



## LESSON PLAN

<b>Department</b> :	CSE	<b>Program</b> :	B.Tech
<b>Course</b> :	AT LAB (17CS63)	<b>SEM</b> :	VI
<b>Section</b> :	A/Sec	<b>A.Y.</b> :	2019-20

**1. Prerequisite:** Knowledge in JAVA Programming

### 2. Course Educational Objective (CEO):

This course facilitates students develop competence and confidence in android programming and understand the entire Android Apps Development Cycle, as well as it would also enable the students to independently create new Android Applications.

**3. Course Outcomes (COs):** At the end of the course, the student will be able to:

**CO1:** Design basic Android Applications.

**CO2:** Develop applications that interact with SQLite Database.

**CO3:** Design applications that make use of Advanced Android Concepts.

**CO4:** Improve individual / team work skills, communication & report writing skills with ethical values.

### 4. Course Articulation Matrix:

Course Code	CO	PO												PSO		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
17CS63	CO1	1	2	3	1	3	-	-	-	-	-	-	2	3	-	-
	CO2	2	2	3	1	3	-	-	-	-	-	-	2	3	3	-
	CO3	1	2	3	1	3	-	-	-	-	-	-	2	3	-	-
	CO4	-	-	-	-	-	-	-	2	2	2	-	2	-	-	-
<b>1 = Slight (Low)</b>		<b>2 = Moderate (Medium)</b>						<b>3 = Substantial (High)</b>								

## 5. Schedule:

S. No.	Programs to be Covered	No. of Classes		Date	DM
		As per the Schedule	Taken		
1.	Introduction to Android Platform	2			5
2.	Cycle - 1, 2	2			5
3.	Cycle - 3, 4	2			5
4.	Cycle - 5, 6	2			5
5.	Cycle - 7, 8	2			5
6.	Cycle - 9, 10	2			5
7.	Cycle - 11, 12	2			5
8.	Cycle - 13, 14	2			5
9.	Cycle - 15, 16	2			5
10.	Cycle - 17, 18	2			5
11.	Cycle - 19, 20	2			5
12.	Cycle - 21	2			5
13.	Cycle - 22	2			5
14.	Cycle - 23	2			5
15.	Cycle - 24, 25	2			5
16.	Internal Exam	2			5

### Delivery Methods (DM):

1. Chalk & Talk
2. ICT Tools
3. Tutorial
4. Assignment/Test/Quiz
5. Laboratory/Field Visit
6. Web based Learning

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr. P. Vamsi Naidu	Mr. Sk. Johny Basha	Dr. Ch. Venkata Narayana	Dr. Ch. Venkata Narayana
Signature				

## **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):**

**PEO I:** To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

**PEO II:** To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

**PEO III:** Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

**PEO IV:** To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

## **PROGRAMME OUTCOMES (POs):**

**Engineering Graduates will be able to:**

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

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
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.
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.
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):**

### **1. Programming Paradigms:**

To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.

### **2. Data Engineering:**

To inculcate an ability to Analyze, Design and implement data driven applications into the students.

### **3. Software Engineering:**

Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

<b>Title</b>	<b>Course Instructor</b>	<b>Course Coordinator</b>	<b>Module Coordinator</b>	<b>Head of the Department</b>
<b>Name of the Faculty</b>	<b>Mr. P. Vamsi Naidu</b>	<b>Mr. Sk. Johny Basha</b>	<b>Dr. Ch. Venkata Narayana</b>	<b>Dr. Ch. Venkata Narayana</b>
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<b>Course</b> :	<b>AT LAB (17CS63)</b>	<b>SEM</b> :	<b>VI</b>
<b>Section</b> :	<b>B/Sec</b>	<b>A.Y.</b> :	<b>2019-20</b>

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	CO4	-	-	-	-	-	-	-	2	2	2	-	2	-	-	-
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4.	Cycle - 5, 6	2			5
5.	Cycle - 7, 8	2			5
6.	Cycle - 9, 10	2			5
7.	Cycle - 11, 12	2			5
8.	Cycle - 13, 14	2			5
9.	Cycle - 15, 16	2			5
10.	Cycle - 17, 18	2			5
11.	Cycle - 19, 20	2			5
12.	Cycle - 21	2			5
13.	Cycle - 22	2			5
14.	Cycle - 23	2			5
15.	Cycle - 24, 25	2			5
16.	Internal Exam	2			5

### Delivery Methods (DM):

1. Chalk & Talk
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<b>Name of the Faculty</b>	<b>Mr. Sk. Johny Basha</b>	<b>Mr. Sk. Johny Basha</b>	<b>Dr. Ch. Venkata Narayana</b>	<b>Dr. Ch. Venkata Narayana</b>
<b>Signature</b>				



	<b>LESSON PLAN</b>	<b>Date:</b> 26/11/2019
	<b>Sub. Name : DMDW LAB</b> <b>Branch: CSE: Semester &amp; Section: VI &amp; A</b>	<b>To</b> 04/04/2020

### DMDW LAB – 17CI67

<b>Lecture</b>	<b>: 2 Periods/week</b>	<b>Internal Marks</b>	<b>: 40</b>
		<b>External Marks</b>	<b>: 60</b>
<b>Credits</b>	<b>: 2</b>	<b>External Examinations</b>	<b>: 3 Hrs</b>

#### Course Educational Objectives:

The main objective of the course is, student will be familiar with different data mining algorithms and able to learn the supervised and unsupervised techniques with various data mining tools.

#### Course Outcomes:

**At the end of the course, the student will be able to:**


**CO1:** Understand the need of data mining and the details of different algorithms made available by popular commercial data mining software.

**CO2:** Solve real data mining problems by using association mining techniques with modern tools / programming.

**CO3:** Solve real data mining problems by using Supervised/Unsupervised mining techniques with modern tools / programming.

**CO4:** Improve individual / team work skills, communication & report writing skills with ethical values.

**Pre requisite:** DBMS, probability and statistics

	<b>Lakireddy Bali Reddy College of Engineering</b>	
	<b>Department of CSE</b>	
	<b>Outcome based lesson plan</b>	
	Academic year: 2019-2020	Course: DMDW LAB
	Programme: B.Tech	Exp No: 1 to 14
	Year & Sem: III & II (VI Sem)	Section: A

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of Cycles	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs

8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

### Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
1	Introduction to Weka tool	29/11/19		1	1,2	2,4,6
2	Cycle-1	06/12/19		1	1,2	
3	Cycle-2	13/12/19		1	1,2	
4	Cycle-3	20/12/19		1	1,2	
5	Cycle-4	27/12/19		1	1,2	
6	Cycle-5	03/01/20		1	1,2	
7	Cycle-6	10/01/20		1	1,2	
8	Cycle-7	31/01/20		1	1,2	
09	Cycle-8	07/02/20		1	1,2	
10	Cycle-9	14/02/20		1	1,2,7	
11	Cycle-10	21/02/20		1	1,2,7	
12	Cycle-11	28/02/20		1	1,2,7	
13	Cycle-12	13/03/20		1	1,2,7	
14	Cycle-13	20/03/20		1	1,2,7	
15	Cycle-14	27/03/20		1	1,2,7	
16	Internal Exam	03/04/20				

### Assessment Summary:

Assessment Task	Weight age (Marks)	Course Outcomes			
		CO1	CO2	CO3	CO4
Day-Day Performance	20				
Viva	05				
Internal Test	10				
Attendance	5				
End Exam	60				
Total	100				

### Mapping Course Outcomes with Programme Outcomes:


Course Code	Programme Outcomes															
	COs	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
17CI66	CO1	2	3	1	-	3	-	-	-	-	-	-	2	2	3	-
	CO2	2	2	3	2	3	2	-	-	-	-	-	2	2	3	-
	CO3	2	2	3	2	3	2	-	-	-	-	-	2	2	3	-
	CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

1 = Slight (Low)

2 = Moderate (Medium)

3-Substantial (High)

	Instructor	Course Coordinator	Module Coordinator	HOD
Name	N V NAIK	Dr. D. Veeraiah	Dr. D. Veeraiah	Dr. D. Veeraiah
Sign with Date				

	<b>LESSON PLAN</b>	<b>Date:</b> 26/11/2019
	<b>Sub. Name : DMDW LAB – 17CI67</b> <b>Branch: CSE: Semester &amp; Section: VI &amp; B</b>	<b>To</b> <b>04/04/2020</b>

**DMDW LAB – 17CI67**

<b>Lecture</b>	: 2 Periods/week	<b>Internal Marks</b>	: 40
		<b>External Marks</b>	: 60
<b>Credits</b>	: 2	<b>External Examinations</b>	: 3 Hrs

**Course Educational Objectives:**

The main objective of the course is, student will be familiar with different data mining algorithms and able to learn the supervised and unsupervised techniques with various data mining tools.

**Course Outcomes:**

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	<b>Lakireddy Bali Reddy College of Engineering</b>	
	<b>Department of CSE</b>	
	<b>Outcome based lesson plan</b>	
	Academic year: 2019-2020	Course: DMDW LAB
	Programme: B.Tech	Exp No: 1 to 14
	Year & Sem: III & II (VI Sem)	Section: A

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
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3	Solving problems	Group discussions	Tutorials
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7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	

9	Self study	Design / Exercises	
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### Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
1	Introduction to Weka tool	26/11/19		1	1,2	2,4,6
2	Cycle-1	03/12/19		1	1,2	
3	Cycle-2	10/12/19		1	1,2	
4	Cycle-3	17/12/19		1	1,2	
5	Cycle-4	27/12/19		1	1,2	
6	Cycle-5	24/01/20		1	1,2	
7	Cycle-6	31/01/20		1	1,2	
8	Cycle-7	07/01/20		1	1,2	
09	Cycle-8	28/01/20		1	1,2	
10	Cycle-9	04/02/20		1	1,2,7	
11	Cycle-10	11/02/20		1	1,2,7	
12	Cycle-11	25/02/20		1	1,2,7	
13	Cycle-12	03/03/20		1	1,2,7	
14	Cycle-13	17/03/20		1	1,2,7	
15	Cycle-14	24/03/20		1	1,2,7	
16	Internal Exam	31/03/20				

### Assessment Summary:

Assessment Task	Weight age (Marks)	Course Outcomes			
		CO1	CO2	CO3	CO4
Day-Day Performance	20				
Viva	05				
Internal Test	10				
Attendance	5				
End Exam	60				
Total	100				

### Mapping Course Outcomes with Programme Outcomes:

Course Code	Programme Outcomes																
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	CO3	2	2	3	2	3	2	-	-	-	-	-	2	2	3	-	
	CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	

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2 = Moderate (Medium)

3-Substantial (High)

	Instructor	Course Coordinator	Module Coordinator	HOD
Name	Dr. D JAGAN MOHAN REDDY	Dr. D. Veeraiah	Dr. D. Veeraiah	Dr. D. Veeraiah
Sign with Date				



# 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 COMPUTER SCIENCE AND ENGINEERING

## COURSE HANDOUT

### PART-A

Name of Course Instructor : P VAMSI NAIDU  
Course Name & Code : ANDROID TECHNOLOGIES & 17CS05  
L-T-P Structure : 2-2-0 Credits: 3  
Program/Sem/Sec : B.Tech.–CSE/VI Sem/Sec-A A.Y. : 2019-20

**PRE-REQUISITE: Knowledge in Java Programming**

**COURSE EDUCATIONAL OBJECTIVES (CEOs):** This course is designed to learn the basics of Android platform and get to understand the application lifecycle and able implement applications using latest android concepts.

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

CO1	Understand the fundamentals of Android Platform
CO2	Design UI using various UI Components of Android Platform
CO3	Develop android apps using Intents & Broadcast receivers of Android Platform
CO4	Analyze different data repositories in Android Platform
CO5	Explore various advanced concepts in Android Platform

**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	-	-
CO2	2	1	3	-	3	-	-	-	-	-	-	1	3	-	-
CO3	2	2	3	-	3	-	-	-	-	-	-	1	3	-	-
CO4	2	1	2	-	3	-	-	-	-	-	-	1	2	-	3
CO5	2	1	2	-	3	1	-	-	-	-	-	1	3	-	3

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### TEXT BOOKS:

- T1** Reto Meier, —Professional Android 4 Application Developmentll, Wiley India (Wrox), 2012.  
**T2** James C Sheusi, —Android Application Development for Java Programmersll, Cengage Learning, 2013.

### REFERENCE BOOKS:

- R1** Wei-Meng Lee, —Beginning Android 4 Application Developmentll, Wiley India (Wrox), 2013  
**R2** <https://developer.android.com/index.html>  
**R3** <https://www.tutorialspoint.com/android/index.htm>

## PART-B

### COURSE DELIVERY PLAN (LESSON PLAN):

#### UNIT-I: INTRODUCTION TO ANDROID PLATFORM

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.	Overview (Why Android?, Features, Applications, History)	1	25/11/2019			
2.	Environment Setup	1	27/11/2019			
3.	Architecture	1	28/11/2019			
4.	Emulator, Dalvik Virtual Machine	1	30/11/2019			
5.	Application Components	1	02/12/2019			
6.	Resources, Manifest File	1	04/12/2019			
7.	Android Application Life Cycle – Activities	1	05/12/2019			
8.	Activity Life Cycle	1	07/12/2019			
9.	States and its Monitoring	1	09/12/2019			
10.	Services – Services States	1	11/12/2019			
11.	Life Cycle of States	1	12/12/2019			
12.	<b>Tutorial – 1</b>	1	14/12/2019			
<b>No. of classes required to complete UNIT-I: 12</b>				<b>No. of classes taken:</b>		

#### UNIT-II: ANDROID USER INTERFACE

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.	<b>UI Components:</b> View, TextView, ImageView	1	16/12/2019			
2.	Button, EditText	1	18/12/2019			
3.	Spinner, Check Box, Radio Button	1	19/12/2019			
4.	Rating Bar, Switch, Seek Bar, Search View	1	21/12/2019			
5.	<b>Measurements:</b> Device and Pixel Density Independent measuring units	2	23/12/2019 26/12/2019			
6.	<b>UI Layouts:</b> Linear, Relative, Constraint Layouts	2	28/12/2019 30/12/2019			
7.	Grid and Table Layouts, Styles and Themes.	1	02/01/2020			
8.	<b>Event Handling:</b> Handling clicks or changes of various UI components	1	04/01/2020			
9.	<b>Fragments:</b> Creating fragments, Lifecycle of fragments	1	06/01/2020			
10.	Types of fragments	1	08/01/2020			
11.	Fragment states	1	09/01/2020			
12.	<b>Tutorial – 2</b>	1	11/01/2020			
<b>No. of classes required to complete UNIT-II: 14</b>				<b>No. of classes taken:</b>		

#### UNIT-III: INTENTS AND BROADCASTS

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.	<b>Intents</b> – Using intents to launch Activities, Explicitly starting new Activity	1	27/01/2020			
2.	Implicit Intents, Passing data to Intents, Getting results from Activities	2	29/01/2020 30/01/2020			

3.	Using Intent to dial a number and to send an SMS	1	01/02/2020			
4.	<b>Broadcast Receivers</b> – Using Intent filters to service implicit Intents	1	03/02/2020			
5.	Resolving Intent filters	1	05/02/2020			
6.	Finding and using Intents received within an Activity	1	06/02/2020			
7.	<b>Notifications</b> – Creating Notifications	1	08/02/2020			
8.	Displaying notifications	1	10/02/2020			
9.	Displaying Toasts	1	12/02/2020			
10.	<b>Tutorial – 3</b>	1	13/02/2020			
<b>No. of classes required to complete UNIT-III: 11</b>				<b>No. of classes taken:</b>		

