LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

Accredited by NAAC with 'A' Grade,
ISO 21001:2018, 50001:2018, 14001:2015 Certified Institution
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada.
L.B.REDDY NAGAR, MYLAVARAM. NTR District, AP, India. 521230.
hodads@lbrce.ac.in , ads@lbrce.ac.in , Phone: 08659-222933, Fax: 08659-222931
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE HANDOUT
PART-A

Name of Course Instructor: Mr. D. Srinivasa Rao
Course Name & Code : Distributed Operating Systems (20CS22)
L-T-P Structure : 3-0-0 **Credits:** 3
Program/Sem/Sec : B.Tech VII Sem AI & DS **A.Y.:** 2023-24

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 S Tanenbaum, " Distributed Operating Systems", 3 rd edition, Pearson publication, 2007 [**units – 1,2,3,4,5**]

REFERENCE BOOKS:

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	03.07.23		TLM1	
2.	Introduction	1	04.07.23		TLM1	
3.	Definition , goals	1	05.07.23		TLM1	
4.	hardware concepts	1	07.07.23		TLM1	
5.	software concepts	1	10.07.23		TLM1	
6.	design issues	1	11.07.23		TLM1	
7.	design issues	1	12.07.23		TLM1	
8.	Layered protocols	1	14.07.23		TLM1	
9.	ATM Networks	1	14.07.23		TLM1	
10.	Client Server model	1	17.07.23		TLM1	
11.	Client Server model	1	18.07.23		TLM1	
12.	Remote Procedure Call	2	19.07.23 21.07.23		TLM1	
13.	Group Communication	2	24.07.23 25.07.23		TLM1	
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	26.07.23 28.07.23		TLM1	
15.	Processor allocation	2	31.07.23 01.08.23		TLM1	
16.	Scheduling	1	02.08.23		TLM1	
17.	Fault Tolerance	2	04.08.23 04.08.23		TLM1	
18.	Real Time Distributed Systems.	3	07.08.23 08.08.23 09.08.23		TLM1	
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 Sign Weekly
19.	Clock synchronization Introduction	2	11.08.23 11.08.23		TLM1	
20.	Mutual Exclusion	1	14.08.23		TLM1	
21.	Mutual Exclusion	1	16.08.23		TLM1	
22.	Election Algorithms	1	18.08.23		TLM1	
23.	Election Algorithms	1	18.08.23		TLM1	
24.	Atomic Transactions	2	21.08.23 22.08.23		TLM1	
25.	Deadlocks.	1	23.08.23		TLM1	
26.	Deadlocks.	1	25.08.23		TLM1	
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	04.09.23		TLM1	
28.	Consistency Models	2	05.09.23 08.09.23		TLM1	
29.	Page based Distributed Shared Memory	2	08.09.23 11.09.23		TLM1	
30.	Shared Variable Distributed Shared Memory	2	12.09.23 13.09.23		TLM1	
31.	Object based Distributed Shared Memory	2	15.09.23 19.09.23		TLM1	
No. of classes required to complete UNIT-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 Sign Weekly
32.	Distributed File system design	2	20.09.23 22.09.23		TLM1	
33.	Distributed File system implementation	2	25.09.23 26.09.23		TLM1	
34.	Trends in Distributed File Systems	2	27.09.23 29.09.23		TLM1	
35.	Case Study: MACH	3	03.10.23 04.10.23 06.10.23		TLM1	
36.	Case Study: CHORUS	3	06.10.23 09.10.23 10.10.23		TLM1	

37.	Revision of Unit-1	3	11.10.23 13.10.23 13.10.23		TLM1	
38.	Revision of Unit-2	3	16.10.23 17.10.23 18.10.23		TLM1	
39.	Revision of Unit-3	3	20.10.23 20.10.23 24.10.23		TLM1	
40.	Revision of Unit-4 & 5	3	25.10.23 27.10.23 27.10.23		TLM1	

No. of classes required to complete UNIT-V: 12+12   **No. of classes taken:**

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

PART-C

EVALUATION PROCESS (R20 Regulation):

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

PART-D

PROGRAMME OUTCOMES (POs):

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

PO 4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to
PO 11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

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

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr.D.Srinivasa Rao	Mr.D.Srinivasa Rao	Mr.K.Sudhakar	Dr.O.Rama Devi
Signature				

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. P. SUNIL KUMAR
Course Name & Code : Software Project Management(20CS25)
L-T-P Structure : 3-0-0   **Credits:** 3
Program/Sem/Sec : B.Tech VII Sem   AI & DS   **A.Y.:** 2023-24

PREREQUISITE: 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.

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	1	-	-	-	-	-	-	3	1	-	-	3
CO4	3	2	1	1	-	-	-	-	-	-	2	-	-	-	3
CO5	2	2	1	1	-	-	-	-	-	-	3	1	-	-	3

1 - Low	**2 –**Medium	**3 -** High

TEXTBOOKS:

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 Cotterell, "Software Project Management ",Tata McGraw-HillEdition,2000.

