**Department of Electrical and Electronics Engineering**
**Academic Year 2022 – 2023 (Even Semester)**

**Degree, Semester & Branch: IV Semester B.E. EEE**
**Course Code & Title: EE3404 Microprocessor and Microcontroller**
**Name of the Faculty member: Mrs. G. Sivapriya, AP/EEE**

# Innovative Practice Description

- **Unit / Topic:** Unit I / Interrupts
- **Course Outcome:** CO 1
- **Topic Learning Outcome:** 1d
- **Activity Chosen: One Minute Paper**
- **Justification:**
  - Explain various types of interrupts
  - The topic interrupts in 8085 has 2 types - Hardware and Software. Since each type has its own definition, limitation and types. After teaching the concept, I thought of conducting this activity for making the students to give the difference between the each type of interrupts which enhance the learning level and as a teacher I can judge the understanding level of the students.

**Time Allotted for the Activity:** 5 Minutes
After teaching the concept, give students one or two minutes to think about the topic withoutwriting anything.
Total Strength is **64**
Reporter: **Myself**

At the end the Class (Last 5 minutes)

- ✓ I asked the students to think about various types of interrupts in 8085 Concept for 3 minutes.
- ✓ Then I told them to write as much as they can within a short period of time (1 minute)
- ✓ Finally, I collected the papers from each column (1 minute)

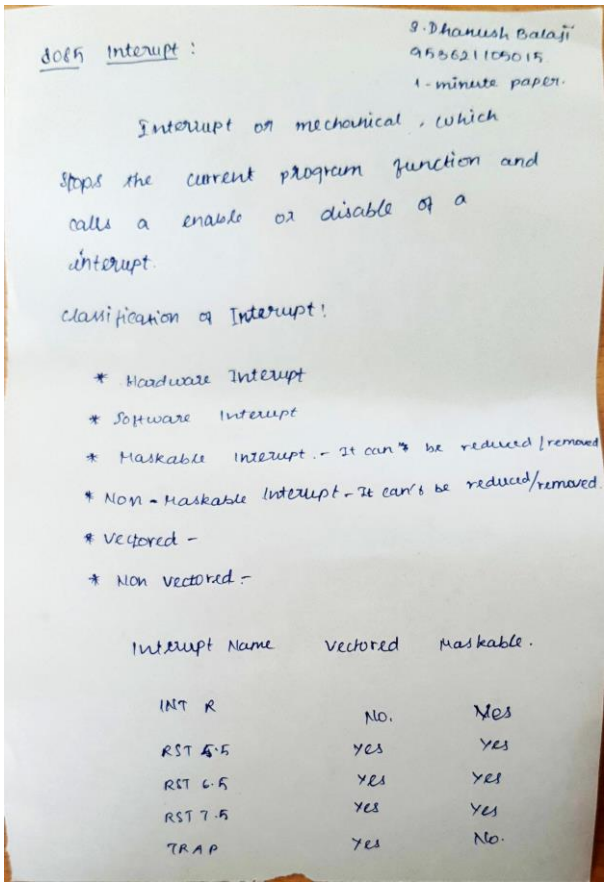
- **CO – PO / PSO mapping:**

| CO | PO1 | PO2 | PO3 | PO10 | PO12 | PSO1 |
|---|---|---|---|---|---|---|
| C215.1 | 3 | 2 | 1 | 2 | 2 | 2 |

- **PO / PSO mapped:**

| **Innovative practice** | **PO1** | **PO2** | **PO3** | **PO10** | **PO12** | **PSO1** |
|---|---|---|---|---|---|---|
| | **3** | **2** | **1** | **2** | **2** | **2** |
| **Justification for correlation** | Students will have fundamental electronic engineering concepts to solve electronic circuit problems. | Students will identify the mathematical, engineering and other relevant knowledge that applies to a memory organization of 8085 problem. | Students will use instruction cycle and timing diagram concept to understand the instruction process of 8085. | Students will be able to communicate the technical concept through Active Learning Methods. | Students will use the electronic fundamentals in the advancement of embedded system technology. | Students will be able to design and test the electronic system in the engineering applications. |

