



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)

(Approved by AICTE & Affiliated to Osmania University)

# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764

(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Consolidated List of Activity/ Innovative based Pedagogy techniques applied for Odd Semester of 2022-23

S.No	Faculty Name	Subject Name	Semester	Activity Type
1.	M. Sri Vidya	Big Data Analytics	VII	Think Pair Share
2.	T.Aruna Jyothi	Cloud Computing	VII	Think Pair Share
3.	V. Gopinath	VLSI Design	VII	Pogil
4.	K Vikram Reddy	AI	V	Think Pair Share
5.	Dr. G. Shyama Chandra Prasad	Automata Theory	V	Think Pair Share
6.	Dr. J. Srinivas	Object Oriented Analysis & Design	V	Think Aloud Pair Problem Solving
7.	T. Aruna Jyothi	Operating System	V	Think Pair Share
8.	S. Ramya	Software Engineering	V	Think Pair Share
9.	K. Praveen	Basic Electronics	III	Virtual Labs
10.	Dr. J. Srinivas	Data Structures	III	Virtual Labs
11.	K.Prashanth	EITC	III	Presentations
12.	C.Prashanthi	Finance & Accountancy	III	Mind Maps



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching (Think pair Share)

<b>Name of the Course Coordinator :</b> Mrs. M. Sri Vidya	<b>Designation :</b> Assistant Professor	<b>Course:</b> Big Data Analytics
<b>Year/Semester :</b> IV/ VII	<b>Section:</b>	<b>Topic:</b> Map Reduce
<b>Name of the activity:</b> Think Pair Share	<b>Date:</b> 29-11-2022	<b>No. of students attended:</b> 28

#### Introduction:

Collaborative learning is an instructional method in which student's team together on an assignment. In this method, students can produce the individual parts of a larger assignment individually and then "assemble" the final work together, as a team. Whether for a semester-long project with several outcomes or a single question during class, collaborative learning can vary greatly in scope and objectives. Cooperative learning, sometimes confused with collaborative learning, describes a method where students work together in small groups on a structured activity. Students are individually accountable for their work but also for the work of the group as a whole, and both products are assessed.

**Think, Pair & Share** activity was adopted in "Big Data Analytics" course in which students were involved in group, where students were asked to solve problems on various concepts. Students in a group helped each other to find the solution for the problems.

#### **Enclosures: Photos while conducting the activity**

1. Attached activity photos
2. Impact Analysis.





# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in



Students participating in Think Pair Share

### Impact Analysis

Conducting an impact analysis enables students to analyze the problems in implementing programming concepts .Map Reduce is basic concept which is useful to handle big data ,through collaborative learning students were made to understand importance of Map Reduce concept in big data.

S.NO	Roll No	TEAM	Score Individual (10M)	Team Score (10M)	Improvement /No change /Negative change
1	160819737008	A	8	8	Improvement
2	160819737010		8		Improvement
3	160819737014		8		Improvement
4	160819737006		7		Improvement
5	160819737016		8		Improvement
6	160819737023		8		Improvement
7	160819737025		8		Improvement



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

8	160819737027		8		Improvement
9	160819737031	<b>B</b>	8	8	Improvement
10	160819737033		8		Improvement
11	160819737015		8		Improvement
12	160819737012		8		Improvement
13	160819737306		8		Improvement
14	160819737040		8		Improvement
15	160819737001	<b>C</b>	8.5	8.5	Improvement
16	160819737001		8.5		Improvement
17	160819737034		8.5		Improvement
18	160819737019		8.5		Improvement
19	160819737301		8.5		Improvement
20	160819737302		6		Improvement
21	160820737305	<b>D</b>	8	8	Improvement
22	160820737313		8		Improvement
23	160820737303		8		Improvement
24	160820737319		8		Improvement
25	160820737317		8		Improvement
26	160820737318		8		Improvement
27	160820737315		8		Improvement
28	160820737303		8		Improvement

The students

who participated in the activity gained good insights on the topic Map Reduce.



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching (Think pair Share)

<b>Name of the Course Coordinator:</b> T.Aruna Jyothi	<b>Designation :</b> Asst. Professor	<b>Course:</b> Cloud Computing
<b>Year/Semester :</b> IV/ VII	<b>Section:</b>	<b>Topic:</b> Security in cloud
<b>Name of the activity:(Think Pair Share)</b>	<b>Date:</b> 05-12-2022	<b>No. of students attended:</b> 23

#### **Introduction:**

Collaborative learning is an instructional method in which student's team together on an assignment. In this method, students can produce the individual parts of a larger assignment individually and then "assemble" the final work together, as a team. Whether for a semester-long project with several outcomes or a single question during class, collaborative learning can vary greatly in scope and objectives. Cooperative learning, sometimes confused with collaborative learning, describes a method where students work together in small groups on a structured activity. Students are individually accountable for their work but also for the work of the group as a whole, and both products are assessed.

#### **Objective of the activity:**

- To identify various security features in cloud.
- To understand how security and interoperability will be issues.
- To make students understand complex concepts.
- To develop oral communication skills, Fosters and develops interpersonal relationships.

#### **Execution Plan:**

- Given higher-level questions about the topic to the students
- Gave some time for thinking the answer for questions
- Now formed teams of team size 2
- Gave some time to share the ideas themselves
- They shared their ideas to whole class
- Finally 80% of the groups have completed the task successfully

#### **Expected Outcomes:**

The students can be able to

1. Generate differentiate between privacy and security.
2. Analyze and understand real time problems in security.
3. Develops higher level thinking skills
4. Builds self esteem in students

**Enclosures:** Video/Photos while conducting the activity

1. Attached activity photo



**Students participating & sharing in active learning  
(Think Pair Share)**

## Sample Outcome from the given task

- 1) What is GRC - why is it important. (2)  
GRC as an acronym stands for  
governance, risk, and compliance.

### Governance:-

The means by which an organization is directed and controlled. In GRC, governance is necessary for setting direction (through strategy and policy), monitoring performance and controls, and evaluating outcomes.

### Risk:-

A possible event that could cause harm or loss or make it more difficult to achieve objectives. In GRC, risk management ensures that the organization identifies, analyses, and controls risk.

### Compliance:-

The act of ensuring that a standard or set of guidelines is followed, or that proper, consistent accounting or other practices are being employed. It ensures that depending on the context.



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### List of Students participated in active learning (Think Pair Share)

S.N O	Roll No	TEAM	Score Individual (10M)	Team Score( 10M)	Improvement /No change /Negative change
1	160819737001	<b>A</b>	8	8	Improvement
2	160819737023		8		Improvement
3	16081973725		8		Improvement
4	160819737027		8		Improvement
5	160819737005	<b>B</b>	8	8	Improvement
6	160819737028		8		Improvement
7	160819737030		8		Improvement
8	160819737032		8		Improvement
9	160819737003	<b>C</b>	8	8	Improvement
10	16081973733		8		Improvement
11	160819737034		8		Improvement
12	160819737035		8		Improvement
13	160819737037		8		Improvement
14	160819737039		8		Improvement
15	160819737006	<b>D</b>	8.5	8.5	Improvement
16	160819737040		8.5		Improvement
17	160819737042		8.5		Improvement
18	160819737043		8.5		Improvement
19	160819737044		8.5		Improvement
20	160819737045	<b>E</b>	6	6	Improvement
21	160819737048		6		Improvement
22	160819737049		6		Improvement
23	160819737050		6		Improvement

All the 23 students improved in their knowledge on the topic Security in cloud.





# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching (POGIL)

<b>Name of the Course Coordinator:</b> Mr. V. Gopinath	<b>Designation :</b> Asst. Prof	<b>Course:</b> VLSI Design
<b>Year/Semester :</b> IV/ VII	<b>Section:</b>	<b>Topic:</b> Logic Gate Design
<b>Name of the activity:</b> POGIL	<b>Date:</b> 12-11-2022	<b>No. of students attended:</b> 28

#### 1. Introduction

There are two crucial aspects to the design of a POGIL activity. First, sufficient appropriate information must be provided for the initial "Exploration" so that students are able to develop the desired concepts. Second, the guiding questions must be sequenced in a carefully constructed manner so that not only do students reach the appropriate conclusion, but at the same time various process and learning skills are implemented and developed.

Typically the first few questions build on students' prior knowledge and direct attention to the information provided by the model. This is followed by questions designed to help promote the recognitions of relationships and patterns in the data, leading toward some concept development. The final questions may involve applying the concepts to new situations and generalizing students' new knowledge and understanding. Thus, POGIL activities follow the structure of the learning cycle of exploration, concept invention and application, and has a strong basis in constructivism.

In contrast to traditional classrooms, students in a POGIL classroom work in small groups (of 3 or 4) on a specially designed activity. Each student is assigned a role, such as manager, recorder, spokesperson or reflector. The instructor serves as a facilitator who listens to the discussion and intervenes at appropriate times to guide student learning. In groups, students discuss the answers to carefully crafted questions that lead them to consider the general ideas in question and to construct their own understanding of important course concepts. As ideas are formulated, groups share their findings and understanding to new and increasingly difficult problems or contexts.

Rather than having the instructor begin class by defining terms and laying out concepts, students work actively to master material and formulate a deeper understanding of content. Built into the experience is the support of a variety of important process skills, including communication, teamwork, and critical thinking, which translates to a more complete understanding of the entire concept, and a lasting understanding of the material.