#### UNIT-IV: DATA STORAGE

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.	<b>Shared Preferences:</b> Creating shared preferences	1	15/02/2020			
2.	Saving and retrieving data using Shared Preference	1	17/02/2020			
3.	<b>Files:</b> Using application specific folders and files, creating files	1	19/02/2020			
4.	Reading data from files, Listing contents of a directory	2	20/02/2020 22/02/2020			
5.	<b>Database:</b> Introduction to SQLite database, creating and opening a database	2	24/02/2020 26/02/2020			
6.	Creating Tables, Inserting, Retrieving and Deleting Data	2	27/02/2020 29/02/2020			
7.	<b>Content Providers</b> - Registering Content Providers	1	02/03/2020			
8.	Using content Providers (insert, delete, retrieve and update)	2	04/03/2020 05/03/2020			
9.	<b>Tutorial – 4</b>	1	07/03/2020			
<b>No. of classes required to complete UNIT-IV: 13</b>				<b>No. of classes taken:</b>		

#### UNIT-V: ADVANCED TOPICS

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.	<b>Location Based Services</b> - Finding Current Location and showing location on the Map	1	09/03/2020			
2.	Updating Location, RSS Feeds	2	11/03/2020 12/03/2020			
3.	Alarms, Using Camera	2	14/03/2020 16/03/2020			
4.	Gestures, Integrating PHP/MySQL	2	18/03/2020 19/03/2020			
5.	<b>Using Internet Resources</b> – Connecting to Internet Resource	1	21/03/2020			
6.	Using Download Manager	1	23/03/2020			
7.	Publishing Android Application	2	25/03/2020 01/04/2020			
8.	<b>Tutorial – 5</b>	1	04/04/2020			
<b>No. of classes required to complete UNIT-V: 12</b>				<b>No. of classes taken:</b>		

#### Teaching Learning Methods

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

## PART-C

### **EVALUATION PROCESS (R17 Regulations):**

<b>Evaluation Task</b>	<b>Marks</b>
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	Q=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100



## PART-D

### PROGRAMME OUTCOMES (POs):

PO 1	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	<b>Problem analysis:</b> 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	<b>Design/development of solutions:</b> 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	<b>Conduct investigations of complex problems:</b> 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	<b>Modern tool usage:</b> 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	<b>The engineer and society:</b> 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	<b>Environment and sustainability:</b> 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	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	<b>Communication:</b> 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	<b>Project management and finance:</b> 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	<b>Life-long learning:</b> 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	<b>Programming Paradigms:</b> To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
PSO 2	<b>Data Engineering:</b> To inculcate ability to Analyze, Design and implement data driven applications into the students.
PSO 3	<b>Software Engineering:</b> Develop an ability to implement various processes/methodologies /practices employed in design, validation, testing and maintenance of software products.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr. P VAMSI NAIDU	Mr. Shaik Johny Basha	Dr. D. Veeraiah	Dr. D. Veeraiah
Signature				



# 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 CSE COURSE HANDOUT

### PART-A

Name of Course Instructor : P. SIVA REDDY (T 727)  
 Course Name & Code : Industrial Engineering and management  
 L-T-P Structure : 3-0-0 Credits : 3  
 Program/Sem/Sec : B.Tech., CSE., VI-Sem., Sec-A A.Y : 2019-20

#### PRE-REQUISITE: NIL

#### Course 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 material management techniques
4. To make students understand the concept of HRM and its functions
5. To make students understand PERT & CPM methods in effective project management and need of project crashing and its consequence on cost of project

#### Course Outcomes:

##### Upon The Successful Completion of This Course Students Will Able To:

1. Apply management principles to the particle situations to be in a position to know which type of business organisation structure suits
2. Determine decision making relating to the problems in operations and production activities.
3. Apply SQC techniques and to take effective decision making relating to reduce the investment in materials through better control of inventory
4. Ability to manage people in working environment with the practices of HRM across corporate businesses
5. Identify the PERT & CPM techniques in effective project management.

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

COs	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO 12	PSO 1	PSO 2	PSO 3
CO1	1						2	2	2	1		1			
CO2					2							1			
CO3		2					2				2	1			
CO4								2	2	2		1			
CO5					2		2				2	1			

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

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

**Text Books:**

T1:Dr. A.R.Aryasri, Management Science, TMH, 10<sup>th</sup> edition, 2012

**References:**

R1: Koontz & weihrich – Essentials of management, TMH, 10<sup>th</sup> edition, 2015

R2: Stoner, Freeman, Gilbert, Management, 6<sup>th</sup> edition Pearson education, New Delhi, 2004

R3:O.P. Khana, Industrial engineering and Management

R4:L.S.Srinath, PERT & CPM

**PART-B****COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I: introduction to 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.	Introduction to Subject & Course Outcomes	1	25-11-2019		TLM1	
2.	Management Introduction and Definition	1	27-11-2019		TLM1	
3.	Nature Importance of management & Functions	1	28-11-2019		TLM2	
4.	Taylor's scientific management theory	1	02-12-2019		TLM2	
5.	Fayal's principles of management	1	04-12-2019		TLM2	
6.	Contribution of Elton mayo MASLOW theory & Herzberg theory of motivation	1	05-12-2019		TLM2	
7.	Douglas MC Gregor theory of motivation	1	09-12-2019		TLM2	
8.	Organization Basic concept: Authority & responsibility & Delegation of Authority	1	11-12-2019		TLM2	
9.	Span of control & Departmentation and Decentralization	1	12-12-2019		TLM1	
10.	Organization structure :line organization structure, Line and staff organization &	1	16-12-2019		TLM2	
11.	Functional organization	1	18-12-2019		TLM2	
12.	Committee & Matrix organization	1	19-12-2019		TLM2	
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	HOD Sign Weekly
1.	Plant location and Factors influencing location	1	23-12-2019		TLM1	
2.	Objectives and Principles of plant layout	1	26-12-2019		TLM1	
3.	Types of plant layouts	1	30-12-2020		TLM1	
4.	Methods of production : job batch and mass production	1	02-01-2020		TLM2	
5.	Methods of production : job batch and mass production	1	06-01-2020		TLM1	
6.	Other aspects of Plant Layouts	1	08-01-2020		TLM2	
7.	Work study: Basic procedure involved in method study work measurement	1	09-01-2020		TLM1	
8.	Work study: Basic procedure involved in method study work measurement	1	13-01-2020		TLM1	
9.	Basic procedure involved in method study work measurement	1	15-01-2020		TLM1	
10.	Basic procedure involved in method study work measurement	1	16-01-2020		TLM1	
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	HOD Sign Weekly
1.	Statistical quality control Meaning	1	27-01-2020		TLM2	
2.	Variables and attributes & X chart problems and R	1	29-01-2020		TLM2	
3.	C Chart problems AND P Chart problems	1	30-01-2020		TLM1	
4.	Acceptance sampling & Sampling plans & Deming's contribution to quality	1	03-02-2020		TLM2	
5.	Materials management :Objectives of Materials management	1	05-02-2020		TLM1	
6.	Need for inventory control	1	06-02-2020		TLM2	
7.	Purchase procedure, Store records	1	10-02-2020		TLM2	
8.	Methods of inventory control :ABC analysis & EOQ analysis	1	12-02-2020		TLM2	
9.	EOQ Problems	1	13-02-2020		TLM1	
10.	Stock levels & Problems on stock levels	1	17-02-2020		TLM1	
No. of classes required to complete UNIT-III:10				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
1.	Concepts of HRM: Basic functions of HR manager	1	19-02-2020		TLM2	
2.	Man power planning	1	20-02-2020		TLM2	
3.	Recruitment & Selection	1	24-02-2020		TLM2	
4.	Training and development	1	26-02-2020		TLM1	
5.	Placement, Wage and salary administration	1	27-02-2020		TLM2	
6.	Promotion, Transfer	1	02-03-2020		TLM2	
7.	Performance Appraisal	1	04-03-2020		TLM1	
8.	Employee Separation	1	05-03-2020		TLM2	
9.	Job evaluation	1	09-03-2020		TLM1	
10.	Merit raring	1	11-03-2020		TLM1	
No. of classes required to complete UNIT-IV:08				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
1.	<b>Project management: Introduction</b> Early techniques in project management	1	12-03-2020		TLM2	
2.	Network analysis & Rules for drawing of networks and Critical path method	1	16-03-2020		TLM2	
3.	Problems on CPM & Identifying critical path	1	18-03-2020		TLM1	
4.	Problems on CPM & Identifying critical path	1	19-03-2020		TLM1	
5.	Programme evaluation and review technique (PERT)	1	23-03-2020		TLM1	
6.	Problems on PERT	1	25-04-2020		TLM1	
7.	Problems on PERT	1	26-04-2020		TLM1	
8.	Project cost analysis project crashing	1	30-03-2020		TLM1	
9.	Problems on project crashing	1	01-04-2020		TLM1	
No. of classes required to complete UNIT-V:09				No. of classes taken:		

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

### **PART-C**

#### **EVALUATION PROCESS (R17 Regulations):**

<b>Evaluation Task</b>	<b>Marks</b>
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks = 75% of Max(M1, M2) + 25% of Min(M1, M2)	M=20
Quiz Marks = 75% of Max(Q1, Q2) + 25% of Min(Q1, Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

## PART-D

### **PROGRAMME OUTCOMES (POs):**

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
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<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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):**

<b>PSO 1</b>	Organize, Analyze and Interpret the data to extract meaningful conclusions.
<b>PSO 2</b>	Design, Implement and Evaluate a computer-based system to meet desired needs.
<b>PSO 3</b>	Develop IT application services with the help of different current engineering tools.

Course Instructor  
(P. SIVA REDDY)

Course Coordinator  
(U.RAMBABU)

Module Coordinator  
(U.RAMBABU)

HOD  
(Dr.A.Adishesha Reddy)



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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## FRESHMAN ENGINEERING DEPARTMENT

### COURSE HANDOUT

#### PART-A

Name of Course Instructor : Mr. B SAGAR  
Course Name & Code : Presentation Skills Lab; 17FE61  
L-T-P Structure : 0-0-2+2 Credit : 1  
Program/Sem/Sec : B.Tech.,CSE, VI-Sem., Sections- A A.Y: 2019-2020

**PRE-REQUISITE:** Should have fundamental knowledge in making conversations in English and be with readiness to speak

**COURSE EDUCATIONAL OBJECTIVE (CEOs):** To help students make oral presentations, power point presentations, participate in group discussions and write project/research/technical reports/formal letters by gathering information and organizing ideas relevantly and coherently.

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

CO 1	Make power point presentations and oral presentations
CO 2	Use standard vocabulary contextually.
CO 3	Manage skillfully through group discussions.
CO 4	Negotiate skillfully for better placement.

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

Course	POs→	Program Outcomes (POs)											
		1	2	3	4	5	6	7	8	9	10	11	12
Presentation Skills Lab 17FE61	CO1		1		3		2			3	3		2
	CO2		1		3		2			3	3		2
	CO3		1		3		2			3	3		2
	CO4		1		3		2			3	3		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).

**Bos Approved Lab Manual:**

Board of Editors, "ELCS Lab Manual – A Workbook of CALL and ICS Lab Activities",  
Orient Black Swan Pvt. Ltd., Hyderabad, 2016.

## PART-B

### COURSE DELIVERY PLAN (LESSON PLAN):

#### BATCH-A

S.No.	Activity	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1.	Introduction	2	26-11-2019		TLM4		
2.	Self Introduction	2	03-12-2019		TLM4	CO1	
3.	JAM- I (prepared)	2	10-12-2019		TLM4	CO1	
4.	JAM-II (Extempore)	2	17-12-2019		TLM4	CO1	
5.	Group Discussion	2	24-12-2019		TLM4, TLM6	CO3	
6.	Group Discussion	2	31-12-2019		TLM4, TLM6	CO3	
7.	Reading Comprehension/Listening Comprehension	2	07-01-2020		TLM3	CO2	
8.	Poster Presentation	2	28-01-2020		TLM2, TLM4	CO1	
9.	Power point Presentation	2	04-02-2020		TLM2, TLM4	CO1	
10.	Power point Presentation	2	11-02-2020		TLM2, TLM4	CO1	
11.	Vocabulary(one-word substitutes/analogy/idioms)	2	18-02-2020		TLM1, TLM3	CO2	
12.	Vocabulary(one-word substitutes/analogy/idioms)	2	25-02-2020		TLM1, TLM3	CO2	
13.	Letter & Résumé writing	2	03-03-2020		TLM1, TLM3	CO4	
14.	Vocabulary(Synonyms/Antonyms)	2	10-03-2020		TLM1, TLM3	CO2	
15.	Mock Interviews	2	17-03-2020		TLM6	CO4	
16.	Mock Interviews	2	24-03-2020		TLM6	CO4	
17.	Internal Lab Exam	2	33-03-2020				
18.	<b>Total</b>	<b>34</b>					



### BATCH-B

S.No.	Activity	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1.	Introduction	2	30-11-2019		TLM4		
2.	Self Introduction	2	07-12-2019		TLM4	CO1	
3.	JAM- I (prepared)	2	14-12-2019		TLM4	CO1	
4.	JAM-II (Extempore)	2	21-12-2019		TLM4	CO1	
5.	Group Discussion	2	28-12-2019		TLM4, TLM6	CO3	
6.	Group Discussion	2	04-01-2020		TLM4, TLM6	CO3	
7.	Reading Comprehension/Listening Comprehension	2	11-01-2020		TLM3	CO2	
8.	Poster Presentation	2	01-02-2020		TLM2, TLM4	CO1	
9.	Power point Presentation	2	08-02-2020		TLM2, TLM4	CO1	
10.	Power point Presentation	2	15-02-2020		TLM2, TLM4	CO1	
11.	Vocabulary(one-word substitutes/analogy/idioms) (Synonyms/Antonyms)	2	22-02-2020		TLM1, TLM3	CO2	
12.	Vocabulary(one-word substitutes/analogy/idioms) (Synonyms/Antonyms)	2	29-02-2020		TLM1, TLM3	CO2	
13.	Letter & Résumé writing	2+2	07-03-2020 14-03-2020		TLM1, TLM3 TLM6	CO4	
14.	Mock Interviews	2	21-03-2020		TLM6	CO4	
15.	Mock Interviews	2	28-03-2020		TLM6	CO4	
16.	Internal Lab Exam	2	04-04-2020				
17.	Total	34					

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

## Part - C

### EVALUATION PROCESS:

According to Academic Regulations of R17 Distribution and Weightage of Marks for Laboratory Courses is as follows:

#### (a) Continuous Internal Evaluation (CIE):

- ✓ The continuous internal evaluation for laboratory courses (including Computer aided engineering drawing, computer aided engineering graphics, Computer aided machine drawing etc.) is based on the following parameters:

Parameter		Marks
Day – to – Day Work	Observation	10 Marks
	Record	10 Marks
Internal Test		10 Marks
Attendance		05 Marks
Viva – Voce During Regular Lab Sessions		05 Marks
<b>Total</b>		<b>40 Marks</b>

#### (b) Semester End Examinations (SEE):

- ✓ The performance of the student in laboratory courses shall be evaluated jointly by internal and external examiners for 3 hours duration as per the parameters indicated below:

Sl.No.	Topic	Marks
I. i.	Synonyms	5
ii.	Antonyms	5
iii	One-Word substitutes	5
iv	Idioms	2 ½
v	Analogy	2 ½
II.	Resum`e	5
III.	Reading Comprehension	5
IV.	Oral & written task (JAM/GD/PPT)	20
V.	Interview	10
	<b>Total</b>	<b>60</b>

% of Attendance	Marks
≥ 95	05 Marks
90 to < 95	04 Marks
85 to < 90	03 Marks
80 to < 85	02 Marks
75 to < 80	01 Mark

## Rubrics For Evaluation of Laboratory Courses

Day-To-Day Lab (Observation) Performance Evaluation (R-17)				Record Performance Evaluation (R-17)				
S.N	Criteria	Poor	Average	Good	Criteria	Poor	Average	Good
<b>1</b>	Language suitability <b>(4 Marks)</b>	Wrong usage of words Grammatical errors <b>(2 Marks)</b>	Some points are missing from the data written Wrong usage of grammar & vocabulary. <b>(3 Marks)</b>	Well-written & spoken Language is error free <b>(4 Marks)</b>	Language <b>(4 Marks)</b>	Language used is not suitable Full of incorrect vocabulary <b>(2 Marks)</b>	Some words are inappropriately used / wrongly spelt <b>(3Marks)</b>	Language used is good No word/ spelling errors <b>(4 Marks)</b>
<b>2</b>	Content <b>(4Marks)</b>	Unable to Deliver all the pints Delivering Irrelevant point <b>(2 Marks)</b>	Some points are not given Point analysis is not up to the mark <b>(3 Marks)</b>	All the points are analyzed properly More content was delivered. <b>(4 Marks)</b>	Content <b>(4 Marks)</b>	Very less points were written Points were not analyzed properly <b>(2 Marks)</b>	Some of the points were missing Some points are not properly analyzed <b>(3 Marks)</b>	Complete information is provided for the topic Important information is provided with illustrations/ examples <b>(4 Marks)</b>
<b>3</b>	Style of Presentation <b>(2 Marks)</b>	Inappropriate body language Improper presentation <b>(0 Marks)</b>	Presentation is not up to the mark <b>(1 Mark)</b>	Presented well with appropriate etiquette All important conclusions have been clearly made, student shows good understanding of the topic. <b>(2 Marks)</b>	Grammar & Neatness <b>(2 Mark)</b>	Frequent grammar and/r spelling errors writing style is rough and immature <b>( 1/2 Mark)</b>	Some grammatical errors <b>(1 Marks)</b>	No grammar/ spelling corrections are found and well-written <b>(2 Marks)</b>

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor  
Mr.B SAGAR

Course Coordinator  
Dr.B. Samrajya Lakshmi

Module Coordinator  
Dr.B. Samrajya Lakshmi

HOD  
Dr.A. Rami Reddy



# 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 COMPUTER SCIENCE

### COURSE HANDOUT

#### Part-A

<b>PROGRAM</b>	:	<b>B.Tech.(CSE),VI-Semester A SEC</b>
<b>ACADEMIC YEAR</b>	:	<b>2019-2020</b>
<b>COURSE CODE&amp;NAME</b>	:	<b>17CI17 &amp; Data Communications and Computer Networks</b>
<b>L-T-P STRUCTURE</b>	:	<b>3 - -</b>
<b>COURSE CREDITS</b>	:	<b>3</b>
<b>COURSE INSTRUCTOR</b>	:	<b>Dr O.Rama Devi</b>
<b>PRE-REQUISITES</b>	:	<b>Communication systems.</b>

#### **COURSE EDUCATIONAL OBJECTIVES (CEOs):**

In this course, students will learn about Protocols, network standards, the OSI model, IP addressing, cabling, networking components and basic LAN design. Existing state of art in network protocols, architectures and its applications. Functionalities and Applications of Various OSI and TCP/IP layers.

#### **COURSE OUTCOMES (COs):**

On successful completion of the course, students will be able to:

**CO1:** Understand how the data is transmitted from point-to-point.

**CO2:** Summarize Data Link Layer Protocols.

**CO3:** Analyze of different Medium Access Control protocols.

**CO4:** Evaluate different routing protocols and Transport layer protocols.

**CO5:** Understand the concepts of Presentation and Application Layer Protocols.

**Course Articulation Matrix (Correlation between COs&POs,PSOs):**

COs	PO1	PO2	PO3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	2	2	2	-	-	-	-	-	-	-	-	1	-	2	-
CO2	1	2	2	-	-	-	-	-	-	-	-	1	-	2	-
CO3	1	3	3	-	-	-	-	-	-	-	-	1	-	2	-
CO4	2	3	3	1	-	-	-	-	-	-	-	1	-	2	-
CO5	2	2	2	-	-	-	-	-	-	-	-	1	-	2	-

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

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

**BOS APPROVED TEXT BOOKS:**

**T1** A. S. Tanenbaum —Computer Network: Second Ed. Prentice Hall, India (tan).

**T2** B. A. Frouzan, Data Communication, Tata Mc Graw Hill.

**BOS APPROVED REFERENCE BOOKS:**

**R1** D. Berekas an R. Gallager, —Data Networks:, second Ed. Prentice Hall, India.

**R2** D. E. Coner, —Intertworking with TCP/IP, Vol-I.Prentice Hall India.

**R3** G. E. Keiser, —Local Area Network, Mc Graw Hill, International Ed.

**R4** W. Stalling, —Data & Computer Communications, Maxwell Macmillan International Ed.

**R5** <http://web.mit.edu/dimitrib/www/datanets.html>

**Part-B**

**COURSE DELIVERY PLAN (LESSON PLAN): Section-A**

**UNIT-I: INTRODUCTION TO DATA COMMUNICATION TECHNIQUES & PHYSICAL LAYER**

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 Cos and CEOs of the course	1	27-11-2019		TLM1&2	
2.	Introduction to Data Communication and Computer Networks	1	28-11-2019		TLM1&2	
3.	Use of Computer Networks	1	29-11-2019		TLM1&2	
4.	Reference models: ISO OSI model, TCP/IP model	1	04-12-2019		TLM1&2	
5.	Reference models: ISO OSI model, TCP/IP model	1	05-12-2019		TLM1&2	
6.	Example Networks: The In Pulse Code Modulation (PCM)	1	06-12-2019		TLM1&2	
7.	Delta Modulation (DM), Multiplexing Techniques	1	11-12-2019		TLM1&2	
8.	Frequency Division	2	12-12-2019		TLM1&2	
9.	The theoretical basis for Data communication		13-12-2019		TLM1&2	
10.	Twisted pair, Coaxial cable, Fiber optics	2	18-12-2019		TLM1&2	
11.	Error detection and correction Single and Parity check codes		19-12-2019		TLM1&2	
12.	<b>TUTORIAL-1</b>	1	20-12-2019		<b>TLM3</b>	
13.	CRC,	1	26-12-2019		TLM1 &	

	Hamming Code				2	
No. of classes required to complete UNIT-I 13				No. of classes taken:		

### UNIT-II: DATA LINK LAYER PROTOCOLS

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.	Introduction to DLL, Data link layer design issues	1	27-12-2019		TLM1&2	
15.	Elementary data link protocols	1	02-01-2020		TLM1&2	
16.	Stop & Wait protocols	1	03-01-2020		TLM1&2	
17.	Sliding window protocols-one-bit, go-back N, selective repeat	1	08-01-2020		TLM1&2	
18.	performance and efficiency, verification of protocol	1	09-01-2020		TLM1&2	
19.	HDLC data link protocol	1	10-01-2020		TLM1&2	
20.	<b>TUTORIAL-2, Quiz-2 ASSIGNMENT-2</b>	1	10-01-2020		<b>TLM3</b>	
No. of classes required to complete UNIT-II 7				No. of classes taken:		

### UNIT-III: MEDIUM ACCESS CONTROL SUB LAYER

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.	Concept of Random Access	1	29-01-2020		TLM1&2	
22.	Pure ALOHA	1	30-01-2020		TLM1&2	
23.	throughput characteristics of ALOHA	1	31-01-2020		TLM1&2	
24.	S-ALOHA.	1	05-02-2020		TLM1&2	
25.	<b>TUTORIAL-3</b>	1	06-02-2020		<b>TLM3</b>	
26.	EEE 802.3, 802.4 and 802.5 Protocols	1	07-02-2020		TLM1&2	
27.	performance of Ethernet. Token	1	12-02-2020		TLM1&2	



	Ring Protocol					
28.	FDDI Protocol	1	13-02-2020		TLM1&2	
29.	Virtual circuits and datagram's	1	14-02-2020		TLM1&2	
30.	Windows flow control, Packet Discarding, Traffic Shaping	1	19-02-2020		TLM1&2	
31.	Choke RSVP, Bridges, Routers and Gateways	1	20-02-2020		TLM1&2	
No. of classes required to complete UNIT-III			11	No. of classes taken:		

#### UNIT-IV: NETWORK AND TRANSPORT LAYER PROTOCOLS

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.	Introduction to Transport Layer and Network Layer	1	26-02-2020		TLM1&2	
33.	Optimality principle	1	27-02-2020		TLM1&2	
34.	Dijkstra, Flooding and broadcasting	1	28-02-2020		TLM1&2	
35.	distance vector routing, link state routing	1	04-03-2020		TLM1&2	
36.	flow based routing, Multicasting routing	1	05-03-2020		TLM1&2	
37.	flow and congestion control	1	06-03-2020		TLM1&2	
38.	Internet Architecture and Addressing.	1	11-03-2020		TLM1&2	
39.	Design issues, Quality of Services	1	12-03-2020		TLM1&2	
40.	Connection Establishment and Releases, TCP,UDP	1	13-03-2020		TLM1&2	
No. of classes required to complete UNIT-IV			8	No. of classes taken:		

**UNIT-V: PRESENTATION AND APPLICATION LAYER PROTOCOLS**

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.	Introduction to Application Layer , Electronic Mail SMTP, and HTTP	1	18-03-2020		TLM1&2	
42.	Substitutions and Transposition Ciphers	1	19-03-2020		TLM1&2	
43.	Data Encryption Standard (DES) ,RSA algorithm	1	20-03-2020		TLM1&2	
No. of classes required to complete UNIT-V 3				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
44.	DNS	1	26-03-2020		TLM1&2	
45.	N/W Layer Design Issues	1	27-03-2020		TLM1&2	

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

**Part - C****EVALUATION PROCESS:**

<b>Evaluation Task</b>	<b>Marks</b>
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

**ACADEMIC CALENDAR:**

<b>Description</b>	<b>From</b>	<b>To</b>	<b>Weeks</b>
Commencement of Class Work	25/11/2019		
I Phase of Instructions	25/11/19	11/01/20	7W
PangalHolidays	13/01/20	18/01/20	1W
I Mid Examinations	20/01/20	25/01/20	1W
II Phase of Instructions	27/01/20	04/04/20	9W+1W CRT
II Mid Examinations	06/04/20	11/04/20	1W
Preparation and Practical's	13/04/20	18/04/20	1W
Semester End Examinations	20/04/20	02/02/20	2W

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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)

<b>1. Programming Paradigms</b> To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
<b>2. Data Engineering</b> To inculcate an ability to Analyse, Design and implement data driven applications into the students.
<b>3. Software Engineering</b> Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products

Course Instructor

(Dr O.Rama Devi)

Course Coordinator

(Dr O.Rama Devi)

Module Coordinator

( Dr D.JaganMohan Reddy )

HOD

(Dr D.Veeraiah)





# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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

L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

## DEPARTMENT OF COMPUTER SCIENCE

### COURSE HANDOUT

#### Part-A

PROGRAM	:	<b>B.Tech.(CSE),VI-Semester</b>
ACADEMIC YEAR	:	<b>2019-2020</b>
COURSE CODE&NAME	:	<b>17CI17&amp;Data Communications and Computer Networks</b>
L-T-P STRUCTURE	:	<b>3 - -</b>
COURSE CREDITS	:	<b>3</b>
COURSE INSTRUCTOR	:	Dr CH.Ratna Jyothi
PRE-REQUISITES	:	Communication systems.

#### **COURSE EDUCATIONAL OBJECTIVES (CEOs):**

##### **In this course student will learn:**

In this course, students will learn about Protocols, network standards, the OSI model, IP addressing, cabling, networking components and basic LAN design. Existing state of art in network protocols, architectures and its applications. Functionalities and Applications of Various OSI and TCP/IP layers.

#### **COURSE OUTCOMES (COs):**

On successful completion of the course, students will be able to:

CO1: Understand how the data is transmitted from point-to-point.

CO2: Summarize Data Link Layer Protocols.

CO3: Analyze of different Medium Access Control protocols.

CO4: Evaluate different routing protocols and Transport layer protocols.

CO5: Understand the concepts of Presentation and Application Layer Protocols

**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		2	
CO2	1	2	2	-	-	-	-	-	-	-	-	1		2	
CO3	1	3	3	-	-	-	-	-	-	-	-	1		2	
CO4	2	3	3	1	-	-	-	-	-	-	-	1		2	
CO5	2	2	2	-	-	-	-	-	-	-	-	1		2	

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

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

**BOS APPROVED TEXT BOOKS:**

**T1** A. S. Tanenbaum –Computer Network: Second Ed. Prentice Hall, India (tan).

**T2** B. A. Frouzan, Data Communication, Tata Mc Graw Hill.

**BOS APPROVED REFERENCE BOOKS:**

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**R2** D. E. Coner, –Intertworking with TCP/IP|| , Vol-I.Prentice Hall India.