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.	The waterfall model	1	05/07/2023		1 & 2	
2.	conventional software Management performance.	1	06/07/2023		1 & 2	
3.	Evolution of Software Economics: Software Economics	1	07/07/2023		1 & 2	
4.	pragmatic software cost estimation	1	12/07/2023		1 & 2	
5.	Improving Software Economics: Reducing Software product size	1	13/07/2023		1 & 2	
6.	improving software processes,	1	14/07/2023		1 & 2	
7.	The principles of conventional software Engineering	1	15/07/2023		1 & 2	
8.	principles of modern software management,	1	19/07/2023		1 & 2	
9.	transitioning to aniterative process.	1	20/07/2023		1 & 2	

No. of classes required to complete UNIT-I: 09 | **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
10.	Engineering and production stages,	1	21/07/2023		1 & 2	
11.	inception, Elaboration, construction,	1	22/07/2023		1 & 2	
12.	Transition phases.	1	26/07/2023		1 & 2	
13.	Artifacts of the process:	1	27/07/2023			
14.	The artifact sets,Management artifacts,	1	28/07/2023		1 & 2	
15.	Engineering artifacts	1	30/07/2023		1 & 2	
16.	programmatic artifacts	1	02/08/2023			
17.	A Management perspective	1	03/08/2023		1 & 2	
18.	Technical perspective	1	04/08/2023		1 & 2	

No. of classes required to complete UNIT-II: 09 | **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
19.	Software process workflows	1	05/08/2023		1 & 2	
20.	Iteration workflows.	1	09/08/2023		1 & 2	
21.	Checkpoints of the process:	1	10/08/2023		1 & 2	
22.	Major milestones,	1	11/08/2023		1 & 2	
23.	Minor Milestones	1	12/08/2023		1 & 2	
24.	Periodic status assessments.	1	13/08/2023		1 & 2	
25.	Iterative Process Planning	1	16/08/2023		1 & 2	
26.	Work breakdown structures, planning guideline	1	17/08/2023		1 & 2	
27.	cost and schedule estimating	1	18/08/2023		1 & 2	
28.	Iteration planning process,	1	07/09/2023		1 & 2	
29.	Pragmatic planning	1	08/09/2023		1 & 2	

No. of classes required to complete UNIT-III: 11 | **No. of classes taken:**

UNIT-IV: Project Organizations and 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
30.	Line-of-Business Organizations	1	09/09/2023		1 & 2	
31.	Project Organizations	1	13/09/2023		1 & 2	
32.	Evolution of Organizations	1	14/09/2023		1 & 2	
33.	Process Automation	1	15/09/2023		1 & 2	
34.	Automation Building blocks	1	16/09/2023		1 & 2	
35.	The Project Environment	1	20/09/2023		1 & 2	
36.	Project Control and Process instrumentation	1	21/09/2023		1 & 2	
37.	The seven core Metrics	1	22/09/2023		1 & 2	
38.	Management indicators	1	23/09/2023		1 & 2	
39.	Quality indicators	1	27/09/2023		1 & 2	
40.	life cycle expectations	1	29/09/2023		1 & 2	
41.	pragmatic Software Metrics.	1	30/09/2023		1 & 2	
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
42.	Process discriminant	1	04/10/2023		1 & 2	
43.	Future Software Project Management:	1	06/10/2023		1 & 2	
44.	Modem Project Profiles,	1	11/10/2023		1 & 2	
45.	Next generation Software economics,	1	18/10/2023		1 & 2	
46.	modern process transitions.	1	26/10/2023		1 & 2	
47.	Case Study: The command Center Processing and Display system-Replacement (CCPDS)	1	27/10/2023		1 & 2	
No. of classes required to complete UNIT-V: 06				**No. of classes taken:**		

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

PART-C

EVALUATION PROCESS (R20 Regulation):

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

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to
PO 11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

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

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Mr.P. SUNIL KUMAR**	**Mr.P.NAGABABU**	**Dr.S.JAYAPRADHA**	**Dr.O. RAMA DEVI**
Signature				

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. M.KISHORE KUMAR
Course Name & Code : Information Security(20CS17)
L-T-P Structure : 3-0-0   **Credits:** 3
Program/Sem/Sec : B.Tech VII Sem AI & DS   **A.Y.:** 2023-24

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 's 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)", PearsonEducation, 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

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.	Security Attacks	1	03/07/2023		TLM 1 & TLM 2	
2.	Security Services	1	05/07/2023		TLM 1 & TLM 2	
3.	Security Mechanisms	1	05/07/2023		TLM 1 & TLM 2	
4.	A Model for Internetwork security	1	06/07/2023		TLM 1 & TLM 2	
5.	Conventional Encryption Principles	1	07/07/2023		TLM 1 & TLM 2	
6.	Conventional Encryption Algorithms	7	10/07/2023 19/07/2023		TLM 1 & TLM 2	
7.	Cipher Block Modes of Operations	2	19/07/2023 20/07/2023		TLM 1 & TLM 2	
8.	Stream Ciphers and RC4	1	21/07/2023		TLM 1 & TLM 2	
9.	Location of Encryption Devices,	1	24/07/2023		TLM 1 & TLM 2	
10.	Key Distribution.	1	26/07/2023		TLM 1 & TLM 2	
No. of classes required to complete UNIT-I: 17				**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
11.	Approaches of Message Authentication	1	27/07/2023		TLM 1 & TLM 2	
12.	MD5	1	28/07/2023		TLM 1 & TLM 2	
13.	Secure Hash Functions (SHA-512) and HMAC Algorithm	2	31/07/2023 02/08/2023		TLM 1 & TLM 2	
14.	Public Key Cryptography principles	1	02/08/2023		TLM 1 & TLM 2	
15.	Public Key Cryptography Algorithms	3	03/08/2023 07/08/2023		TLM 1 & TLM 2	
16.	Digital Signatures	1	09/08/2023		TLM 1	