Sample Photographs of POGIL Task Activity:



POGIL TASK ON: Complex Logic Gates

FACULTY INFORMATION: MR. V. GOPINATH, ASST. PROFESSOR

Batch No:	06	Date:	
Team Role		Team Member Name	
Recorder: Records all answers and questions and provides copies to team and faculty.		M. Swetha (1608-19-237-056)	
Speaker: Talks to faculty and other teams.		Sara Fatima (1608-19-237-055)	
Manager: Keeps track of time and makes sure everyone contributes appropriately.		Aishwarya (1608-19-237-019)	
Other:		Amulya (1608-19-237-047)	

## LEARNING OBJECTIVES:

- ⇒ Study the complex logic gates - AOI, OAI
- ⇒ Get acquainted with representation of boolean functions using truth tables, logic diagrams + boolean Algebra.
- ⇒ Become familiarized with combinational logic circuits.

## INTRODUCTION:

One of the most powerful aspects of building logic circuits in CMOS is the ability to create a single circuit that provides several primitive operations (NOT, AND, OR) in an integrated manner. These will be called complex or combinational logic gates. Complex logic gates are very useful in VLSI system level design.

### List of Students

BATCH NO	ROLL NO	STUDENT NAME	INDIVIDUAL SCORE (10)	AVG.GROUP SCORE (10)
1	1608-19-737-017	K SRAVANI	8	8
	1608-19-737-059	B HARSHITHA	7	
	1608-19-737-044	A DEVI	9	
	1608-19-737-052	K POOJA	8	
2	1608-19-737-010	B.YUGENDHAR	10	9
	1608-19-737-011	V.THARUN	10	
	1608-19-737-026	D.ANILRAJ	8	
	1608-19-737-032	MD.MAAZ	7	
3	1608-19-737-057	SURABHI KUALAKARNI	7	8
	1608-19-737-034	V VEDA SAMHITHA	8	
	1608-19-737-023	SAI LAHARI	7	
	1608-19-737-029	CH AKSHAYA	7	
4	1608-19-737-014	T.VENKATESH	9	8
	1608-19-737-016	K.VINAY	7	
	1608-19-737-020	R.HANEESH	8	
	1608-19-737-035	K VINAY NAYAK	6	
5	1608-19-737-051	S.PRAMESHWARI DEVI	7	7
	1608-19-737-033	H.SHRADDHA	6	
	1608-19-737-043	G.SWECHHA	7	
6	1608-19-737-019	AISHWARYA	10	9
	1608-19-737-047	AMULYA	8	
	1608-19-737-055	SARA FATIMA	7	
	1608-19-737-056	M.SWETHA	9	
7	1608-19-737-042	K.RAHUL	7	8
	1608-19-737-301	ASHISH BIRADAR	7	
	1608-19-737-302	CH.KARTHIK	8	
	1608-19-737-004	M.SATHVIK REDDY	7	
8	1608-19-737-031	K.UDAYSAI	8	7
	1608-19-737-040	B.NIKITH	6	
	1608-19-737-038	S.SAI ROHITH	7	
	1608-19-737-053	DINESH	7	
9	1608-19-737-024	M SUPRAJA	7	7
	1608-19-737-012	SUMEDHA	6	
	1608-19-737-054	P SREELEKHA	8	
10	1608-19-737-045	G CHANDANA	10	9
	1608-19-737-037	G BHAVANI	10	
	1608-19-737-002	A SRI CHARITHA	7	
	1608-19-737-025	G UDAY SAI	8	
11	1608-19-737-001	M.PAVANSRIVATSA	9	9
	1608-19-737-005	K.SRIVARSHA	10	
	1608-19-737-009	CH.YASWANTH SAI	7	
	1608-19-737-049	P.SRI CHARAN	8	
12	1608-19-737-046	M.ANEESH	10	9
	1608-19-737-013	A.ABHISHEK	8	
	1608-19-737-058	S.SAIKRIAN	7	
13	1608-19-737-039	N.VARUN CHANDRA	8	7
	1608-19-737-303	S.JAYANTH	7	
	1608-19-737-305	K.NARESH NAIK	7	
	1608-19-737-006	P.NIVAS	6	

Analysis:

No. of Students Scored 10	No. of Students Scored $\geq 8$ and $< 10$	No. of Students Scored $\geq 5$ and $\leq 7$	No. of Students Scored $< 5$
6	17	25	0



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching (Think pair Share)

<b>Name of the Faculty:</b> K Vikram Reddy	<b>Designation :</b> Asst. Prof	<b>Course:</b> Artificial Intelligence
<b>Year/Semester :</b> III/ V	<b>Section:</b>	<b>Topic:</b> Applications of Distributed Systems in AI
<b>Name of the activity:</b> Think Pair Share	<b>Date:</b> 3-12-2022	<b>No. of students attended:</b> 36

#### Introduction:

Collaborative learning is an instructional method in which student's team together on an assignment. In this method, students can produce the individual parts of a larger assignment individually and then "assemble" the final work together, as a team. Whether for a semester-long project with several outcomes or a single question during class, collaborative learning can vary greatly in scope and objectives. Cooperative learning, sometimes confused with collaborative learning, describes a method where students work together in small groups on a structured activity. Students are individually accountable for their work but also for the work of the group as a whole, and both products are assessed.

#### **Objectives of the activity:**

- To identify various uses of the Distributed Applications in AI.
- To understand how Distributed Applications will work in AI.
- To make students understand complex concepts in Distributed Environment.
- To develop oral communication skills, and develops interpersonal relationships.

#### **Execution Plan:**

- Given higher-level questions about the topic to the students.
- Gave some time for thinking the answer for questions.
- Now formed teams of team size 6 total 6 teams.
- Gave some time to share the ideas themselves.
- They shared their ideas to whole class
- Finally 80% of the groups have completed the task successfully.

#### **Expected Outcomes:**

The students can be able to

- Generate valid and invalid arguments.
- Analyze the different types of drawbacks and solutions to overcome the problems.
- Develops higher level thinking skills.
- Builds self esteem in students.

#### **Enclosures: Photos while conducting the activity**

- Attached activity photos
- Student Document proof



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
 (Approved by AICTE & Affiliated to Osmania University)  
 # 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
 (ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in



Students sharing in active learning (Think Pair Share)

### Students participating in active learning(Think Pair Share)

S.N O	Roll No	TEAM	Score Individual (10M)	Team Score( 10M)	Improvement /No change /Negative change
1	160819737001	A	8	8	Improvement
2	160819737023		8		Improvement
3	16081973725		8		Improvement
4	160819737027		8		Improvement
5	160819737005	B	8	8	Improvement
6	160819737028		8		Improvement
7	160819737030		8		Improvement
8	160819737032		8		Improvement
9	160819737003		8		Improvement
10	16081973733		8		Improvement
11	160819737034		8		Improvement



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

12	160819737035	<b>C</b>	8	8	Improvement
13	160819737037		8		Improvement
14	160819737039		8		Improvement
15	160819737006	<b>D</b>	8.5	8.5	Improvement
16	160819737040		8.5		Improvement
17	160819737042		8.5		Improvement
18	160819737043		8.5		Improvement
19	160819737044		8.5		Improvement
20	160819737045	<b>E</b>	6	6	Improvement
21	160819737048		6		Improvement
22	160819737049		6		Improvement
23	160819737050		6		Improvement

All the students improved their understanding of the concept “Applications of Distributed Systems in AI”.





# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching (Think pair Share)

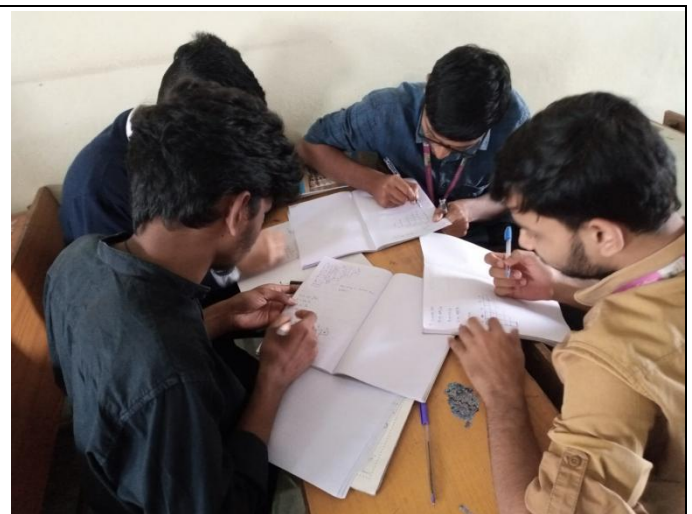
Name of the Course Coordinator : <b>Dr. G.Shyama Chandra Prasad</b>	Designation : Professor	Course: Automata Theory
Year/Semester :III/ V	Section:	Topic: PDA
Name of the activity: Think Pair Share	Date: 14-11-22	No. of students attended:25

#### Introduction:

Collaborative learning is an instructional method in which student's team together on an assignment. In this method, students can produce the individual parts of a larger assignment individually and then "assemble" the final work together, as a team. Whether for a semester-long project with several outcomes or a single question during class, collaborative learning can vary greatly in scope and objectives. Cooperative learning, sometimes confused with collaborative learning, describes a method where students work together in small groups on a structured activity. Students are individually accountable for their work but also for the work of the group as a whole, and both products are assessed.

**Think, Pair & Share** activity was adopted in "Automata Theory" course in which students were involved in group, where students were asked to solve problems on various concepts. Students in a group helped each other to find the solution for the problems.

#### **Enclosures: Photos while conducting the activity**



**Students participating in Think Pair Share**



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in



Students participating in Think Pair Share

### Question Paper

#### Question 1

Consider the grammar  $S \rightarrow aSbS \mid bSaS \mid \epsilon$

1. Show that this grammar is ambiguous by constructing two different parse trees for abab
2. Describe the language this grammar generates.

#### Question 2

Consider the grammar:

$$S \rightarrow \neg S \mid S \vee T \mid T$$
$$T \rightarrow T \wedge U \mid U$$
$$U \rightarrow ( S ) \mid \text{true} \mid \text{false}$$

1. Demonstrate that this grammar is ambiguous
2. Modify the grammar to eliminate the ambiguity and to reflect the normal precedence for logical operators.