**R3** G. E. Keiser, –Local Area Network|| , Mc Graw Hill, International Ed.

**R4** W. Stalling, –Data & Computer Communications|| , Maxwell Macmillan  
Internation Ed.

**R5** <http://web.mit.edu/dimitrib/www/datanets.html>

## Part-B

### COURSE DELIVERY PLAN (LESSON PLAN): Section-A/B/C

#### UNIT-I: INTRODUCTION TO DATA COMMUNICATION TECHNIQUES & PHYSICAL LAYER

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.	Discussion of Cos and CEOs of the course	1	25-11-2019		TLM1&2	1	1 & 2	
2.	Introduction to Data Communication and Computer Networks	1	27-11-2019		TLM1&2	1	1 & 2	
3.	Use of Computer Networks	1	28-11-2019		TLM1&2	1	1 & 2	
4.	Reference models: ISO OSI model, TCP/IP model	1	02-12-2019		TLM1&2	1	1 & 2	
5.	Reference models: ISO OSI model, TCP/IP model	1	04-12-2019		TLM1&2	1	1 & 2	
6.	Example Networks: The In Pulse Code Modulation (PCM)	1	05-12-2019		TLM1&2	1	1 & 2	
7.	Delta Modulation (DM), Multiplexing Techniques	1	09-12-2019		TLM1&2	1	1 & 2	
8.	Frequency Division	2	11-12-2019		TLM1&2	1	1 & 2	
9.	The theoretical basis for Data communication		12-12-2019		TLM1&2	1	1 & 2	
10.	Twisted pair, Coaxial cable, Fiber optics	2	16-12-2019		TLM1&2	1	1 & 2	
11.	Error detection and correction Single and Parity check codes		18-12-2019		TLM1&2	1	1 & 2	
12.	<b>TUTORIAL-1</b>	1	23-12-2019		<b>TLM3</b>	1	1 & 2	
13.	CRC, Hamming Code	1	26-12-2019		TLM1 & 2	1	1 & 2	
No. of classes required to complete UNIT-I		13			No. of classes taken:			

#### UNIT-II: DATA LINK LAYER PROTOCOLS

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
14.	Introduction to DLL, Data link layer design issues	1	30-12-2019		TLM1&2	2	1 & 2	
15.	Stop & Wait protocols	1	02-01-2020		TLM1&2	2	1 & 2	
16.	Sliding window protocols-one-bit, go-back N, selective repeat	1	06-01-2020		TLM1&2	2	1 & 2	
17.	performance and efficiency, verification of protocol	1	08-01-2020		TLM1&2	2	1 & 2	
18.	HDLC data link protocol	1	09-01-2020		TLM1&2	2	1 & 2	
19.	<b>TUTORIAL-2, Quiz-2 ASSIGNMENT-2</b>	1	10-01-2020		<b>TLM3</b>			



No. of classes required to complete UNIT-II	6	No. of classes taken:
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### UNIT-III: MEDIUM ACCESS CONTROL SUB LAYER

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
20.	Concept of Random Access	1	27-01-2020		TLM1&2	3	1 & 2	
21.	Pure ALOHA	1	29-01-2020		TLM1&2	3	1 & 2	
22.	throughput characteristics of ALOHA	1	30-01-2020		TLM1&2	3	1 & 2	
23.	S-ALOHA.	1	03-02-2020		TLM1&2	3	1 & 2	
24.	<b>TUTORIAL-5</b>	1	05-02-2020		<b>TLM3</b>	3		
25.	EEE 802.3, 802.4 and 802.5 Protocols	1	06-02-2020		TLM1&2	3	1 & 2	
26.	performance of Ethernet. Token Ring Protocol	1	10-02-2020		TLM1&2	3	1 & 2	
27.	FDDI Protocol	1	12-02-2020		TLM1&2	3	1 & 2	
28.	Virtual circuits and datagram's	1	13-02-2020		TLM1&2	3	1 & 2	
29.	Windows flow control, Packet Discarding, Traffic Shaping	1	17-02-2020		TLM1&2	3	1 & 2	
30.	Choke RSVP, Bridges, Routers and Gateways	1	19-02-2020		TLM1&2	3	1 & 2	
No. of classes required to complete UNIT-III		11			No. of classes taken:			

### UNIT-IV: NETWORK AND TRANSPORT LAYER PROTOCOLS

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
31.	Introduction to Transport Layer and Network Layer	1	20-02-2020		TLM1&2	4	1 & 2	
32.	Optimality principle	1	24-02-2020		TLM1&2	4	1 & 2	
33.	Dijkstra, Flooding and broadcasting	1	26-02-2020		TLM1&2	4	1 & 2	
34.	distance vector routing, link state routing	1	27-02-2020		TLM1&2	4	1 & 2	
35.	flow based routing, Multicasting routing	1	02-03-2020		TLM1&2	4	1 & 2	
36.	flow and congestion control	1	04-03-2020		TLM1&2	4	1 & 2	
37.	Internet Architecture and Addressing.	1	05-03-2020		TLM1&2	4	1 & 2	
38.	Design issues, Quality of Services	1	09-03-2020		TLM1&2	4	1 & 2	
39.	Connection Establishment and Releases, TCP,UDP	1	11-03-2020		TLM1&2	4		
No. of classes required to complete UNIT-IV		09			No. of classes taken:			

### UNIT-V: PRESENTATION AND APPLICATION LAYER PROTOCOLS

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
40.	Introduction to Application Layer , Electronic Mail SMTP, and HTTP	1	12-03-2020		TLM1&2	5	1 & 2	
41.	Substitutions and Transposition Ciphers	1	16-03-2020		TLM1&2	5	1 & 2	
42.	Data Encryption Standard (DES) ,RSA algorithm	1	18-03-2020		TLM1&2	5	1 & 2	
No. of classes required to complete UNIT-V		03			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
43.	DNS	1	19-03-2020		TLM1&2	3 & 5	1	
44.	N/W Layer Design Issues	1	23-03-2020		TLM1&2	3 & 5	1	

### Teaching Learning Methods

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

### Part - C

#### EVALUATION PROCESS:

Evaluation Task	Units	Marks
Assignment- 1	1	A1=5
Assignment- 2	2	A2=5
I-Mid Examination	1,2	B1=20
Online Quiz-1	1,2	C1=10
Assignment- 3	3	A3=5
Assignment- 4	4	A4=5
Assignment- 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Online Quiz-2	3,4,5	C2=10
Evaluation of Assignment: $A = \text{Avg}(\text{Best of Four}(A1, A2, A3, A4, A5))$	1,2,3,4,5	A=5
Evaluation of Mid Marks: $B = 75\% \text{ of Max}(B1, B2) + 25\% \text{ of Min}(B1, B2)$	1,2,3,4,5	B=20
Evaluation of Online Quiz Marks: $C = 75\% \text{ of Max}(C1, C2) + 25\% \text{ of Min}(C1, C2)$	1,2,3,4,5	C=10
Attendance Marks based on Percentage of attendance		D=5

<b>Cumulative Internal Examination : A+B+C+D</b>	<b>1,2,3,4,5</b>	<b>40</b>
<b>Semester End Examinations : E</b>	<b>1,2,3,4,5</b>	<b>60</b>
<b>Total Marks: A+B+C+D+E</b>	<b>1,2,3,4,5</b>	<b>100</b>

### **ACADEMIC CALENDAR:**

<b>Description</b>	<b>From</b>	<b>To</b>	<b>Weeks</b>
Commencement of Class Work	25/11/2019		
I Phase of Instructions	25/11/19	11/01/20	7W
PangalHolidays	13/01/20	18/01/20	1W
I Mid Examinations	20/01/20	25/01/20	1W
II Phase of Instructions	27/01/20	04/04/20	9W+1W CRT
II Mid Examinations	06/04/20	11/04/20	1W
Preparation and Practical's	13/04/20	18/04/20	1W
Semester End Examinations	20/04/20	02/05/20	2W

### **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 solution 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 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 inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
- PSO2** To inculcate an ability to analyze, design and implement data driven applications into the students.
- PSO3** Develop an ability to implement various processes/methodologies/practices employed in design, validation, testing and maintenance of software products.

Course Instructor	Course Coordinator	Module Coordinator	HOD
(Dr CH.Ratna Jyothi)	(Dr O. Rama Devi)	(Dr. D. Jagan Mohan Reddy)	(Dr D.Veeraiah)



# 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 ELECTRONICS AND INSTRUMENTATION ENGINEERING

### COURSE HANDOUT

#### PART-A

Name of Course Instructor	: Mr.B.Kalyan Kumar	
Course Name & Code	: Industrial Engineering and management	
L-T-P Structure	: 3-0-0	Credits : 3
Program/Sem/Sec	: B.Tech., CSE., VI-Sem., B/S	A.Y : 2019-20

#### PRE-REQUISITE: NIL

#### Course 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 material management techniques
4. To make students understand the concept of HRM and its functions
5. To make students understand PERT & CPM methods in effective project management and need of project crashing and its consequence on cost of project

#### Course Outcomes:

##### Upon The Successful Completion of This Course Students Will Able To:

1. Apply management principles to the particle situations to be in a position to know which type of business organisation structure suits
2. Determine decision making relating to the problems in operations and production activities.
3. Apply SQC techniques and to take effective decision making relating to reduce the investment in materials through better control of inventory
4. Ability to manage people in working environment with the practices of HRM across corporate businesses
5. Identify the PERT & CPM techniques in effective project management.

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

COs	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO 12	PSO 1	PSO 2	PSO 3
CO1	1						2	2	2	1		1			
CO2					2							1			
CO3		2					2				2	1			
CO4								2	2	2		1			
CO5					2		2				2	1			

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

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

**Text Books:**

T1:Dr. A.R.Aryasri, Management Science, TMH, 10<sup>th</sup> edition, 2012

**References:**

R1: Koontz & weihrich – Essentials of management, TMH, 10<sup>th</sup> edition, 2015

R2: Stoner, Freeman, Gilbert, Management, 6<sup>th</sup> edition Pearson education, New Delhi, 2004

R3:O.P. Khana, Industrial engineering and Management

R4:L.S.Srinath, PERT & CPM

**PART-B****COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I: introduction to 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.	Introduction to Subject & Course Outcomes	1	27-11-2019		TLM1	
2.	Management Introduction and Definition	1	29-11-2019		TLM1	
3.	Nature Importance of management & Functions	1	30-11-2019		TLM1	
4.	Taylor's scientific management theory	1	04-12-2019		TLM1	
5.	Fayal's principles of management	1	06-12-2019		TLM1	
6.	Contribution of Elton mayo & MASLOW theory	1	07-12-2019		TLM2	
7.	Herzberg theory of motivation & Douglas MC Gregor theory of motivation	1	11-12-2019		TLM1	
8.	Organization Basic concept: Authority & responsibility & Delegation of Authority	1	13-12-2019		TLM1	
9.	Span of control & Departmentation and Decentralization	1	14-12-2019		TLM1	
10.	Organization structure :line organization structure, Line and staff organization &	1	18-12-2019		TLM2	
11.	Functional organization	1	20-12-2019		TLM2	
12.	Committee & Matrix organization	1	21-12-2019		TLM2	
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	HOD Sign Weekly
1.	Plant location and Factors influencing location	1	27-12-2019		TLM1	
2.	Factors influencing location	1	28-12-2019		TLM1	
3.	Objectives and Principles of plant layout	1	03-01-2019		TLM1	
4.	types of plant layouts	1	04-01-2020		TLM2	
5.	Methods of production : job batch and mass production	1	08-01-2020		TLM1	
6.	Work study: Basic procedure involved in method study work measurement	1	10-01-2020		TLM2	
7.	Basic procedure involved in method study work measurement	1	11-01-2020		TLM2	
8.	I MID EXAM	1	15-01-2020			
9.	I MID EXAM	1	17-01-2020			
10.	I MID EXAM	1	18-01-2020			
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	HOD Sign Weekly
1.	Statistical quality control Meaning	1	22-01-2020		TLM1	
2.	Variables and attributes & X chart problems and R	1	24-01-2020		TLM1	
3.	C Chart problems AND P Chart problems	1	25-01-2020		TLM1	
4.	Acceptance sampling & Sampling plans & Deming's contribution to quality	1	29-01-2020		TLM1	
5.	Materials management :Objectives of Materials management	1	31-01-2020		TLM1	
6.	Need for inventory control	1	01-02-2020		TLM1	
7.	Purchase procedure, Store records	1	05-02-2020		TLM1	
8.	Methods of inventory control :ABC analysis & EOQ analysis	1	07-02-2020		TLM2	
9.	EOQ Problems	1	08-02-2020		TLM2	
10.	Stock levels & Problems on stock levels	1	18-02-2020		TLM2	
No. of classes required to complete UNIT-III:10				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
1.	Concepts of HRM: Basic functions of HR manager	1	19-02-2020		TLM2	
2.	Man power planning	1	20-02-2020		TLM2	
3.	Recruitment & Selection	1	25-02-2020		TLM2	
4.	Training and development	1	26-02-2020		TLM2	
5.	Training and development	1	27-02-2020		TLM2	
6.	Placement, Wage and salary administration	1	03-03-2020		TLM2	
7.	Promotion, Transfer & Separation	1	04-03-2020		TLM2	
8.	Performance Appraisal	1	05-03-2020		TLM2	
9.	Job evaluation & Merit rating	1	11-03-2020		TLM2	
No. of classes required to complete UNIT-IV:09				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
1.	<b>Project management: Introduction</b> Early techniques in project management	1	12-03-2020		TLM2	
2.	Network analysis & Rules for drawing of networks and Critical path method	1	17-03-2020		TLM2	
3.	Problems on CPM & Identifying critical path	1	18-03-2020		TLM1	
4.	Problems on CPM & Identifying critical path	1	19-03-2020		TLM1	
5.	Programme evaluation and review technique (PERT)	1	24-03-2020		TLM1	
6.	Problems on PERT	1	25-03-2020		TLM1	
7.	Problems on PERT	1	26-03-2020		TLM1	
8.	Problems on PERT		31-03-2020		TLM1	
9.	Project cost analysis	1	01-04-2020		TLM1	
10.	II MID EXAM	1	07-04-2020			
11.	II MID EXAM	1	08-04-2020			
12.	II MID EXAM	1	09-04-2020			

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

No. of classes taken:

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

### **PART-C**

#### **EVALUATION PROCESS (R17 Regulations):**

<b>Evaluation Task</b>	<b>Marks</b>
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100



## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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):

<b>PSO 1</b>	<b>Programming Paradigms:</b> To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
<b>PSO 2</b>	<b>Data Engineering:</b> To inculcate an ability to analyze, design and implement data driven applications into the students.
<b>PSO 3</b>	<b>Software Engineering:</b> Develop an ability to implement various processes/methodologies/practices employed in design, validation, testing and maintenance of software products.

Course Instructor  
(B.Kalyan Kumar)

Course Coordinator  
(U.RAMBABU)

Module Coordinator  
(U.RAMBABU)

HOD  
(Dr.A.Adishesha Reddy)



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

DEPARTMENT OF \_\_\_\_\_

## COURSE HANDOUT

### PART-A

Name of Course Instructor : B V N R Siva Kumar  
Course Name & Code : MICROPROCESSORS & MICROCONTROLLERS 17 EC 22  
L-T-P Structure : 3-0-0 Credits : 3  
Program/Sem/Sec : B.Tech., CSE., VI-Sem., Sections- A & B A.Y : 2019-20

**COURSE EDUCATIONAL OBJECTIVES (CEOs):** In this course student will learn about the Architecture of 8086 Microprocessor and 8051 Microcontroller and their Assembly Language Programming, interfacing Memory and various Peripherals with 8086 Microprocessor/8051 Microcontroller and concepts of Interrupts and Serial Communication in reference to 8086.

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

CO 1	Understand the architecture and operation of 8086 microprocessor & 8051 microcontroller.
CO 2	Apply the instructions of 8086 / 8051 for various applications.
CO 3	Analyze the operation of peripherals and devices for different applications.
CO 4	Design a system by interfacing memory, peripherals and I/O devices to 8086/8051

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

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

### **BOS APPROVED TEXT BOOKS:**

- T1** Douglas V. Hall, —Micro Processors & Interfacing, TMH, 2007.  
**T2** A. K. Ray and K.M. Bhurchandi, Advanced Microprocessor And Peripherals, 2<sup>nd</sup> Edition  
**T3** Muhammad Ali Mazidi, Janice Gillispie Mazidi, Rolin D. Mckinlay —Microcontrollers and Embedded System, Pearson Education Publishers, 2<sup>nd</sup> Edition

### **BOS APPROVED REFERENCE BOOKS:**

1. Raj Kamal, Microcontrollers Architecture, Programming, Interfacing and System Design, Pearson Education Publishers.  
2. J. K. Uffenbeck, —The 8088 and 8086 Micro Processors, PHI, 4<sup>th</sup> Edition, 2003.  
3. Ajay Deshmukh, —Micro Controllers-Theory and Applications, Tata McGraw Hill Publishers.  
4. Kenneth J. Ayala, —The 8051 Micro Controller, Cengage Learning Publishers, 3<sup>rd</sup> Edition, 2000.