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
					& TLM 2	
17.	Public Key Infrastructure	1	09/08/2023		TLM 1 & TLM 2	
18.	Digital Certificates	1	10/08/2023		TLM 1 & TLM 2	
19.	Certificate Authority	1	11/08/2023		TLM 1 & TLM 2	
20.	Key Management , X.509 certificate	1	14/08/2023		TLM 1 & TLM 2	

No. of classes required to complete UNIT-II: 13   **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
21.	Pretty Good Privacy	1	17/08/2023		TLM 1 & TLM 2	
22.	PGP and S/MIME	1	18/08/2023		TLM 1 & TLM 2	
23.	IP Security Overview & IP Security Architecture	1	21/08/2023		TLM 1 & TLM 2	
24.	Authentication Header, Encapsulating Security Payload	2	23/08/2023		TLM 1 & TLM 2	
25.	Combining Security Associations	1	23/08/2023		TLM 1 & TLM 2	
26.	Internet Key Exchange & Cryptographic Suites	1	24/08/2023		TLM 1 & TLM 2	

No. of classes required to complete UNIT-III: 07   **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
27.	Web Security Requirements	1	25/08/2023		TLM 1 & TLM 2	
28.	Secure Socket Layer (SSL)	2	04/09/2023		TLM 1 & TLM 2	
29.	Transport Layer Security (TLS),	1	08/09/2023		TLM 1 & TLM 2	
30.	Secure Electronic Transaction (SET)	2	11/09/2023		TLM 1 & TLM 2	
31.	HTTPs.	1	13/09/2023		TLM 1 & TLM 2	

No. of classes required to complete UNIT-IV: 07   **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
32.	Intruder Behavior Patterns	1	14/09/2023		TLM 1 & TLM 2	
33.	Intrusion Techniques	1	15/09/2023		TLM 1 & TLM 2	
34.	Statistical Anomaly Detection, Rule-Based Intrusion Detection	1	18/09/2023		TLM 1 & TLM 2	
35.	Honeypot, Malicious Software: Backdoor, Logic Bomb, Trojan Horses, Mobile Code,	1	19/09/2023		TLM 1 & TLM 2	
36.	Viruses: The Nature of Viruses, Viruses Classification,	1	20/09/2023		TLM 1 & TLM 2	
37.	Antivirus Approaches,	1	21/09/2023		TLM 1 & TLM 2	
38.	Distributed Denial of Service Attacks	1	22/09/2023		TLM 1 & TLM 2	
39.	DDoS Counter measures Firewall Design principles	1	25/09/2023		TLM 1 & TLM 2	
40.	Trust Management System, Introduction to digital forensics	1	27/09/2023		TLM 1 & TLM 2	
No. of classes required to complete UNIT-V: 09				**No. of classes taken:**		

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

PART-C

EVALUATION PROCESS (R20 Regulation):

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

Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to
PO 11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

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

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	M.KISHORE KUMAR	M.KISHORE KUMAR	Dr. O. RAMA DEVI	Dr. O. RAMA DEVI
Signature				

DEPARTMENT OF CIVIL ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor   : J.Rangaiah

Course Name & Code   **: BASICS OF CIVIL ENGINEERING &20CE81**

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

Program/Sem/Sec   : B.Tech., AI&DS., VII-Sem., Sections- A A.Y   : 2023-24

PRE-REQUISITE: Nil

COURSE OBJECTIVES: This course deals with the importance of building planning, properties and applications of various building materials, soil classification and different types of foundations, important aspects of surveying, levelling operations and identify the terminology in roadway and railway networks, principles of water resources and environmental engineering.

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

CO 1	Understand the importance of building planning for construction. (Understand-L2)
CO 2	Identify the uses and characteristics of different building materials. (Remember-L1)
CO 3	Understand the different types of soils and foundations required for specific usage. (Understand-L2)
CO 4	Differentiate the basics of surveying and levelling operations for field application and categorize the important elements of roadway and railway networks (Understand-L2)
CO 5	Understand the importance of quantity and quality aspects of water in the society (Remember-L1)

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	-	-	-	2	-	2	1	3
CO2	-	-	-	2	-	2	1	-	-	-	2	-	2	1	3
CO3	-	1	1	2	-	2	1	-	-	-	2	-	2	1	3
CO4	-	1	1	2	-	2	1	-	-	-	2	-	2	1	3
CO5	-	1	1	2	2	2	1	-	-	-	2	-	2	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   1. M.S Palanichamy "Basic Civil Engineering", Tata McGraw Hill Publishing 2000.