#### Question 3



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

Design pda for  $L = \{ a^n b^n \mid n \geq 1 \}$

### Impact Analysis

This activity gave an opportunity for the student to improve the understanding ability of the course. Students were able to perform better in the course CEE & SEE exam. Below table shows the impact of the activity conducted.

S.NO	Roll No	TEAM	Score Individual (10M)	Team Score (10M)	Improvement /No change /Negativechange
1	160820737008	A	8	8	Improvement
2	160820737010		8		Improvement
3	160820737014		8		Improvement
4	160820737006		7		Improvement
5	160820737016		8		Improvement
6	160820737023		8		Improvement
7	160820737025		8		Improvement
8	160820737027		8		Improvement
9	160820737031	B	8	8	Improvement
10	160820737033		8		Improvement
11	160820737015		8		Improvement
12	160820737012		8		Improvement
13	160820737306		8		Improvement
14	160820737040		8		Improvement
15	160820737001	C	8.5	8.5	Improvement
16	160820737001		8.5		Improvement
17	160820737034		8.5		Improvement
18	160820737019		8.5		Improvement



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

19	160820737301		8.5		Improvement
20	160820737302		8.5		Improvement
21	160820737305	<b>D</b>	8	8	Improvement
22	160820737313		8		Improvement
23	160820737303		8		Improvement
24	160820737319		8		Improvement
25	160820737317		8		Improvement

All the students improved in their knowledge in the concept of Push Down Automata.



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching -Think Aloud Pair Problem Solving (TAPPS)

<b>Name of the Course Coordinator:</b> Dr. J.Srinivas	<b>Designation :</b> Associate Professor	<b>Course:</b> Object Oriented Analysis & Design
<b>Year/Semester :</b> III/ V	<b>Section:</b>	<b>Topic:</b> 4 Ps
<b>Name of the activity:</b> TAPPS	<b>Date:</b> 12-11-2022	<b>No. of students attended:</b> 28

#### Introduction:

Many educators today agree that students learn more in an active learning environment than they do in a passive learning environment. Active Learning is a process wherein students are actively engaged in building understanding of facts, ideas, and skills through the completion of instructor directed tasks and activities. It is any type of activity that gets students involved in the learning process. While strong conceptual understanding is important in solving analytical problems, it is also essential for the students to learn how to use their knowledge effectively in solving problems. Thinking aloud pair problem solving, which was first developed by Arthur Whimbey, aims to better understand thinking among the students.

As the name suggests, this involves students working in pairs. One student (the problem solver) is required to read the problem aloud and think aloud during the problem solving Process, which includes verbalizing everything they are thinking and doing. Another student (the listener) attends to the problem solver's thinking and reminds him/ her to keep saying aloud what he or she is thinking or doing, while also asking for clarifications and pointing out errors being made.

#### **Objective of the activity:**

- To identify various components of the 4P model.
- To understand how to manage Product, People, Process and Project.
- To make students understand complex concepts of product development.
- To develop oral communication skills, Fosters and develops inter-personal relationships.

#### **Execution Plan:**

**Time management:** Class time: **50 min**

1. Before conducting the activity conduct a surprise test, where students have to solve one question individually. Make a note of the scores. **-10min**
2. Class of sixty students is best suited for the activity.. It is suggested to have one good student paired with a group of dull student based on the scores of the surprise test. Prepare minimum 4 different set of concept oriented analytical questions. **-10min**



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

3. One student (the problem solver) is required to read the problem and think aloud during the problem solving process. Another student (the listener) attends to the problem solver's thinking and reminds him/her to keep saying aloud what he/she is thinking or doing, while also asking for clarifications and pointing out errors being made (if any). **-10min**

4. For the next question the roles should be interchanged and the activity be performed. The questions can be rotated among the pairs. Altogether each student needs to solve two questions. **-10mi**

5. Again conduct the test where the questions can be interchanged, but the students have to take the test individually. Compare the marks obtained before the activity and after. **-10mi**

### Expected Outcomes:

The students can be able to

1. Analyze the different ways to develop software product.
2. Generate various designs.
3. Develops higher level thinking skills.
4. Builds self esteem in students.

### Assessment:

1. Total Number of students attended = 20..
2. Total percentage of Improvement = 100%
3. No change of students before and after activity = 0%
4. Negative change of students = 0%

As the number of students participated in the activity was relatively less when compared to the class strength there may be a bias in the assessment of the methodology.

### Enclosures: Video/Photos while conducting the activity

2. Attached activity photos.
3. Student Document proof.



**Student Activity Photographs**

## Students participating & sharing in active learning

### Impact Analysis

S.NO	Roll No	TEAM	Score Individual (10M)	Team Score (10M)	Improvement /No change /Negativechange
1	160820737007	<b>A</b>	8	9	Improvement
2	160820737010		8		Improvement
3	160820737053		8		Improvement
4	160820737006		7		Improvement
5	160820737020		8		Improvement
6	160820737023		8		Improvement
7	160820737025		8		Improvement
8	160820737027		8		Improvement
9	160820737031	<b>B</b>	8	9	Improvement
10	160820737034		8		Improvement
11	160820737015		8		Improvement
12	160820737012		8		Improvement
13	160820737306		8		Improvement
14	160820737040		8		Improvement
15	160820737002	<b>C</b>	8.5	9	Improvement
16	160820737001		8.5		Improvement
17	160820737034		8.5		Improvement
18	160820737019		8.5		Improvement
19	160820737301		8.5		Improvement
20	160821737305		7		Improvement





# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

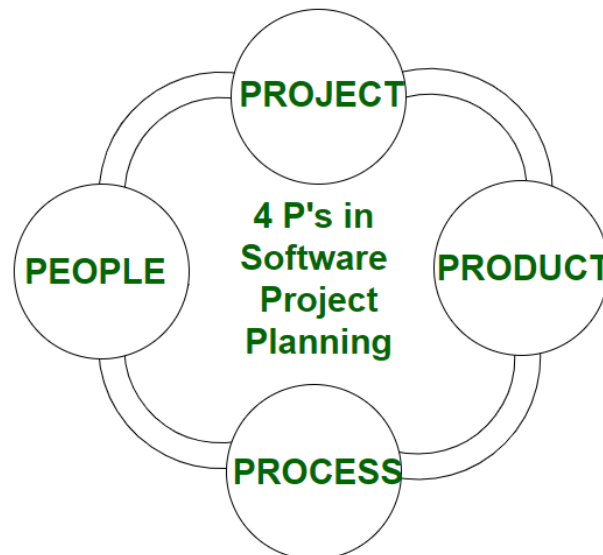
Website: www.matrusri.edu.in

### Sample Document Submitted by Students

#### The Management Spectrum | 4 P's in Software Project Planning

For properly building a product, there's a very important concept that we all should know in software project planning while developing a product. There are 4 critical components in software project planning which are known as the **4P's** namely:

- Product
- Process
- People
- Project



These components play a very important role in your project that can help your team meet its goals and objective. Now, Let's dive into each of them a little in detail to get a better understanding:

- **People**

The most important component of a product and its successful implementation is human resources. In building a proper product, a well-managed team with clear-cut roles defined for each person/team will lead to the success of the product. We need to have a good team in order to save our time, cost, and effort. Some assigned roles in software project planning are **project manager, team leaders, stakeholders, analysts**, and other **IT professionals**. Managing people successfully is a tricky process which a good project manager can do.

- **Product**

As the name inferred, this is the deliverable or the result of the project. The project manager should clearly define the product scope to ensure a successful result, control the team members, as well technical hurdles that he or she may encounter during the building of a product. The product can consist of both tangible or intangible such as shifting the company to a new place or getting a new software in a company.



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

- **Process**

In every planning, a clearly defined process is the key to the success of any product. It regulates how the team will go about its development in the respective time period. The Process has several steps involved like, documentation phase, implementation phase, deployment phase, and interaction phase.

- **Project**

The last and final P in software project planning is Project. It can also be considered as a blueprint of process. In this phase, the project manager plays a critical role. They are responsible to guide the team members to achieve the project's target and objectives, helping & assisting them with issues, checking on cost and budget, and making sure that the project stays on track with the given deadlines.



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching (Think pair Share)

<b>Name of the Course Coordinator:</b> T.Aruna Jyothi	<b>Designation :</b> Asst. Prof	<b>Course: Operating Systems</b>
<b>Year/Semester :</b> III/ V	<b>Section:</b>	<b>Topic: Scheduling Algorithms</b>
<b>Name of the activity: Think Pair Share</b>	<b>Date: 16-11-2022</b>	<b>No. of students attended: 20</b>

#### Introduction:

Collaborative learning is an instructional method in which student's team together on an assignment. In this method, students can produce the individual parts of a larger assignment individually and then "assemble" the final work together, as a team. Whether for a semester-long project with several outcomes or a single question during class, collaborative learning can vary greatly in scope and objectives. Cooperative learning, sometimes confused with collaborative learning, describes a method where students work together in small groups on a structured activity. Students are individually accountable for their work but also for the work of the group as a whole, and both products are assessed.

#### **Objective of the activity:**

- To identify various Process scheduling Algorithms.
- To understand difference between various scheduling algorithms .
- To make students understand complex concepts.
- To develop oral communication skills, Fosters and develops interpersonal relationships.

