

# S J C Institute of Technology, Chickballapura- 562101

## Department of Electronics and Communication Engineering

### INNOVATIVE TEACHING METHODS

Year: 2021-22 (Odd Sem)

Sl no.	Subject Code	Faculty Name	Subject	ITM
1	18EC71	Dr. S Bhargavi	Computer Networks	<ul style="list-style-type: none"> <li>Who Am I?</li> <li>Flipped Classroom</li> <li>One-minute Paper activity</li> <li>Problem solving exercise</li> <li>Think pair share</li> <li>Surprise written Quiz</li> </ul>
2	18EC71	Prof. Manjunatha Siddappa	Computer Networks	<ul style="list-style-type: none"> <li>Online certification course in company</li> <li>-World of Computer Networking</li> <li>Platform-Infosys Springboard</li> </ul>
3	18EC72	Prof. Prasanna Kumar D C	VLSI Design	<ul style="list-style-type: none"> <li>Online certificate course</li> </ul>
4	18EC72	Prof. Veena S	VLSI Design	<ul style="list-style-type: none"> <li>Online course certificate</li> </ul>
5	18EC731	Prof. Shwetha V/ Ramalingegowda	RTS	<ul style="list-style-type: none"> <li>Online certification course</li> </ul>
6	18EC732	Prof. Parinitha J	Satellite Communication	<ul style="list-style-type: none"> <li>Flipped classroom</li> <li>Certification course</li> </ul>
7	18EC741	Dr C Rangaswamy/ Chandini A. G	IOT & WSN	<ul style="list-style-type: none"> <li>Group Activity-Quiz</li> </ul>
8	18EC51	Prof. Anitha C	TIME	<ul style="list-style-type: none"> <li>Case-study on Entrepreneurs</li> </ul>
9	18EC51	Prof. Savitha M.M	TIME	<ul style="list-style-type: none"> <li>Case-study</li> </ul>
10	18EC52	Prof. Ravi M V	Digital Signal processing	<ul style="list-style-type: none"> <li>Mini project</li> </ul>
11	18EC52	Prof. Tilak raj	Digital Signal processing	<ul style="list-style-type: none"> <li>Mini project</li> </ul>
12	18EC53	Prof. Sridhar C S	Principles of communication	<ul style="list-style-type: none"> <li>Mini Project</li> </ul>
13	18EC55	Dr. Levy M	Electromagnetic waves	<ul style="list-style-type: none"> <li>Surprise Test</li> </ul>
14	18EC56	Prof. Anil Kumar R	VHDL	<ul style="list-style-type: none"> <li>Mini project</li> </ul>
15	18EC53	Prof Sri Ramu D S	Principles of communication Systems	<ul style="list-style-type: none"> <li>Simulation approach for teaching modulation techniques.</li> </ul>
16	18EC32	Dr. Sudhir P	Network Theory	<ul style="list-style-type: none"> <li>Simulation Approach of Teaching Network Theory</li> </ul>
17	18EC32	Prof. Rame Gowda	Network Theory	<ul style="list-style-type: none"> <li>Simulation Approach of Teaching Network Theory</li> </ul>
18	18EC32	Dr. Nagendra Kumar M	Network Theory	<ul style="list-style-type: none"> <li>Guest lecture- Insights into Network Theory</li> </ul>

19	18EC33	Prof. Nirmala devi A C	Electronic Devices	<ul style="list-style-type: none"> <li>• Flipped classroom</li> </ul>
20	18EC33	Prof. Manjula K	Electronic Devices	<ul style="list-style-type: none"> <li>• Crossword Puzzle</li> <li>• Ice breaking activities</li> <li>• Case study</li> <li>• Demo on Multisim for ED concepts</li> <li>• Student Team Achievement Division (STAD)</li> <li>• Mini project</li> <li>• Group Discussion</li> <li>• Subject Augmentation Talk (Guest Lecture)</li> </ul>
21	18EC34	Prof. Srivani E N	Digital System Design	<ul style="list-style-type: none"> <li>• Flipped Classroom-</li> <li>• Demo on Multisim for design of combinational and sequential circuits</li> </ul>
22	18EC35	Prof. Chandini A. G	Computer Organization & Architecture	<ul style="list-style-type: none"> <li>• “On-Spot -Quick Two” Activity – Problem based activity</li> </ul>
23	18EC35	Prof. Madhukara S	COA	<ul style="list-style-type: none"> <li>• One minute Paper-To Summarize the class topic in a paper</li> </ul>
24	18EC36	Prof. Ravi Kiran R	Power Electronics & Instrumentation	<ul style="list-style-type: none"> <li>• Think Pair Share</li> </ul>
25	18EC36	Dr. Bhaskar S	Power Electronics & Instrumentation	<ul style="list-style-type: none"> <li>• Online Quiz through Edmodo</li> </ul>
26	21ELN14	Prof. Bhavana S	Basic Electronics	<ul style="list-style-type: none"> <li>• Peer Teaching</li> </ul>
27	21ELN14	Prof. Mohan Babu C	Basic Electronics	<ul style="list-style-type: none"> <li>• Flipped classroom</li> </ul>

## FLIPPED CLASSROOM



- The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed.
- The term is widely used to describe almost any class structure that provides prerecorded lectures followed by in-class exercises.
- The flipped classroom is an easy model.
- A means to INCREASE interaction and personalized contact time between students and teachers.
- An environment where students take responsibility for their own learning

- A classroom where the teacher is not the "sage on the stage", but the "guide on the side".
- A blending of direct instruction with constructivist learning theories.
- A class where content is permanently archived for review, remediation or refinement.
- A class where all students are engaged in their learning.
- A place where all students can get a personalized education.

