

RAMCO INSTITUTE OF TECHNOLOGY
Department of Electronics and Communication Engineering
Academic Year: 2019- 2020 (Even Semester)

Innovative Practices Description

Degree, Semester & Branch: VI Semester B.E. ECE A

Course Code & Title: EC8651 Transmission Lines and RF Systems

Name of the Faculty member: Mr.D.Gopinath

Name of the Topic: Transmission Line Theory - Overview

Name of the Innovative Practice: Brainstorming

Date & Time: 09.01.2020 & 10 minutes

ICT Tool Used:- Smart Class Room

Description of Brainstorming Activity:

Brainstorming is a process one goes through in an effort to generate ideas, let the creative juices flow, and problem solve. It can be applied to a variety of activities including conflict resolution, writing, developing a search on the Internet, and figuring out math problems. Brainstorming is an effective way to think of new ideas individually or within a group. First, the steps are outlined with a group in mind. Second, ideas for brainstorming are presented with an individual in mind. Follow the steps in the group strategy, but use the individual strategies to widen your scope for ideas, creativity, and solutions.

Goals (Learning Outcomes):

1. The students will be able to acquire better knowledge about different types of transmission lines and its parameters.
2. The students will be able to understand the real time examples of transmission lines depending upon the operating frequency range of the applications.

Use of appropriate methods:

Justification for choosing the Brainstorming Activity:

During the revision hour of Unit-I, I want to ask several questions regarding transmission line theory to the students. For that, I have chosen this activity which helps the review of unit-I. and also I have asked some real time problems regarding with transmission line theory. Students are eagerly answered those problems.

Effective presentation

Details of the Implementation:

Innovative Teaching Method Execution	
Transmission Line Theory - Overview	
	
	

Significance of Results:

Assessment of Effectiveness/Success of the Activity:

- ❖ The success of the activity was assessed by asking questions related with Transmission Line Theory.
- ❖ The assessment of effectiveness of the activity was felt when some students are asked doubts regarding the real time issues on transmission lines.

Reflective Critique:

- **Benefits:**

Some of the students confused about the primary and secondary parameters of the transmission line. After that, I have chosen Brainstorming as an Innovative practice method for knowing about the students mindset regarding Unit-I. While asking questions, most of the students referred their class work notes and answered properly.

- **Challenges:**

Initially, I have planned the activity for 5 minutes but students are interested to listen the real time issues of transmission lines which it takes another 5 minutes for completing the activity.

Changes required for future (if required): NIL

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	1					2	1		

CO1: The Students will be able to analyze the various types of transmission lines and the losses associated.

References:

1. John D Ryder, "Networks, lines and fields", 2nd Edition, Prentice Hall India, 2015.
2. <https://www.mindtools.com/brainstm.html>

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Degree, Semester & Branch: VI Semester B.E. ECE A

Course Code & Title: EC8651 Transmission Lines and RF Systems

Name of the Faculty member: Mr.D.Gopinath

Name of the Topic: Wavelength, velocity of propagation, Waveform distortion and distortion-less line

Name of the Innovative Practice: One Minute Paper

Date & Time: 02.01.2020 & 5 minutes

ICT Tool Used:- Smart Class Room

Description of One Minute Paper Activity:

A “one-minute paper” may be defined as a very short, in-class writing activity (taking one-minute or less to complete) in response to an instructor-posed question, which prompts students to reflect on the day’s lesson and provides the instructor with useful feedback.

The Minute Paper is a very commonly used classroom assessment technique. It really does take about a minute and, while usually used at the end of class, it can be used at the end of any topic discussion. Its major advantage is that it provides rapid feedback on whether the instructor's main idea and what the students perceived as the main idea are the same.

Goals (Learning Outcomes):

1. The students will be able to understand wavelength and velocity of propagation.
2. The students will be able to acquire better knowledge about Waveform distortion and distortion-less line


