-V: Tailoring 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
1.	Process discriminates	2	30/10/2025 31/10/2025		TLM2	
2.	**Future Software Project Management:** Modem Project Profiles.	2	1/11/2025 3/11/2025		TLM2	
3.	Next generation Software economics	2	6/11/2025 7/11/2025		TLM2	
4.	modern process	2	10/11/2025		TLM2	

	transitions		13/11/2025			
5.	**Case Study:** The command Center Processing and Display system-Replacement(CCPDS)	2	14/11/2025 15/11/2025		TLM2	
No. of classes required to complete UNIT-V:10				No. of classes taken:		
II MID EXAMINATIONS 17-11-2025 TO 22-11-2025						

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-DescriptiveExamination(UNIT-III(RemainingHalfoftheSyllabus),IV&V)	M2=15
II-Quiz Examination(UNIT-III(Remaining Half of the Syllabus),IV&V)	Q2=10
MidMarks=80%ofMax((M1+Q1+A1),(M2+Q2+A2))+20%ofMin((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	**Ethic**s: 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	Head of the Department
Dr.V.Suryanarayana	**Dr.V. Surya Narayana**	**Dr.Ch. Rajendra Babu**	**Dr. P. Bhagath**

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor: Ms. K. VINAYA SREE BAI
Course Name & Code : Information Security (20CS17)
L-T-P Structure : 3-0-0 **Credits:** 3
Program/Sem/Sec : B.Tech/ VII Sem /A **A.Y.:** 2025-26

PREREQUISITE: Computer Networks, Number theory and Programming Language.

COURSE EDUCATIONAL OBJECTIVES (CEOs): The Objective of the course is to course elevates the security aspects and provides the knowledge to understand the basic concept of Cryptography and Network Security principles. It antilight different types of cipher mechanisms and various symmetric and asymmetric algorithms. Also provides the knowledge on digital signatures, different threats, viruses, intruders, and firewalls.

CO1	Summarize encryption algorithms to achieve data confidentiality. **(Understand-L2)**
CO2	Apply Secure hash functions for attaining data integrity. **(Apply-L3)**
CO3	Illustrate the email security mechanisms to achieve authentication. **(Understand- L2)**
CO4	Demonstrate the techniques of web security. **(Understand-L2)**
CO5	Examine the threats and remedial measures for system security. **(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	2	2	2	2	-	-	-	-	-	-	2	2	-	-
CO2	3	2	1	2	2	-	-	-	-	-	-	2	2	2	-
CO3	3	2	2	1	2	-	-	-	-	-	-	2	2	3	-
CO4	3	2	3	2	2	-	-	-	-	-	-	2	2	3	-
CO5	3	-	-	2	3	-	-	-	-	-	-	2	-	-	-
1 - Low						**2 –**Medium						**3 –** High			

TEXTBOOKS:

T1 William Stallings, "Network Security Essentials (Applications and Standards)", Pearson Education, 1999.

T2 William Stallings, "Cryptography and Network Security", PHI/Pearson, fourth edition, 2000.

REFERENCE BOOKS:

R1 Whitman, "Principles of Information Security", Thomson, PHI, 2000

R2 Robert Bragg, Mark Rhodes, Network Security: The complete reference, TMH

R3 Buchmann, Introduction to Cryptography, Springer,2010.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Introduction

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.	Discussion of CO's & PO's	1	30-6-2025		**TLM 1**	
2.	Security Attacks	1	3-7-2025		**TLM 1**	
3.	Security Services	1	4-7-2025		**TLM 1**	
4.	Security Mechanisms	1	5-7-2025		**TLM 1**	
5.	A Model for Internetwork security	1	7-7-2025		**TLM 1**	
6.	Conventional Encryption Principles	1	10-7-2025		**TLM 1**	
7.	Conventional Encryption Algorithms	10	11-7-2025 To 31-7-2025		**TLM 1 & 2**	
8.	Cipher Block Modes of Operations	1	1-8-2025		**TLM 1**	
9.	Stream Ciphers and RC4	1	2-8-2025		**TLM 1**	
10.	Location of Encryption Devices,	1	2-8-2025		**TLM 1**	
11.	Key Distribution	1	4-8-2025		**TLM 1**	
12.	Revision / Assignment on unit-1	1	4-8-2025		**TLM 1**	
No. of classes required to complete UNIT-I: 21				**No. of classes taken:**		