## PART-B

### COURSE DELIVERY PLAN (LESSON PLAN): SECTION - A

#### UNIT-I: Microprocessor Architecture & Instruction Set

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to subject, 0 – 20 Bits range in Hexa decimal	1	27.12.2019			
2.	8086 specs, GPRs	1	28.12.2019			
3.	Seg & Offset registers, 16 bit operations	1	30.12.2019			
4.	MOV Instruction, Data Transfer Program	1	04.12.2019			
5.	Addressing Modes	1	05.12.2019			
6.	Data transfer group	1	07.12.2019			
7.	Arithmetic group and programs	1	11.12.2019			
8.	Arithmetic group and programs	1	12.12.2019			
9.	Logical group and programs	1	14.12.2019			
10.	Branching group and programs	1	18.12.2019			
11.	Subroutines and programs, 8086 Architecture	1	19.12.2019			
No. of classes required to complete UNIT-I: 11				No. of classes taken:		

#### UNIT-II: 8086 Memory & I/O Interfacing

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.	8086 Pins	1	26.12.2019			
2.	Timing Diagram	1	28.12.2019			
3.	8086 Pins Minimum mode	1	01.01.2020			
4.	Memory I/F	1	02.01.2020			
5.	EVEN & ODD Banks	1	04.01.2020			
6.	Interfacing	1	08.01.2020			
7.	8086 Maximum mode	1	09.01.2020			
8.	Interrupts, Response, Types, IVT	1	11.01.2020			
9.	Pre-Defined, Priority, ISR	1	29.01.2020			
10.	Revision	1	30.01.2020			
No. of classes required to complete UNIT-II: 10				No. of classes taken:		

#### UNIT-III: Peripherals & Devices

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.	8255, modes, port operation	1	01.02.2020			
2.	DAC I/F	1	05.02.2020			
3.	Waveform Generation	1	06.02.2020			
4.	ADC I/F	1	08.02.2020			
5.	KEYBOARD I/F	1	12.02.2020			
6.	8259 working, cascading	1	13.02.2020			
7.	DMA, 8237 working	1	15.02.2020			
8.	8251 working	1	19.02.2020			
9.	IO I/F	1	20.02.2020			
10.	Revision	1	22.02.2020			
No. of classes required to complete UNIT-III: 10				No. of classes taken:		

**UNIT-IV : Microcontroller**

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.	8051 Architecture	1	26.02.2020			
2.	Pin Function	1	27.02.2020			
3.	Addressing Modes, Instructions	1	29.02.2020			
4.	Instructions & Program	1	04.03.2020			
5.	Instructions & Program	1	05.03.2020			
6.	Instructions & Program	1	07.03.2020			
7.	Memory & IO I/F	1	11.03.2020			
8.	Revision	1	12.03.2020			
No. of classes required to complete UNIT-IV: 08				No. of classes taken:		

**UNIT-V : 8051 Interfacing**

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.	Interrupts, IVT	1	14.03.2020			
2.	Timer operation	1	18.03.2020			
3.	Serial Port operation	1	19.03.2020			
4.	Stepper Motor I/F	1	21.03.2020			
5.	Seven segment Display I/F	1	26.03.2020			
6.	Parallel Printer I/F	1	28.03.2020			
7.	Parallel Printer I/F	1	01.04.2020			
8.	Overview	1	04.04.2020			
No. of classes required to complete UNIT-V: 08				No. of classes taken:		

## PART-B

### COURSE DELIVERY PLAN (LESSON PLAN): SECTION - B

#### UNIT-I: Microprocessor Architecture & Instruction Set

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to subject, 0 – 20 Bits range in Hexa decimal	1	25.12.2019			
2.	8086 specs, Architecture & GPRs	1	26.12.2019			
3.	Segment & Offset registers,	1	30.12.2019			
4.	MOV Instruction, Data Transfer Program	1	02.12.2019			
5.	Addressing Modes, 16 bit operations	1	03.12.2019			
6.	Data transfer group	1	07.12.2019			
7.	Arithmetic group and programs	1	09.12.2019			
8.	Arithmetic group and programs	1	10.12.2019			
9.	Logical group and programs	1	14.12.2019			
10.	Branching group and programs	1	16.12.2019			
11.	Subroutines and programs	1	17.12.2019			
No. of classes required to complete UNIT-I: 11				No. of classes taken:		

#### UNIT-II: 8086 Memory & I/O Interfacing

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.	8086 Pins	1	23.12.2019 24			
2.	Timing Diagram	1	28.12.2019			
3.	8086 Pins Minimum mode	1	30.12.2019			
4.	Memory I/F	1	31.12.2019			
5.	EVEN & ODD Banks	1	04.01.2020			
6.	Interfacing	1	06.01.2020			
7.	8086 Maximum mode	1	07.01.2020			
8.	Interrupts, Response, Types, IVT	1	11.01.2020			
9.	Pre-Defined, Priority, ISR	1	27.01.2020			
10.	Revision	1	28.01.2020			
No. of classes required to complete UNIT-II: 10				No. of classes taken:		

#### UNIT-III: Peripherals & Devices

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.	8255, modes, port operation	1	01.02.2020			
2.	DAC I/F	1	03.02.2020			
3.	Waveform Generation	1	04.02.2020			
4.	ADC I/F	1	08.02.2020			
5.	KEYBOARD I/F	1	10.02.2020			
6.	8259 working, cascading	1	11.02.2020			
7.	DMA, 8237 working	1	17.02.2020			
8.	8251 working	1	28.02.2020			
9.	IO I/F	1	22.02.2020			
10.	Revision	1	15.02.2020			
No. of classes required to complete UNIT-III: 10				No. of classes taken:		

**UNIT-IV : Microcontroller**

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.	8051 Architecture	1	24.02.2020			
2.	Pin Function	1	25.02.2020			
3.	Addressing Modes, Instructions	1	29.02.2020			
4.	Instructions & Program	1	02.03.2020			
5.	Instructions & Program	1	03.03.2020			
6.	Instructions & Program	1	07.03.2020			
7.	Memory & IO I/F	1	09.03.2020			
8.	Compare 8086 & 8051	1	14.03.2020			
9.	Revision	1	16.03.2020			
No. of classes required to complete UNIT-IV: 09				No. of classes taken:		

**UNIT-V : 8051 Interfacing**

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.	Interrupts, IVT	1	17.03.2020			
2.	Timer operation	1	21.03.2020			
3.	Serial Port operation	1	23.03.2020			
4.	Stepper Motor I/F	1	24.03.2020			
5.	Seven segment Display I/F	1	28.03.2020			
6.	Serial Printer I/F	1	30.03.2020			
7.	Parallel Printer I/F	1	31.03.2020			
8.	Overview	1	04.04.2020			
No. of classes required to complete UNIT-V: 08				No. of classes taken:		

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

## PART-C

### **EVALUATION PROCESS (R17 Regulations):**

<b>Evaluation Task</b>	<b>Marks</b>
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 12</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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):

<b>PSO 1</b>	<b>Communication:</b> Design and develop modern communication technologies for building the inter disciplinary skills to meet current and future needs of industry.
<b>PSO 2</b>	<b>VLSI and Embedded Systems:</b> Design and Analyze Analog and Digital Electronic Circuits or systems and Implement real time applications in the field of VLSI and Embedded Systems using relevant tools
<b>PSO 3</b>	<b>Signal Processing:</b> Apply the Signal processing techniques to synthesize and realize the issues related to real time applications

Course Instructor  
BVNR Siva Kumar

Course Coordinator  
Dr. P Lachi Reddy

Module Coordinator  
Dr. P Lachi Reddy

HOD  
Dr. Y Amar Babu





# 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 COMPUTER SCIENCE AND ENGINEERING

### COURSE HANDOUT

#### PART-A

Name of Course Instructor : Dr. J M REDDY D  
Course Name & Code : PHP Programming  
L-T-P Structure : 3-0-0 Credits : 3  
Program/Sem/Sec : B.Tech., CSE., VI-Sem., B Sec. A.Y : 2019-20

**PRE-REQUISITE:** Students should have the knowledge of OOP language, web technologies.

**COURSE EDUCATIONAL OBJECTIVES (CEOs):** The main objective of the course is that the students will gain the knowledge necessary to design and develop dynamic, database-driven Web applications using PHP.

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

CO 1	Identify the basic programming constructs of PHP.
CO 2	Develop programs using functions, strings and arrays.
CO 3	Apply object oriented principles in PHP.
CO 4	Design interactive web pages by using JQuery & AJAX.
CO 5	Design data driven applications by using PHP.

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	2	-	2	-	-	-	-	-	-	-	3	-	-
CO2	3	1	3	-	2	-	-	-	-	-	-	-	3	-	-
CO3	2	1	3	-	2	-	-	-	-	-	-	-	3	-	-
CO4	2	1	3	-	2	-	-	-	-	-	-	-	3	2	-
CO5	2	1	3	-	2	-	-	-	-	-	-	-	3	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** Steven Holzner, - "PHP: The Complete Reference", McGraw-Hill Education, 2007.  
**T2** Kevin Tatroe, Peter MacIntyre, Rasmus Lerdorf, - "Programming in PHP", O'Reilly, 3rd Edition, 2013.

#### **REFERENCE BOOKS:**

- R1** HTML 5 Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery DT Editorial Services Dreamtech Publications.  
**R2** Lynn Beighley, Michael Morrison, - "Head First PHP & MySQL: A Brain-Friendly Guide", O'Reilly, 1st Edition.

## PART-B

### COURSE DELIVERY PLAN (LESSON PLAN):

#### UNIT-I: INTRODUCTION TO PHP

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Course and COs	01	27/11		<b>TLM2 TLM5</b>	
2.	Introduction to PHP	01	28/11		<b>TLM2 TLM5</b>	
3.	Evaluation of PHP	01	29/11		<b>TLM2 TLM5</b>	
4.	Defining variable and constants	01	4/12		<b>TLM2 TLM5</b>	
5.	PHP Data types	01	5/12		<b>TLM2 TLM5</b>	
6.	Operators and Expressions.	01	6/12		<b>TLM2 TLM5</b>	
7.	Making Decisions	01	11/12		<b>TLM2 TLM5</b>	
8.	doing Repetitive task with looping	01	12/11		<b>TLM2 TLM5</b>	
9.	Mixing decisions and looping with HTML	01	13/12		<b>TLM2 TLM5</b>	
No. of classes required to complete UNIT-I:				No. of classes taken:		

#### UNIT-II: FUNCTIONS, STRING & ARRAY

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.	Function, Define a function,	01	18/12		<b>TLM2 TLM5</b>	
2.	Call by value & Call by reference	01	19/12		<b>TLM2 TLM5</b>	
3.	Recursive functions	01	20/12		<b>TLM2 TLM5</b>	
4.	Creating and accessing String	01	26/12		<b>TLM2 TLM5</b>	
5.	Searching & Replacing String	01	27/12		<b>TLM2 TLM5</b>	
6.	Formatting String	01	2/01		<b>TLM2 TLM5</b>	
7.	String Related Library functions	01	3/10		<b>TLM2 TLM5</b>	
8.	Anatomy of an Array	01	8/01		<b>TLM2 TLM5</b>	
9.	Creating Index based and Associative array & Looping	01	9/01		<b>TLM2 TLM5</b>	
10.	Some useful library functions.	01	10/01		<b>TLM2 TLM5</b>	
No. of classes required to complete UNIT-II:				No. of classes taken:		

#### UNIT-III: ADVANCE PHP

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.	Objects, Declaring a class	01	29/01		<b>TLM2 TLM5</b>	
2.	new keyword and constructor Destructor	01	30/01		<b>TLM2 TLM5</b>	

3.	Access method and properties using \$this variable	01	31/01		<b>TLM2 TLM5</b>	
4.	Public, private, protected properties and methods	01	5/02		<b>TLM2 TLM5</b>	
5.	Class constant, Inheritance	01	6/02		<b>TLM2 TLM5</b>	
6.	Polymorphism	01	7/02		<b>TLM2 TLM5</b>	
7.	Parent::& self:: keyword, Instance of operator	01	12/02		<b>TLM2 TLM5</b>	
8.	Abstract method and class	01	13/02		<b>TLM2 TLM5</b>	
9.	Interface, Final.	01	14/02		<b>TLM2 TLM5</b>	
10.	Understanding Exceptions	01	19/02		<b>TLM2 TLM5</b>	
No. of classes required to complete UNIT-III:				No. of classes taken:		

#### **UNIT-IV:PHP WITH SCRIPT**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to JQuery	01	20/02		<b>TLM2 TLM5</b>	
2.	Validation using JQuery	01	26/02		<b>TLM2 TLM5</b>	
3.	JQuery Forms	01	27/02		<b>TLM2 TLM5</b>	
4.	JQuery Examples	01	28/02		<b>TLM2 TLM5</b>	
5.	JQuery Examples	01	4/03		<b>TLM2 TLM5</b>	
6.	Introduction to AJAX	01	5/03		<b>TLM2 TLM5</b>	
7.	PHP with AJAX	01	6/03		<b>TLM2 TLM5</b>	
8.	Working with database.	01	11/03		<b>TLM2 TLM5</b>	
9.	Working with database.	01	12/03		<b>TLM2 TLM5</b>	
No. of classes required to complete UNIT-IV:				No. of classes taken:		

#### **UNIT-V:PHP WEB SERVICES**

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.	Capturing Form Data	01	13/03		<b>TLM2 TLM5</b>	
2.	Dealing with Multi-value file	01	18/03		<b>TLM2 TLM5</b>	
3.	generating File uploaded form	01	19/03		<b>TLM2 TLM5</b>	
4.	redirecting a form after submission	01	20/03		<b>TLM2 TLM5</b>	
5.	Sessions, Forms GET and POST data	01	26/03		<b>TLM2 TLM5</b>	
6.	Cookies, HTTP Headers	01	27/03		<b>TLM2 TLM5</b>	
7.	Introduction to RDBMS	01	1/04		<b>TLM2 TLM5</b>	
8.	Connection with MySQL Database	01	2/04		<b>TLM2 TLM5</b>	

9.	Performing basic database operations (DML), Setting query parameter, Executing query	01	3/04		<b>TLM2</b> <b>TLM5</b>	
No. of classes required to complete UNIT-V:				No. of classes taken:		

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

## **PART-C**

### **EVALUATION PROCESS (R17 Regulations):**

<b>Evaluation Task</b>	<b>Marks</b>
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	Q=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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):

<b>PSO 1</b>	<b>Programming Paradigms:</b> To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
<b>PSO 2</b>	<b>Data Engineering:</b> To inculcate an ability to Analyze, Design and implement data driven applications into the students.
<b>PSO 3</b>	<b>Software Engineering:</b> Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

Course Instructor  
Dr. JMREDDY

Course Coordinator  
Dr. JMREDDY

Module Coordinator  
Dr. DVR

HOD  
Dr. DVR



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## COURSE HANDOUT

### PART-A

Name of Course Instructor : N. SrinivasaRao  
Course Name & Code : PHP Programming  
L-T-P Structure : 3-0-0 Credits : 3  
Program/Sem/Sec : B.Tech., CSE., VI-Sem., A Sec. A.Y : 2019-20

**PRE-REQUISITE:** Students should have the knowledge of OOP language, web technologies.

**COURSE EDUCATIONAL OBJECTIVES (CEOs):** The main objective of the course is that the students will gain the knowledge necessary to design and develop dynamic, database-driven Web applications using PHP.

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

CO 1	Identify the basic programming constructs of PHP.
CO 2	Develop programs using functions, strings and arrays.
CO 3	Apply object oriented principles in PHP.
CO 4	Design interactive web pages by using JQuery & AJAX.
CO 5	Design data driven applications by using PHP.