- **Images / Screenshot of the practice:**



8085 Interupt :

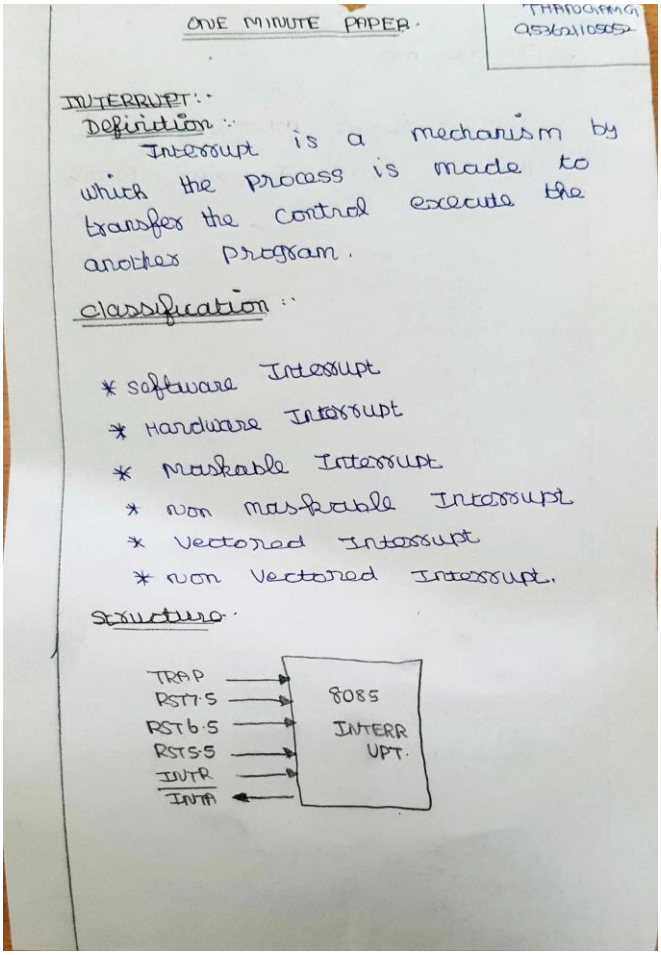
S. Dhanush Balaji
953621105015
1-minute paper.

Interupt on mechanical, which stops the current program function and calls a enable or disable of a interupt.

Classification of Interupt:

* Hardware Interupt
* Software Interupt
* Maskable Interupt - It can't be reduced/removed
* Non-Maskable Interupt - It can't be reduced/removed
* Vectored -
* Non Vectored -

| Interupt Name | Vectored | Maskable. |
|---|---|---|
| INT R | No. | Yes |
| RST 5.5 | Yes | Yes |
| RST 6.5 | Yes | Yes |
| RST 7.5 | Yes | Yes |
| TRAP | Yes | No. |



ONE MINUTE PAPER.

THARUNKUMAR
953621105052

INTERRUPT:

Definition:
Interrupt is a mechanism by which the process is made to transfer the control execute the another program.

classification:

* software Interrupt
* Hardware Interrupt
* Maskable Interrupt
* non maskable Interrupt
* Vectored Interrupt
* non Vectored Interrupt.

structure.



❖ *Reflective Critique:*

1. ***Pre-implementation Reflection:***

- **Benefits:**
  - Students can able to attend the question even in the questions are in indirectform.
  - Students can able to explain the concepts in examination without any confusion.
- ***Challenges:***
  - In the class mostly boys hesitate to answer the questions.
  - Time utilization for conducting activity.

2. ***Post-implementation Reflection:***

- **Benefits:**
  - Students understood the concept which was reflected from their answers forthe questions I have asked during discussion session.
- ***Challenges:***
  - Slow learners were not able to understand some topics during discussionhours.