UNIT-II: Public -Key Cryptography

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
13.	Approaches of Message Authentication	1	7-8-2025		**TLM 1**	
14.	MD5	1	7-8-2025		**TLM 1**	
15.	Secure Hash Functions (SHA-512) and HMAC Algorithm	2	8-8-2025 & 11-8-2025		**TLM 1 & 2**	
16.	Public Key Cryptography principles	1	14-8-2025		**TLM 1**	
17.	Public Key Cryptography Algorithms	3	14-8-2025		**TLM 1**	
18.	Digital Signatures	1	16-8-2025		**TLM 1**	
19.	Public Key Infrastructure	1	16-8-2025		**TLM 1**	
20.	Digital Certificates	1	18-8-2025		**TLM 1**	
21.	Certificate Authority	1	18-8-2025		**TLM 1**	
22.	Key Management , X.509 certificate	1	21-8-2025		**TLM 1 & 2**	
23.	Revision / Assignment on unit-2	1	21-8-2025		**TLM 1**	
No. of classes required to complete UNIT-II: 14				**No. of classes taken:**		

UNIT-III: Email Privacy

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
24.	Pretty Good Privacy	1	21-8-2025		**TLM 1**	
25.	PGP and S/MIME	1	22-8-2025		**TLM 1**	
26.	IP Security Overview & IP Security Architecture	2	23-8-2025		**TLM 1**	
27.	Authentication Header, Encapsulating Security Payload	2	15-9-2025 & 19-9-2025		**TLM 1**	
28.	Combining Security Associations	1	20-9-2025		**TLM 1**	
29.	Internet Key Exchange & Cryptographic Suites	1	22-9-2025		**TLM 1**	
30.	Revision / Assignment on unit-3	1	25-9-2025		**TLM 1**	
No. of classes required to complete UNIT-III: 09				**No. of classes taken:**		

UNIT-IV: Web Security

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.	Web Security Requirements	1	25-9-2025		**TLM 1**	
32.	Secure Socket Layer (SSL)	3	26-9-2025 TO 4-10-2025		**TLM 1**	
33.	Transport Layer Security (TLS)	1	6-10-2025		**TLM 1**	
34.	Secure Electronic Transaction (SET)	3	9-10-2025 To 13-10-2025		**TLM 1**	
35.	HTTPs	1	16-10-2025		**TLM 1**	
36.	Revision / Assignment on unit-4	1	17-10-2025		**TLM 1**	
No. of classes required to complete UNIT-IV: 10				**No. of classes taken:**		

UNIT-V: Intruders

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
37.	Intruder Behavior Patterns	1	18-10-2025		**TLM 1 & 2**	
38.	Intrusion Techniques	1	20-10-2025		**TLM 1 & 2**	
39.	Statistical Anomaly Detection, Rule-Based Intrusion Detection	2	23-10-2025 & 24-10-2025		**TLM 1**	
40.	Honeypot, Malicious Software: Backdoor, Logic Bomb, Trojan Horses, Mobile Code,	2	25-10-2025 To 27-10-2025		**TLM 1 & 2**	
41.	Viruses: The Nature of Viruses, Viruses Classification,	1	30-10-2025		**TLM 1 & 2**	
42.	Antivirus Approaches,	1	31-10-2025		**TLM 1**	
43.	Distributed Denial of Service Attacks	1	1-11-2025		**TLM 1**	
44.	DDOS Counter measures Firewall Design principles	2	3-11-2025 & 6-11-2025		**TLM 1 & 2**	
45.	Trust Management System, Introduction to digital forensics	3	7-11-2025 To 10-11-2025		**TLM 1**	
46.	Revision / Assignment on all units	1	13-11-2025		**TLM 1**	
No. of classes required to complete UNIT-V: 15				**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
47.	Zero Trust Architecture	1	14-11-2025		**TLM 1 & 2**	
48.	Block-chain for Cybersecurity	1	15-11-2025		**TLM 1 & 2**	

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),	**M=30**

(M2+Q2+A2))	
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 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**	**Ms. K. Vinaya Sree Bai**	**Dr. Ch. Rajendra Babu**	**Dr. P. Bhagath**
Signature				

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor : Dr. B. Pangedaiah
Course Name & Code : Utilization of Electrical Energy & 20EE83
L-T-P Structure : 3-0-0 Credits : 3
Program/Sem/Sec : B.Tech, AIDS-A., VII-Sem. A.Y : 2025-26

Pre-requisites : --NIL
Course Educational Objective: This course enables the student to familiarize with characteristics of various drives, comprehend the different issues related to heating, welding and illumination.

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

CO 1	Understand mechanism of electric heating and electric welding**(Understanding –L2)**
CO 2	Analyze performance of various lighting schemes**(Understanding –L2)**
CO 3	Analyze the performance of electric drive systems**(Understanding –L2)**
CO 4	Illustrate the different schemes of traction and its main components **(Understanding –L2)**
CO5	Understand various tariff methods and power factor improvement techniques **(Understanding –L2)**

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 a	PSO b	PSO c
CO1	2	2	2												
CO2	2	2	2								2				
CO3	2	2	2												
CO4	2	2	2								2				
CO5	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).

