Department of Electronics and Communication Engineering
Academic Year 2024 – 2025 (Odd Semester)

Innovative Teaching Method

UNIT I – Semiconductor Devices

Degree, Semester & Branch: B.E., III Semester & ECE A
Course Code & Title: EC3353 & Electronic Devices and Circuits
Name of Faculty member (s): Ms.L.Krishna Kumari
Name of the Topic: MOSFET and UJT Characteristics
Name of the Innovative Practice: One-minute Speech
Date & Duration: 09.08.2024 & 5 minutes
Sample Images:

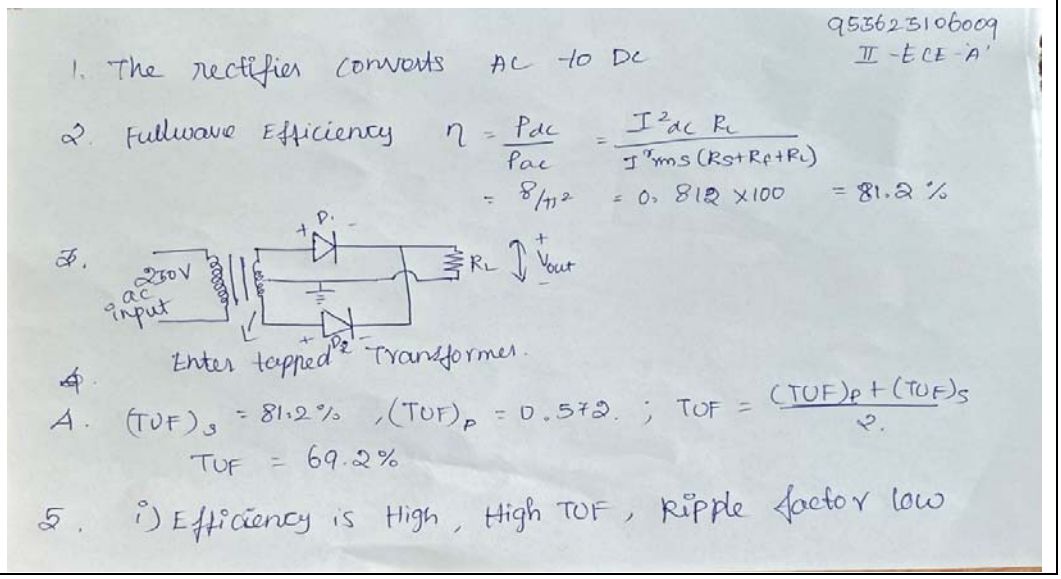
Innovative Teaching Method Execution
MOSFET and UJT V-I Characteristics

Department of Electronics and Communication Engineering
Academic Year 2024 – 2025 (Odd Semester)
Innovative Teaching Method

UNIT I – Semiconductor Devices

Degree, Semester & Branch: B.E., III Semester & ECE A
Course Code & Title: EC3353 & Electronic Devices and Circuits
Name of Faculty member (s): Ms.L.Krishna Kumari
Name of the Topic: Full wave rectifier
Name of the Innovative Practice: One-minute Paper
Date & Duration: 13.08.2024 & 5 minutes
Sample Images:

Innovative Teaching Method Execution
Full Wave Rectifier



Department of Electronics and Communication Engineering
Academic Year 2024 – 2025 (Odd Semester)

Innovative Teaching Method

UNIT II – Amplifiers

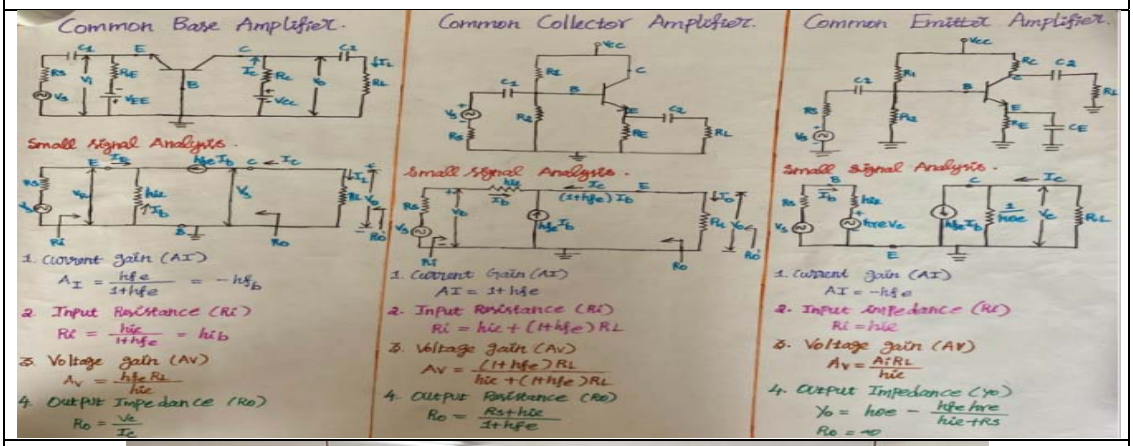
Degree, Semester & Branch: B.E., III Semester & ECE A
Course Code & Title: EC3353 & Electronic Devices and Circuits
Name of Faculty member (s): Ms.L.Krishna Kumari
Name of the Topic: Biasing of MOSFET
Name of the Innovative Practice: Brainstroming
Date & Duration: 27.08.2024 & 5 minutes
Sample Images:

Innovative Teaching Method Execution
Biasing of MOSFET

Department of Electronics and Communication Engineering
Academic Year 2024 – 2025 (Odd Semester)
Innovative Teaching Method

UNIT II – Amplifiers

Degree, Semester & Branch: B.E.,III Semester & ECE A
Course Code & Title: EC3353& Electronic Devices and Circuits
Name of Faculty member (s): Ms.L.Krishna Kumari
Name of the Topic: Common Emitter, Common Base and Common Collector Amplifiers
Name of the Innovative Practice: Chart preparation
Date & Duration: 30.08.2024 & 45 minutes
Sample Images:

Innovative Teaching Method Execution
CE,CB,CC Amplifier



Department of Electronics and Communication Engineering
Academic Year 2024 – 2025 (Odd Semester)
Innovative Teaching Method

UNIT III – Multistage Amplifiers and Differential Amplifiers

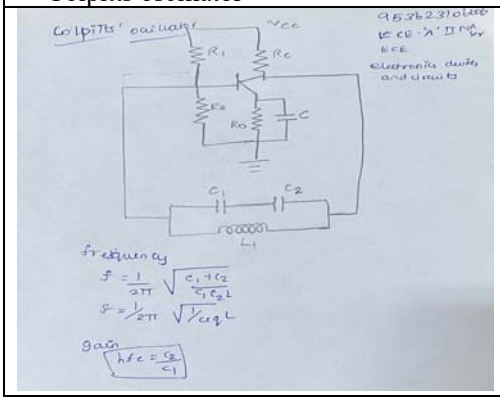
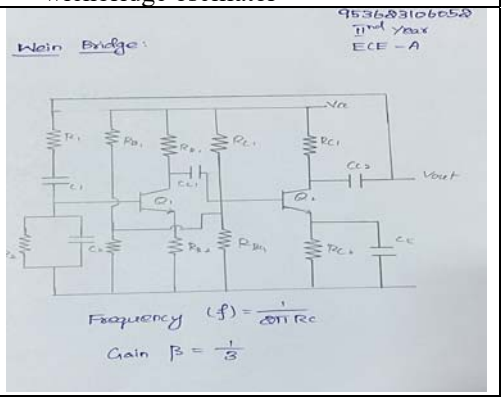
Degree, Semester & Branch: B.E., III Semester & ECE A
Course Code & Title: EC3353 & Electronic Devices and Circuits
Name of Faculty member (s): Ms.L.Krishna Kumari
Name of the Topic: Double Tuned Amplifier
Name of the Innovative Practice: Zero Minute Speech
Date & Duration: 20.09.2024 & 5 minutes
Sample Images:

Innovative Teaching Method Execution
Double Tuned Amplifier


Department of Electronics and Communication Engineering
Academic Year 2024 – 2025 (Odd Semester)
Innovative Teaching Method

UNIT IV – Feedback Amplifiers and Oscillators

Degree, Semester & Branch: B.E., III Semester & ECE A
Course Code & Title: EC3353 & Electronic Devices and Circuits
Name of Faculty member (s): Ms.L.Krishna Kumari
Name of the Topic: Colpitts oscillator, wienbridge oscillator
Name of the Innovative Practice: Mind map
Date & Duration: 22.10.2024 & 5 minutes
Sample Images:

Innovative Teaching Method Execution	
Colpitts oscillator	wienbridge oscillator
	

Department of Electronics and Communication Engineering
Academic Year 2024– 2025 (Odd Semester)

Degree, Semester & Branch: B.E.,III Semester & ECE A
Course Code & Title: EC3353& Electronic Devices and Circuits
Name of Faculty member (s): Ms.L.Krishna Kumari

Innovative Practice Description

- **Unit / Topic:** IV/ Crystal oscillator, RC and LC oscillator
- **Course Outcome:** CO4
- **Topic Learning Outcome:** TLO14, TLO15, TLO16
- **Activity Chosen:** Jigsaw
- **Justification:**

  The activity "JIGSAW" is used to recollect the concepts knowledgeable and to enrich the learning through this teamwork. The condition for oscillation , operation and frequency of oscillation for Crystal oscillator, RC and LC oscillator were taught to students through chalk and talk method. By recollecting all the information in various oscillators, students from expert group were able to share the information to home group.
- **Time Allotted for the Activity:** 45 minutes
- **Details of the Implementation:**

  The students are divided into Home Groups with each group having 6 members. Each member in home group will form different groups named Expert group. Each expert group is allotted with each oscillators. The expert group members discuss the topic in detail for 20 minutes with the learning materials and e-sources

  The Expert group members should go to their original home group and discuss the points (25 Minutes) to the other members. All the members in home group learnt about all the topics through expert group members.
- **CO – PO / PSO mapping:**