REFERENCE BOOKS:

R1   1. S S Bhavikatti "Basic Civil Engineering", New age International Publications, 2010

R2   C P Kaushik& S S Bhavikatti "Basic Civil Engineering ", New age International Publications 2010.

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PART-B

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COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Building 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
1.	Introduction and course outcomes	1	03-07-2023		TLM2	
2.	Building Planning-Role of a Civil Engineer	1	04-07-2023		TLM2	
3.	Inter connection among specializations in Civil Engineering	1	05-07-2023		TLM2	
4.	Elements of a Building, Basic Requirements of a Building	1	06-07-2023		TLM2	
5.	Tutorial	1	10-07-2023		TLM2	
6.	Planning- Hot and dry climates	1	11-07-2023		TLM2	
7.	Assignment	1	12-07-2023		TLM2	
8.	Hot and wet climates, Cold climatic conditions	1	13-07-2023		TLM2	
9.	Grouping, Privacy, circulation	1	15-07-2023		TLM2	
10.	Sanitation and ventilation	1	17-07-2023		TLM2	
11.	Assignment	1	18-07-2023		TLM2	
12.	Orientation, Economy,	1	19-07-2023		TLM2	
13.	Role of Bye-laws	1	20-07-2023		TLM2	
14.	Tutorial	1	22-07-2023		TLM2	
15.	Quiz	1	24-07-2023		TLM2	
No. of classes required to complete UNIT-I:				No. of classes taken		

UNIT-II: Building Materials

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.	Building Materials -Classification	1	25-07-2023		TLM2	
2.	Rocks - Composition, Properties, Commercial forms, Uses	1	26-07-2023		TLM2	
3.	Bricks - Composition, Properties, Commercial forms, Uses	1	27-07-2023		TLM2	
4.	Timber, Ply wood - Classification, Composition, Properties,	1	31-07-2023		TLM2	

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
	Commercial forms					
5.	Assignment	1	01-08-2023		TLM2	
6.	Glass-Classification, Composition, Properties, Commercial forms,	1	02-08-2023		TLM2	
7.	Bitumen- Classification, Composition, Properties, Commercial forms,	1	01-08-2023		TLM2	
8.	Tutorial	1	02-08-2023		TLM2	
9.	Aluminium, Cement Classification, Composition, Properties, Commercial forms,	1	03-08-2023		TLM2	
10.	Steel, Concrete Classification, Composition, Properties, Commercial forms, Uses	1	05-08-2023		TLM2	
11.	Mortar Classification, Composition, Properties, Commercial forms, Uses	1	07-08-2023		TLM2	
12.	Assignment	1	08-08-2023		TLM2	
13.	Concept of eco-friendly materials, examples	1	09-08-2023		TLM2	
14.	Tutorial	1	10-08-2023		TLM2	
15.	Quiz	1	12-08-2023		TLM2	
No. of classes required to complete UNIT-II:				No. of classes taken:		

UNIT-III: SOIL CLASSIFICATION AND FOUNDATION

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.	Types of soils, soil classification	1	14-08-2023		TLM2	
2.	Engineering properties	1	16-08-2023		TLM2	
3.	Bearing Capacity of soil, purpose and methods of improving bearing capacity	1	17-08-2023		TLM2	
4.	Foundations – Requirements	1	19-08-2023		TLM2	
5.	Tutorial	1	21-08-2023		TLM2	
6.	Foundations - Loads, Types	1	22-08-2023		TLM2	
7.	Assignment	1	23-08-2023		TLM2	
8.	Foundations for special structures- water tanks-	1	24-08-2023		TLM2	
9.	Foundations for special structures- silos, chimneys	1	26-08-2023		TLM2	
10.	Foundations for special structures- transmission line towers- cooling towers,	1	04-09-2023		TLM2	
11.	Foundations for special structures- telecommunication towers	1	05-09-2023		TLM2	
12.	Tutorial	1	06-09-2023		TLM2	
13.	Quiz	1	12-09-2023		TLM2	
No. of classes required to complete UNIT-III:				No. of classes taken:		

UNIT-IV : SURVEYING, LEVELLING & HIGHWAY NETWORK

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.	Objective of surveying– Principles, applications and uses of - chain surveying	1	13-09-2023		TLM2	
2.	Principles, applications and uses of Theodolite, levelling	1	14-09-2023		TLM2	
3.	Principles, applications and uses of contour maps, Planimeter	1	16-09-2023		TLM2	
4.	Assignment	1	18-09-2023		TLM2	
5.	EDM Concept - Linear distance and area measurement	1	20-09-2023		TLM2	
6.	Total station- GIS-Concept and applications in civil engineering.	1	21-09-2023		TLM2	
7.	Tutorial	1	23-09-2023		TLM2	
8.	Indian highways- Basic terminology- Classification of roads - PIEV theory	1	25-09-2023		TLM2	
9.	Traffic signs - IRC Code provisions	1	26-09-2023			
10.	Indian railways –Permanent way and components of railway track	1	27-09-2023		TLM2	
11.	Gauges – rails -sleepers – ballast.	1	30-09-2023		TLM2	
12.	Tutorial	1	03-10-2023		TLM2	
13.	Quiz	1	04-10-2023		TLM2	
No. of classes required to complete UNIT-IV:				No. of classes taken:		