TEXT BOOKS:

T1: C.L.Wadhwa "Generation, Distribution and Utilization of Electrical energy, New Age International Publishers,3rd Edition,2015.

T2: N.V.Suryanarayana "Utilization of electric power including electric drives and electric traction, New age international publishers New Delhi,2nd edition 2014.

REFERENCE BOOKS:

R1: Art & Science of Utilization of electrical Energy, Partab, Dhanpat Rai & Co., 2004.
R2: Utilization of Electric Energy, E. Openshaw Taylor and V. V. L. Rao, Universities Press, 2009.

Part - B
COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I : ELECTRIC HEATING &WELDING

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, CEO's &CO's	1	30-06-2025		TLM1 &TLM2	
2.	Advantages &applications of Electric heating	1	02-07-2025		TLM1 &TLM2	
3.	Classification of electric heating	1	03-07-2025		TLM1 &TLM2	
4.	Resistance heating	1	05-07-2025		TLM1 &TLM2	
5.	Arc heating	1	07-07-2025		TLM1 &TLM2	
6.	Induction heating	1	09-07-2025		TLM1 &TLM2	
7.	dielectric heating	1	10-07-2025		TLM1 &TLM2	
8.	Causes of failures of heating elemdents	1	12-07-2025		TLM1 &TLM2	
9.	Materials for heating elements	1	14-07-2025		TLM1 &TLM2	
10.	Requirement of good heating material	1	16-07-2025		TLM1 &TLM2	
11.	ARC Furnace	1	17-07-2025		TLM1 &TLM2	
12.	Resistance welding	1	19-07-2025		TLM1 &TLM2	
13.	Spot welding,seam welding	1	21-07-2025		TLM1 &TLM2	
14.	,Arc welding	1	23-07-2025		TLM1 &TLM2	
15.	Comparision between AC and DC welding	1	24-07-2025		TLM1 &TLM2	
No. of classes required to complete UNIT-I : 15					No. of classes taken:	

UNIT-II : ILLUMINATION 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	Introduction	1	26-07-2025		TLM1/TLM2	
17	Nature of light	1	28-07-2025		TLM1/TLM2	
18	Laws of illumination	1	30-07-2025		TLM1/TLM2	
19	Laws of illumination	1	31-07-2025		TLM1/TLM2	

20	Lighting schemes, sources of light	1	02-08-2025		TLM1/TLM2	
21	Fluorescent Lamp, CFL and LED	1	04-08-2025		TLM1/TLM2	
22	Sodium Vapor Lamp	1	06-08-2025		TLM1/TLM2	
23	Neon lamps	1	07-08-2025		TLM1/TLM2	
24	mercury vapor lamps	1	09-08-2025		TLM1/TLM2	
25	Comparision between tungsten &fluroscent tubes	1	11-08-2025		TLM1/TLM2	
26	Requirements of good lighting	1	13-08-2025		TLM1/TLM2	
27	Street lighting	1	14-08-2025		TLM1/TLM2	
No. of classes required to complete UNIT-II : 12					No. of classes taken:	

UNIT-III: ELECTRIC DRIVES

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
28	Introduction	1	18-08-2025		TLM1 &TLM2	
29	Elements of drive, advantages	1	20-08-2025		TLM1 &TLM2	
30	Factors affecting selection of motor	1	21-08-2025		TLM1 &TLM2	
31	Types of loads	1	23-08-2025		TLM1 &TLM2	
32	Industrial applications	1	15-09-2025		TLM1 &TLM2	
33	Transient Characteristics of drives	1	17-09-2025		TLM1 &TLM2	
34	Steady state characteristics of drives	1	18-09-2025		TLM1 &TLM2	
35	Size of motor	1	20-09-2025		TLM1 &TLM2	
36	Load Equalization	1	22-09-2025		TLM1 &TLM2	
No. of classes required to complete UNIT-III : 09					No. of classes taken:	

UNIT-IV : ELECTRIC TRACTION

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
37	Introduction	1	24-09-2025		TLM1	
38	Requirement of an ideal traction system	1	25-09-2025		TLM1	
39	Supply system for electric traction	1	27-09-2025		TLM1	
40	Train movement	1	29-09-2025		TLM1	