## KEY ELEMENTS

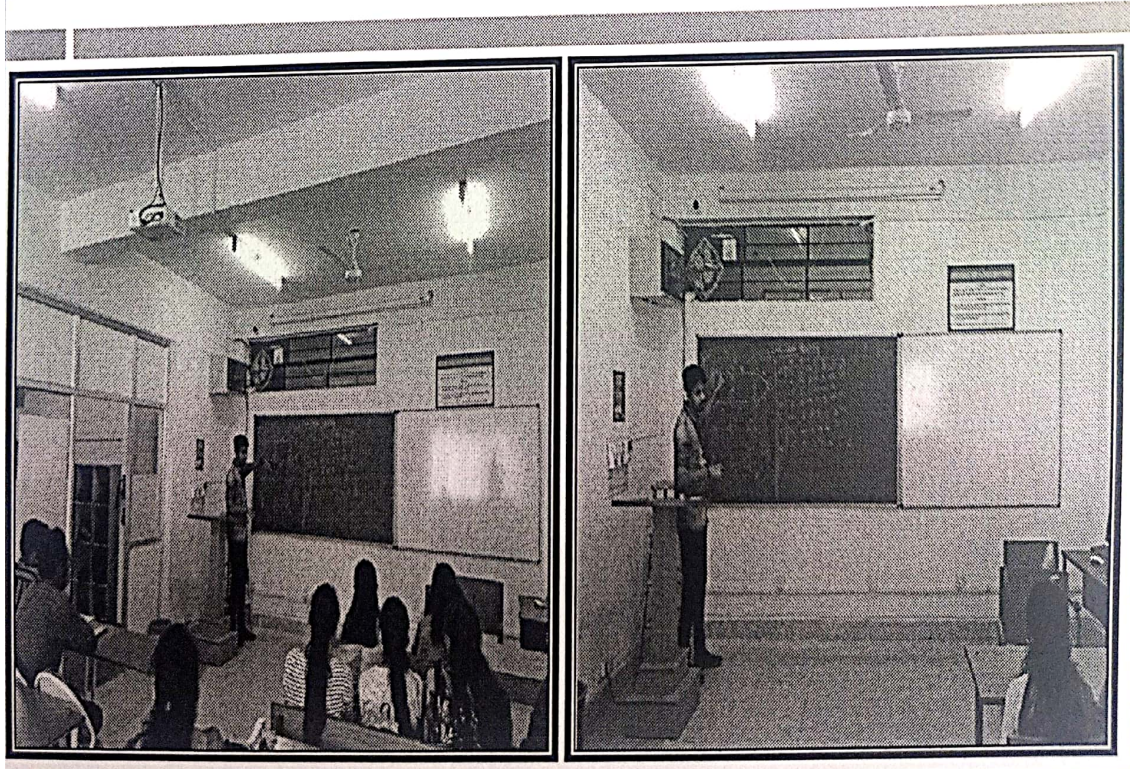
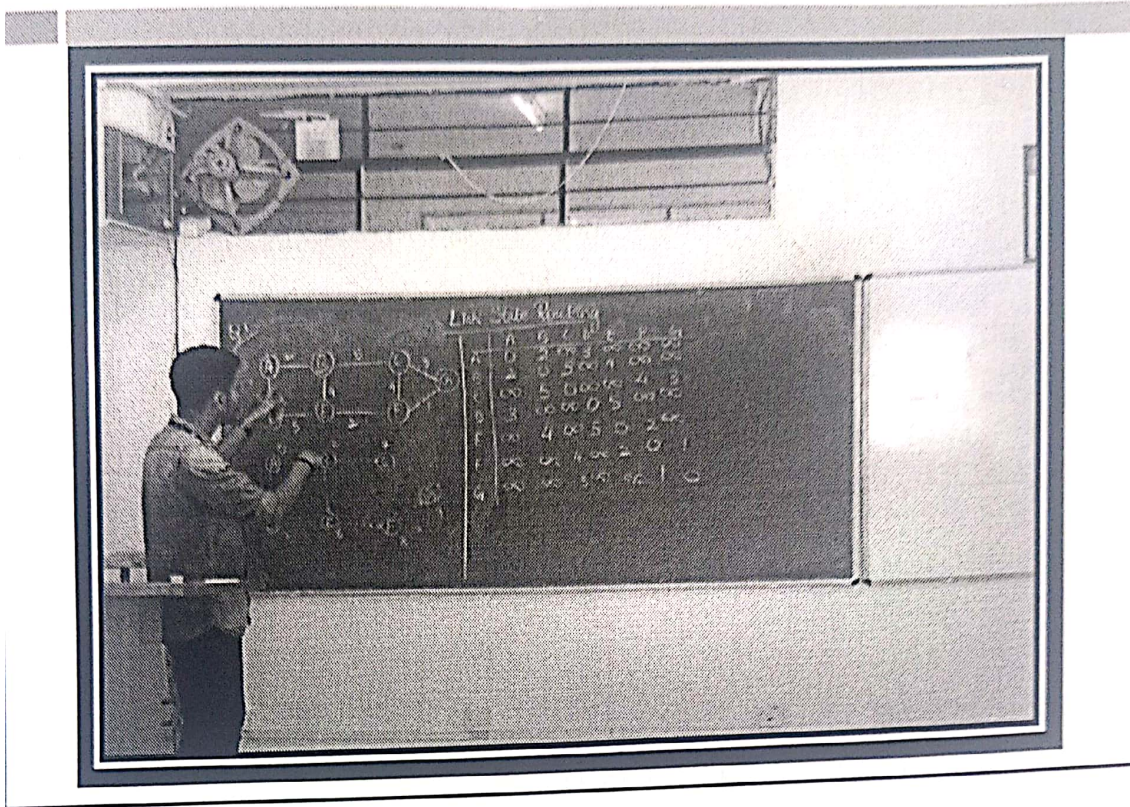
- ❑ **Arrange for an opportunity for students to gain first exposure prior to class.**
- ❑ **Offer an incentive for students to prepare for class.**
- ❑ **Provide a mechanism to assess student understanding**
- ❑ **Run in-class activities that focus on higher level cognitive activities.**

## ACTIVE LEARNING

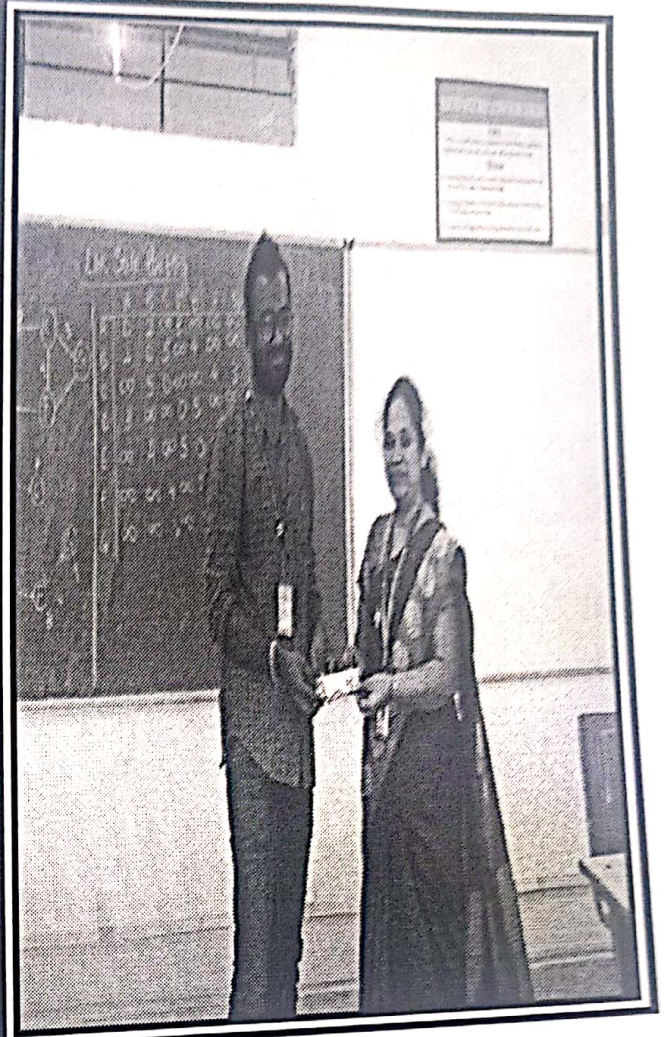
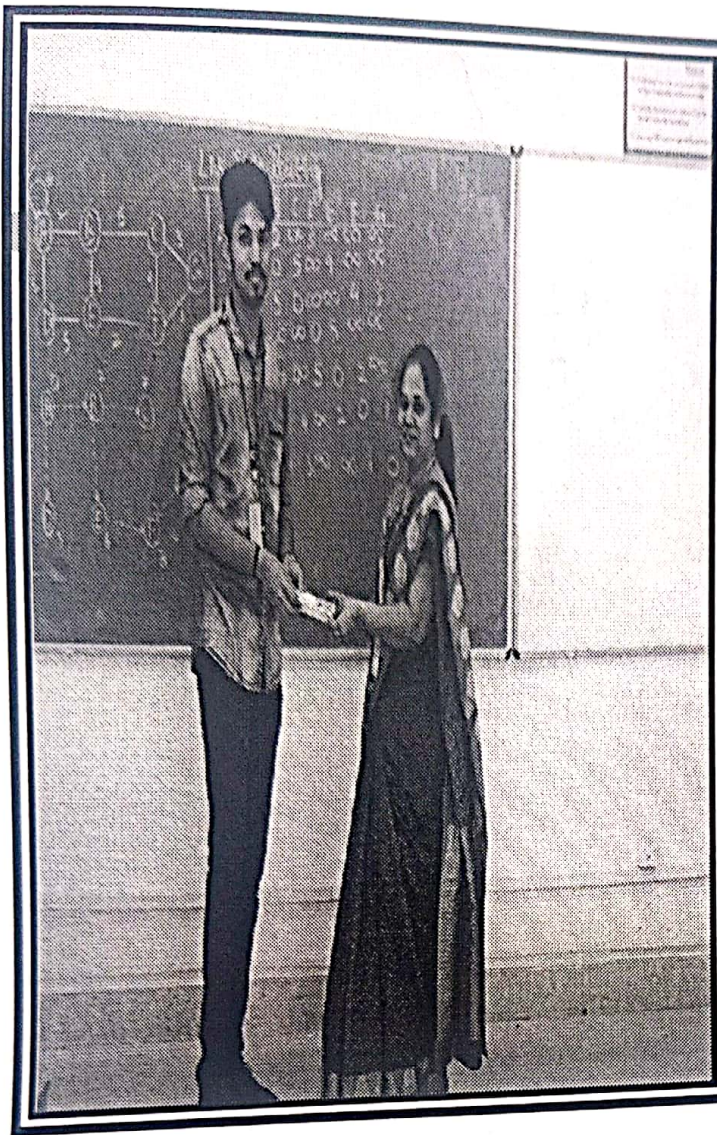