❖ *Benefit of the practice:* (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)

- ✓ The assessment of effectiveness of the activity was felt when told most of the points.
- ✓ While conducting the activity, I understood that the students will be able to explain various types of interrupts in 8085.
- ✓ The success of the activity was evaluated by asking the same question in Internal Assessment test I – Around 88% of students answered.

References:


- ❖ https://omerad.msu.edu/teaching/teaching-strategies/active-learning-strategies/27-teaching/184-visual-modeling-one-minute-paper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## Innovative Practice Description

- **Unit / Topic:** Unit II / Addressing Modes of 8085
- **Course Outcome:** CO 2
- **Topic Learning Outcome:** 2b
- **Activity Chosen: Mini - map**
- **Justification:**
  - Differentiate the type of Addressing modes of 8085
  - After teaching the concept, I thought of conducting this activity for making the students to give the difference between the 5 types of addressing mode which enhance the learning level and as a teacher I can judge the understanding level of the students.

**Time Allotted for the Activity:** 6 Minutes

After teaching the concept, the students were made to pair with their neighbors

Photographer: Myself

Reporter: Myself

At the end the Class (Last 6 minutes)

- ✓ I asked the students to think about types of 8085 addressing modes concept for 2 minute.
- ✓ Then I told them to Pair with their neighbors and discuss about the concepts for another 1 minute.
- ✓ Finally I told them to design mini-map and submit within 3 minutes.

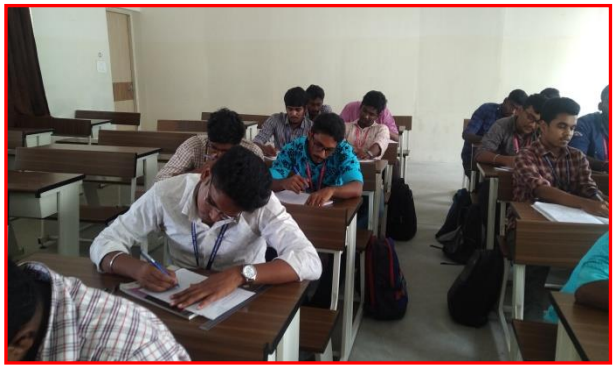
- **CO – PO / PSO mapping:**

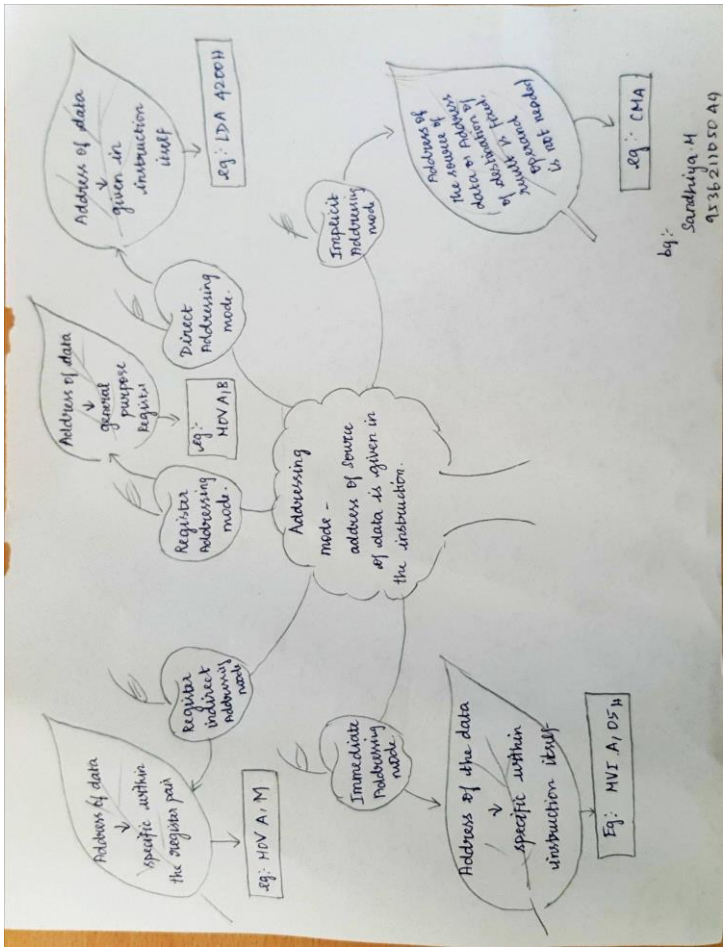
| CO | PO1 | PO2 | PO3 | PO8 | PO10 | PO12 | PSO1 | PSO3 |
|---|---|---|---|---|---|---|---|---|
| C215.2 | 3 | 2 | 3 | 1 | 2 | 2 | 2 | 2 |