41	mechanism of train movement	1	01-10-2025		TLM1	
42	Traction motors	1	04-10-2025		TLM1	
43	Modern trends in electric traction	1	06-10-2025		TLM1	
44	Automation in traction	1	08-10-2025		TLM1	
45	Speed time curves for different services	1	09-10-2025		TLM1	
46	Trapezoidal and quadrilateral speed time curves	1	11-10-2025		TLM1	
47	Problems on train movement	1	13-10-2025		TLM1	
48	Assignment/quiz	1	15-10-2025		TLM1	
No. of classes required to complete UNIT-IV : 13					No. of classes taken:	

UNIT-V: TARIFF AND POWER FACTOR IMPROVEMENT

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	**Teaching Learning Methods**	HOD Sign Weekly
49	Desirable characteristics	1	16-10-2025		TLM1 &TLM2	
50	Types of Tariff	1	18-10-2025		TLM1 &TLM2	
51	Flat rate	1	22-10-2025		TLM1 &TLM2	
52	Block-rate	1	23-10-2025		TLM1 &TLM2	
53	KVA maximum demand	1	25-10-2025		TLM1 &TLM2	
54	Time of Day tariff	1	27-10-2025		TLM1 &TLM2	
55	Disadvantages of low power factor	1	29-10-2025		TLM1 &TLM2	
56	Advantages of improved p.f	1	30-10-2025		TLM1 &TLM2	
57	Improvement devices	1	01-11-2025		TLM1 &TLM2	
58	Power factor improvement using static capacitor	1	03-11-2025		TLM1 &TLM2	
59	Most economical power factor	1	05-11-2025		TLM1 &TLM2	
60	Location of power factor improvement devices from consumer	1	06-11-2025		TLM1 &TLM2	
No. of classes required to complete UNIT-V : 13					No. of classes taken:	

Contents 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
61	Economic aspects in utilization of electrical energy	3	10-11-2025 12-11-2025 13-11-2025		TLM1/ TLM2	

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

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO1.	Pursue a successful career in the area of Information Technology or its allied fields..
PEO2.	Exhibit sound knowledge in the fundamentals of Information Technology and apply practical experience with programming techniques to solve real world problems.
PEO3.	Able to demonstrate self-learning, life-long learning and work in teams on multidisciplinary projects.
PEO4.	Able to understand the professional code of ethics and demonstrate ethical behaviour, effective communication, team work and leadership skills in their job.

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	**Ethic**s: 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 a	Organize, Analyze and Interpret the data to extract meaningful conclusions.
PSO b	Design, Implement and Evaluate a computer-based system to meet desired needs.
PSO c	Develop IT application services with the help of different current engineering tools.

Dr. B. Pangedaiah	Dr.AV.G.A.Martanda	Dr.M.S.Giridhar	Dr. P. Sobharani
Course Instructor	Course Coordinator	Module Coordinator	HOD

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DEPARTMENT OF CIVIL ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: K HARISH KUMAR
Course Name & Code **:** Disaster Management & 20CE82
L-T-P Structure **: 3-0-0** **Credits:** 3
Program/Sem/Sec : B.Tech, VII SEM, AIDS-A **A.Y.:** 2025-26

PREREQUISITE: NILL

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, student will be able to

CO1	Identify the basic terms, types of disasters and their impact (Understand – L2)
CO2	Illustrate the role of technology in handling disaster management situations(Understand-L2)
CO3	Identify the stake-holders concerned and design the different action plans for responding in case of disaster occurrence (Understand – L2)
CO4	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
1 - Low **2 –**Medium **3 -** High															

TEXTBOOKS:

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.

R3 H K Gupta (Ed.), "Disaster Management", Universities Press, 2003

R4 W.N. Carter, "Disaster Management: A Disaster Management Handbook", Asian Development Bank, Bangkok, 1991.