#### **Execution Plan:**

- Given higher-level questions about the topic to the students
- Gave some time for thinking the answer for questions
- Now formed teams of team size 2
- Gave some time to share the ideas themselves
- They shared their ideas to whole class
- Finally 80% of the groups have completed the task successfully

#### **Expected Outcomes:**

The students can be able to

1. Generate differentiate between privacy and security.
2. Analyze and understand real time problems in security.
3. Develops higher level thinking skills
4. Builds self esteem in students

**Enclosures:** Video/Photos while conducting the activity



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

1. Attached activity photos
2. Student Document proof



**Fig. 1. Students participating & sharing in active learning  
(Think Pair Share)**



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: [hodit@matrusri.edu.in](mailto:hodit@matrusri.edu.in)

Website: [www.matrusri.edu.in](http://www.matrusri.edu.in)

### Outcome of the Task Conducted



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

SJF  
Gantt chart

	P <sub>2</sub>	P <sub>4</sub>	P <sub>3</sub>	P <sub>5</sub>	P <sub>1</sub>
	0	1	2	4	9

Process id	BT	CT	TAT	WT
P <sub>1</sub>	10	19	9	19
P <sub>2</sub>	1	1	0	1
P <sub>3</sub>	2	4	2	4
P <sub>4</sub>	1	2	1	2
P <sub>5</sub>	5	9	4	9

$$AWT = \frac{19+1+4+2+9}{5}$$

$$= \frac{35}{5}$$

$$\boxed{AWT = 7}$$

$$ATAT = \frac{9+0+2+1+4}{5}$$

$$= \frac{16}{5}$$

$$\boxed{ATAT = 3.2}$$

Priority:

Process id	BT	Priority	CT	TAT	WT
P <sub>1</sub>	10	3	18	8	18
P <sub>2</sub>	1	1	1	0	1
P <sub>3</sub>	2	3	8	6	8
P <sub>4</sub>	1	4	19	18	19
P <sub>5</sub>	5	2	6	1	6



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Impact Analysis

S.NO	Roll No	TEAM	ScoreIndividual (10M)	TeamScore (10M)	Improvement /No change /Negativechange
1	160820737007	A	8	8	Improvement
2	160820737010		8		Improvement
3	160820737053		8		Improvement
4	160820737006		7		Improvement
5	160820737020		8		Improvement
6	160820737023		8		Improvement
7	160820737025		8		Improvement
8	160820737027		8		Improvement
9	160820737031	B	8	8	Improvement
10	160820737034		8		Improvement
11	160820737015		8		Improvement
12	160820737012		8		Improvement
13	160820737306		8		Improvement
14	160820737040		8		Improvement
15	160820737002	C	8.5	8.5	Improvement
16	160820737001		8.5		Improvement
17	160820737034		8.5		Improvement
18	160820737019		8.5		Improvement
19	160820737301		8.5		Improvement
20	160821737305		7		Improvement



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)

(Approved by AICTE & Affiliated to Osmania University)

# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764

(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

The twenty students who have participated in the activity were satisfactory.

### Activity Based Teaching (Think pair Share)

<b>Name of the Course Coordinator:</b> S.T.RAMYA	<b>Designation :</b> Asst. Prof	<b>Course:</b> Software Engineering
<b>Year/Semester :</b> III/ V	<b>Section:</b>	<b>Topic:</b> Software project Management
<b>Name of the activity:</b> Think Pair Share	<b>Date:</b> 12-11-2022	<b>No. of students attended:</b> 28

#### Introduction:

Collaborative learning is an instructional method in which student's team together on an assignment. In this method, students can produce the individual parts of a larger assignment individually and then "assemble" the final work together, as a team. Whether for a semester-long project with several outcomes or a single question during class, collaborative learning can vary greatly in scope and objectives. Cooperative learning, sometimes confused with collaborative learning, describes a method where students work together in small groups on a structured activity. Students are individually accountable for their work but also for the work of the group as a whole, and both products are assessed.

#### **Objective of the activity:**

- To identify various phases of software project development.
- To understand how to develop a software.
- To make students understand complex concepts.
- To develop oral communication skills, Fosters and develops inter-personal relationships.

#### **Execution Plan:**

- Given higher-level software project examples about the topic to the students.
- Gave some time for thinking the answer for questions.
- Now formed teams of team size 4
- Gave some time to share the ideas among themselves.
- They shared their ideas to whole class.
- Finally 75% of the groups have completed the task successfully.

#### **Expected Outcomes:**

The students can be able to

5. Analyze the different ways to develop software product .
6. Generate various designs.
7. Develops higher level thinking skills.





# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: [www.matrusri.edu.in](http://www.matrusri.edu.in)

8. Builds self esteem in students.

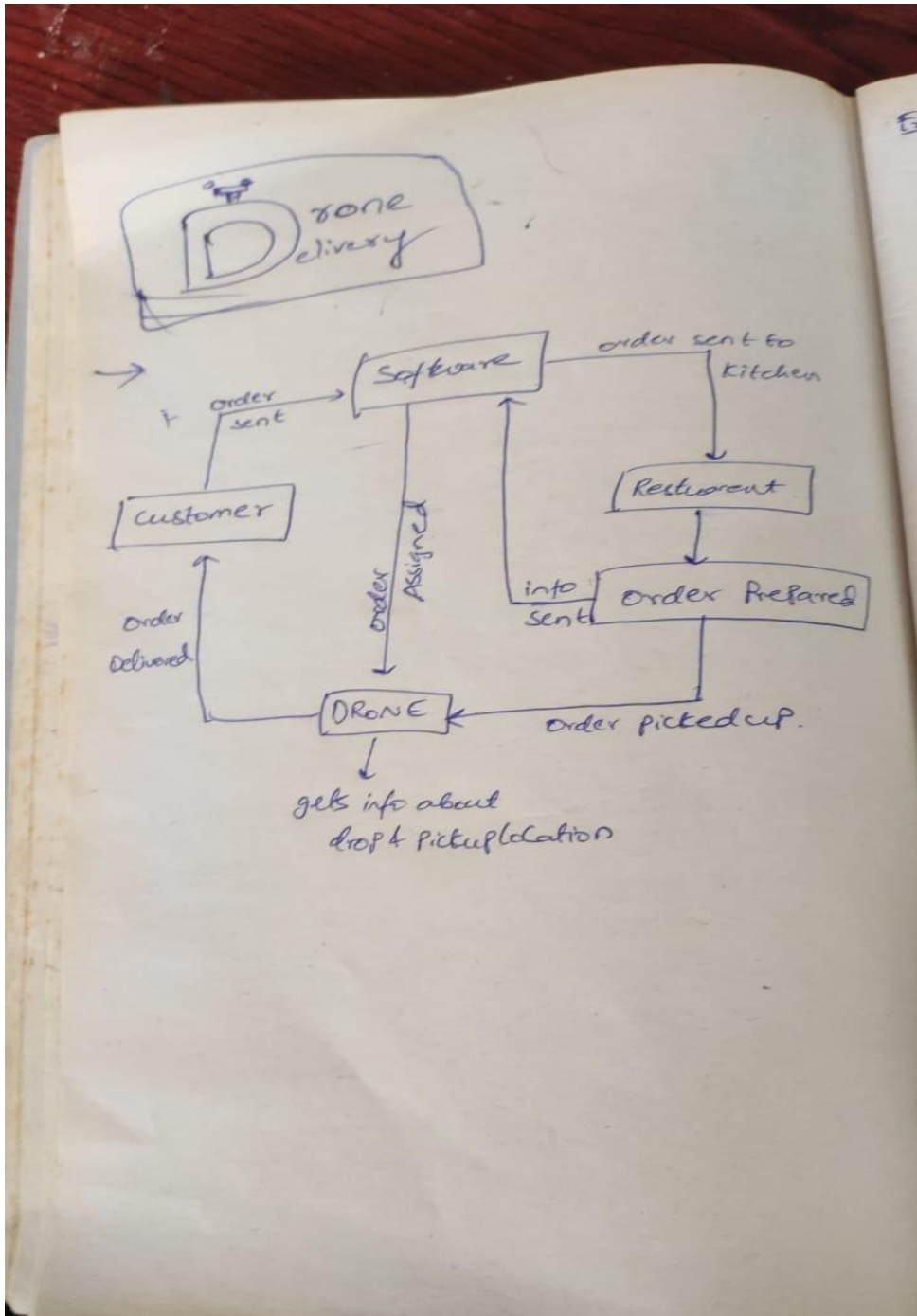
**Enclosures: Photos while conducting the activity**

4. Attached activity photos.

## Students participating in the Activity



### Sample Outcome of the Activity Conducted



## Students participating & sharing in active Learning

### Impact Analysis

S.NO	Roll No	TEAM	ScoreIndividual (10M)	TeamScore (10M)	Improvement /No change /Negativechange
1	160820737007	<b>A</b>	8	8	Improvement
2	160820737010		8		Improvement
3	160820737053		8		Improvement
4	160820737006		7		Improvement
5	160820737020		8		Improvement
6	160820737023		8		Improvement
7	160820737025		8		Improvement
8	160820737027		8		Improvement
9	160820737031	<b>B</b>	8	8	Improvement
10	160820737034		8		Improvement
11	160820737015		8		Improvement
12	160820737012		8		Improvement
13	160820737306		8		Improvement
14	160820737040		8		Improvement
15	160820737002	<b>C</b>	8.5	8.5	Improvement
16	160820737001		8.5		Improvement
17	160820737034		8.5		Improvement
18	160820737019		8.5		Improvement
19	160820737301		8.5		Improvement
20	160821737305		7		Improvement



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching (Virtual Labs)