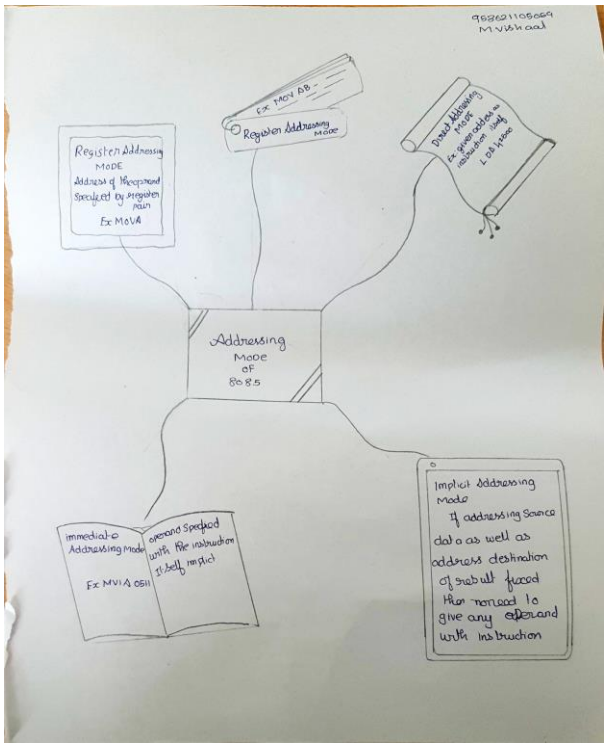
- **PO / PSO mapped:**

| Innovative practice | PO1 | PO2 | PO3 | PO8 | PO10 | PO12 | PSO1 | PSO3 |
|---|---|---|---|---|---|---|---|---|
| | 3 | 2 | 3 | 1 | 2 | 2 | 2 | 2 |
| **Justification for correlation** | Students will have fundamental electronic engineering concepts to solve electronic circuit problems. | Students will identify the Instruction set and Assembly language format of 8085. | Students will determine the Instruction format and Addressing modes of 8085 microprocessor. | Students follow basic ethical practice to prepare the report | Students will be able to communicate the technical concept through Active Learning Methods. | Students will use the electronic fundamentals in the advancement of embedded system technology. | Students will be able to design and test the electronic system in the engineering applications. | Students will be able to design and develop the hardware and software with microprocessor skills required for industrial automation systems. |

- **Images / Screenshot of the practice:**






*Reflective Critique:*

1. ***Pre-implementation Reflection:***

I preferred this Activity because they have five different types of 8085 addressing modes separately.

***Challenges anticipated:***

- In the class mostly boys hastate to answer to the questions.
- Time utilization for conducting activity.

***Steps taken:***

- The boys are sitting in 2 columns – I planned to choose more pairs from boysto involve them in the activity.

2. ***Post implementation Reflection:***

**Benefits:**

- Students understood the concept which was reflected from their answers forthe questions I have asked during discussion session.

***Challenges:***

- Slow learners were not able to understand some topics during discussionhours.

❖ *Benefit of the practice:* (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)

✓ The assessment of effectiveness of the activity was felt when told most of the points.

✓ While conducting the activity, I understood that the students will be able to explain the concepts of Addressing modes.

✓ The success of the activity was evaluated by asking the same question in Internal Assessment test I – Around 80% of students answered.