R5 Government of India website on Disaster Management: www.ndmindia.nic.in

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 CO's & PO's, Subject	1	30/06/2025		**TLM2**	
2.	Definitions – types of Disasters	3	02/07/2025 03/07/2025 05/07/2025		**TLM2**	
3.	Concept of disaster management - Disaster Management Cycle	1	07/07/2025		**TLM2**	
4.	Vulnerability -	1	09/07/2025		**TLM2**	
5.	Mitigation	1	10/07/2025		**TLM2**	
6.	Various types of disasters: Natural: Drought, cyclone	1	14/07/2025		**TLM2**	
7.	Earthquake and landslides.	1	16/07/2025		**TLM2**	
8.	Manmade and Industrial: Engineering and Technical failure	1	17/07/2025		**TLM2**	
9.	Nuclear and Chemical disasters	1	19/07/2025		**TLM2**	
10.	Accident-Related Disasters	1	21/07/2025		**TLM2**	
11.	High Power Committee on Disaster Management in India	1	23/07/2025		**TLM2**	
12.	Disaster Management Act 2005	1	24/07/2025		**TLM2**	
13.	Tutorial– 1/ Quick revision	1	28/07/2025		**TLM3**	
14.	Revision	1	30/07/2025		**TLM3**	
No. of classes required to complete UNIT-I:				**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
15.	Impact due to – Earthquake	1	31/07/2025		**TLM2**	
16.	Impact due to – Cyclone	1	02/08/2025		**TLM2**	
17.	Landslides, Fire hazards	1	04/08/2025		**TLM2**	
18.	Life & livestock, Habitation	1	06/08/2025		**TLM2**	
19.	Agriculture & livelihood loss- Health hazards	2	07/08/2025 11/08/2025		**TLM2**	
20.	Malnutrition problems- Contamination of water	1	13/08/2025		**TLM2**	
21.	Impact on children	1	14/08/2025		**TLM2**	
22.	Environmental loss	1	18/08/2025		**TLM2**	
23.	Tutorial– 2/ Quick revision	1	20/08/2025		**TLM3**	
24.	Revision	1	21/08/2025		**TLM3**	
No. of classes required to complete UNIT-II:				**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
25.	Role of remote sensing	1	25/08/2025		**TLM2**	
26.	information systems and decision	1	30/08/2025		**TLM2**	

	making tools					
27.	mitigation programme for earthquakes	1	01/09/2025		**TLM2**	
28.	Geospatial information in agriculture	2	03/09/2025 04/09/2025		**TLM2**	
29.	drought assessment	1	06/09/2025		**TLM2**	
30.	Disaster management for infra structures - electrical substations	1	15/09/2025		**TLM2**	
31.	Roads and bridges	1	17/09/2025		**TLM2**	
32.	Multimedia technology in disaster risk management and training	1	18/09/2025		**TLM2**	
33.	Transformable indigenous knowledge in disaster reduction.	3	20/09/2025 22/09/2025 24/09/2025		**TLM2**	
34.	Tutorial– 3/ Quick revision	1	25/09/2025		**TLM3**	
35.	Revision	1	27/09/2025		**TLM3**	
No. of classes required to complete UNIT-III:				**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
	MID – I Examination	**08.09.2025 – 13.09.2025**				
36.	Planning, early warning system	1	06/10/2025		**TLM2**	
37.	crisis intervention and management	1	08/10/2025		**TLM2**	
38.	Response and Rehabilitation after Disasters	1	09/10/2025		**TLM2**	
39.	temporary shelter – food and nutrition-safe drinking water	1	13/10/2025		**TLM2**	
40.	response to drought	1	15/10/2025		**TLM2**	
41.	rehabilitation after cyclones	1	16/10/2025		**TLM2**	
42.	response to river erosion	1	18/10/2025		**TLM2**	
43.	response after earthquake	1	20/10/2025		**TLM3**	
44.	response after Tsunami- Hunger and Disaster	1	22/10/2025		**TLM2**	
45.	Tutorial– 4/ Quick revision	1	23/10/2025		**TLM3**	
46.	Revision	1	25/10/2025		**TLM3**	
No. of classes required to complete UNIT-IV:				**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
47.	Essentials of disaster education –	1	27/10/2025		**TLM2**	
48.	school awareness and safety programs	1	29/10/2025		**TLM2**	
49.	Community based disaster recovery – voluntary agencies	1	30/10/2025		**TLM2**	
50.	Community participation at various stages of disaster management	1	01/11/2025		**TLM1**	
51.	Building community capacity for action	1	03/11/2025		**TLM1**	
52.	Corporate sector and disaster risk reduction	1	05/11/2025		**TLM1**	
53.	A community focused approach	1	06/11/2025		**TLM2**	
54.	Case studies on different disasters in the world	1	10/11/2025		**TLM2**	
55.	Impacts, Technology usage	1	12/11/2025		**TLM3**	

56.	Risk prevention, Education and community preparedness	1	13/11/2025		**TLM2**	
57.	Tutorial– 5/ Quick revision	1	15/11/2025		**TLM3**	
58.	Revision				**TLM3**	
	MID – II Examination	**17.11.2025 – 22.11.2025**				
No. of classes required to complete UNIT-V:				**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 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 analyse and design various systems using analytical and software tools related to civil engineering
PSO 2	Possesses ability to plan, examine and analyse 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

Title	**Course Instructor**	**Module Coordinator**	**Head of the Department**
Name of the Faculty	**K. Harish Kumar**	**Dr. C. RAJAMALLU**	**Dr. K.V.RAMANA**
Signature			