- ❑ **Was conducted on 06.12.2021**
- ❑ **Topic: Link State Routing**
- ❑ **Reflections: Well accepted and time taken is 20min**
  - Seminar conducted**
  - Given 2 problems to solve**
- ❑ **Adwaith Prabhakaran given the Seminar**
- ❑ **Balakrishna A won the prize**









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# **One Minute Paper**

2

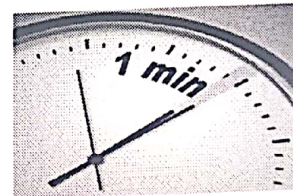
## **One Minute Paper**

- **It can be used at the end of any topic discussion.**
- **Provides a quick and extremely simple way to collect written feedback on student learning.**
- **A very adaptable tool.**

## **One Minute Paper**

**MENTION ANY FIVE  
DIFFERENCES BETWEEN  
ANALOG & DIGITAL  
SYSTEMS**

## **One Minute Paper**



**Was conducted on 23.12.21**

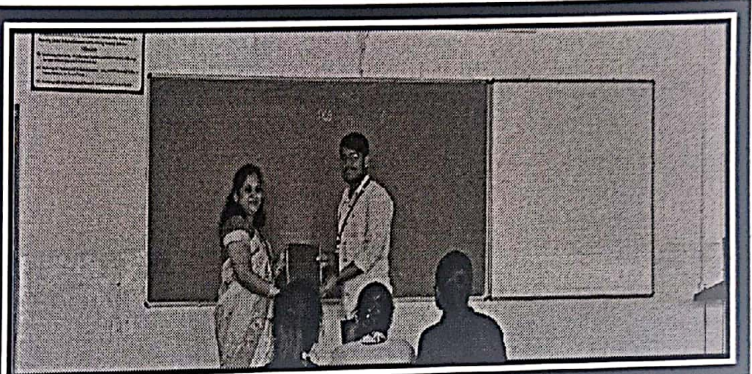
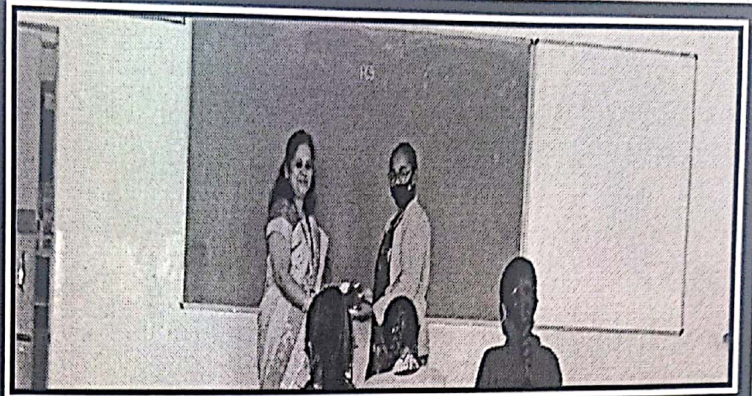
**Topic: "Mention any five differences between Analog & Digital systems"**

**Reflections: Well accepted**

- 1. AKHILA M S won the I prize**
- 2. HEMANTH R K won the II prize**



## One Minute Paper Activity Photos



NA

**S J C Institute of Technology, Chickballapur****Department of Electronics and Communication Engineering****Subject: Power Electronics and Instrumentation****Code: 18EC36****Semester: 3<sup>rd</sup>, Section: B****Activity: Think Pair Share****Question:** List the different types of static errors in instrumentation.**Answer:**

**Static Error:** The static error is defined as the difference between the true value of the variable and the value indicated by the instrument. The static error may arise due to number of reasons.

The static errors are classified as: 1) Gross errors 2) Systematic errors 3) Random errors.

**1) Gross errors:** The gross errors mainly occur due to carelessness or lack of experience of a human being. These cover human mistakes in readings, recordings and calculating results.

**2) Systematic errors:** The systematic errors are due to the shortcomings of the instrument and the characteristics of the material used in the instrument, such as defective or worn parts, ageing effects, environmental effects, etc.

There are three types of systematic errors as

**a) Instrumental errors:** These errors are due to mechanical structure of instruments like irregular spring tensions, friction in the bearings of various moving components etc.

**b) Environmental errors:** These are due to the external effects on the measuring device like effects of change in temperature, humidity, Pressure etc.

**c) Observational errors:** These errors are introduced by the observer i.e. the error introduced in reading a meter scale etc.