CO	PO1	PO2	PO3	PO4	PO10	PO12	PSO3
CO4	3	3	2	2	2	2	2

- **PO / PSO mapped:**

Innovative practice	**PO1**	**PSO3**
	3	2
Justification for correlation	The course outcome is mapped to level 3 because students will be able to understand the fundamental feedback concept employed in oscillators to obtain sustained oscillations.	Students will analyze and develop the feedback amplifier & Oscillator circuit for the specifications, hence it is mapped at level 2

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

Innovative Teaching Method Execution
Crystal oscillator, RC and LC oscillator
 


- **Reflective Critique:**
  - ***Feedback of practice from students and other stakeholders:***
    The students felt a new experience and they could able to recollect the information about various RC and LC Oscillators and also about crystal oscillators. It helped them to learn the concept through collaborative learning with their class mates. They liked this practice of learning through this type of activity for recollecting the information that they already learnt.
  - ***Benefit of the practice:***
    By forming the group, students were able to grasp the knowledge of concept by sharing the ideas among them. Each Home group could recollect the information of oscillators, types and its frequency of oscillation.
  - ***Challenges faced in implementation:***
    Initially, I have planned the activity for 45 minutes but it takes some 5 minutes more time to share the information.

References:

1. David A. Bell, "Electronic Devices and Circuits", Oxford Higher Education press, 5 th Edition, 2010.
2. Robert L. Boylestad and Louis Nasheresky, “Electronic Devices and Circuit Theory”, 10th Edition, Pearson Education / PHI, 2008.
3. Adel .S. Sedra, Kenneth C. Smith, "Micro Electronic Circuits", Oxford University Press, 7 th Edition, 2014.

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Academic Year 2024 – 2025 (Odd Semester)
Degree, Semester & Branch: B.E.,III Semester & ECE A
Course Code & Title: EC3353& Electronic Devices and Circuits
Name of Faculty member (s): Ms.L.Krishna Kumari

Innovative Practice Description

- **Unit / Topic:** V/ DC to DC converters -Buck, boost,buck boost analysis and design
- **Course Outcome:** CO5
- **Topic Learning Outcome:** TLO19
- **Activity Chosen:** Flipped Class room
- **Justification:**
  The topic was chosen for flipped class because DC to DC converters covers buck,boost and buck boost converter analysis and design.The Unit 5 deals with switching regulators like buck or step down switching regulator , boost or step up switching regulator and buck-boost or invertor type. Since the students are exposed to analysis design of switching regulators flipped class was given . This topic can be learnt in self-learning mode with simple manipulations and logic. The students have chance to browse the topic to know how the duty cycle was calculated and its schematic representations. And find more information related to DC to DC converters. Thus this flipped class activity is chosen to make them to work out different techniques for DC to DC converters.
- **Time Allotted for the Activity:** 45 minutes
- **Details of the Implementation:**
  The overview of flipped class activity was given to students before the implementation of the activity. The students were divided into groups and one topic is allotted to each group from DC to DC converterstopic as their wish. The topic related information and e-sources were given to the students. The students have to prepare a presentation for 10 minutes and each group has to present their topic chosen and others will listen to the presentation. After the presentation, question & answering is planned and others can share their ideas and doubts. By this way, all groups were shared their concepts learnt in their topic inside the class.
- **CO – PO / PSO mapping:**

CO	PO1	PO2	PO3	PO4	PO10	PO12	PSO3
CO5	2	3	2	2	2	2	2

- **PO / PSO mapped**

Innovative practice	**PO3**	**PSO3**
	2	2
Justification for correlation	It is mapped to level 2 because since the students will determine design objectives, functional requirements and arrive at specifications of the DC Converters.	to In the field of communication systems, students will be able to design, analyze, and build amplifiers. Hence it is mapped at level 2.

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

Innovative Teaching Method Execution	
DC to DC Converters	
	

- **Reflective Critique:**
  - ***Feedback of practice from students and other stakeholders:***
    The students felt a new practice and it helped them to know to make good presentation and avoid stage fear. They liked this practice of teaching that can be done through this type of activity. They could get idea from learning sources which would help them to prepare the presentation.
  - ***Benefit of the practice:***
    Students done this activity in a successful manner. They planned the activity for their chosen topic and prepared the presentation in the conceptual manner. All members in the group were learnt the topics thoroughly. By forming the group, students were able to grasp the knowledge of concept by sharing the ideas among them. Each member in the group was able to present and deliver the concept of Buck, boost, buck boos analysis and design.
  - ***Challenges faced in implementation:***
    Some of the students felt difficult to present because of lack of communication.
    Few groups done their presentation beyond their time limit.
    Few students in the group felt difficult to answer all the questions.

References:

1. David A. Bell, "Electronic Devices and Circuits", Oxford Higher Education press, 5 th Edition, 2010.
2. Robert L. Boylestad and Louis Nasheresky, “Electronic Devices and Circuit Theory”, 10th Edition, Pearson Education / PHI, 2008.
3. Adel .S. Sedra, Kenneth C. Smith, "Micro Electronic Circuits", Oxford University Press, 7 th Edition, 2014.