References:

1. https://omerad.msu.edu/teaching/teaching-strategies/active-learning-strategies/27-teaching/184-visual-modeling-mini-maps

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# Innovative Practice Description

- **Unit / Topic:** Unit III / Compare the programming concepts of 8085 & 8051
- **Course Outcome:** CO 3
- **Topic Learning Outcome:** 2d
- **Activity Chosen: Visual Clicker**
- **Justification:**
  1. Differentiate the type of Addressing modes of 8085
     - After teaching the concept, I thought of conducting this activity for making the students to give the difference between the 5 types of addressing mode which enhance the learning level and as a teacher I can judge the understanding level of the students.

**Time Allotted for the Activity:** 6 Minutes

After teaching the concept of 8051 and 8085, the students were made to pairwith their neighbors
Total Strength is 64,
Number of Pairs – minimum 4 in one team
Photographer: one student – Mr. M. Suriya Prakash (interested in photography)
Reporter: Myself
At the end the Class (Last 6 minutes)

- ✓ I asked the students to think about 8051 and 8085 concept for 1 minute.
- ✓ Then I told them to Pair with their neighbors and discuss for another 1 minute.
- ✓ With the help of PPT prepared (Multiple choice questions) students use their clickersto respond to the question and then the answers were be projected to the students.
- ✓ After completion of the class I uploaded the PPT in the course website (Canvas)

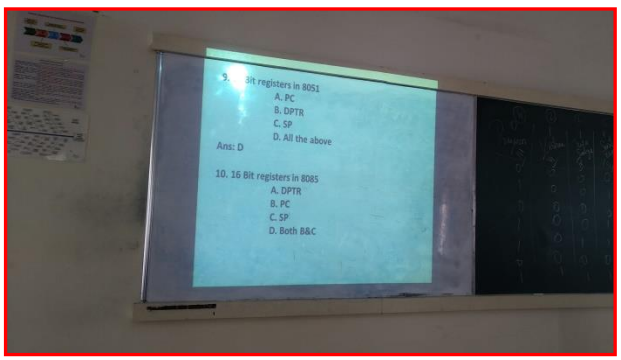
- **CO – PO / PSO mapping:**

| CO | PO1 | PO2 | PO3 | PO5 | PO8 | PO10 | PO12 | PSO1 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|
| C215.4 | 3 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 1 |

- **PO / PSO mapped:**

| Innovative Practice | PO1 | PO2 | PO3 | PO5 | PO8 | PO10 | PO12 | PSO1 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 1 |
| **Justification for correlation** | Students will have fundamental electronic engineering concepts to solve electronic circuit problems. | Students will identify the design specification of basic interfacing circuits with 8085 and 8051. | Students will determine the design objectives and functional requirements of the basic interfacing circuits with 8085 and 8051. | Students will be able to apply appropriate techniques, resources, and modern engineering and software tools | Students will be able to work with their team through Active Learning Methods. | Students will be able to communicate the technical concept through Active Learning Methods. | Students will use the electronic fundamentals in the advancement of embedded system technology. | Students will be able to design and test the electronic system in the engineering applications. | Students will be able to design and develop the hardware and software with microprocessor skills required for industrial automation systems. |

- **Images / Screenshot of the practice:**

❖ *Reflective Critique:*

***1. Pre-implementation Reflection:***

- I preferred this Activity because they have 8051 and 8085separately.

***Challenges anticipated:***

- Time utilization for conducting activity.

***2. Post implementation Reflection:***

**Benefits:**

- Students understood the concept which was reflected from their answers forthe questions I have asked during discussion session.

**Challenges:**

- Student clicker's were not clear in photos. So clicker tools prepared fromstudents were not advisable.

❖ *Benefit of the practice:* (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)

- ✓ The assessment of effectiveness of the activity was felt when told most of the points.
- ✓ While conducting the activity, I understood that the students will be able to explainthe concepts of 8085 and 8051.
- ✓ The success of the activity was evaluated by asking the same question in InternalAssessment test II – Around 80% of students answered.