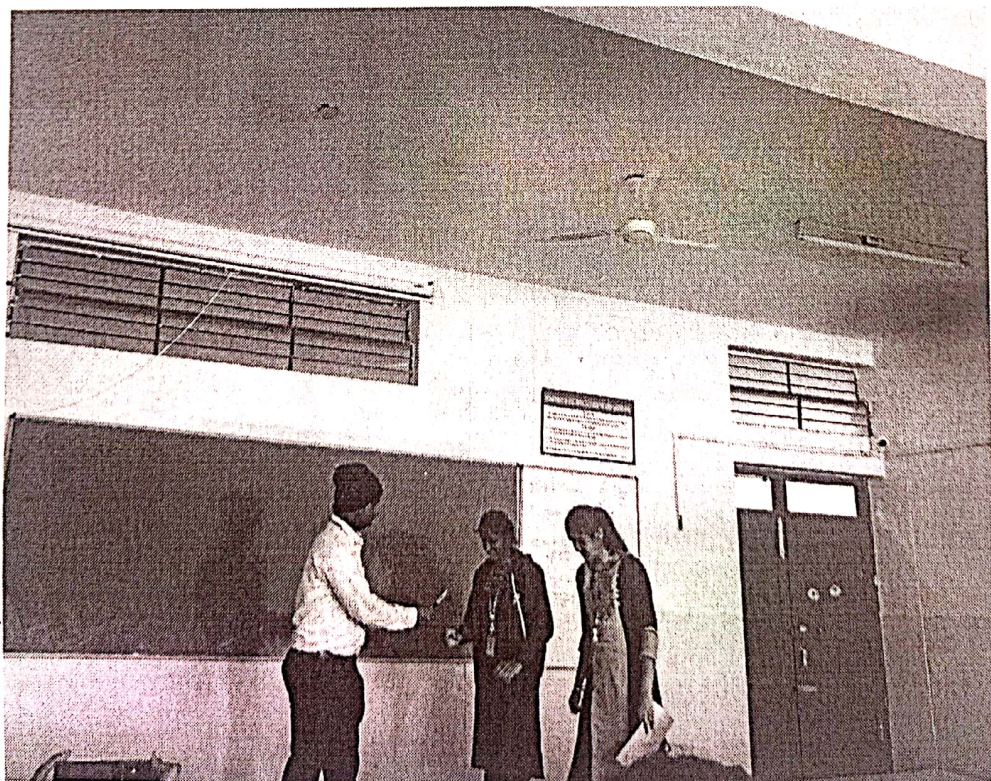
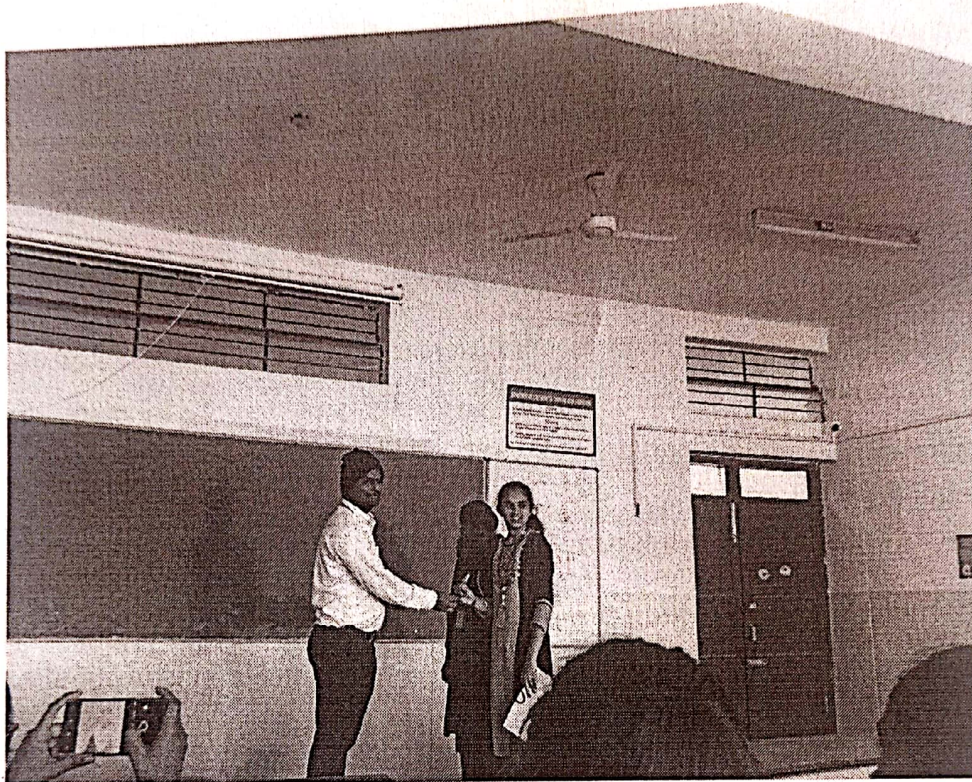
**3) Random errors:** Some errors still result, though the systematic and instrumental errors are reduced or at least accounted for. The causes of such errors are unknown and hence, the errors are called random errors.