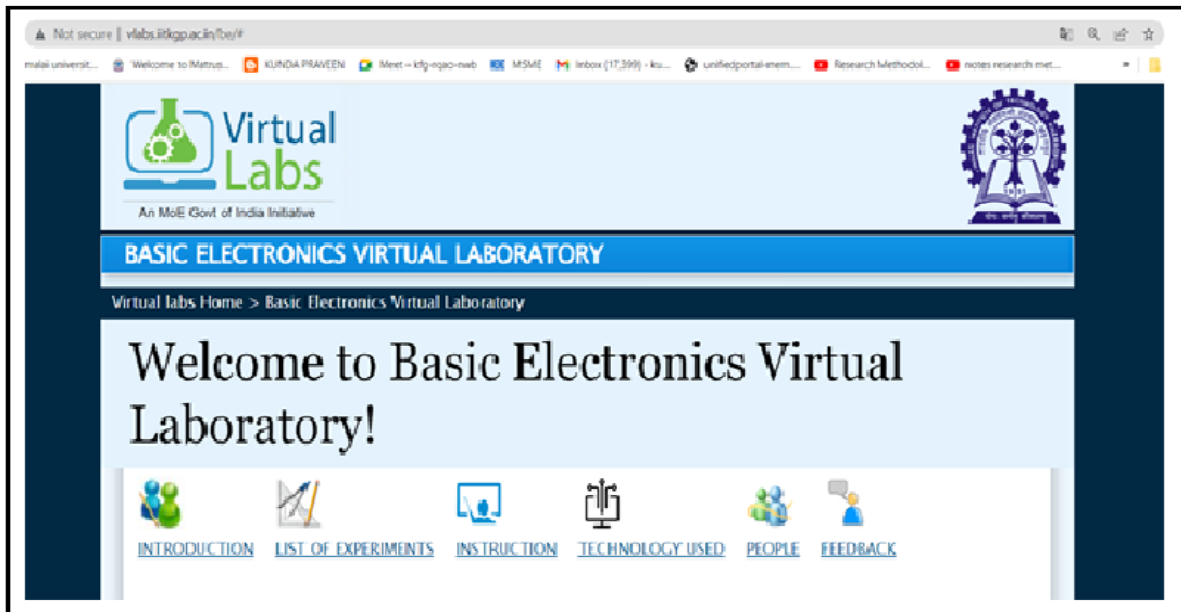
<b>Name of the Course Coordinator:</b> Mr. K.Praveen	<b>Designation :</b> Asst. Professor	<b>Course:</b> Basic Electronics
<b>Year/Semester :</b> III/ V	<b>Section:</b>	<b>Topic:</b> BE Lab using Virtual Labs
<b>Name of the activity:</b> Virtual Labs	<b>Date:</b> 3-12-2022	<b>No. of students attended:</b> 36

The goal of Virtual labs initiative is a paradigm shift in ICT-based education. Virtual Labs project is an initiative of the Ministry of Human Resource Development (MHRD), Government of India under the aegis of the National Mission on Education through Information and Communication Technology (NMEICT).Following are the steps to complete the virtual lab process.

**Step 1:** The labs and experiments offered on the Virtual labs' platform are mapped with the labs and exercises prescribed in the curriculum. After due discussions, the department announces the information to the students about the labs and exercises in the remote mode.

**Lab Name:** Basic Electronics Virtual Laboratory

**Link:** <http://vlabs.iitkgp.ac.in/be/#>



### List of Experiments offered remotely experiments developed

1. VI Characteristics of a Diode.
2. Half Wave Rectification.
3. Full Wave Rectification.
4. Capacitive Rectification.
5. BJT Common Emitter Characteristics.
6. BJT Common Base Characteristics.
7. Studies on BJT CE Amplifier.
8. Study of basic properties of Operational Amplifier: Inverting and Non-Inverting Amplifiers.
9. Study of Differentiator and Integrator using Operational Amplifier.

**Step 2:** Mentors are appointed for each Lab.

1. II B.Tech IT-Section: K.Praveen, Assistant Professor, ECE Department

**Step 3:** A workshop in association with Virtual labs is organized to sensitize the students and faculty members on how to navigate the platform by the assigned mentors.

**Step 4:** Students navigate through the platform and access the lab. The students are informed to go through the relevant video content and lab manual in remote mode

### STUDENTS REGISTERED FOR VIRTUAL LAB FOR

### BASIC ELECTRONICS LAB (VIRTUAL LAB) A.Y.2022-23

S.NO	HT NO.	NAME OF THE STUDENT	Quizz
1	1608-21-737-002	NERELLA SUSHANTH	√
2	1608-21-737-003	BUKKA DIVYA	√
3	1608-21-737-004	NEELA NEERAJ BABU	√
4	1608-21-737-005	MOTATI NITHIN KUMAR REDDY	√
5	1608-21-737-006	PALAKURTHI LAKSHMI SATHVIKA	√
6	1608-21-737-007	RACHARLA NIKHITHA	√
7	1608-21-737-008	BURRI KALYANREDDY	√
8	1608-21-737-009	KONDURI ANUSH	√
9	1608-21-737-010	MEGHANA KOMMI	√

10	1608-21-737-011	M UDAYKIRAN	√
11	1608-21-737-012	ADAPA SHRUTHI	√
12	1608-21-737-013	EMMADI GANESH	√
13	1608-21-737-014	BOMMINENI ASHRITHA	√
14	1608-21-737-015	ADHIKARI SOWMYA NAIDU	√
15	1608-21-737-016	BAMMIDI VYSHNAVI	√
16	1608-21-737-017	KALAKOTI SAHITHI	√
17	1608-21-737-018	D SAMANVITHA	√
18	1608-21-737-019	GUNNAM SAHASRA REDDY	√
19	1608-21-737-020	VODNALA AKSHITH	√
20	1608-21-737-021	BONDUGULA VASAVI	√
21	1608-21-737-022	RAGI RASHMITHA	√
22	1608-21-737-023	TIRUPATHI SOWMYA	√
23	1608-21-737-024	GAJAM VIVEK CHAND	√
24	1608-21-737-025	G KARTHIK	√
25	1608-21-737-026	PAGIDIPALA SREEJA	√
26	1608-21-737-027	GORLA PRIYANKA	√
27	1608-21-737-028	AVUSALI BHASKER	√
28	1608-21-737-029	MOHAMMED NABI	√
29	1608-21-737-030	B JOSHUA HEARTS	√
30	1608-21-737-031	SHAIK ANWAR	√
31	1608-21-737-032	CHEGONDI YASHWANTH	√
32	1608-21-737-033	KURMETI JAYANTH SHARMA	√
33	1608-21-737-034	MAYAWAR PRACHETHAN	√
34	1608-21-737-035	JUTTU ADHIVISHNU	√
35	1608-21-737-036	D SHANMUKH ADITYA	√

36	1608-21-737-037	BUCHALA SRIVANI	√
37	1608-21-737-038	SHETTY PARMESH	√
38	1608-21-737-039	RISHITHA MATURI	√
39	1608-21-737-040	KUDIKYALA SATHWIKI	√
40	1608-21-737-041	JANGAMWAR PRIYANKA	√
41	1608-21-737-042	SADE VIJETHA	√
42	1608-21-737-043	THUMMALA SAI SIDDARTHA REDDY	√
43	1608-21-737-044	GUNAGANTI NIKHIL	√
44	1608-21-737-045	TODIMELA KEERTHANA	√
45	1608-21-737-046	SATHYASI ASHISH	√
46	1608-21-737-047	PRAKASH	√
47	1608-21-737-048	GANJI BHARATHI	√
48	1608-21-737-049	JAMALA SHIVA SAI NAIK	√
49	1608-21-737-050	CHERUKU HEMANTH	√
50	1608-21-737-051	NALLAVALLI SRAVYA	√
51	1608-21-737-052	SATTENAPALLI AVINASH PRANEETH	√
52	1608-21-737-053	DUVVURI DINESH BABU	√
53	1608-21-737-054	R VENKATA ANIRUDH	√
54	1608-21-737-055	GORATI SHIVA	AB
55	1608-21-737-056	M PRANAY SAM	√
56	1608-21-737-057	BADDEMOLLA MEGHANA	√
57	1608-21-737-058	DAIDA MADHAVIKA	√
58	1608-21-737-059	CHINTAPANDU HARSHITHA	√
59	1608-21-737-060	SRIHITHA RAO CHEETI	√
60	1608-21-737-061	KANDUKURI HARIKA REDDY	√
61	1608-21-737-062	MIDUDULA SARYU	√



62	1608-21-737-063	GUMMALLA SOHITH REDDY	√
63	1608-21-737-064	VASA NIKESH	√
64	1608-21-737-301	T ARAVIND	√
65	1608-21-737-302	D Shravani	√
66	1608-21-737-303	Mubasheer	√
67	1608-21-737-304	Md.Haleem	√
68	1608-21-737-305	Lingaswamy D	√
69	1608-21-737-306	K.Snehalatha	√
70	1608-21-737-307	S.Yaswith	√

**Step 5:** Student will perform the simulation experiment in the remote mode and submit the feedback form to the mentor. The laboratory sessions were conducted by the concerned mentor who supplements the same by engaging the discussion sessions.