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
COURSE HANDOUT
PART - A

PROGRAM : B.Tech. - VII-Sem. – AIDS – A Section
ACADEMIC YEAR : 2025-26
COURSE NAME & CODE : Management Science for Engineers – 20HS02
L-T-P STRUCTURE : 4-0-0
COURSE CREDITS : 3
COURSE INSTRUCTOR : Dr. A.Dhanunjay Kumar, Sr. Assistant Professor
COURSE COORDINATOR : Dr. A.Nageswara Rao, Sr. Assistant Professor
PER-REQUISITE : NIL

COURSE EDUCATIONAL OBJECTIVES:

1. To make students understand management, its principles, contribution to management, organization, and its basic issues and types.
2. To make students understand the concept of plant location and its factors and plant layout and types, method of production and work study importance.
3. To understand the purpose and function of statistical quality control. And understand the material management techniques.

COURSE OUTCOMES:

After completion of the course student will be able to:
CO1: Understand management principles to practical situations based on the organization structures. **(L2)**
CO2: Design Effective plant Layouts by using work study methods. **(L2)**
CO3: Apply quality control techniques for improvement of quality and materials management. **(L3)**
CO4: Develop best practices of HRM in corporate Business to raise employee productivity. **(L2)**
CO5: Identify critical path and project completion time by using CPM and PERT techniques. **(L3)**

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	3	3	3	2	3				3			3		3	
CO2	3	3	1	2	1				3			3		3	
CO3	3	3	3	2	1				3			3		3	
CO4	3	2	3	2	3				1			3		3	
CO5	2	3	3	2	1				1			3		3	

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight (Low), **2 -** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

1. Dr. A.R.Aryasri, Management Science, TMH, 10th edition, 2012

References:

1. Koontz & weihrich – Essentials of management, TMH, 10th edition, 2015
2. Stoner, Freeman, Gilbert, Management, 6th edition Pearson education, New Delhi, 2004
3. O.P. Khana, Industrial engineering and Management L.S.Srinath, PERT & CPM

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section-C

UNIT-I: INTRODUCTION

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction To Management	1	30.06.2025		TLM1	CO1	T1	
2.	Definition, Nature, Importance of management	1	02.07.2025		TLM1	CO1	T1	
3.	Functions of Management	1	04.07.2025		TLM1	CO1	T1	
4.	Taylor's scientific management theory	1	05.07.2025		TLM1	CO1	T1	
5.	Fayal's principles of management	1	07.07.2025		TLM3	CO1	T1	
6.	Contribution of Elton mayo, Maslow	1	09.07.2025		TLM1	CO1	T1	
7.	Herzberg, Douglas MC Gregor principles of management	1	11.07.2025		TLM1	CO1	T1	
8.	Basic Concepts of Organization, Authority, Responsibility	1	12.07.2025		TLM1	CO1	T1	
9.	Delegation of Authority, Span of control	1	14.07.2025		TLM1	CO1	T1, R1	
10.	Departmentation and Decentralization, Organization structures	1	16.07.2025		TLM1	CO1	T1, R1	
11.	Line and Functional staff organization,	1	18.07.2025		TLM1	CO1	T1, R1	
12.	Committee and Matrix organization	1	19.07.2025		TLM1	CO1	T1	
No. of classes required to complete UNIT-I		**12**			No. of classes taken:			

UNIT-II: OPERATIONS MANAGEMENT

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
13.	Introduction	1	21.07.2025		TLM1	CO2	T1, R3	
14.	Plant location	1	23.07.2025		TLM1	CO2	T1, R3	
15.	Factors influencing location	1	25.07.2025		TLM1	CO2	T1, R3	
16.	Principles of plant layouts	1	26.07.2025		TLM1	CO2	T1, R3	
17.	Types of plant layouts	1	28.07.2025		TLM1	CO2	T1, R3	
18.	Methods of production	1	30.07.2025		TLM3	CO2	T1, R3	
19.	Work study	1	01.07.2025		TLM1	CO2	T1	

20.		1	02.08.2025		TLM1	CO2	T1	
21.	Basic procedure involved in method study	1	04.08.2025		TLM1	CO2	T1	
22.	Work measurement	1	06.08.2025		TLM3	CO2	T1	
No. of classes required to complete UNIT-II		**10**			No. of classes taken:			