**Remarks:** Conducted on 21<sup>st</sup> February 2022 on the topic "Types of static errors in instrumentation".

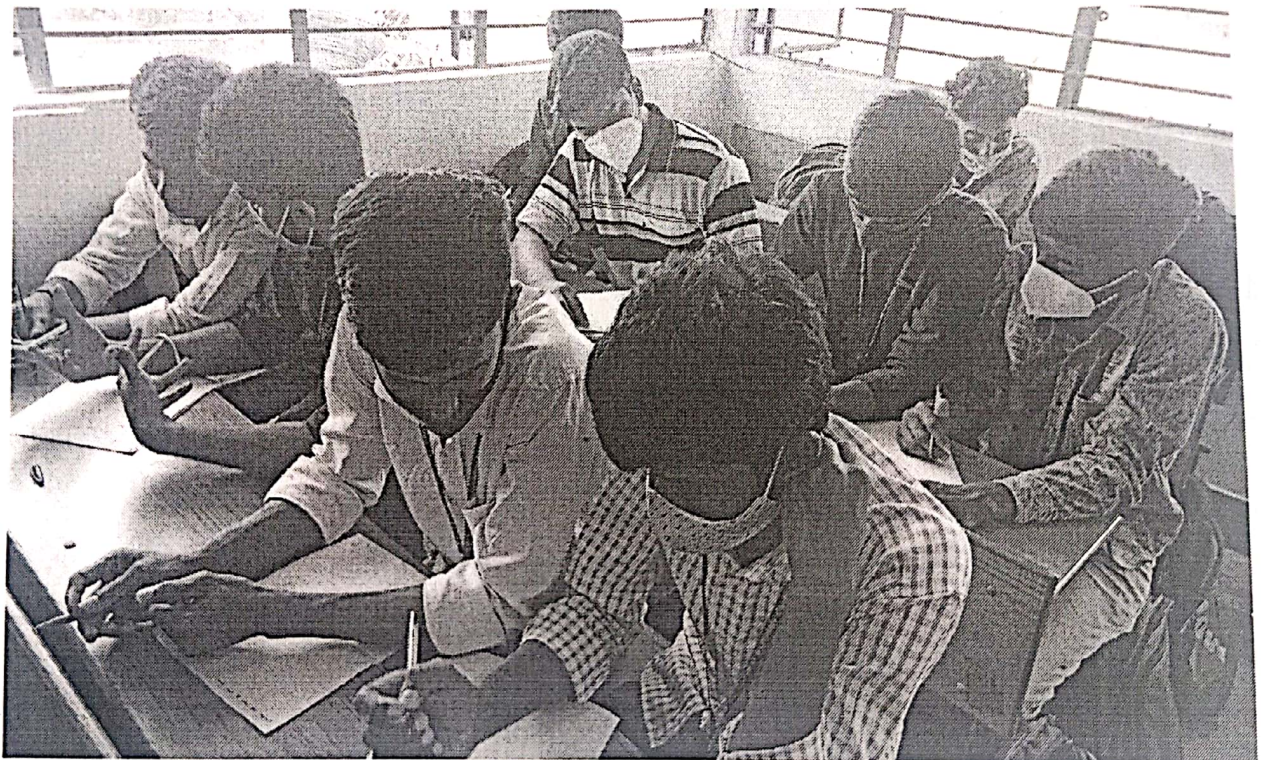
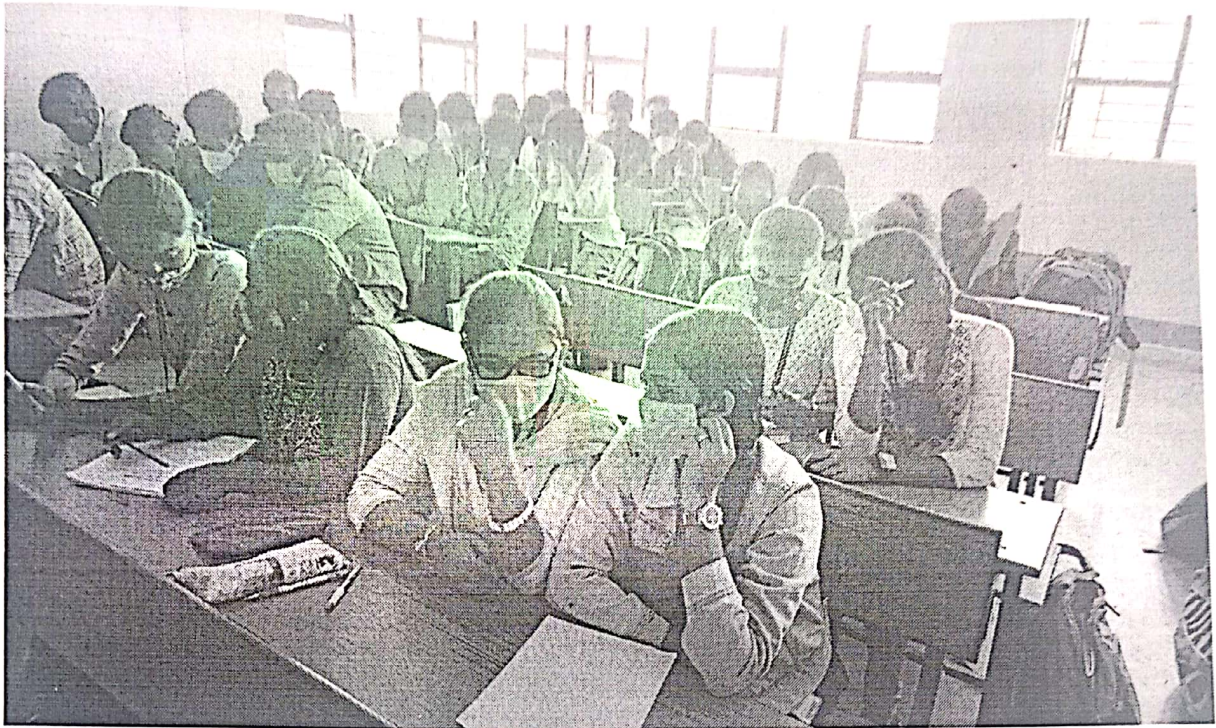
**Reflections:** Well accepted and given good feedback.

**Winner Group:** Meghana(1SJ20EC087) and Madhushree V(1SJ20EC079) won the prize.





Glimpse of the activity

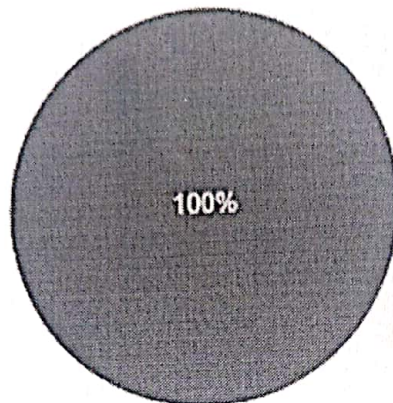




## Feedback Analysis:

Is the activity useful for learning?

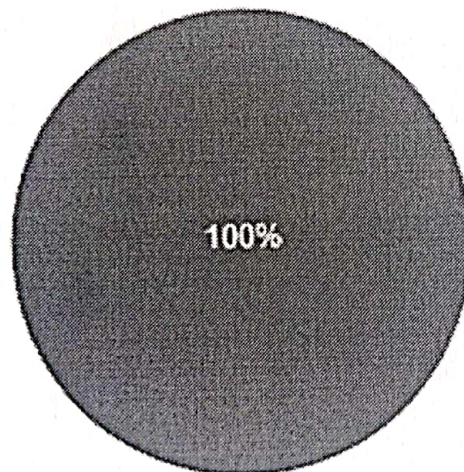
25 responses



- Yes
- No
- Slightly

Is the activity was interactive?

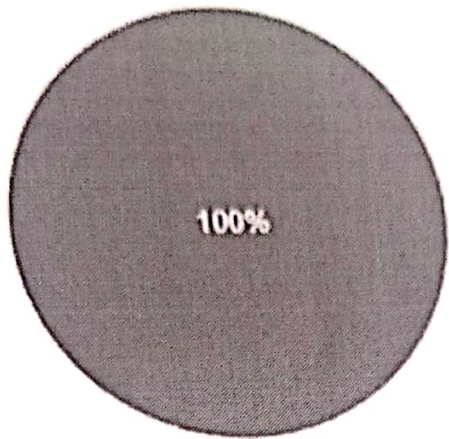
25 responses



- Yes
- No
- Maybe

Is the activity was effective?

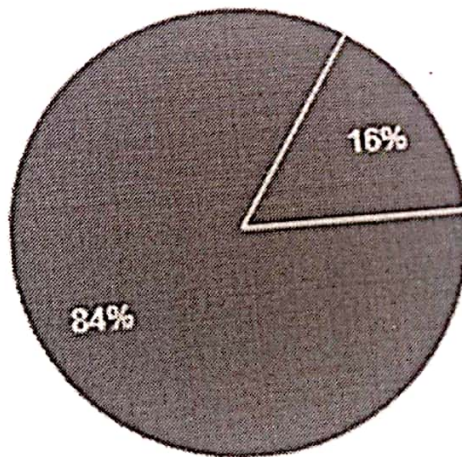
25 responses



- Yes
- No
- Maybe

Grade of the activity

25 responses



- Excellent
- Good
- Fair
- Poor

||Jai Sri Gurudev||  
**S.J.C. INSTITUTE OF TECHNOLOGY, CHICKBALLAPUR**  
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION**  
**ENGINEERING**