References:

1. https://omerad.msu.edu/teaching/teaching-strategies/active-learning-strategies/27- teaching/184-visual-modeling

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## Innovative Practice Description

- **Unit / Topic:** Unit IV / A/D and D/A Converters & Interfacing with 8085.
- **Course Outcome:** CO3
- **Topic Learning Outcome: 3**f
- **Activity Chosen: Flipped Classroom**
- **Justification:**
  - Flipped classroom is a "pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter"

**Time Allotted for the Activity:** 30 Minutes

Number of Students – 4

Photographer: one student – Mr. M. Suriya Prakash (interested in photography)

Reporter: Myself

At the Class (30 minutes)

- I shared the material related to the topic through canvas LMS.
- Then I told them to prepare the topic as a team with a help of PPT.

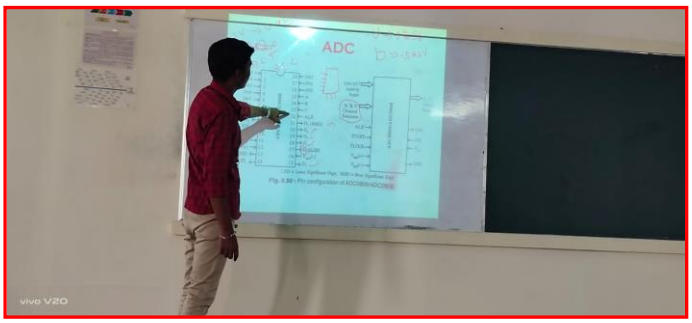
- **CO – PO / PSO mapping:**

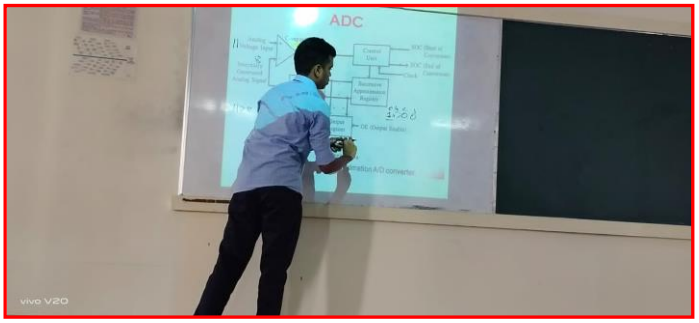
| CO | PO1 | PO2 | PO3 | PO5 | PO8 | PO10 | PO12 | PSO1 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|
| C215.4 | 3 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 1 |

- **PO / PSO mapped:**

| Innovative Practice | PO1 | PO2 | PO3 | PO5 | PO8 | PO10 | PO12 | PSO1 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 1 |
| **Justification for correlation** | Students will have fundamental electronic engineering concepts to solve electronic circuit problems. | Students will identify the design specification of basic interfacing circuits with 8085 and 8051. | Students will determine the design objectives and functional requirements of the basic interfacing circuits with 8085 and 8051. | Students will be able to apply appropriate techniques, resources, and modern engineering and software tools | Students will be able to work with their team through Active Learning Methods. | Students will be able to communicate the technical concept through Active Learning Methods. | Students will use the electronic fundamentals in the advancement of embedded system technology. | Students will be able to design and test the electronic system in the engineering applications. | Students will be able to design and develop the hardware and software with microprocessor skills required for industrial automation systems. |

- **Images / Screenshot of the practice:**



❖ *Reflective Critique:*

***Implementation Reflection:***

- **Benefits:**
  - This practice improves the peer coaching / studying with in the class.
  - Students understood the concept which was reflected from their answers forthe questions I have asked during discussion session.