UNIT-III: STATISTICAL QUALITY CONTROL & MATERIALS MANAGEMENT

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
23.	Introduction, Concept of Quality	1	08.08.2025		TLM1	CO3	T1	
24.	Quality Control functions	1	09.08.2025		TLM1	CO3	T1, R1	
25.	Meaning of SQC, Variables and attributes	1	11.08.2025		TLM1	CO3	T1, R1	
26.	X chart, R Chart	1	13.08.2025		TLM1	CO3	T1	
27.	C Chart, P Chart	1	16.08.2025		TLM3	CO3	T1, R1	
28.	Simple problems	1	18.08.2025		TLM1	CO3	T1, R1	
29.	Acceptance sampling	1	20.08.2025		TLM1	CO3	T1	
30.	Sampling plans	1	22.08.2025		TLM1	CO3	T1, R1	
31.	Deming's contribution to quality	1	23.08.2025		TLM1	CO3	T1, R1	
Technical Training Classes 25.08.2025 to 06.09.2025 & MID-I 08.09.2025 to 13.09.2025								
32.	Materials management Meaning and objectives	1	15.09.2025		TLM1	CO3	T1	
33.	Inventory control	1	17.09.2025		TLM3	CO3	T1	
34.	Need for inventory control	1	19.09.2025		TLM1	CO3	T2	
35.	Purchase procedure, Store records	1	20.09.2025		TLM1	CO3	T1	
36.	EOQ, ABC analysis	1	22.09.2025		TLM1	CO3	T1, R2	
37.	Stock levels	1	24.09.2025		TLM1	CO3	T1, R2	
No. of classes required to complete UNIT-III		**15**			No. of classes taken:			

UNIT-IV: HUMAN RESOURCE MANAGEMENT (HRM)

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
38.	Introduction	1	26.09.2025		TLM1	CO4	T1	
39.	Concepts of HRM	1	27.09.2025		TLM1	CO4	T1	
40.	Basic functions of HR manager	1	29.09.2025		TLM1	CO4	T1, R2	

41.	Man power planning	1	01.10.2025		TLM3	CO4	T1, R2	
42.	Recruitment	1	03.10.2025		TLM1	CO4	T1, R2	
43.	Selection,	1	04.10.2025		TLM1	CO4	T1, R1	
44.	Training & developmemt	1	06.10.2025		TLM1	CO4	T1, R1	
45.	Placement	1	08.10.2025		TLM1	CO4	T1	
46.	Wage and salary administration	1	10.10.2025		TLM3	CO4	T1, R1	
47.	Promotion, Transfers Separation	1	11.10.2025		TLM1	CO4	T1, R1	
48.	Performance appraisal	1	13.10.2025		TLM1	CO4	T1	
49.	Job evaluation and merit rating	1	15.10.2025		TLM3	CO4	T1	
No. of classes required to complete UNIT-IV		**12**			No. of classes taken:			

UNIT-V: PROJECT MANAGEMENT

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
50.	Introduction	1	17.10.2025		TLM1	CO5	T1,R2	
51.	Early techniques in project management	1	18.10.2025		TLM1	CO5	T1, R2	
52.	Network analysis	1	20.10.2025		TLM1	CO5	T1,R2	
53.	Programme Evaluation and Review Technique (PERT)	1	22.10.2025		TLM1	CO5	T1,R2	
54.	Problems	1	24.10.2025		TLM1	CO5	T1,R2	
55.	Critical path method (CPM)	1	25.10.2025		TLM1	CO5	T1, R2	
56.	Identifying critical path	1	27.10.2025		TLM1	CO5	T1,R2	
57.	Probability of completing project within given time	1	29.10.2025		TLM1	CO5	T1,R2	
58.	Project cost analysis	1	31.10.2025		TLM1	CO5	T1,R2	
59.	project crashing	1	01.11.2025		TLM1	CO5	T1, R2	
60.	Beyond Syllabus	1	03.11.2025					
No. of classes required to complete UNIT-V		**10**			No. of classes taken:			

Teaching Learning Methods					
TLM1	Chalk and Talk	**TLM4**	Problem Solving	**TLM7**	Seminars or GD
TLM2	PPT	**TLM5**	Programming	**TLM8**	Lab Demo
TLM3	Tutorial	**TLM6**	Assignment or Quiz	**TLM9**	Case Study

Part – C

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment 1	1	A1=5
Assignment 2	2	A2=5
I-Mid Examination	1,2,3	B1=15
Quiz – 1	1,2,3	Q1=10
Assignment 3	3	A3=5
Assignment 4	4	A4=5
Assignment 5	5	A5=5
II-Mid Examination	3,4,5	B2=15
Quiz – 2	3,4,5	Q2=10
Evaluation of Assignment: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=15
Evaluation of Quiz Marks: Q=75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	1,2,3,4,5	Q=10
Cumulative Internal Examination: A+B+Q	**1,2,3,4,5**	**CIE=30**
Semester End Examinations	**1,2,3,4,5**	**SEE=70**
Total Marks: CIE+SEE	**1,2,3,4,5**	**100**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO1: Pursue higher education, entrepreneurship and research to compete at global level.
PEO2: Design and develop products innovatively in the area of computer science and engineering and in Other allied fields.
PEO3: Function effectively as individuals and as members of a team in the conduct of interdisciplinary Projects and even at all the levels with ethics and necessary attitude.
PEO4: Serve ever-changing needs of the society with a pragmatic perception.