**INNOVATIVE TEACHING METHODS**

**Subject: Report on -ON Spot "Quick Two" activity: Computer Organization and Architecture**

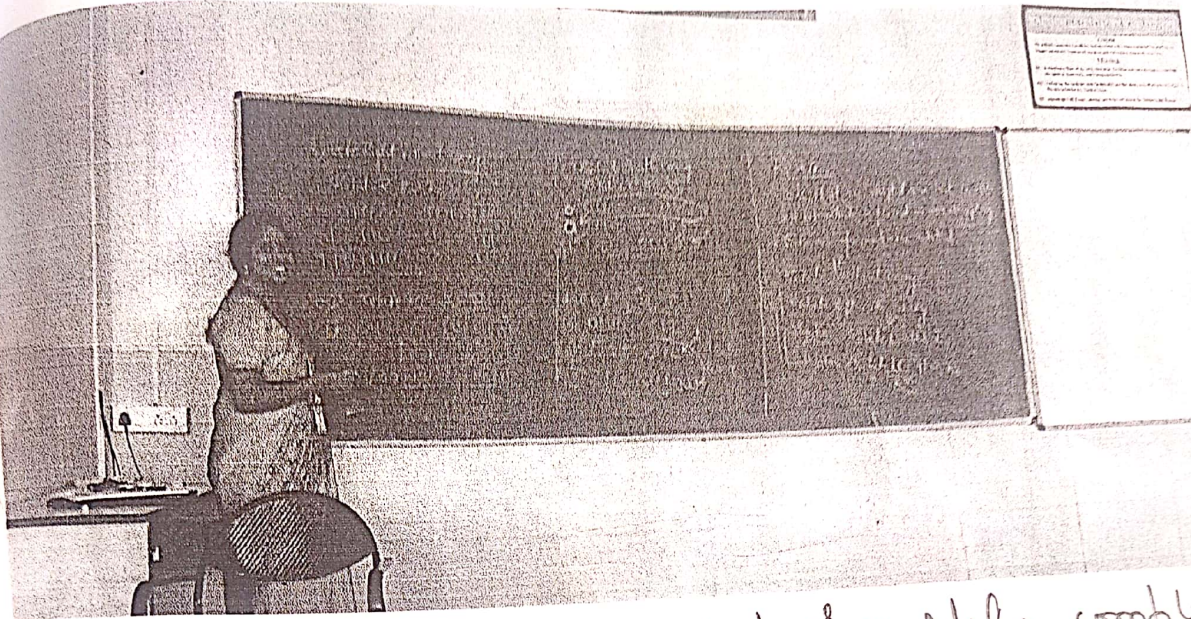
- **Activity:** "ON Spot "Quick Two" activity conducted for 3<sup>rd</sup> Sem 'B' Sec.
- **Topic:** Quick Problem Solving on Shift and Rotate Operations.
- **Date:** 6/12/2021
- **Reflections:** All students participated actively.
- **Awards/Recognitions:** Lakshmi G.N and Neha.V. completed with minimal time - Got Prizes.

*B. N. S. S.*  
*06/12/2021*

*Chandini A.G*  
*Asst. Professor*  
*SJCIT.*



Innovative  
Activity → On Spot "Quick Two" Activity on Shift and Rotate Operations.  
Name → Class → 3<sup>rd</sup> Sem 'B' Sec.  
→ Reflections:- All students participated actively.



Award / Recognition:- Lakshmi & Neha completed activity with minimal time.  
'Won Prizes!'



Date of activity:- 6/12/21



||Jai Sri Gurudev||

S.J.C. INSTITUTE OF TECHNOLOGY, CHICKBALLAPUR

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

### **Activity: IoT and WSN Group Activity(Quiz) REPORT**

**VII Sem A, B, C**

**Name of the Course Faculty: Dr. C Rangaswamy / Prof. Chandini A G**

1. IoT and WSN QUIZ was conducted on 7<sup>th</sup> Jan 2022 for combined A, B, and C.
2. Students were divided into 10 Groups, in each 4 members and were asked the Questions. Points were provided based on Right /Wrong answers given by students. Almost everybody were able to answer the right answer. -This is for 1<sup>st</sup> set.
3. For 2<sup>nd</sup> set- Group A and Group B two Groups were made, and competition was very good.
4. All participated well which improved their subject knowledge, skills, analysis, and efficiency of each student.

### **List of Questions with Solutions**



**S J C**  
INSTITUTE OF TECHNOLOGY

Department of Electronics and Communication  
Engineering

**Subject: IoT & Wireless Sensor Networks (18EC741)**

**Activity: Quiz**

By

**Dr. C Rangaswamy**

**Prof. Chandini**

1. \_\_\_\_\_ are the applications of IOT
  - A. House
  - B. Virtual environment
  - C. Regional office
  - D. All of the above
2. \_\_\_\_\_ are the main components in IOT
  - A. Low power embedded systems
  - B. Cloud computing
  - C. Availability of big data, networking connection
  - D. All of the above
3. \_\_\_\_\_ are the characteristics of IOT
  - A. Intelligence, scalable
  - B. Security
  - C. Heterogeneity