**Virtual Labs: Feedback Form**

**(Total No. of Experiments Performed)**

1

Student Name: NERELLA SUSHANTH	ExperimentDate: 16-12-2022
Institute: Matrusri Engineering College	Faculty: No          Student: yes
Email: it21737002@matrusri.edu.in	Class/Roll No: 1608-21-737-002
Phone:9533776026	Subject: <b>Basic Electronics Lab</b>

**Details of First Lab: Basic Electronics Lab**

Sr. No	Name of the Lab	Name of the Experiment	Does it work (Yes or No)	If No, what is the issue with it?
1	<b>Basic Electronics Lab</b>	<b>Full Wave Rectification</b>	yes	No

1. Why and how often do you plan to use Virtual Labs?

Ans: Weekly once

2. Specify the problems or difficulties faced while performing the experiments

Ans: Nothing

3. What are the most interesting things about the experiments?

Ans: Excellent, easy to do and can understand the Experiment

4. What are your suggestions about making them better?

Ans:Nothing

Signature: *Susmitha*

Roll No: 1608-21-737-002

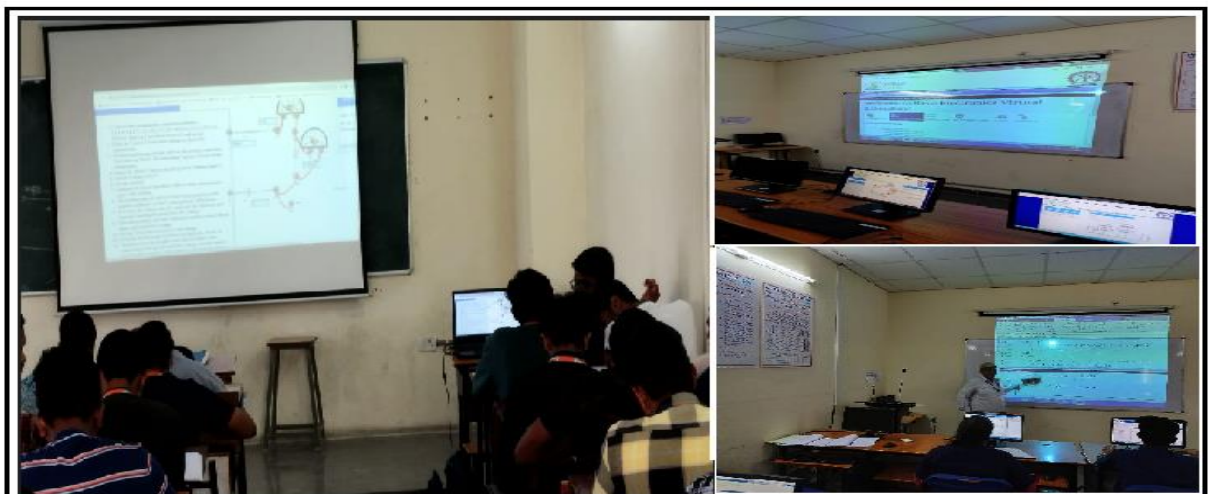
Motivation Levels / Interest Levels on a 1-10 scale			
At the start	After 3 experiments	After 5 experiments	After 10 experiments
7	8	9	9

### **Impact Analysis:**

All the students have benefitted and learned the virtual environment developed by IIT Kharagpur offered in remote mode of Basic Electronics lab for II B.Tech students. This lab has provided hands-on experience on all Basic electronics experiments to be executed on virtual mode. The artifacts developed in each stage of the software developed for experiment design and tested as per the given case studies. Here the platform supports the result analysis by using Tabular values and graphs.

By the end of this course, all students have submitted the feedback forms with their motivation levels and interest levels of this lab on a scale of 1-10. Overall 100% result of pass percentage have gained in this lab. 70 students have benefitted of hands-on experience of the Software Engineering Virtual Lab. An exclusive virtual lab provided to the students at the institute level.

### **Students Executing experiments in Virtual lab**



## Students Submitted Online Reports

The screenshot displays a quiz interface for "Virtual Labs Basic Electronics Exp1 Common Base Charecteristics Quiz". The user is identified as "1608-21-737-059 CHINTAPANDU HARSHIT..." and the status is "Handed in". The main content area shows a report for the experiment "BJT- CB INPUT CHARACTERISTICS".

**EXPERIMENTAL TABLE**

Serial No.	Base-Collector Voltage (V)	Emitter Current (mA)
1	0.0000	0.0000
2	0.1000	0.0000
3	0.2000	0.0000
4	0.3000	0.0000
5	0.4000	0.0000
6	0.5000	0.0000
7	0.6000	0.0000
8	0.7000	0.0000
9	0.8000	0.0000
10	0.9000	0.0000
11	1.0000	0.0000
12	1.1000	0.0000
13	1.2000	0.0000
14	1.3000	0.0000

**GRAPH**

V-I Plot

The graph shows Emitter Current (mA) on the y-axis and Base-Emitter Voltage (V) on the x-axis. The plot shows a curve that starts at the origin and increases exponentially as the base-emitter voltage increases.

The right sidebar shows the "Files" section with three images: IMG\_20221216\_17..., IMG\_20221216\_170936.jpg, and IMG\_20221216\_170309.jpg. The "Mark" section shows a score of /100. There is also a "Private comments" section with an "Add private comment..." field and a "Post" button.

## Students Submitted Online Quiz

The screenshot displays a quiz interface for "Virtual Labs Basic Electronics Exp1 Common Base Charecteristics Quiz". The user is identified as "1608-21-737-059 CHINTAPANDU HARSHIT..." and the status is "Handed in". The main content area shows a report for the experiment "BJT Common Base Characteristics".

The report contains several sections, including a list of questions and answers related to the experiment. The right sidebar shows the "Files" section with three images: IMG\_20221216\_170334.jpg, IMG\_20221216\_170936.jpg, and IMG\_20221216\_17... The "Mark" section shows a score of /100. There is also a "Private comments" section with an "Add private comment..." field and a "Post" button.

The students who participated in the activity gained good knowledge over the experiments demonstrated through virtual labs.



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching (Virtual Labs)

<b>Name of the Course co-ordinator:</b> Dr. J.Srinivas	<b>Designation :</b> Associate Professor	<b>Course:</b> Data Structures
<b>Year/Semester :</b> II/ III	<b>Section:</b>	<b>Topic:</b> Datastructures
<b>Name of the activity:</b> Practice Of Lab Experiments Offered On The Virtual Lab	<b>Date:</b> 3-12-2022 & 22-1-2023	<b>No. of students attended:</b> 70

The goal of Virtual labs initiative is a paradigm shift in ICT-based education. Virtual Labs project is an initiative of the Ministry of Human Resource Development (MHRD), Government of India under the aegis of the National Mission on Education through Information and Communication Technology (NMEICT).Following are the steps to complete the virtual lab process.

**Step 1:** The labs and experiments offered on the Virtual labs' platform are mapped with the labs and exercises prescribed in the curriculum. After due discussions, the department announces the information to the students about the labs and exercises in the remote mode.

**Lab Name:** Data Structures Lab

#### **Link:**

<https://ds1-iiith.vlabs.ac.in/List%20of%20experiments.html>

#### **List of Experiments offered remotely**

- Experiments Done
  - A. Merge Sort.
  - B. Quick Sort.
  - C. Linked List.
  - D. Infix to Post fix.
  - E. Stacks.
  - F. Linked Lists.
  - G. Queue.
  - H. Array.
  - I. String ADT.

**Step 2:** Mentors are appointed for the Lab.

2. Dr. J. Srinivas, Associate Professor, IT Department.
3. Mrs. S.T. Ramya, Assistant Professor, IT Department.



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

**Step 3:** A workshop in association with Virtual labs (IIITH) was organized to sensitize the students and faculty members on how to navigate the platform by the assigned mentors. (Jan-30-2023)

**Step 4:** Students navigate through the platform and access the lab. The students are informed to go through the relevant video content and lab manual in remote mod

### **STUDENTS REGISTERED FOR VIRTUAL LAB FOR**

#### **Datastructures LAB (VIRTUAL LAB) A.Y.2022-23**

S.No	Ht No.	Name Of The Student
1	1608-21-737-002	NERELLA SUSHANTH
2	1608-21-737-003	BUKKA DIVYA
3	1608-21-737-004	NEELA NEERAJ BABU
4	1608-21-737-005	MOTATI NITHIN KUMAR REDDY
5	1608-21-737-006	PALAKURTHI LAKSHMI SATHVIKA
6	1608-21-737-007	RACHARLA NIKHITHA
7	1608-21-737-008	BURRI KALYANREDDY
8	1608-21-737-009	KONDURI ANUSH
9	1608-21-737-010	MEGHANA KOMMI
10	1608-21-737-011	M UDAYKIRAN
11	1608-21-737-012	ADAPA SHRUTHI
12	1608-21-737-013	EMMADI GANESH
13	1608-21-737-014	BOMMINENI ASHRITHA
14	1608-21-737-015	ADHIKARI SOWMYA NAIDU
15	1608-21-737-016	BAMMIDI VYSHNAVI
16	1608-21-737-017	KALAKOTI SAHITHI
17	1608-21-737-018	D SAMANVITHA



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

18	1608-21-737-019	GUNNAM SAHASRA REDDY
19	1608-21-737-020	VODNALA AKSHITH
20	1608-21-737-021	BONDUGULA VASAVI
21	1608-21-737-022	RAGI RASHMITHA
22	1608-21-737-023	TIRUPATHI SOWMYA
23	1608-21-737-024	GAJAM VIVEK CHAND
24	1608-21-737-025	G KARTHIK
25	1608-21-737-026	PAGIDIPALA SREEJA
26	1608-21-737-027	GORLA PRIYANKA
27	1608-21-737-028	AVUSALI BHASKER
28	1608-21-737-029	MOHAMMED NABI
29	1608-21-737-030	B JOSHUA HEARTS
30	1608-21-737-031	SHAIK ANWAR
31	1608-21-737-032	CHEGONDI YASHWANTH
32	1608-21-737-033	KURMETI JAYANTH SHARMA
33	1608-21-737-034	MAYAWAR PRACHETHAN
34	1608-21-737-035	JUTTU ADHIVISHNU
35	1608-21-737-036	D SHANMUKH ADITYA
36	1608-21-737-037	BUCHALA SRIVANI
37	1608-21-737-038	SHETTY PARMESH
38	1608-21-737-039	RISHITHA MATURI
39	1608-21-737-040	KUDIYALA SATHWIK
40	1608-21-737-041	JANGAMWAR PRIYANKA
41	1608-21-737-042	SADE VIJETHA