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	2	-	2	-	-	-	-	-	-	-	3	-	-
CO2	3	1	3	-	2	-	-	-	-	-	-	-	3	-	-
CO3	2	1	3	-	2	-	-	-	-	-	-	-	3	-	-
CO4	2	1	3	-	2	-	-	-	-	-	-	-	3	2	-
CO5	2	1	3	-	2	-	-	-	-	-	-	-	3	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 Steven Holzner, - "PHP: The Complete Reference", McGraw-Hill Education, 2007.  
T2 Kevin Tatroe, Peter MacIntyre, Rasmus Lerdorf, - "Programming in PHP", O'Reilly, 3rd Edition, 2013.

### REFERENCE BOOKS:

- R1 HTML 5 Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery DT Editorial Services Dreamtech Publications.  
R2 Lynn Beighley, Michael Morrison, - "Head First PHP & MySQL: A Brain-Friendly Guide", O'Reilly, 1st Edition.

## PART-B

### COURSE DELIVERY PLAN (LESSON PLAN):

#### UNIT-I: INTRODUCTION TO PHP

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Course and COs	1	26/11/2019		TLM2 TLM5	
2.	Introduction to PHP	1	27/11/2019		TLM2 TLM5	
3.	Evaluation of PHP	1	29/11/2019		TLM2 TLM5	
4.	Defining variable and constants	1	03/12/2019		TLM2 TLM5	
5.	PHP Data types	1	04/12/2019		TLM2 TLM5	
6.	Operators and Expressions.	1	06/12/2019		TLM2 TLM5	
7.	Making Decisions, Assignment I	1	10/12/2019		TLM2 TLM5	
8.	doing Repetitive task with looping	1	11/12/2019		TLM2 TLM5	
9.	Mixing decisions and looping with HTML	1	13/12/2019		TLM2 TLM5	
No. of classes required to complete UNIT-I:09				No. of classes taken:		

#### UNIT-II: FUNCTIONS, STRING & ARRAY

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.	Function, Define a function,	1	17/12/2019		TLM2 TLM5	
2.	Call by value & Call by reference	1	18/12/2019		TLM2 TLM5	
3.	Recursive functions	1	20/12/2019		TLM2 TLM5	
4.	Creating and accessing String	1	24/12/2019		TLM2 TLM5	
5.	Searching & Replacing String	1	27/12/2019		TLM2 TLM5	
6.	Formatting String	1	31/12/2019		TLM2 TLM5	
7.	String Related Library functions	1	01/01/2020		TLM2 TLM5	
8.	Anatomy of an Array, Assignment II	1	03/01/2020		TLM2 TLM5	
9.	Creating Index based and Associative array & Looping	1	07/01/2020		TLM2 TLM5	
10.	Some useful library functions.	1	08/01/2020		TLM2 TLM5	
No. of classes required to complete UNIT-II:10				No. of classes taken:		

**UNIT-III: ADVANCE PHP**

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.	Objects, Declaring a class	1	10/01/2020		TLM2 TLM5	
2.	new keyword and constructor Destructor	1	28/01/2020		TLM2 TLM5	
3.	Access method and properties using \$this variable	1	29/01/2020		TLM2 TLM5	
4.	Public, private, protected properties and methods	1	31/01/2020		TLM2 TLM5	
5.	Class constant, Inheritance	1	04/02/2020		TLM2 TLM5	
6.	Polymorphism	1	05/02/2020		TLM2 TLM5	
7.	Parent::& self:: keyword, Instance of operator	1	07/02/2020		TLM2 TLM5	
8.	Abstract method and class	1	11/02/2020		TLM2 TLM5	
9.	Interface, Final. Assignment III	1	12/02/2020		TLM2 TLM5	
10.	Understanding Exceptions	1	14/02/2020		TLM2 TLM5	
No. of classes required to complete UNIT-III:10				No. of classes taken:		

**UNIT-IV:PHP WITH SCRIPT**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to JQuery	1	18/02/2020		TLM2 TLM5	
2.	Validation using JQuery	1	19/02/2020		TLM2 TLM5	
3.	JQuery Forms	1	25/02/2020		TLM2 TLM5	
4.	JQuery Examples	1	26/02/2020		TLM2 TLM5	
5.	JQuery Examples	1	28/02/2020		TLM2 TLM5	
6.	Introduction to AJAX	1	03/03/2020		TLM2 TLM5	
7.	PHP with AJAX, Assignment IV	1	04/03/2020		TLM2 TLM5	
8.	Working with database.	1	06/03/2020		TLM2 TLM5	
No. of classes required to complete UNIT-IV:8				No. of classes taken:		



**UNIT-V:PHP WEB SERVICES**

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.	Capturing Form Data	1	11/03/2020			
2.	Dealing with Multi-value file	1	13/03/2020			
3.	generating File uploaded form	1	17/03/2020			
4.	redirecting a form after submission	1	18/03/2020			
5.	Sessions, Forms GET and POST data	1	20/03/2020			
6.	Cookies, HTTP Headers	1	24/03/2020			
7.	Introduction to RDBMS	1	27/03/2020			
8.	Connection with MySQL Database	1	31/03/2020			
9.	Performing basic database operations (DML), Assignment V	1	01/04/2020			
10.	Setting query parameter, Executing query	1	03/04/2020			
No. of classes required to complete UNIT-V:10				No. of classes taken:		

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

## PART-C

### EVALUATION PROCESS (R17 Regulations):

<b>Evaluation Task</b>	<b>Marks</b>
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	Q=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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):

<b>PSO 1</b>	<b>Programming Paradigms:</b> To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
<b>PSO 2</b>	<b>Data Engineering:</b> To inculcate an ability to Analyze, Design and implement data driven applications into the students.
<b>PSO 3</b>	<b>Software Engineering:</b> Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

Course Instructor  
(N. SrinivasaRao)

Course Coordinator  
(Dr. D. Jagan Mohan Reddy)

Module Coordinator  
(Dr. D. Veeraiah)

HOD  
(Dr. D. Veeraiah)



**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE HANDOUT**  
**PART-A**

**PROGRAM** : B.Tech, VI-Sem., CSE

**ACADEMIC YEAR** : 2019-20

**COURSE NAME & CODE** : Data Mining and Data Warehousing (DMDW) – 17CI16

**L-T-P STRUCTURE** : 2-2-0

**COURSE CREDITS** : 3

**COURSE INSTRUCTOR** : Mr.N V NAIK

**COURSE COORDINATOR:** Dr.D Veeraiah

**PRE-REQUISITE:** DBMS, Probability and Statistics.

**COURSE OBJECTIVE:** Students will be enabled to understand and implement classical models and algorithms in data warehousing and data mining. They will learn how to analyze the data, identify the problems, and choose the relevant models and algorithms to apply. They will further be able to assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.

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

<b>CO 1</b>	Understand the basic concepts of data warehouse & data mining.
<b>CO 2</b>	Apply data pre-processing, generalization and data characterization techniques to provide suitable input for a range of data mining algorithms.
<b>CO 3</b>	Analyze and provide solutions for real world problems using mining association techniques.
<b>CO 4</b>	Examine the different classification & clustering techniques in data mining.
<b>CO5</b>	Apply data mining techniques to complex data objects like spatial data, multimedia data and web mining.

**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
<b>CO1</b>	3	2	1	-	-	-	-	-	-	-	-	1	-	3	-
<b>CO2</b>	3	3	1	1	1	-	-	-	-	-	-	1	1	3	-
<b>CO3</b>	2	3	3	-	1	1	-	-	-	-	-	2	1	3	-
<b>CO4</b>	3	3	3	1	1	1	-	-	-	-	-	2	2	3	-
<b>CO5</b>	2	3	2	-	-	-	-	-	-	-	-	1	1	3	-

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

1- Lightly(33%) 2 - Moderately(66%), 3 - Strongly (100%).

**BOS APPROVED TEXT BOOKS:**

**T1** J. Han, M. Kamber, “Data Mining: Concepts and Techniques”, Harcourt India / Morgan Kauffman, 2001

**BOS APPROVED REFERENCE BOOKS:**

**R1** SamAnahory,DennisMurry, “DataWarehousing in the real world”, Pearson Education 2003.

**R2** DavidHand,HeikkiManila,PadhraicSymth, “Principles of Data Mining”, PHI 2004.

**R3** W.H.Inmon,“Building the Data Warehouse”, Wiley, 3rd Edition, 2003.

**R4** PaulrajPonniah, “Data Warehousing Fundamentals”, Wiley-Interscience Publication, 2003

**PART-B****COURSE DELIVERY PLAN (LESSON PLAN): Section-A****UNIT-I: Introduction to Data mining and Data warehouse**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1.	Fundamentals of data mining	1	26/11/19		<b>TLM1</b>	CO1	
2.	Data Mining functionalities and classification of data mining systems	1	27/11/19		<b>TLM1</b>	CO1	
3.	Major issues in data mining, Applications of data Mining	1	29/11/2019		<b>TLM1</b>	CO1	
4.	Introduction to Data warehouse	1	30/11/2019		<b>TLM1</b>	CO1	
5.	Introduction-Data, Info. Importance of DMDW	1	03/12/2019		<b>TLM1</b>	CO1	
6.	Data warehouse Need, OLTP vs OLAP	1	04/12/2019		<b>TLM1</b>	CO1	
7.	Multidimensional data models	1	06/12/2019		<b>TLM1</b>	CO1	
8.	DWH Architecture	1	07/12/2019		<b>TLM1</b>	CO1	

9.	Data warehouse Implementation	1	10/12/2019		<b>TLM2</b>	CO1		
10.	Further development of data cube Technology, From DWH TO Data Mining	1	13/12/2019		<b>TLM2</b>	CO1		
11.	TUTORIAL-1	1	17/12/2019		<b>TLM3</b>	CO1		
12.	Assignment/Quiz-1	1	18/12/2019		<b>TLM6</b>	CO1		
No. of classes required to complete UNIT-I		12	No. of classes taken:					

### UNIT-II: Data Pre-Processing

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
13.	Why we need pre-processing	1	20/12/2019		<b>TLM1</b>	CO2	
14.	Data Cleaning	1	21/12/2019		<b>TLM1</b>	CO2	
15.	Data Integration	1	24/12/2019		<b>TLM1</b>	CO2	
16.	Data Transformation	1	27/12/2019		<b>TLM1</b>	CO2	
17.	Data Reduction	1	28/12/2019		<b>TLM2</b>	CO2	
18.	Tutorial 2	1	30/12/19		<b>TLM3</b>	CO2	
19.	Discretization & Concept hierarchy generation	1	31//12/2019		<b>TLM2</b>	CO2	
20.	Data mining primitives	1	3/1/2020		<b>TLM2</b>	CO2	
21.	DMQL, Concept description and Characterizations	1	4/1/2020		<b>TLM2</b>	CO2	
22.	Class Comparisons, Data generalization and summarization based on characterization	1	7/1/2020		<b>TLM1</b>	CO2	

23.	Analytical characterization Discrimination between different classes	1	8/1/2020		<b>TLM2</b>	CO2	
24.	Descriptive Statistical Measures	1	10/1/2020		<b>TLM2</b>	CO2	
25.	Assignment/Quiz-2	1	10/1/2020		<b>TLM2</b>	CO2	
No. of classes required to complete UNIT-II		12	No. of classes taken:				

### UNIT-III: Association Rule mining

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
26.	Association rule mining,	1	28/1/2020		<b>TLM1</b>	CO3	
27.	Frequent pattern, support and confidence	1	29/1/2020		<b>TLM2</b>	CO3	
28.	Apriori algorithm	1	31/1/2020		<b>TLM1</b>	CO3	
29.	FP growth algorithm	2	01/02/2020		<b>TLM1</b>	CO3	
30.	Tutorial 3	1	04/02/2020		<b>TLM3</b>	CO3	
31.	Single dimensional Boolean association from transitional database	1	07/02/2020		<b>TLM1</b>	CO3	
32.	Multi-level association rules from transitional databases	1	11/02/2020		<b>TLM2</b>	CO3	
33.	From association rule mining to correlation analysis	1	12/02/2020		<b>TLM2</b>	CO3	
34.	Constraint based association rule mining	1	13/02/2020		<b>TLM2</b>	CO3	
35.	Assignment/Quiz-3	1	14/02/2020		<b>TLM6</b>	CO3	
No. of classes required to complete UNIT-III		11	No. of classes taken:				

**UNIT-IV: Classification and Perdition Analysis**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly	
36.	Issues regarding classification and	1	15/02/2020		TLM1	CO4		
37.	Classification by decision tree induction	2	18/02/2020		TLM1	CO4		
38.	Bayesian classification	1	19/02/2020		TLM1	CO4		
39.	Support vector machine	1	21/02/2020		TLM2	CO4		
40.	Classification based on concepts from association rule mining	1	22/02/2020		TLM1	CO4		
41.	Rule based induction algorithm	1	25/02/2020		TLM1	CO4		
42.	Prediction	1	26/02/2020		TLM1	CO4		
43.	Classifier accuracy	1	28/02/2020		TLM1	CO4		
44.	TUTORIAL-4	1	29/02/2020		TLM3	CO4		
45.	Assignment/Quiz-4	1	11/3/2020		TLM6	CO4		
46.	No. of classes required to complete UNIT-IV	11	No. of classes taken:					

**UNIT-V: clustering and applications of data mining**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
47.	Types of data in cluster analysis	1	13/3/2020		TLM2	CO5	
48.	A categorization of major clustering methods	1	17/3/2020		TLM2	CO5	
49.	Partitioning methods	1	18/3/2020		TLM2	CO5	
50.	Density based methods	1	20/3/2020		TLM2	CO5	



51.	Grid based methods	1	21/3/2020		<b>TLM2</b>	CO5		
52.	Model based clustering methods	1	24/3/2020		<b>TLM2</b>	CO5		
53.	Outlier analysis	1	27/3/2020		<b>TLM3</b>			
54.	Tutorial 5	1	28/3/2020		<b>TLM2</b>	CO5		
55.	Overview of data mining applications	1	31/3/2020		<b>TLM2</b>	CO5		
56.	Web mining introduction, terminology and characteristics	1	1/4/2020		<b>TLM2</b>	CO5		
57.	Web content mining, Web usage mining and Web structure mining	1	03/04/2020		<b>TLM2</b>	CO5		
58.	Assignment 5/Quiz	1	04/04/2020		<b>TLM6</b>	CO5		
No. of classes required to complete UNIT-V		12	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
59.	Advanced topics in mining , Research topics related to social networking	1	04/04/2020					

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

## PART-C

Evaluation Task	Marks
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
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	for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
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<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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):**

<b>PSO 1</b>	<b>Programming Paradigms:</b> To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
<b>PSO 2</b>	<b>Data Engineering:</b> To inculcate ability to Analyze, Design and implement data driven applications into the students.
<b>PSO 3</b>	Software engineering: Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

**Course Instructor**

**Course Coordinator**

**Module Coordinator**

**HOD**



**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE HANDOUT**

**PART-A**

**PROGRAM** : B.Tech, VI-Sem., CSE

**ACADEMIC YEAR** : 2019-20

**COURSE NAME & CODE** : Data Mining and Data Warehousing (DMDW) – 17CI16

**L-T-P STRUCTURE** : 2-2-0

**COURSE CREDITS** : 3

**COURSE INSTRUCTOR** : Dr.D Veeraiah

**COURSE COORDINATOR:** Dr.D Veeraiah

**PRE-REQUISITE:** DBMS, Probability and Statistics.

**COURSE OBJECTIVE:** Students will be enabled to understand and implement classical models and algorithms in data warehousing and data mining. They will learn how to analyze the data, identify the problems, and choose the relevant models and algorithms to apply. They will further be able to assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.