References:

1. https://www.panopto.com/blog/7-unique-flipped-classroom-models-right/

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## Innovative Practice Description

- **Unit / Topic:** Unit IV / Keyboard and Display Interface with 8051.
- **Course Outcome:** CO 4
- **Topic Learning Outcome:** 4f

❖ **Activity Chosen: Sage and scribe**

- **Justification:**
    - **Sage and scribe** learning strategy is great because teaching others is proven to not only increase a student's understanding of the material, but also helps them retain that newly acquired knowledge. But it's not just the sages who reap the benefits. The scribes do, too, because taking notes also helps students learn. (But take note: handwriting is a better memory aid than a computer.)

**Time Allotted for the Activity:** 10 Minutes

Number of Students – 2

Photographer: one student – Mr. M. Suriya Prakash (interested in photography)

Reporter: Myself

At the Class (10 minutes)

- I shared the material related to the topic through canvas LMS.
- Then I told him to prepare the topic with the help of PPT.

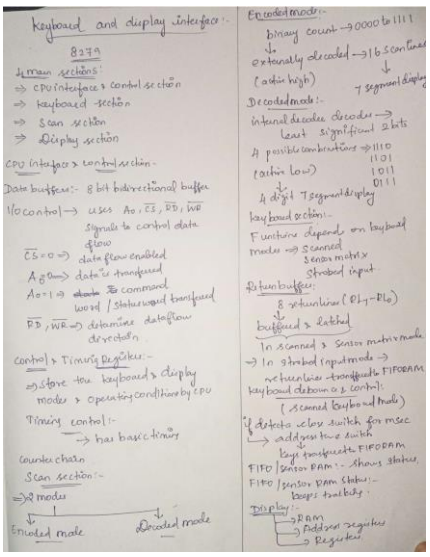
- **CO – PO / PSO mapping:**

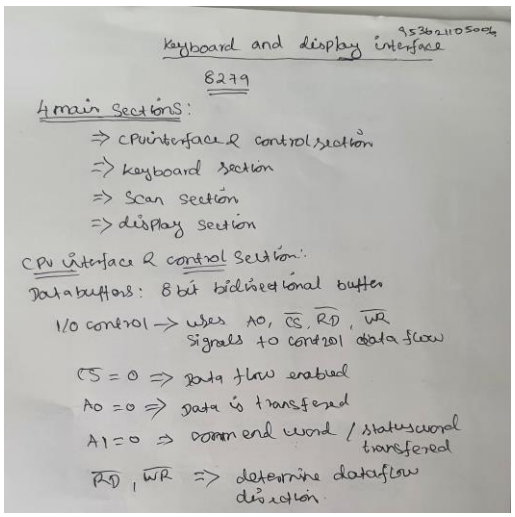
| CO | PO1 | PO2 | PO3 | PO5 | PO8 | PO10 | PO12 | PSO1 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|
| C215.4 | 3 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 1 |

- **PO / PSO mapped:**

| Innovative Practice | PO1 | PO2 | PO3 | PO5 | PO8 | PO10 | PO12 | PSO1 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 1 |
| **Justification for correlation** | Students will have fundamental electronic engineering concepts to solve electronic circuit problems. | Students will identify the design specification of basic interfacing circuits with 8085 and 8051. | Students will determine the design objectives and functional requirements of the basic interfacing circuits with 8085 and 8051. | Students will be able to apply appropriate techniques, resources, and modern engineering and software tools | Students will be able to work with their team through Active Learning Methods. | Students will be able to communicate the technical concept through Active Learning Methods. | Students will use the electronic fundamentals in the advancement of embedded system technology. | Students will be able to design and test the electronic system in the engineering applications. | Students will be able to design and develop the hardware and software with microprocessor skills required for industrial automation systems. |

- **Images / Screenshot of the practice:**



❖ *Reflective Critique:*

***Implementation Reflection:***

- **Benefits:**
  - This practice improves the peer coaching / studying with in the class.
  - The scribe should try to do the note-taking by hand, not computer, to deepen listening and understanding.
  - Students understood the concept which was reflected from their answers for the questions I have asked during discussion session

References:

https://www.theclassroom.com/sage-scribe-directions-12002051.html

**Signature of Faculty Member** **HOD**