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

42	1608-21-737-043	THUMMALA SAI SIDDARTHA REDDY
43	1608-21-737-044	GUNAGANTI NIKHIL
44	1608-21-737-045	TODIMELA KEERTHANA
45	1608-21-737-046	SATHYASI ASHISH
46	1608-21-737-047	PRAKASH
47	1608-21-737-048	GANJI BHARATHI
48	1608-21-737-049	JAMALA SHIVA SAI NAIK
49	1608-21-737-050	CHERUKU HEMANTH
50	1608-21-737-051	NALLAVALLI SRAVYA
51	1608-21-737-052	SATTENAPALLI AVINASH PRANEETH
52	1608-21-737-053	DUVVURI DINESH BABU
53	1608-21-737-054	R VENKATA ANIRUDH
54	1608-21-737-055	GORATI SHIVA
55	1608-21-737-056	M PRANAY SAM
56	1608-21-737-057	BADDEMOLLA MEGHANA
57	1608-21-737-058	DAIDA MADHAVIKA
58	1608-21-737-059	CHINTAPANDU HARSHITHA
59	1608-21-737-060	SRIHITHA RAO CHEETI
60	1608-21-737-061	KANDUKURI HARIKA REDDY
61	1608-21-737-062	MIDUDULA SARYU
62	1608-21-737-063	GUMMALLA SOHITH REDDY
63	1608-21-737-064	VASA NIKESH
64	1608-21-737-301	T ARAVIND



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

65	1608-21-737-302	D SHRAVANI
66	1608-21-737-303	MUBASHEER
67	1608-21-737-304	MD.HALEEM
68	1608-21-737-305	LINGASWAMY D
69	1608-21-737-306	K.SNEHALATHA
70	1608-21-737-307	S.YASWITH

**Step 5:** Student will perform the simulation experiment in the remote mode and submit the feedback form to the mentor. The laboratory sessions were conducted by the concerned mentor who supplements the same by engaging the discussion sessions.

### **Impact Analysis:**

All the students have benefitted and learned the virtual environment developed by IIT Kharagpur offered in remote mode of Data Structures lab for II B.Tech students. This lab has provided hands-on experience on Data Structures lab in virtual mode. The artifacts developed in each stage of the software developed for experiment design and tested as per the given case studies. Here the platform supports the result analysis by using Tabular values and graphs.

By the end of this course, all students have submitted the feedback forms with their motivation levels and interest levels of this lab on a scale of 1-10. Overall 100% result of pass percentage have gained in this lab. A total 70 students have benefitted of hands-on experience of the Data Structure Virtual Lab.





# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

The screenshot shows a video player displaying a webpage from Virtual Labs. The webpage title is "Abstraction of a Linked List". The page content includes:

- A navigation menu on the left with options: Singly Linked List, Doubly Linked List, Aim, Concept, Practice, Exercise, Quiz, Circular Linked List, Posttest, Further Readings/References, and Feedback.
- A main heading "Abstraction of a Linked List".
- A diagram titled "Singly Linked List" showing five boxes connected by solid arrows pointing from left to right. The first box is labeled "front" and the last box is labeled "back".
- A diagram titled "Doubly Linked List" showing five boxes connected by dashed arrows pointing both left and right. The first box is labeled "front" and the last box is labeled "back".
- A section titled "Insertion of elements into Doubly Linked List" with the text: "Insertion in doubly linked list is similar to that of insertion in singly linked list. unlike there need to be a change in data type we use a pointer to add an extra element to the data type. i.e. Node 'parent' to store".

Video Links - <https://matrusri.edu.in/video-links/>

Sample Student Feedback Form



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in



### Virtual Labs: Feedback Form (Total No. of Experiments Performed) 8

Name: G. Chandana	Date: 3/10/23
Institute: Matrusri Engineering College	Faculty: Student <input checked="" type="checkbox"/>
Email: chandana.gubba@gmail.com	Class/Roll No: 160819737045
Phone: 9390660220	Subject:

#### Details of first Lab:

Sr.No	Name of the Lab	Name of the Experiment	Does it work (Yes or No)	If No, what is the issue with it?
1	Data Structures lab	Merge Sort	Yes	
2	Data Structures lab	Quick Sort	Yes	
3	Data Structures lab	Depth First Search	Yes	
4	Data Structures lab	Breadth First Search	Yes	
5				
6				
7				
8				
9				
10				

#### Details of second Lab:

Sr.No	Name of the Lab	Name of the Experiment	Does it work (Yes or No)	If No, what is the issue with it?
1	Python Programming	Datatypes	Yes	
2	Python Programming	Strings	Yes	
3	Python Programming	classes and Objects	Yes	
4	Python Programming	Constructors and Inheritance	Yes	
5				
6				
7				
8				
9				
10				

#### Details of third Lab:

Sr.No	Name of the Lab	Name of the Experiment	Does it work (Yes or No)	If No, what is the issue with it?
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in



1. Why and how often do you plan to use VirtualLabs?

Visit Virtual labs once or twice a month

2. Specify the problems or difficulties faced while performing the experiments.

Dibbicult in Understanding the methods and Functions  
Sometimes

3. What are the most interesting things about the experiments?

Easily Understanding using Examples and videos from  
Datastructures, and also with simulation process implm-  
ementing Theory and checking out Results.

4. What are your suggestions about making them better?

Signature: G.Chandana

Roll No: 160819732045

### Motivation Levels / Interest Levels on a 1-10 scale

At the start	After 5 experiments	After 10 experiments	After 15 experiments



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)

(Approved by AICTE & Affiliated to Osmania University)

# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764

(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

### Activity Based Teaching (Presentations)

<b>Name of the Course Coordinator:</b> K. Prashanth	<b>Designation :</b> Asst. Prof	<b>Subject:</b> ETCE
<b>Year/Semester :</b> II/ III	<b>Section:</b>	<b>Topic:</b> General Communication Skills
<b>Name of the activity:</b> Presentations	<b>Date:</b> 06-12-2022	<b>No. of students attended:</b> 70

#### **Objective of the activity:**

- To develop oral communication skills, Fosters and develops interpersonal relationships
- Speaking skills
- Team work

#### **Execution Plan:**

- Gave some time to share the ideas themselves
- They shared their ideas to whole class
- Finally 100% of the groups have completed the task successfully

#### **Expected Outcomes:**

The students can be able to

1. Give effective presentations
2. Decrease or come out of stage freight
3. Develops higher level thinking skills
4. Builds self esteem in students

#### **Enclosures:**

1. Attached activity photos
2. Student List



# Matrusri Engineering College

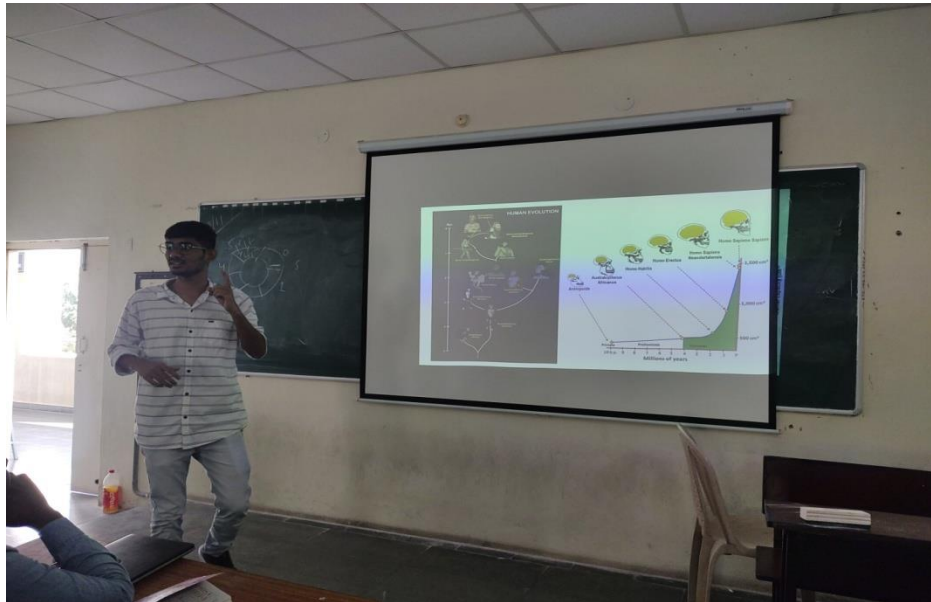
(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in





# Matrusri Engineering College

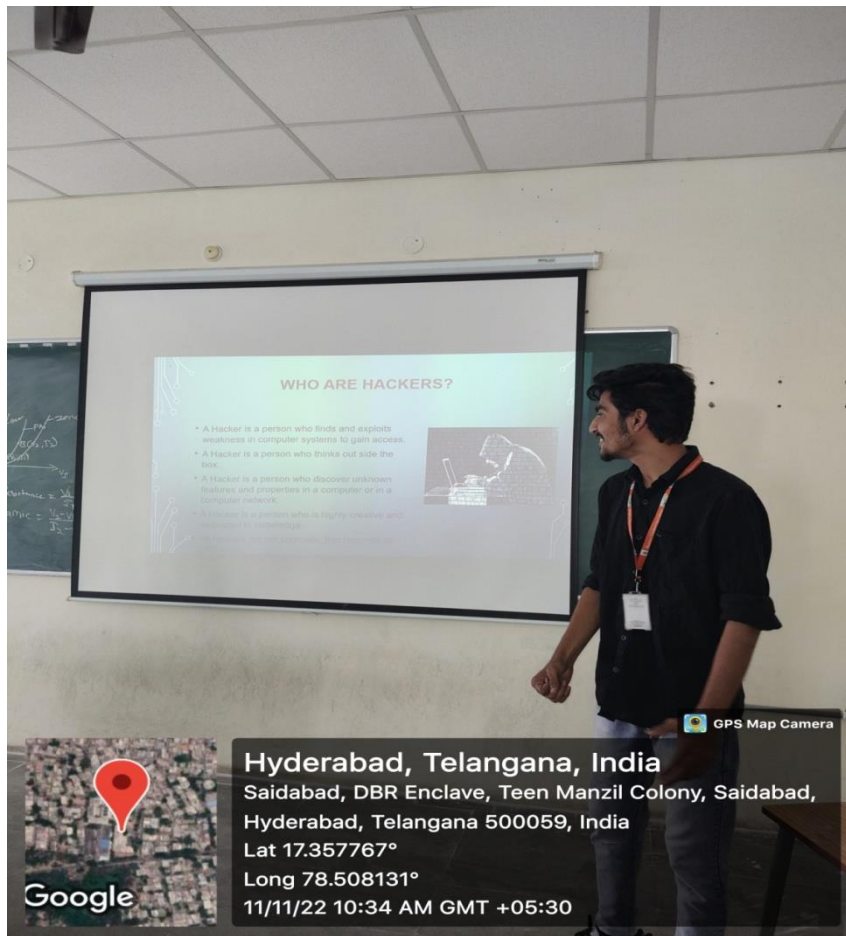
(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in