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

<b>CO 1</b>	Understand the basic concepts of data warehouse & data mining.
<b>CO 2</b>	Apply data pre-processing, generalization and data characterization techniques to provide suitable input for a range of data mining algorithms.
<b>CO 3</b>	Analyze and provide solutions for real world problems using mining association techniques.
<b>CO 4</b>	Examine the different classification & clustering techniques in data mining.
<b>CO5</b>	Apply data mining techniques to complex data objects like spatial data, multimedia data and web mining.

**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
<b>CO1</b>	3	2	1	-	-	-	-	-	-	-	-	1	-	3	-
<b>CO2</b>	3	3	1	1	1	-	-	-	-	-	-	1	1	3	-
<b>CO3</b>	2	3	3	-	1	1	-	-	-	-	-	2	1	3	-
<b>CO4</b>	3	3	3	1	1	1	-	-	-	-	-	2	2	3	-

CO5	2	3	2	-	-	-	-	-	-	-	-	1	1	3	-
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**Note:** Enter Correlation Levels **1** or **2** or **3**. If there is no correlation, put ‘-’

**1-** Lightly(33%) **2** - Moderately(66%), **3** - Strongly (100%).

**BOS APPROVED TEXT BOOKS:**

**T1** J. Han, M. Kamber, “Data Mining: Concepts and Techniques”, Harcourt India / Morgan Kauffman, 2001

**BOS APPROVED REFERENCE BOOKS:**

**R1** SamAnahory,DennisMurry, “DataWarehousing in the real world”, Pearson Education 2003.

**R2** DavidHand,HeikkiManila,PadhraicSymth, “Principles of Data Mining”, PHI 2004.

**R3** W.H.Inmon,“Building the Data Warehouse”, Wiley, 3rd Edition, 2003.

**R4** PaulrajPonniah, “Data Warehousing Fundamentals”, Wiley-Interscience Publication, 2003

**PART-B**

**COURSE DELIVERY PLAN (LESSON PLAN): Section-B**

**UNIT-I: Introduction to Data mining and Data warehouse**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1.	Fundamentals of data mining	1	25/11/19		<b>TLM1</b>	CO1	
2.	Data Mining functionalities and classification of data mining systems	1	27/11/19		<b>TLM1</b>	CO1	
3.	Major issues in data mining, Applications of data Mining	1	29/11/2019		<b>TLM1</b>	CO1	
4.	Introduction to Data warehouse	1	30/11/2019		<b>TLM1</b>	CO1	
5.	Introduction-Data, Info. Importance of DMDW	1	02/12/2019		<b>TLM1</b>	CO1	
6.	Data warehouse Need, OLTP vs OLAP	1	04/12/2019		<b>TLM1</b>	CO1	

7.	Multidimensional data models	1	06/12/2019		<b>TLM1</b>	CO1		
8.	DWH Architecture	1	07/12/2019		<b>TLM1</b>	CO1		
9.	Data warehouse Implementation	1	09/12/2019		<b>TLM2</b>	CO1		
10.	Further development of data cube Technology, From DWH TO Data Mining	1	13/12/2019		<b>TLM2</b>	CO1		
11.	TUTORIAL-1	1	16/12/2019		<b>TLM3</b>	CO1		
12.	Assignment/Quiz-1	1	18/12/2019		<b>TLM6</b>	CO1		
No. of classes required to complete UNIT-I		12	No. of classes taken:					

### UNIT-II: Data Pre-Processing

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
13.	Why we need pre-processing	1	20/12/2019		<b>TLM1</b>	CO2	
14.	Data Cleaning	1	21/12/2019		<b>TLM1</b>	CO2	
15.	Data Integration	1	23/12/2019		<b>TLM1</b>	CO2	
16.	Data Transformation	1	27/12/2019		<b>TLM1</b>	CO2	
17.	Data Reduction	1	28/12/2019		<b>TLM2</b>	CO2	
18.	Tutorial 2	1	30/12/19		<b>TLM3</b>	CO2	
19.	Discretization & Concept hierarchy generation	1	31//12/2019		<b>TLM2</b>	CO2	
20.	Data mining primitives	1	3/1/2020		<b>TLM2</b>	CO2	
21.	DMQL, Concept description and Characterizations	1	4/1/2020		<b>TLM2</b>	CO2	
22.	Class Comparisons,	1	6/1/2020		<b>TLM1</b>	CO2	

	Data generalization and summarization based on characterization						
23.	Analytical characterization Discrimination between different classes	1	8/1/2020		<b>TLM2</b>	CO2	
24.	Descriptive Statistical Measures	1	10/1/2020		<b>TLM2</b>	CO2	
25.	Assignment/Quiz-2	1	10/1/2020		<b>TLM2</b>	CO2	
No. of classes required to complete UNIT-II		12	No. of classes taken:				

### UNIT-III: Association Rule mining

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
26.	Association rule mining,	1	27/1/2020		<b>TLM1</b>	CO3	
27.	Frequent pattern, support and confidence	1	29/1/2020		<b>TLM2</b>	CO3	
28.	Apriori algorithm	1	31/1/2020		<b>TLM1</b>	CO3	
29.	FP growth algorithm	2	01/02/2020		<b>TLM1</b>	CO3	
30.	Tutorial 3	1	03/02/2020			CO3	
31.	Single dimensional Boolean association from transitional database	1	07/02/2020		<b>TLM1</b>	CO3	
32.	Multi-level association rules from transitional databases	1	10/02/2020		<b>TLM2</b>	CO3	
33.	From association rule mining to correlation analysis	1	12/02/2020		<b>TLM2</b>	CO3	
34.	Constraint based association rule mining	1	13/02/2020		<b>TLM2</b>	CO3	

35.	Assignment/Quiz-3	1	14/02/2020		<b>TLM6</b>	CO3	
No. of classes required to complete UNIT-III		11	No. of classes taken:				

#### **UNIT-IV: Classification and Perdition Analysis**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
36.	Issues regarding classification and	1	15/02/2020		<b>TLM1</b>	CO4	
37.	Classification by decision tree induction	2	17/02/2020		<b>TLM1</b>	CO4	
38.	Bayesian classification	1	19/02/2020		<b>TLM1</b>	CO4	
39.	Support vector machine	1	21/02/2020		<b>TLM2</b>	CO4	
40.	Classification based on concepts from association rule mining	1	22/02/2020		<b>TLM1</b>	CO4	
41.	Rule based induction algorithm	1	24/02/2020		<b>TLM1</b>	CO4	
42.	Prediction	1	26/02/2020		<b>TLM1</b>	CO4	
43.	Classifier accuracy	1	28/02/2020		<b>TLM1</b>	CO4	
44.	TUTORIAL-4	1	29/02/2020		<b>TLM3</b>	CO4	
45.	Assignment/Quiz-4	1	11/3/2020		<b>TLM6</b>	CO4	
No. of classes required to complete UNIT-IV			No. of classes taken:				

#### **UNIT-V: clustering and applications of data mining**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
46.	Types of data in cluster analysis	1	13/3/2020		<b>TLM2</b>	CO5	
47.	A categorization of major clustering methods	1	16/3/2020		<b>TLM2</b>	CO5	



48.	Partitioning methods	1	18/3/2020		<b>TLM2</b>	CO5		
49.	Density based methods	1	20/3/2020		<b>TLM2</b>	CO5		
50.	Grid based methods	1	21/3/2020		<b>TLM2</b>	CO5		
51.	Model based clustering methods	1	23/3/2020		<b>TLM2</b>	CO5		
52.	Outlier analysis	1	27/3/2020		<b>TLM3</b>			
53.	Tutorial 5	1	28/3/2020		<b>TLM2</b>	CO5		
54.	Overview of data mining applications	1	30/3/2020		<b>TLM2</b>	CO5		
55.	Web mining introduction, terminology and characteristics	1	1/4/2020		<b>TLM2</b>	CO5		
56.	Web content mining, Web usage mining and Web structure mining	1	03/04/2020		<b>TLM2</b>	CO5		
57.	Assignment 5/Quiz	1	04/04/2020		<b>TLM6</b>	CO5		
No. of classes required to complete UNIT-V		12	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
58.	Advanced topics in mining , Research topics related to social networking	1	04/04/2020					

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

## PART-C

Evaluation Task	Marks
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need

	for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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):**

<b>PSO 1</b>	<b>Programming Paradigms:</b> To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
<b>PSO 2</b>	<b>Data Engineering:</b> To inculcate ability to Analyze, Design and implement data driven applications into the students.
<b>PSO 3</b>	Software engineering: Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

**Course Instructor**

**Course Coordinator**

**Module Coordinator**

**HOD**



# 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

## FRESHMAN ENGINEERING DEPARTMENT

### COURSE HANDOUT

#### PART-A

Name of Course Instructor : Mr. Ch.Nagarjuna  
Course Name & Code : Presentation Skills Lab; 17FE61  
L-T-P Structure : 0-0-2+2 Credit : 1  
Program/Sem/Sec : B.Tech.,CSE, VI-Sem., Sections- B A.Y: 2019-2020

**PRE-REQUISITE:** Should have fundamental knowledge in making conversations in English and be with readiness to speak

**COURSE EDUCATIONAL OBJECTIVE (CEOs):** To help students make oral presentations, power point presentations, participate in group discussions and write project/research/technical reports/formal letters by gathering information and organizing ideas relevantly and coherently.

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

CO 1	Make power point presentations and oral presentations
CO 2	Use standard vocabulary contextually.
CO 3	Manage skillfully through group discussions.
CO 4	Negotiate skillfully for better placement.

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

Course	POs→	Program Outcomes (POs)											
		1	2	3	4	5	6	7	8	9	10	11	12
Presentation Skills Lab 17FE61	CO1		1		3		2			3	3		2
	CO2		1		3		2			3	3		2
	CO3		1		3		2			3	3		2
	CO4		1		3		2			3	3		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).

**Bos Approved Lab Manual:**

Board of Editors, "ELCS Lab Manual – A Workbook of CALL and ICS Lab Activities",  
Orient Black Swan Pvt. Ltd., Hyderabad, 2016.

## PART-B

### COURSE DELIVERY PLAN (LESSON PLAN):

#### BATCH-A

S.No.	Activity	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1.	Introduction	2	26-11-2019		TLM4		
2.	Self Introduction	2	03-12-2019		TLM4	CO1	
3.	JAM- I (prepared)	2	10-12-2019		TLM4	CO1	
4.	JAM-II (Extempore)	2	17-12-2019		TLM4	CO1	
5.	Group Discussion	2	24-12-2019		TLM4, TLM6	CO3	
6.	Group Discussion	2	31-12-2019		TLM4, TLM6	CO3	
7.	Reading Comprehension/Listening Comprehension	2	07-01-2020		TLM3	CO2	
8.	Poster Presentation	2	28-01-2020		TLM2, TLM4	CO1	
9.	Power point Presentation	2	04-02-2020		TLM2, TLM4	CO1	
10.	Power point Presentation	2	11-02-2020		TLM2, TLM4	CO1	
11.	Vocabulary(one-word substitutes/analogy/idioms)	2	18-02-2020		TLM1, TLM3	CO2	
12.	Vocabulary(one-word substitutes/analogy/idioms)	2	25-02-2020		TLM1, TLM3	CO2	
13.	Letter & Résumé writing	2	03-03-2020		TLM1, TLM3	CO4	
14.	Vocabulary(Synonyms/Antonyms)	2	10-03-2020		TLM1, TLM3	CO2	
15.	Mock Interviews	2	17-03-2020		TLM6	CO4	
16.	Mock Interviews	2	24-03-2020		TLM6	CO4	
17.	Internal Lab Exam	2	33-03-2020				
18.	<b>Total</b>	<b>34</b>					

### BATCH-B

S.No.	Activity	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1.	Introduction	2	29-11-2019		TLM4		
2.	Self Introduction	2	06-12-2019		TLM4	CO1	
3.	JAM- I (prepared)	2	13-12-2019		TLM4	CO1	
4.	JAM-II (Extempore)	2	20-12-2019		TLM4	CO1	
5.	Group Discussion	2	27-12-2019		TLM4, TLM6	CO3	
6.	Group Discussion	2	03-01-2020		TLM4, TLM6	CO3	
7.	Reading Comprehension/Listening Comprehension	2	10-01-2020		TLM3	CO2	
8.	Poster Presentation	2	17-02-2020		TLM2, TLM4	CO1	
9.	Power point Presentation	2	07-02-2020		TLM2, TLM4	CO1	
10.	Power point Presentation	2	14-02-2020		TLM2, TLM4	CO1	
11.	Vocabulary(one-word substitutes/analogy/idioms) (Synonyms/Antonyms)	2	21-02-2020		TLM1, TLM3	CO2	
12.	Vocabulary(one-word substitutes/analogy/idioms) (Synonyms/Antonyms)	2	28-02-2020		TLM1, TLM3	CO2	
13.	Letter & Résumé writing	2+2	06-03-2020 13-03-2020		TLM1, TLM3 TLM6	CO4	
14.	Mock Interviews	2	20-03-2020		TLM6	CO4	
15.	Mock Interviews	2	27-03-2020		TLM6	CO4	
16.	Internal Lab Exam	2	03-04-2020				
17.	Total	34					

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:

According to Academic Regulations of R17 Distribution and Weightage of Marks for Laboratory Courses is as follows:

#### (a) Continuous Internal Evaluation (CIE):

- ✓ The continuous internal evaluation for laboratory courses (including Computer aided engineering drawing, computer aided engineering graphics, Computer aided machine drawing etc.) is based on the following parameters:

Parameter		Marks
Day – to – Day Work	Observation	10 Marks
	Record	10 Marks
Internal Test		10 Marks
Attendance		05 Marks
Viva – Voce During Regular Lab Sessions		05 Marks
<b>Total</b>		<b>40 Marks</b>

#### (b) Semester End Examinations (SEE):

- ✓ The performance of the student in laboratory courses shall be evaluated jointly by internal and external examiners for 3 hours duration as per the parameters indicated below:

Sl.No.	Topic	Marks
I. i.	Synonyms	5
ii.	Antonyms	5
iii	One-Word substitutes	5
iv	Idioms	2 ½
v	Analogy	2 ½
II.	Resum`e	5
III.	Reading Comprehension	5
IV.	Oral & written task (JAM/GD/PPT)	20
V.	Interview	10
	<b>Total</b>	<b>60</b>

% of Attendance	Marks
≥ 95	05 Marks
90 to < 95	04 Marks
85 to < 90	03 Marks
80 to < 85	02 Marks
75 to < 80	01 Mark

## Rubrics For Evaluation of Laboratory Courses

Day-To-Day Lab (Observation) Performance Evaluation (R-17)				Record Performance Evaluation (R-17)				
S.N	Criteria	Poor	Average	Good	Criteria	Poor	Average	Good
<b>1</b>	Language suitability <b>(4 Marks)</b>	Wrong usage of words Grammatical errors <b>(2 Marks)</b>	Some points are missing from the data written Wrong usage of grammar & vocabulary. <b>(3 Marks)</b>	Well-written & spoken Language is error free <b>(4 Marks)</b>	Language <b>(4 Marks)</b>	Language used is not suitable Full of incorrect vocabulary <b>(2 Marks)</b>	Some words are inappropriately used / wrongly spelt <b>(3Marks)</b>	Language used is good No word/ spelling errors <b>(4 Marks)</b>
<b>2</b>	Content <b>(4Marks)</b>	Unable to Deliver all the points Delivering Irrelevant point <b>(2 Marks)</b>	Some points are not given Point analysis is not up to the mark <b>(3 Marks)</b>	All the points are analyzed properly More content was delivered. <b>(4 Marks)</b>	Content <b>(4 Marks)</b>	Very less points were written Points were not analyzed properly <b>(2 Marks)</b>	Some of the points were missing Some points are not properly analyzed <b>(3 Marks)</b>	Complete information is provided for the topic Important information is provided with illustrations/ examples <b>(4 Marks)</b>
<b>3</b>	Style of Presentation <b>(2 Marks)</b>	Inappropriate body language Improper presentation <b>(0 Marks)</b>	Presentation is not up to the mark <b>(1 Mark)</b>	Presented well with appropriate etiquette All important conclusions have been clearly made, student shows good understanding of the topic. <b>(2 Marks)</b>	Grammar & Neatness <b>(2 Mark)</b>	Frequent grammar and/r spelling errors writing style is rough and immature <b>( 1/2 Mark)</b>	Some grammatical errors <b>(1 Marks)</b>	No grammar/ spelling corrections are found and well-written <b>(2 Marks)</b>



## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
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<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor  
Mr.Ch.Nagarjuna

Course Coordinator  
Dr.B. Samrajya Lakshmi

Module Coordinator  
Dr.B. Samrajya Lakshmi

HOD  
Dr.A. Rami Reddy



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L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

### COURSE HANDOUT

#### PART A

Name of Course Instructor : Dr. M. Srinivasa Rao  
Course Name & Code : Software Testing Methodologies- 17CS91  
L-T-P Structure : 3-0-0 Credits : 3  
Program/Sem/Sec : B.Tech., CSE., VI-Sem., Sections- A A.Y : 2019-20

**PRE-REQUISITE** : Software Engineering and UML

**COURSE EDUCATIONAL OBJECTIVES (CEOs):** The primary objective of this course is to know the importance of automation testing compared with manual testing and importance of testing in real life while developing any product/project which reduces the risk of a developer. To know how to prepare testing techniques by using flow graph, transition flows and reduction of path expressions. To study fundamental concepts in software testing including software testing objectives, process, criteria, strategies, and methods.