D. All of the above

4. The IPV4 developed in \_\_\_\_\_

A. 1974

B. 1980

C. 2000

D. None of the above

5. The IPV6 developed in \_\_\_\_\_

A. 1998

B. 1980

C. 2000

D. None of the above

6. The bit length of the IPV4 is \_\_\_\_\_

A. 8 bits

B. 16 bits

C. 32 bits

D. 128 bits

7. The bit length of the IPV6 is \_\_\_\_\_

A. 8 bits

B. 16 bits

C. 32 bits

D. 128 bits

8. The number of addresses in IPV4 is \_\_\_\_\_

A.  $2^4$

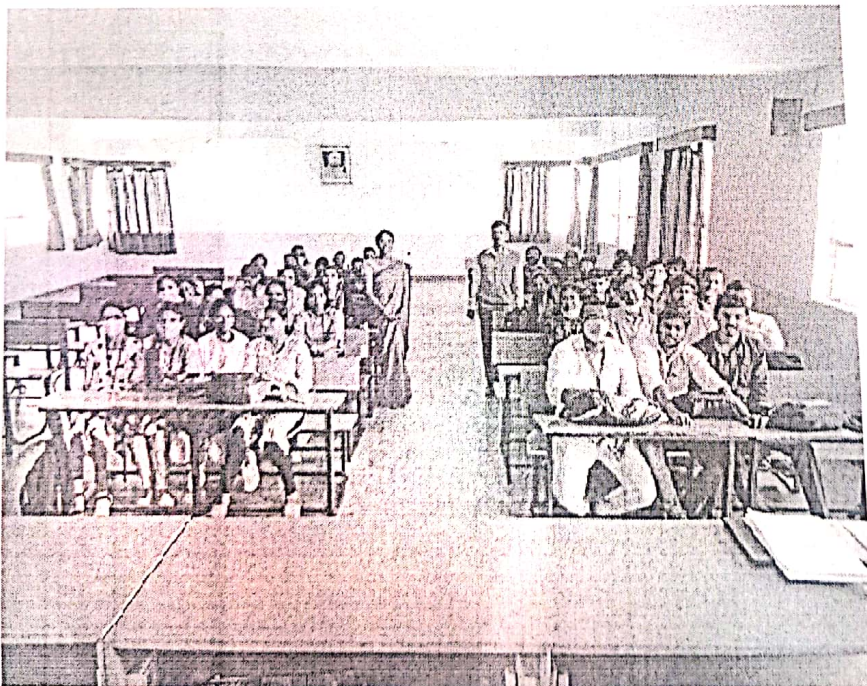
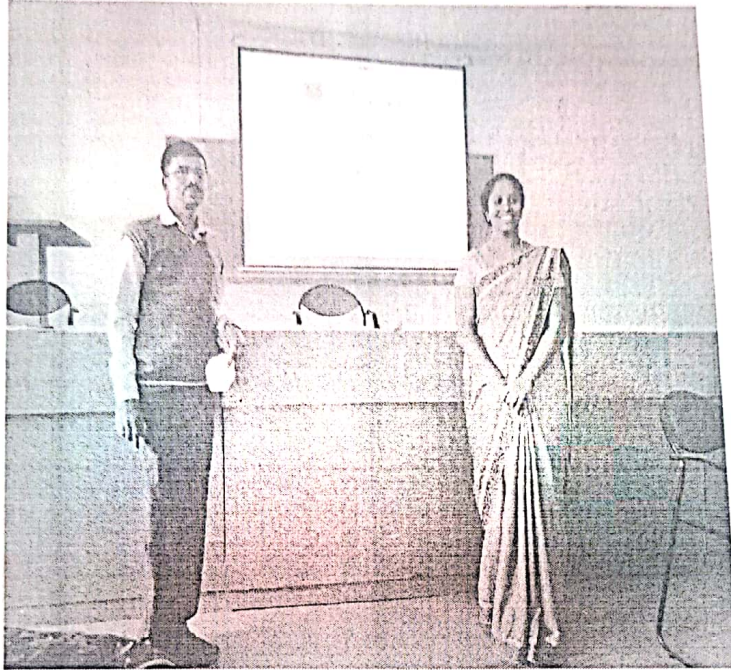


B.  $2^8$

C.  $2^{32}$

D.  $2^{128}$

**Proof**



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19/5/22



|| Jai Sri Gurudev ||

# SJC INSTITUTE OF TECHNOLOGY, CHICKBALLAPUR

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

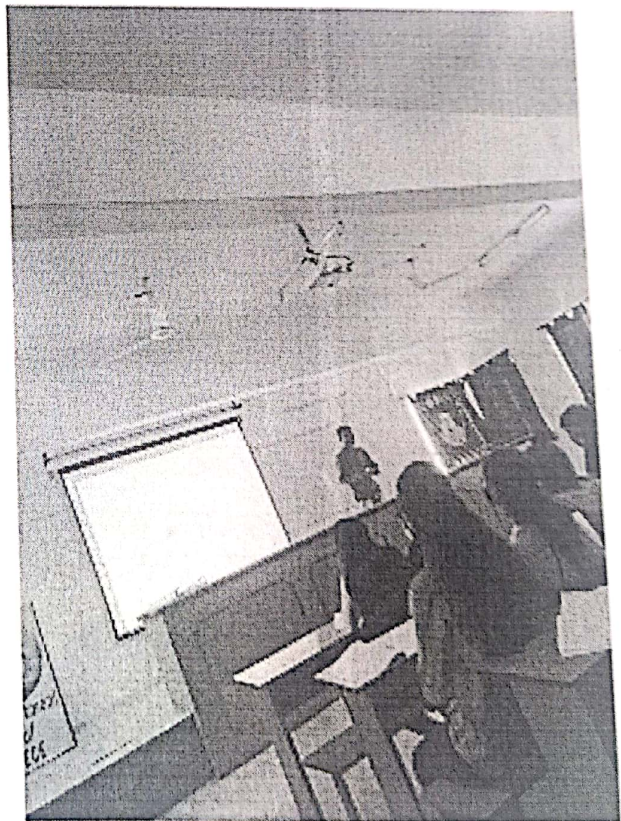
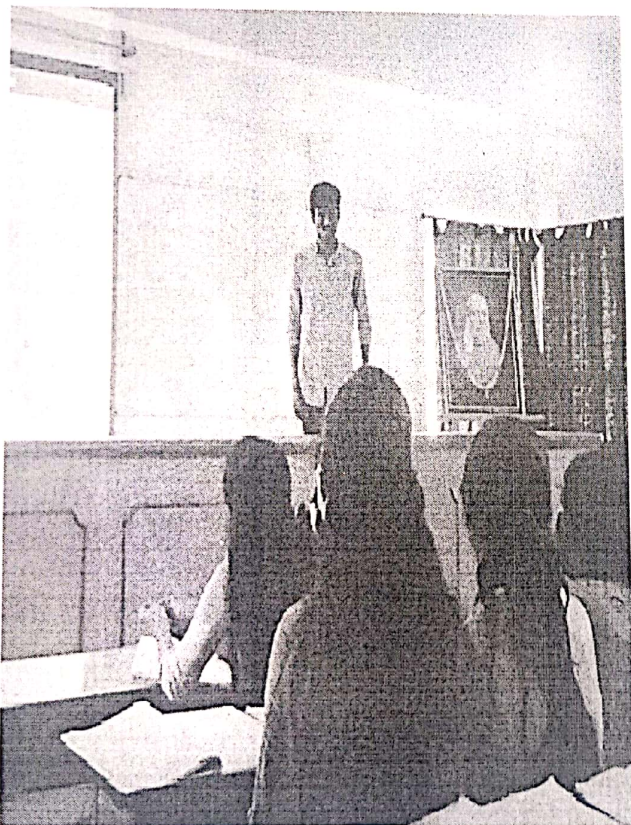
## Flipped class Report

Course Faculty: Nirmala Devi A C

Course Title & Code: Electronic Devices (18EC33)

Semester & Section: III 'B'

- Flipped class was conducted on 07/01/2022.
- Topic : Field Effect Transistor
- Reflections : Well accepted and time taken is 15min  
Seminar conducted  
Given a topic in prior to prepare



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25/12/2022

||Jai Sri Gurudev||

S.J.C. INSTITUTE OF TECHNOLOGY, CHICKBALLAPUR

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

**CASE STUDY ON DIFFERENT COMPUTER ARCHITECTURES**

SUB: COMPUTER ORGANIZATION AND ARCHITECTURE

SECTION: III A

PREPARED BY: Anitha C, Assistant Professor

**CASE STUDY STATEMENTS:**

Compare and contrast different computer architectures and document the same
<b>OR</b>
Study and analyze in detail one type of computer architecture and document the same.

**IMPORTANT DATES:**

Formation of student groups: 17-01-2022

Selection of a case study statement: 20-01-2022

Last date to submit the case study report: 28-02-2022

**CASE STUDY REPORT FORMAT:**

- First Sheet: College logo, college name, department, case study title, students names with USN, lecturer name.
- Index Sheet: Table of contents, figures
- Introduction and body: Complete details of the selected computer architecture/architectures, Advantages, disadvantages, applications.
- Conclusion: Conclude your view on the selected computer architecture.
- Reference: List all the references used for preparing report including websites, URLs, papers and magazines.