UNIT-V: WATER RESOURCES AND ENVIRONMENTAL 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
1.	Objectives of water supply system-Sources of water supply-Hydrologic cycle	1	05-10-2023		TLM2	
2.	Rainfall measurement - Purpose of dams, reservoirs, intakes, infiltration galleries	1	07-10-2023		TLM2	
3.	Water demands –Water quality parameters and their impacts - Principles of water treatment	1	09-10-2023		TLM2	
4.	Objectives and methods of water distribution systems – Sewage generation in a society –	1	10-10-2023		TLM2	
5.	Assignment	1	11-10-2023		TLM2	
6.	Tutorial	1	12-10-2023		TLM2	
7.	Wastewater characteristics and their impacts	1	16-10-2023		TLM2	
8.	Principles of sewage treatment	1	17-10-2023		TLM2	
9.	Disposal of sewage	1	18-10-2023		TLM2	
10.	Water quality standards for – drinking purpose,	1	19-10-2023		TLM2	
11.	Water quality standards for	1	25-10-2023		TLM2	

12.	Tutorial	1	26-10-2023		TLM2	
13.	Quiz	1	28-10-2023		TLM2	
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 EDUCATIONAL OBJECTIVES (PEOs):

PEO 1	To possess knowledge in both fundamental and application aspects of mathematical, scientific, engineering principles to analyze complex engineering problems for meeting the national and international requirements and demonstrating the need for sustainable development.
PEO 2	To adapt to the modern engineering tools for planning, analysis, design, implementation of analytical data and assess their relevant significance in societal and legal issues necessary in their professional career.
PEO 3	To exhibit professionalism, ethical attitude, communication, managerial skills, team work and social responsibility in their profession and adapt to current trends by engaging in continuous learning.

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineeringfundamentals, and an engineering specialization to the solution of complex engineering problem
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complexengineering 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 anddesign 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 researchmethods 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 modernengineering 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 assesssocietal, 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 solutionsin 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 ofthe engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader indiverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineeringcommunity 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 theengineering 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 inindependent 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 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.

Course Instructor	Course Coordinator	Module Coordinator	HOD
(J.Rangaiah)	(J.Rangaiah)	(B.Narasimha Rao)	(Dr.Ramakrishna)

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LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
Accredited by NAAC & NBA (CSE, IT, ECE, EEE & ME)
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor   :   Mrs.K.S.L.LAVANYA
Course Name & Code   : Utilization of Electrical Energy & 20EE83
L-T-P Structure   : 3-0-0   Credits : 3
Program/Sem/Sec   : B.Tech, AI& DS., VII-Sem.   A.Y   : 2023-24

Pre-requisites   : --NIL

Course Educational Objective: This course enables the student to acquire knowledge on methods of Electric Heating and welding,different lighting schemes.It also introduces the concepts of Electric Drives for Industrial and traction system and also different tariff methods.

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	03-07-2023		TLM1	
2.	Advantages &applications of Electric heating	1	04-07-2023		TLM1	
3.	Classification of electric heating	1	05-07-2023		TLM1	
4.	Resistance heating	1	07-07-2023		TLM1	
5.	Arc heating	1	10-07-2023		TLM1	
6.	Induction heating	1	11-07-2023		TLM1	
7.	dielectric heating	1	12-07-2023		TLM1	
8.	Causes of failures of heating elemdents	1	14-07-2023		TLM1	
9.	Materials for heating elements	1	15-07-2023		TLM2	
10.	Requirement of good heating material	1	17-07-2023		TLM2	
11.	ARC Furnace	1	18-07-2023		TYLM1	
12.	Resistance welding	1	19-07-2023		TLM2	
13.	Spot welding,seam welding	1	21-07-2023		TLM1 &TLM2	
14.	,Arc welding	1	22-07-2023		TLM1 &TLM2	
15.	Comparision between AC and DC welding	1	24-07-2023		TLM1	
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	25-07-2023		TLM1	
17	Nature of light	1	26-07-2023		TLM1	
18	Laws of illumination	1	28-07-2023		TLM1	
19	Laws of illumination	1	31.07.2023		TLM1	
20	Lighting schemes, sources of light	1	1.08.2023		TLM1	

21	Fluorescent Lamp, CFL and LED	1	2.08.2023		TTLM2	
22	Sodium Vapor Lamp	1	4.8.2023		TLM2	
23	Neon lamps	1	5.8.2023		TLM2	
24	mercury vapor lamps	1	7.8.2023		TLM2	
25	Comparision between tungsten &fluroscent tubes	1	8.8.2023		TLM2	
26	Requirements of good lighting	1	9.8.2023		TLM1/TLM2	
27	Street lighting	1	11.8.2023		TLM1/TLM2	
28	Assignment/Quiz	1	14.8.2023		TLM1	
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
29	Introduction	1	16.8.2023		TLM1 &TLM2	
30	Elements of drive, advantages	1	18.8.2023		TLM1 &TLM2	
31	Factors affecting selection of motor	1	19.8.2023		TLM1 &TLM2	
32	Types of loads	1	21.8.2023		TLM1 &TLM2	
33	Industrial applications	1	22.8.2023		TLM1 &TLM2	
34	Transient Characteristics of drives	1	23.8.2023		TLM1 &TLM2	
35	Steady state characteristics of drives	1	25.8.2023		TLM1 &TLM2	
36	Size of motor	1	26.8.2023		TLM1 &TLM2	
37	Load Equalization	1	4.9.2023		TLM1 &TLM2	
38	Assignment/Quiz	1	5.9.2023		TLM1 &TLM2	
No. of classes required to complete UNIT-III : 10				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
39	Introduction	1	8.9.2023		TLM1	
40	Requirement of an ideal traction system	1	9.9.2023		TLM1	