**COURSE OUTCOMES (COs):** After the completion of this course, student will be able to

CO1: Interpret a model for testing and understand the process of testing

CO2: Visualize control flow graph and demonstrate complete path testing to achieve C1+C2 and identify the complications in a transaction flow testing and anomalies in data flow testing.

CO3: Apply domain testing strategies for different domains..

CO4: Apply reduction procedures to control flow graph and simplify it into a single path expression and understand the use of decision tables in test case design.

CO5: Identify effective approach for node reduction.

**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	2	-	-	-	-	-	-	-	-	-	-	-	-	3
CO2	2	3	2	-	-	-	-	-	-	-	-	-	-	-	3
CO3	3	2	1	-	-	-	-	-	-	-	-	-	-	-	3
CO4	2	3	1	-	-	-	-	-	-	-	-	-	-	-	3
CO5	2	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** A Boris Biezer; "Software Testing Techniques"; International Thomson computer Press, Second edition

**REFERENCE BOOKS:**

**R1** Brain Marick; "The Craft of Software Testing"; Prentice Hall Series in innovative technology.

**R2** Renu Rajani Pradeep Oak, "Software Testing, Effective methods, Tools and Techniques", TMHI.

**R3** Dr.K.V.K.K.Prasad, "Software Testing Tools", Dreamtech

**R4** "Software Testing in the Real World ", Edward Kit, Pearson.

**R5** Perry, John Wiley, "Effective methods of Software Testing".

**R6** <https://www.youtube.com/watch?v=gPE9emPFrwo>

**R7** <https://freevidelectures.com> > Computer Science > IIT Bombay

**R8** NPTEL videos : <https://nptel.ac.in/courses/106105150>

**PART – B****COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I : Purpose of Testing, Taxonomy of bugs.**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Subject	1	26-11-2019		TLM1	
2.	Course Outcomes	1	28-11-2019		TLM1	
3.	Introduction to UNIT-I	1	30-11-2019		TLM1	
4.	Purpose of Testing	1	03-12-2019		TLM1/ TLM2	
5.	Dichotomies	1	05-12-2019		TLM1/ TLM2	
6.	model for testing	1	07-12-2019		TLM1/ TLM2	
7.	consequences of bugs	1	10-12-2019		TLM1/ TLM2	
8.	Taxonomy of bugs	1	12-12-2019		TLM1/ TLM2	
9.	TUTORIAL-1	1	17-12-2019		TLM3	
No. of classes required to complete UNIT-I: 9				No. of classes taken:		

**UNIT-II : Flow Graphs and Path testing, Transaction flow and Data flow testing**

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.	Introduction to UNIT-II	1	19-12-2018		TLM1	
11.	Basics concepts of path testing	1	21-12-2019		TLM1	
12.	predicates, path predicates and achievable paths	1	24-12-2019		TLM1/ TLM2	
13.	path sensitizing	1	26-12-2019		TLM1	
14.	path instrumentation, application of path testing	1	28-12-2019		TLM1/ TLM2	
15.	Transaction flow testing techniques	1	31-12-2019		TLM1/ TLM2	
16.	Basics of Data flow testing	1	02-1-2020		TLM1/ TLM2	
17.	strategies in dataflow testing	1	04-1-2020		TLM1/ TLM2	
18.	Application of dataflow testing	1	07-1-2020		TLM1/ TLM2	
19.	TUTORIAL-2	1	09-1-2020		TLM3	
No. of classes required to complete UNIT-II: 10				No. of classes taken:		

**UNIT-III : Domain Testing**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
20.	Introduction to UNIT-III	1	28-01-2020		TLM1	
21.	Domains and paths	1	30-01-2020		TLM1/ TLM2	
22.	Nice & ugly domains	1	01-02-2020		TLM1/ TLM2	
23.	domain testing	1	04-02-2020		TLM1/ TLM2	
24.	domains and interfaces testing	1	06-02-2020		TLM1/ TLM2	
25.	domains and testability	1	11-02-2020		TLM1/ TLM2	
26.	TUTORIAL-3	1	13-02-2020		TLM3	
No. of classes required to complete UNIT-III: 7				No. of classes taken:		

**UNIT-IV : Paths, path products and Regular expressions, Logic Based Testing**

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 to UNIT-IV	1	15-02-2020		TLM1	
28.	Path products & path expression	1	18-02-2020		TLM1/ TLM2	
29.	Reduction Procedure	1	20-02-2020		TLM1/ TLM2	
30.	Applications	1	22-02-2020		TLM1/ TLM2	
31.	regular expressions & flow anomaly detection	1	25-02-2020		TLM1/ TLM2	
32.	Logic based testing Overview	1	27-02-2019		TLM1/ TLM2	
33.	decision tables , path expressions	1	29-02-2020		TLM1/ TLM5	
34.	kv charts, specifications	1	03-03-2020		TLM1/ TLM2	
35.	TUTORIAL-4	1	05-03-2020		TLM3	
No. of classes required to complete UNIT-IV: 9				No. of classes taken:		

**UNIT-V : State, state graphs and Transition Testing, Graph matrices and Application**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
36.	Introduction to UNIT-V	1	07-03-2020		TLM1	
37.	State graphs	1	12-03-2020		TLM1/ TLM2	
38.	Good & Bad state graphs	1	17-03-2020		TLM1/ TLM2	
39.	State testing, Testability tips	1	19-03-2020		TLM1/ TLM2	
40.	Matrix of graph, Relations, power of a matrix	1	21-03-2020		TLM1/ TLM2	
41.	Node reduction algorithm Building Tools	1	24-03-2020		TLM1/ TLM2	
42.	Building tools	1	26-03-2020		TLM1/ TLM2	
No. of classes required to complete UNIT-V: 7				No. of classes taken:		

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

## PART-C

### **EVALUATION PROCESS (R17 Regulations):**

<b>Evaluation Task</b>	<b>Marks</b>
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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):

<b>PSO 1</b>	<b>Programming Paradigms:</b> To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
<b>PSO 2</b>	<b>Data Engineering:</b> To inculcate an ability to analyze, design and implement data driven applications into the students.
<b>PSO 3</b>	<b>Software Engineering:</b> Develop an ability to implement various processes/ methodologies/ practices employed in design, validation, testing and maintenance of software products.

Course Instructor  
(Dr. M. Srinivasa Rao)

Course Coordinator  
(Dr. M. Srinivasa Rao)

Module Coordinator  
(Dr.Ch.V.Narayana)

HOD  
(Dr. D. Veeraiah)



# 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 COMPUTER SCIENCE & ENGINEERING

### COURSE HANDOUT

#### PART A

Name of Course Instructor	: Dr. M. Srinivasa Rao	
Course Name & Code	: Software Testing Methodologies- 17CS91	
L-T-P Structure	: 3-0-0	Credits : 3
Program/Sem/Sec	: B.Tech., CSE., VI-Sem., Sections- B	A.Y : 2019-20
<b>PRE-REQUISITE</b>	: Software Engineering and UML	

**COURSE EDUCATIONAL OBJECTIVES (CEOs):** The primary objective of this course is to know the importance of automation testing compared with manual testing and importance of testing in real life while developing any product/project which reduces the risk of a developer. To know how to prepare testing techniques by using flow graph, transition flows and reduction of path expressions. To study fundamental concepts in software testing including software testing objectives, process, criteria, strategies, and methods.

**COURSE OUTCOMES (COs):** After the completion of this course, student will be able to

CO1: Interpret a model for testing and understand the process of testing

CO2: Visualize control flow graph and demonstrate complete path testing to achieve C1+C2 and identify the complications in a transaction flow testing and anomalies in data flow testing.

CO3: Apply domain testing strategies for different domains..

CO4: Apply reduction procedures to control flow graph and simplify it into a single path expression and understand the use of decision tables in test case design.

CO5: Identify effective approach for node reduction.

#### **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	2	-	-	-	-	-	-	-	-	-	-	-	-	3
CO2	2	3	2	-	-	-	-	-	-	-	-	-	-	-	3
CO3	3	2	1	-	-	-	-	-	-	-	-	-	-	-	3
CO4	2	3	1	-	-	-	-	-	-	-	-	-	-	-	3
CO5	2	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** A Boris Biezer; "Software Testing Techniques"; International Thomson computer Press, Second edition

**REFERENCE BOOKS:**

**R1** Brain Marick; "The Craft of Software Testing"; Prentice Hall Series in innovative technology.

**R2** Renu Rajani Pradeep Oak, "Software Testing, Effective methods, Tools and Techniques", TMHI.

**R3** Dr.K.V.K.K.Prasad, "Software Testing Tools", Dreamtech

**R4** "Software Testing in the Real World ", Edward Kit, Pearson.

**R5** Perry, John Wiley, "Effective methods of Software Testing".

**R6** <https://www.youtube.com/watch?v=gPE9emPFrwo>

**R7** <https://freevideolectures.com> > Computer Science > IIT Bombay

**R8** NPTEL videos : <https://nptel.ac.in/courses/106105150>

**PART – B****COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I : Purpose of Testing, Taxonomy of bugs.**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Subject	1	25-11-2019		TLM1	
2.	Course Outcomes	1	27-11-2019		TLM1	
3.	Introduction to UNIT-I	1	30-11-2019		TLM1	
4.	Purpose of Testing	1	02-12-2019		TLM1/ TLM2	
5.	Dichotomies	1	04-12-2019		TLM1/ TLM2	
6.	model for testing	1	07-12-2019		TLM1/ TLM2	
7.	consequences of bugs	1	09-12-2019		TLM1/ TLM2	
8.	Taxonomy of bugs	1	11-12-2019		TLM1/ TLM2	
9.	TUTORIAL-1	1	16-12-2019		TLM3	
No. of classes required to complete UNIT-I: 9				No. of classes taken:		

**UNIT-II : Flow Graphs and Path testing, Transaction flow and Data flow testing**

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.	Introduction to UNIT-II	1	18-12-2018		TLM1	
11.	Basics concepts of path testing	1	21-12-2019		TLM1	
12.	predicates, path predicates and achievable paths	1	23-12-2019		TLM1/ TLM2	
13.	path sensitizing	1	28-12-2019		TLM1	
14.	path instrumentation, application of path testing	1	30-12-2019		TLM1/ TLM2	
15.	Transaction flow testing techniques	1	01-1-2020		TLM1/ TLM2	
16.	Basics of Data flow testing	1	04-1-2020		TLM1/ TLM2	
17.	strategies in dataflow testing, application of dataflow testing	1	06-1-2020		TLM1/ TLM2	
18.	TUTORIAL-2	1	08-1-2020		TLM3	
No. of classes required to complete UNIT-II: 9				No. of classes taken:		

**UNIT-III : Domain Testing**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
19.	Introduction to UNIT-III	1	27-01-2020		TLM1	
20.	Domains and paths	1	29-01-2020		TLM1/ TLM2	
21.	Nice & ugly domains	1	01-02-2020		TLM1/ TLM2	
22.	domain testing	1	03-02-2020		TLM1/ TLM4	
23.	domains and interfaces testing	1	05-02-2020		TLM1/ TLM2	
24.	domains and testability	1	10-02-2020		TLM1/ TLM2	
25.	TUTORIAL-3	1	12-02-2020		TLM3	
No. of classes required to complete UNIT-III: 7				No. of classes taken:		

**UNIT-IV : Paths, path products and Regular expressions, Logic Based Testing**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
26.	Introduction to UNIT-IV	1	15-02-2020		TLM1	
27.	Path products & path expression	1	17-02-2020		TLM1/ TLM2	
28.	Reduction Procedure	1	19-02-2020		TLM1/ TLM2	
29.	Applications	1	22-02-2020		TLM1/ TLM2	
30.	regular expressions & flow anomaly detection	1	24-02-2020		TLM1/ TLM2	
31.	Logic based testing Overview	1	23-02-2019		TLM1/ TLM2	
32.	decision tables	1	26-02-2020		TLM1/ TLM5	
33.	path expressions	1	29-02-2020		TLM1/ TLM2	
34.	kv charts, specifications	1	02-03-2020		TLM1/ TLM2	
35.	TUTORIAL-4	1	04-03-2020		TLM3	
No. of classes required to complete UNIT-IV: 10				No. of classes taken:		

**UNIT-V : State, state graphs and Transition Testing, Graph matrices and Application**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
36.	Introduction to UNIT-V	1	07-03-2020		TLM1	
37.	State graphs	1	09-03-2020		TLM1/ TLM2	
38.	Good & Bad state graphs	1	11-03-2020		TLM1/ TLM2	
39.	State testing, Testability tips	1	16-03-2020		TLM1/ TLM2	
40.	Matrix of graph, Relations, power of a matrix	1	18-03-2020		TLM1	
41.	Node reduction algorithm Building Tools	1	21-03-2020		TLM1/ TLM2	
42.	Building tools	1	23-03-2020		TLM1/ TLM2	
No. of classes required to complete UNIT-V: 7				No. of classes taken:		

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

## PART-C

### EVALUATION PROCESS (R17 Regulations):

<b>Evaluation Task</b>	<b>Marks</b>
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Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

## PART-D

### PROGRAMME OUTCOMES (POs):

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### PROGRAMME SPECIFIC OUTCOMES (PSOs):

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