**Rubrics :**

Sl.no	Particulars	Marks(M)
1.	Quality of Information	3
2.	On Time Submission	1
3.	Report	2
Total		6



# CASE STUDY GROUPS:

GROUP	NAME	USN	TITLE
1	B.V.Deepika Poornima G.Geethika B.Harshitha K.Nandini	1SJ20EC017 1SJ20EC049 1SJ20EC025 1SJ20EC061	UNIX ARCHITECTURE
2	Harshitha.A Chirayu.N Deepthi.K.T Anusha.G.M	1SJ20EC056 1SJ20EC035 1SJ20EC039 1SJ20EC012	COMPUTER ARITHMETIC AND LOGIC UNIT
3	Chandushree.T.A Divya Reddy.P.R Ananya.C Bhargavi.A.S	1SJ20EC030 1SJ20EC042 1SJ20EC007 1SJ20EC020	SYSTEM DESIGN
4	G.S .Akshay Kumar Jathin.B.Prasanna Arhan khan Diwakar.C.K	1SJ20EC044 1SJ20EC058 1SJ20EC015 1SJ20EC043	MACRO ARCHITECTURE
5	Hemanth kumar.C C.Jagan Mohan Raju Hari Anirudh.R G.Srinath	1SJ20EC057 1SJ20EC027 1SJ20EC052 1SJ20EC047	FUNDAMENTALS OF DIGITAL LOGIC DESIGN
6	Abhishekh.H Gagan.T.S Chiru Nandan Yadav Chennakeshava.R	1SJ20EC001 1SJ20EC046 1SJ20EC036 1SJ20EC031	MICROPROCESSER BASED FURNACE TEMPERATURE CONTROLLER
7	Chandana.S Anushree Anusha begum Bhargavi.S	1SJ20EC029 1SJ20EC014 1SJ20EC011 1SJ20EC021	MICRO CONTROLLER BASED DATA LOGGER
8	Bhanushree.K.M Anusha.K.M Anjum Chinmaye.C.G	1SJ20EC018 1SJ20EC013 1SJ20EC008 1SJ20EC033	OPERANDS IN THE COMPUTER ORGANIZATION
9	G.Kiran Kumar Harinatha.J.A Bharath Kumar.K.R Hari 2rishna.G	1SJ20EC048 1SJ20EC055 1SJ20EC019 1SJ20EC053	SPARC ARCHITECTURE
10	Ashritha.M Bhavana.H.N Kushal.K Chandan Kumar.A.V	1SJ20EC016 1SJ20EC022 1SJ20EC034 1SJ20EC028	VON NEUMANN AND MICRO ARCHITECTURE
11	Deepthi.R.L	1SJ20EC040	THE MEMORY HIERARCHY

	Deeksha.R Adlin Ananya	1SJ20EC038 1SJ20EC002	
12	G.Prem Kumar A.Niketh B.Mourya Vamsi G.Sudeep Reddy	1SJ20EC050 1SJ20EC010 1SJ20EC024 1SJ20EC051	HARWARD ARCHITECTURE
13	Hari Prasad.N Hemanth Gowda Bhuvan.Y.S Ankith Gowda.M	1SJ20EC054 1SJ20EC060 1SJ20EC023 1SJ20EC009	SIMPLIFIED INSTRUCTIONAL COMPUTER
14	K.Bhumi Priya D.V.Madhuri Akkiraju Manaswini	1SJ20EC059 1SJ20EC037 1SJ20EC005	COMMUNICATION NETWORK DESIGN
15	Dilip.B.E Gagan.N Arunu Kumar	1SJ20EC041 1SJ20EC045 LE	SET INSTRUCTION ARCHITECTURE
16	Ajay Kumar R Akash V	1SJ20EC003 1SJ20EC004	VON NEUMANN ARCHITECTURE





Peer Teaching on *Cellular Telephone Networks* was conducted for 1<sup>st</sup>Sem C Sec students on 15.03.2022.  
No. of Participants : 51. Resource Person: Rakshitha and Soujanya (8<sup>th</sup>Sem, ECE)

Manjunatha Siddappa  
Summary for Online Certification

	Computer Networking Online Course Name	World of Computer Networking
	Platform	Infosys Spring Board
	Period	1-11-2021 10-2-2022
	Mode of Conduction	Self pacing Online videos
	Sem and Section	7th B
6	Number of students participated	64



## REPORT ON

### **Innovative Teaching Methodology**

Simulation Approach of Teaching Network Theory

**VENUE:** ECE Seminar Hall

**DATE :** 16<sup>th</sup> February 2022.

**TIMINGS:** 11:00 AM to 1:00 PM

**NUMBER OF PARTICIPANTS:** 62

**Resources person :** Prof. P.Sudir, Associate Professor, SJGIT, Chikkaballapur

The Hands on Session was conducted on Topic “ Simulation Approach of Teaching Network Theory” which was all about the Learning Multisim simulation software for solving Circuit theory problems.

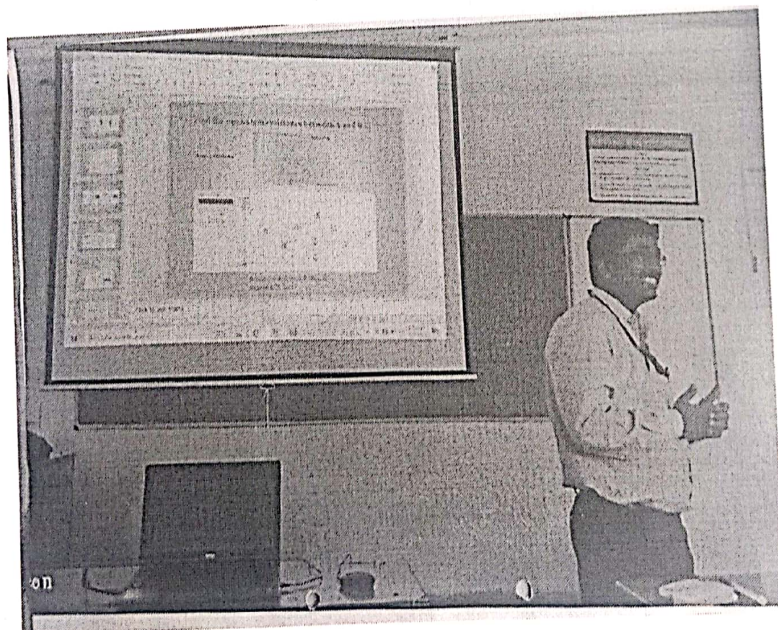
#### **Topics discussed during the Hands on Session:**

- 1) Simulation of Basic circuits.
- 2) Verification of Network Theorems.
- 3) Source Transformation and Star Delta Transformation Simulation.
- 4) Initial Conditions & Transient behaviour simulation.
- 5) Simulation of Network parameter circuits and deriving the Network parameters.

#### **OUT COMES:**

- 1) Students were be able to understand the concept of usage of Multisim for circuit analysis.
- 2) Students will be able to use Multisim for verification of Network Theorems.
- 3) Students will be able to use Multisim for simplifying Source Transformation and Star Delta Transformation.
- 4) Students will be able to use Multisim to understand Initial and Transient Behaviour of RL and RC circuits.
- 5) Students will be able to use Multisim to Simulate and derive the Network parameters.

Photo:



B. N. Sudir  
16/02/2022