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
41	Supply system for electric traction	1	11.9.2023		TLM1	
42	Train movement	1	12.9.2023		TLM1	
43	mechanism of train movement		13.9.2023		TLM1	
44	Traction motors	1	15.9.2023		TLM1	
45	Modern trends in electric traction	2	16.9.2023		TLM1	
46	Automation in traction	1	19.9.2023		TLM1	
47	Speed time curves for different services	1	20.9.2023		TLM1	
48	Trapezoidal and quadrilateral speed time curves	1	22.9.2023		TLM1	
49	Problems on train movement	1	23.9.2023		TLM1	
50	Assignment/quiz	1	25.9.2023		TLM1	
51	Revision	1	26.9.2023		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
52	Desirable characteristics	1	27.9.2023		TLM1 &TLM2	
53	types	1	29.9.2023		TLM1 &TLM2	
54	Flat rate	1	30.9.2023		TLM1 &TLM2	
55	Block-rate	1	3.10.2023		TLM1 &TLM2	
56	KVA maximum demand	1	4.10.2023		TLM1 &TLM2	
57	Time of Day tariff	1	6.10.2023		TLM1 &TLM2	
58	Disadvantages of low power factor	1	7.10.2023		TLM1 &TLM2	
59	Advantages of improved p.f	1	9.10.2023		TLM1 &TLM2	
60	Improvement devices	1	10.10.2023		TLM1 &TLM2	
61	Power factor improvement using static capacitor	1	11.10.2023		TLM1 &TLM2	
62	Most economical power factor	1	13.10.2023		TLM1 &TLM2	
63	Location of power factor improvement devices from consumer	1	16.10.2023		TLM1 &TLM2	

64	Assignment/Quiz	1	17.10.2023		TLM3	
65	REVISION	1	18.10.2023 TO 1.11.2023		TLM1	
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	Learning Outcome COs	Text Book followed	HOD Sign Weekly
44	Economic aspects in utilization of electrical energy	2	3.11.2023 &4.11.2023		TLM1/ TLM2	CO5	T2,R1,R2	

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: To develop intelligent systems with a cutting-edge combination of machine learning, analytics, and visualisation technologies.
PEO2: To adapt the new technologies and develop the solutions to real world problems with ethical practices thereby contributing to the society.
PEO3: To continue education for fulfilling their long-term goals and achieve satisfaction as successful professionals in industry, academia and research.

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):

PSO1: To apply the fundamental engineering knowledge, computational principles, and methods for extracting knowledge from data to identify, formulate and solve real time problems.

PSO2: To develop multidisciplinary projects with advanced technologies and tools to address social and environmental issues.

PSO3: To provide a concrete foundation and enrich their abilities for Employment and Higher studies in Artificial Intelligence and Data science with ethical values.

K.S.L.LAVANYA	Dr.A.V.G.A.Marthanda	Dr.M.S.Giridhar	Dr.J.Siva vara prasad
Course Instructor	Course Coordinator	Module coordinatorCoordinator	HOD

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L.B.REDDY NAGAR, MYLAVARAM. NTR District, AP, India. 521230.
hodads@lbrce.ac.in , ads@lbrce.ac.in , Phone: 08659-222933, Fax: 08659-222931
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. N. SrinivasaRao
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., AI&DS, VII-Sem., Section – A. **A.Y.:** 2023-24

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_013 38269041100390473S_shared%2Foverview[Software Engineering and Agile software development]
R 4	https://infyspringboard.onwingspan.com/web/en/login?ref=%2Fviewer%2Fhtml%2Flex_auth _0135015781949767681046Z[Development & Testing with Agile: Extreme Programming]
R 5	https://infyspringboard.onwingspan.com/web/en/login?ref=%2Fviewer%2Fhtml%2Flex_auth _0135389891719249922G_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	06/07/2023		**DM5**	
2.	Module-2	3	13/07/2023		**DM5**	
3.	Module-3	6	20/07/2023 & 27/07/2023		**DM5**	
4.	Module-4	3	03/08/2023		**DM5**	
5.	Module-5	6	10/08/2023 & 17/08/2023		**DM5**	
6.	Module-6	3	24/08/2023		**DM5**	
7.	Module-7	3	07/09/2023		**DM5**	
8.	Module-8	3	14/09/2023		**DM5**	
9.	Module-9	3	21/09/2023		**DM5**	
10.	Module-10	3	05/10/2023		**DM5**	
11.	Module-11	3	12/10/2023		**DM5**	
12.	Module-12	3	19/10/2023		**DM5**	
13.	Internal exam	3	26/10/2023		**DM4**	