PROGRAMME OUTCOMES (POs):

Engineering Graduates will be able to:

PO1 - Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 - 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.

PO3 - 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.

PO4 - 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.

PO5 - 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.

PO6 - 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.

PO7 - 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.

PO8 - Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 - Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 - 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.

PO11 - Project Management and Finance: Demonstrate knowledge and understanding of the ring 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.

PO12 - 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.

PROGRAM SPECIFIC OUTCOMES (PSOS):

PSO1: The ability to apply Software Engineering practices and strategies in software project development using open source programming environment for the success of organization.

PSO2: The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.

PSO3: To inculcate an ability to analyze, design and implement database applications.

Dr.A. Dhanunjay Kumar	Dr. A.Nageswara Rao	Mr. J. Subba Reddy	Dr. M.B.S.Sreekara Reddy
Course Instructor	Course Coordinator	Module Coordinator	HoD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)
Accredited by NAAC with 'A' Grade, 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.S.Ramesh
Course Name & Code **:** Continuous Integration and Continuous Delivery using DevOps(20CSS4)
L-T-P Structure **:** 1-0-2 **Credits:** 2
Program/Sem/Sec : B.Tech/ VII-Sem/A-Sec **A.Y.:** 2025-26

PRE-REQUISITE: Basic knowledge of certain basic programming languages such as Java, and Python.

COURSE EDUCATIONAL OBJECTIVES (CEOs):

This course is designed to provide the core education necessary to build your DevOps vocabulary and to understand its principles and practices. With the help of key DevOps concepts and terminology, real-life case studies, examples and interactive group discussions and exercises, you will acquire a fundamental understanding of DevOps.

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

CO1	Understand the why, what, and how of DevOps adoption(**Understand – L2**)
CO2	Attain literacy on DevOps(**Apply L3**)
CO3	Align capabilities required in the team and create an automated CICD pipeline using a stack of tools(**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	1	-	2	-	2	-	-	-	-	-	2	2	3	-	-
CO2	1	-	2	-	2	-	-	-	-	-	2	2	-	-	-
CO3	1	-	2	-	2	-	-	-	-	-	2	2	-	-	-
CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'1-** Low,**2 –**Medium,**3-** High

REFERENCE BOOKS:

R 1	Learning Continuous Integration with Jenkins: A beginner's guide to implementing Continuous Integration and Continuous Delivery using Jenkins - Nikhil Pathania ,Packt publication[https://www.amazon.in/Learning-Continuous-Integration-JenkinsPathania/dp/1785284835]
R 2	Jenkins 2 – Up and Running: Evolve Your Deployment Pipeline for Next Generation Automation - Brent Laster, O'Reilly publication [https://www.amazon.in/Jenkins-2- Running-Brent-Laster/dp/1491979593]
R 3	https://infyspringboard.onwingspan.com/web/en/login?ref=%2Fapp%2Ftoc%2Flex_auth_01338269041100390473 5_shared%2Foverview[Software Engineering and Agile software development]
R 4	https://infyspringboard.onwingspan.com/web/en/login?ref=%2Fviewer%2Fhtml%2Flex_auth_0135015781949767681046 7[Development & Testing with Agile: Extreme Programming]
R 5	https://infyspringboard.onwingspan.com/web/en/login?ref=%2Fviewer%2Fhtml%2Flex_auth_01353898917192499226_shared[DevOps CICD]

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	01-07-2025		**DM5**	
2.	Module-2	3	08-07-2025		**DM5**	
3.	Module-3	6	15-07-2025 22-07-2025		**DM5**	
4.	Module-4	3	29-07-2025		**DM5**	
5.	Module-5	6	05-08-2025 12-08-2025		**DM5**	
6.	Module-6	3	19-08-2025		**DM5**	
7.	Module-7	3	16-09-2025		**DM5**	
8.	Module-8	6	23-09-2025 07-10-2025		**DM5**	
9.	Module-9	3	14-10-2025		**DM5**	
10.	Module-10	3	28-10-2025		**DM5**	
11.	Module-11	3	10-10-2025		**DM5**	
12.	Module-12	6	04-11-2025 11-11-2025		**DM5**	
13.	Internal exam	3	25-11-2025			

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

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.S.Ramesh	Mr. S Srinivasa Reddy	Dr. Ch. Rajendra Babu	Dr.P.Bhagath
Signature				