### Students participating & sharing in active learning

#### List of Students participated in active learning

S.No	Roll No.	Team	Score Individual (10M)	Improvement / No Change / Negative Change
1	1608-20-737-002	I	10	Improved
2	1608-20-737-003		8	“
3	1608-20-737-004		10	“
4	1608-20-737-005		10	“
5	1608-20-737-006		9	“
6	1608-20-737-007		9	“
7	1608-20-737-008		8	“
8	1608-20-737-009		8	“
9	1608-20-737-010		10	“
10	1608-20-737-011		8	“
11	1608-20-737-012		10	“



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

12	1608-20-737-013	II	10	“
13	1608-20-737-014		10	“
14	1608-20-737-015		9	“
15	1608-20-737-016		9	“
16	1608-20-737-017		10	“
17	1608-20-737-018		10	“
18	1608-20-737-019		9	“
19	1608-20-737-020		8	“
20	1608-20-737-021		10	“
21	1608-20-737-022		III	9
22	1608-20-737-023	9		Improved
23	1608-20-737-024	9		“
24	1608-20-737-025	8		“
25	1608-20-737-026	8		“
26	1608-20-737-027	9		“
27	1608-20-737-028	9		“
28	1608-20-737-029	10		“
29	1608-20-737-030	10		“
30	1608-20-737-031	9		“
31	1608-20-737-032	IV	8	“
32	1608-20-737-033		7	“
33	1608-20-737-034		7	No change
34	1608-20-737-035		10	Improved
35	1608-20-737-036		10	“
36	1608-20-737-037		9	“
37	1608-20-737-038		8	“
38	1608-20-737-039		9	“
39	1608-20-737-040		9	“
40	1608-20-737-041		10	“
41	1608-20-737-042	V	8	“
42	1608-20-737-043		8	“
43	1608-20-737-044		8	“
44	1608-20-737-045		10	“
45	1608-20-737-046		8	“
46	1608-20-737-047		7	No change
47	1608-20-737-048		7	No change
48	1608-20-737-049		10	Improved
49	1608-20-737-050	VI	8	“
50	1608-20-737-051		9	“
51	1608-20-737-052		8	“
52	1608-20-737-053		8	“
53	1608-20-737-054		8	“
54	1608-20-737-055		7	“
55	1608-20-737-056		8	“
56	1608-20-737-057		8	“



# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

Website: www.matrusri.edu.in

57	1608-20-737-058		9	“
58	1608-20-737-059		9	“
59	1608-20-737-060		10	“
60	1608-20-737-061		8	“
61	1608-20-737-062		9	“
62	1608-20-737-063		8	“
63	1608-20-737-064		10	“
64	1608-20-737-301		9	“
65	1608-20-737-302		10	“
66	1608-20-737-303	VII	8	“
67	1608-20-737-304		10	“
68	1608-20-737-305		9	“
69	1608-20-737-306		8	“
70	1608-20-737-307		10	“

**Activity Based Teaching (Mind Maps)**





# Matrusri Engineering College

(Sponsored by Matrusri Education Society, Estd.1980)  
(Approved by AICTE & Affiliated to Osmania University)  
# 16-1-486, Saidabad, Hyderabad-500059. Ph: 040-24072764  
(ISO 9001:2015 Certified)



## Department of Information Technology

email: hodit@matrusri.edu.in

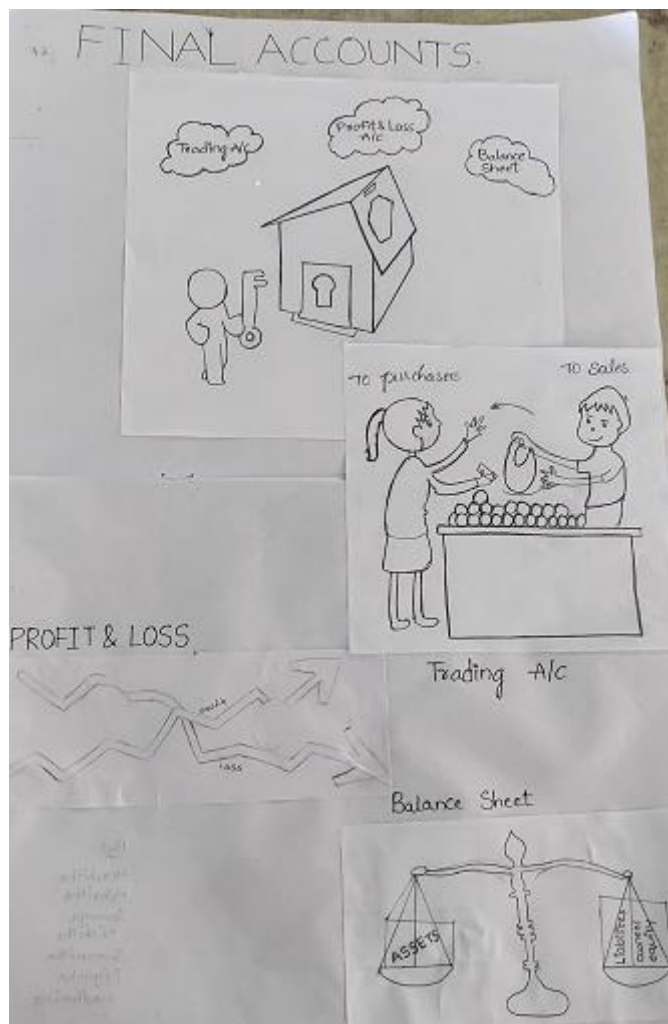
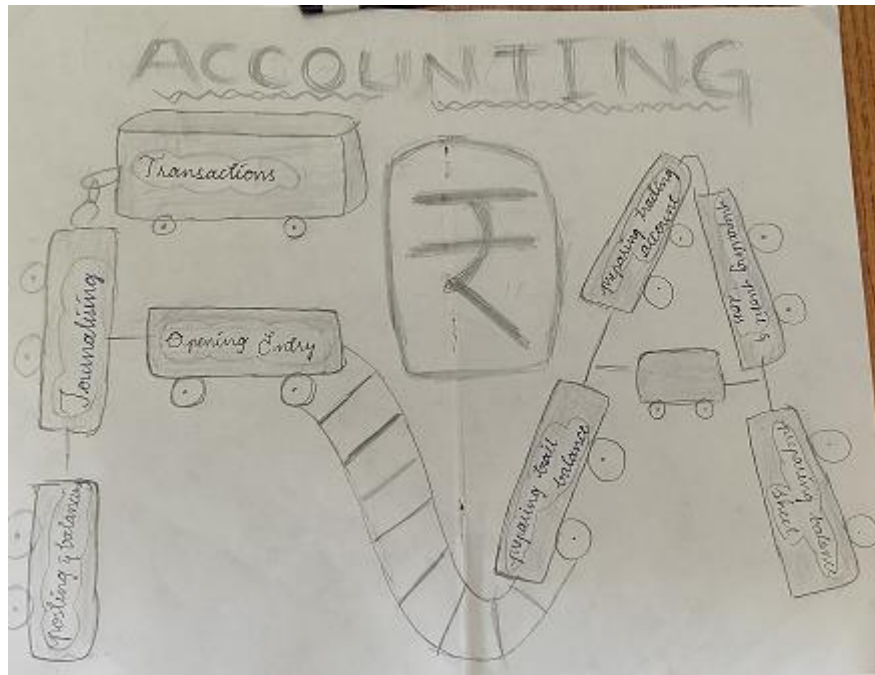
Website: www.matrusri.edu.in

<b>Name of the Course Coordinator:</b> C. Prashanthi	<b>Designation :</b> Asst. Prof	<b>Course Name:</b> Finance & Accounting(HS105CM)
<b>Year/Semester :</b> II/ III	<b>Section:</b>	<b>Topic:</b> Accounts
<b>Name of the activity:</b> Mind Maps	<b>Date:</b> 29-11-2022	<b>No. of students attended:</b> 62

### Introduction

A “Mind map” is a diagram used to visually organize information into a hierarchy, showing relationships among pieces of the whole. It is often created around a single concept, drawn as an image in the center of a blank page, to which associated representations of ideas such as images, words and parts of words are added.





**Outcome:**

- Generate new ideas.
- Revision strategy
- Visualize & organize information
- Brain storming

**Student Enrolled for the Activity**

A total of sixty two (62) students enrolled for the activity.

**Impact Analysis**

Explore new ideas and concepts. Help students get a better understanding of new ideas by having them create a mind map.