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 Regulations):

Evaluation Task	Marks
Day-to-day work	A1 = 05
Record	A2 = 05
Internal test	A3 = 05
CIE Total: (A1+A2+A3)	**M1 = 15**
Procedure/Algorithm	B1 = 5
Experimentation/Program execution	B2 = 10
Observations/Calculations/Validation	B3 = 10
Result/Inference	B4 = 5
Viva voce	B5 = 5
SEE Total: (B1+B2+B3+B4+B5)	**M2 = 35**
Total Marks = CIE + SEE = (M1+M2)	**50**

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 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 teamwork**: 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

	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.
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	To apply the fundamental engineering knowledge, computational principles, and methods for extracting knowledge from data to identify, formulate and solve real time problems.
PSO2	To develop multidisciplinary projects with advanced technologies and tools to address social and environmental issues.
PSO3	To provide a concrete foundation and enrich their abilities for Employment and Higher studies in Artificial Intelligence and Data science with ethical values.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr. N. Srinivsa Rao	Mr.N.Srinivasa Rao	Dr. K. Naga Prasanthi	Dr.O. Rama Devi
Signature				

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L.B. REDDY NAGAR, MYLAVARAM, KRISHNA DIST., A.P.-521 230.
Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Ms. P. Mounika, Assistant Professor

Course Name & Code	: MANAGEMENT SCIENCE FOR ENGINEERS & 20HS02	**Regulation**: R20
L-T-P Structure	: 3-0-0	**Credits:** 03
Program/Sem/Sec	: B.Tech VII Sem (AI & DS)	**A.Y.:** 2023-2024

PREREQUISITE: Professional ethics and human values

COURSE EDUCATIONAL OBJECTIVES (CEOs):
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 thematerial management techniques.

COURSE OUTCOMES (COs): At the end 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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	2	2	-	-	3	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
CO3	-	3	-	-	-	-	-	-	-	-	-	3	-	-	-
CO4	-	-	-	-	-	-	-	3	2	-	-	3	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	2	3	-	-	-
1 - Low					**2 –Medium**					**3 - High**					

TEXTBOOKS:
 T1 Dr. A.R.Aryasri, Management Science, TMH, 10th edition, 2012

REFERENCE BOOKS:
 R1 Koontz & weihrich – Essentials of management, TMH, 10th edition, 2015
 R2 Stoner, Freeman, Gilbert, Management, 6th edition Pearson education, New Delhi, 2C
 R3 O.P. Khana, Industrial engineering and Management L.S.Srinath, PERT & CPM

PART-B

COURSE DELIVERY PLAN (LESSON PLAN): Section - A

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.	Management-Nature and Importance	1	03-07-2023		**TLM1/TLM2**	
2.	Management functions	1	05-07-2023		**TLM1/TLM2**	
3.	Contributions of Taylor, Fayol	1	05-07-2023		**TLM1/TLM2**	
4.	Contribution of Elton Mayo	1	06-07-2023		**TLM1/TLM2**	
5.	Maslow's & Herzberg's Two Factor Theory	1	07-07-2023		**TLM1/TLM2**	
6.	Douglas McGregor	1	10-07-2023		**TLM1/TLM2**	
7.	Basic Concepts of Organization-Authority	1	12-07-2023		**TLM1/TLM2**	
8.	Responsibility Delegation of Authority	1	12-07-2023		**TLM1/TLM2**	
9.	Departmentation and Decentralization	1	13-07-2023		**TLM1/TLM2**	
10.	Span of Control	1	14-07-2023		**TLM1/TLM2**	
11.	Line, Line and Staff organizations	1	15-07-2023		**TLM1/TLM2**	
12.	Functional, Committee	1	17-07-2023		**TLM1/TLM2**	
13.	Matrix Organizations	1	19-07-2023		**TLM1/TLM2**	
14.	Quiz-I	1	20-07-2023		**TLM1/TLM2**	
No. of classes required to complete UNIT-I: 14				**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	HOD Sign Weekly
15.	Plant location	1	21-07-2023		**TLM1/TLM2**	
16.	Factors influencing location	1	22-07-2023		**TLM1/TLM2**	
17.	Principles	1	24-07-2023		**TLM1/TLM2**	
18.	Types of plant layouts	1	26-07-2023		**TLM1/TLM2**	
19.	Methods of production (job, batch production)	1	27-07-2023		**TLM1/TLM2**	
20.	Mass production	1	28-07-2023		**TLM1/TLM2**	
21.	Work study - Basic procedure involved in method study and Work measurement	1	31-07-2023		**TLM1/TLM2**	
22.	Work study - Basic procedure involved in method study and Work measurement	1	02-08-2023		**TLM1/TLM2**	
23.	Quiz-II	1	02-08-2023		**TLM1/TLM2**	
No. of classes required to complete UNIT-II: 09				**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	HOD Sign Weekly
24.	Statistical quality control Introduction	1	03-08-2023		**TLM1/TLM2**	
25.	Concept of Quality & Quality Control	1	04-08-2023		**TLM1/TLM2**	
26.	Functions, Meaning of SQC	1	07-08-2023		**TLM1/TLM2**	
27.	Variables and attributes	1	09-08-2023		**TLM1/TLM2**	
28.	X chart	1	09-08-2023		**TLM1/TLM2**	
29.	R Chart	1	10-08-2023		**TLM1/TLM2**	
30.	C Chart	1	11-08-2023		**TLM1/TLM2**	
31.	P Chart	1	14-08-2023		**TLM1/TLM2**	
32.	Simple Problems	1	16-08-2023		**TLM1/TLM2**	
33.	Acceptance sampling	1	16-08-2023		**TLM1/TLM2**	
34.	Sampling plans	1	17-08-2023		**TLM1/TLM2**	
35.	Deming's contribution to quality	1	18-08-2023		**TLM1/TLM2**	
36.	Materials management	1	19-08-2023		**TLM1/TLM2**	
37.	Meaning and objectives	1	21-08-2023		**TLM1/TLM2**	
38.	Inventory control	1	23-08-2023		**TLM1/TLM2**	
39.	Need for inventory control	1	24-08-2023		**TLM1/TLM2**	
40.	Purchase procedure	1	25-08-2023		**TLM1/TLM2**	
41.	Store records	1	04-09-2023		**TLM1/TLM2**	
42.	EOQ, ABC analysis	1	07-09-2023		**TLM1/TLM2**	
43.	Stock levels	1	08-09-2023		**TLM1/TLM2**	
44.	Quiz-3	1	11-09-2023		**TLM1/TLM2**	
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	HOD Sign Weekly
45.	Concepts of HRM	1	13-09-2023		**TLM1/TLM2**	
46.	Basic functions of HR manager	1	13-09-2023		**TLM1/TLM2**	
47.	Man power planning	1	14-09-2023		**TLM1/TLM2**	
48.	Recruitment	1	15-09-2023		**TLM1/TLM2**	
49.	Selection	1	16-09-2023		**TLM1/TLM2**	

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.	Training and development	1	20-09-2023		**TLM1/TLM2**	
51.	Placement	1	21-09-2023		**TLM1/TLM2**	
52.	Wage and salary administration	1	22-09-2023		**TLM1/TLM2**	
53.	Wage and salary administration	1	23-09-2023		**TLM1/TLM2**	
54.	Promotion	1	25-09-2023		**TLM1/TLM2**	
55.	Transfers Separation	1	27-09-2023		**TLM1/TLM2**	
56.	Performance appraisal	1	29-09-2023		**TLM1/TLM2**	
57.	Job evaluation and merit rating	1	04-10-2023		**TLM1/TLM2**	
58.	Quiz-4	1	04-10-2023		**TLM1/TLM2**	

No. of classes required to complete UNIT-IV: 14 | **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	HOD Sign Weekly
59.	Introduction	1	05-10-2023		**TLM1/TLM2**	
60.	Early techniques in project management	1	06-10-2023		**TLM1/TLM2**	
61.	Network analysis	1	07-10-2023		**TLM1/TLM2**	
62.	Programme Evaluation and Review Technique (PERT)	1	09-10-2023		**TLM1/TLM2**	
63.	Problems	1	11-10-2023		**TLM1/TLM2**	
64.	Critical path method (CPM)	1	12-10-2023		**TLM1/TLM2**	
65.	Identifying critical path	1	13-10-2023		**TLM1/TLM2**	
66.	Problems	1	16-10-2023		**TLM1/TLM2**	
67.	Problems	1	18-10-2023		**TLM1/TLM2**	
68.	Probability of completing project within given time	1	18-10-2023		**TLM1/TLM2**	
69.	Project cost analysis	1	19-10-2023		**TLM1/TLM2**	
70.	Problems	1	20-10-2023		**TLM1/TLM2**	
71	project crashing	1	25-10-2023		**TLM1/TLM2**	
72	Simple problems	1	26-10-2023		**TLM1/TLM2**	
73	Simple problems	1	27-10-2023		**TLM1/TLM2**	

No. of classes required to complete UNIT-V: 14 | **No. of classes taken:**

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

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15

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

PART-D

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO 1	To Attain a solid foundation in Electronics & Communication Engineering fundamentals with an attitude to pursue continuing education.
PEO 2	To Function professionally in the rapidly changing world with advances in technology
PEO 3	To Contribute to the needs of the society in solving technical problems using Electronics & Communication Engineering principles, tools and practices.
PEO 4	To Exercise leadership qualities, at levels appropriate to their experience, which addresses issues in a responsive, ethical, and innovative manner.

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 analyse 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	To apply the principles of thermal sciences to design and develop various thermal systems.
PSO 2	To apply the principles of manufacturing technology, scientific management towards improvement of quality and optimization of engineering systems in the design, analysis and manufacturability of products.
PSO 3	To apply the basic principles of mechanical engineering design or evaluation of performance of various systems relating to transmission of motion and power, conservation of energy and other process equipment.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Ms. P. Mounika	Mr. A.Nageswara Rao	Dr.M.B.S.Sreekara Reddy	Dr.S.Pichi Reddy
Signature				