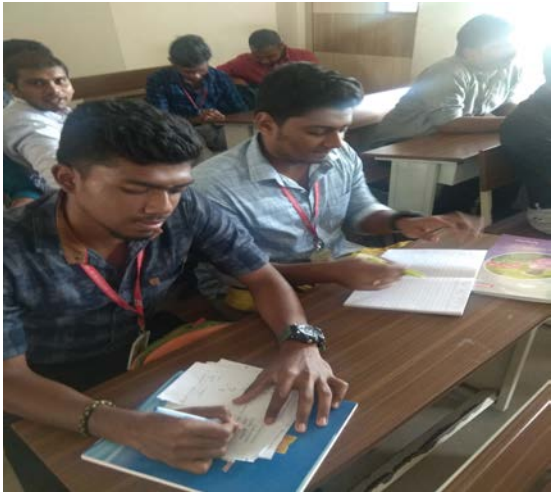
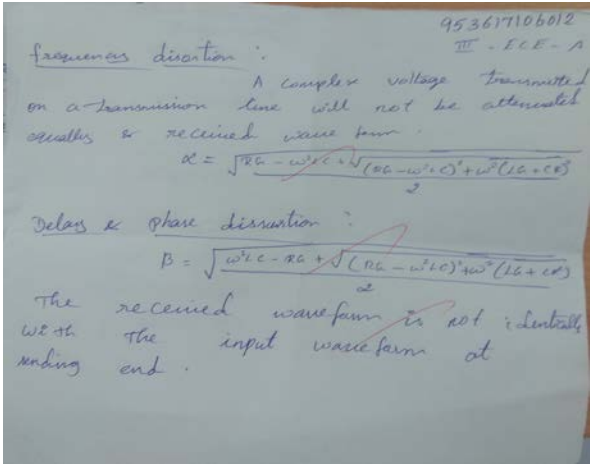
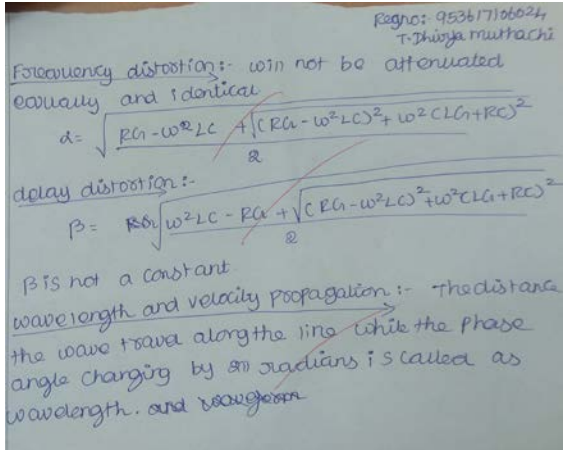
Use of appropriate methods:

Justification for choosing the One Minute Paper Activity:

The students already studied about wavelength and velocity of propagation in electromagnetic field theory. In this subject, I taught Wavelength, velocity of propagation, Waveform distortion and distortion-less line which has more equations. For that, I want to check the understanding level of the students that’s why I have chosen One Minute Paper Activity for this topic.

Effective presentation

Details of the Implementation:

Innovative Teaching Method Execution	
Wavelength, velocity of propagation, Waveform distortion and distortion-less line	
	
	

Significance of Results:

Assessment of Effectiveness/Success of the Activity:

- ❖ The success of the activity was assessed by evaluating the one minute paper and its feedback was given to the students in the next class.
- ❖ The assessment of effectiveness of the activity was felt when most of the students eagerly participated and they have written wavelength and velocity of propagation equations

Reflective Critique:

- **Benefits:**

The students confused about Waveform distortion include Frequency distortion and Phase distortion and its distortion-less condition. After conducting this activity, I have given the feedback of the evaluated one minute papers and clarified their doubts about Waveform distortion and distortion-less condition.

- **Challenges:**

Initially, I have planned the activity for One minute but students have taken 5 minutes to write the equations of Wavelength, velocity of propagation, Waveform distortion and distortion-less line

Changes required for future (if required): NIL

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	1					2	1		

CO1: The Students will be able to analyze the various types of transmission lines and the losses associated.

References:

1. John D Ryder, “Networks, lines and fields”, 2nd Edition, Prentice Hall India, 2015.
2. <https://provost.tufts.edu/celt/files/MinutePaper.pdf>

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Degree, Semester & Branch: VI Semester B.E. ECE A

Course Code & Title: EC8651 Transmission Lines and RF Systems

Name of the Faculty member: Mr.D.Gopinath

Name of the Topic: Reflection factor and reflection loss

Name of the Innovative Practice: Multimedia Clip

Date & Time: 08.01.2020 & 15 minutes

ICT Tool Used:- LCD Projector

Description of Multimedia Clip:

Over the past few years, videos are being widely used in classrooms for supporting a teacher's curriculum and helping students learn the material faster than ever. Research shows that 94% of the teachers have effectively used videos during the academic year and they have found video learning quite effective, it is even better than teaching students through traditional text-books.

Majority of part of the human brain is devoted towards processing the visual information. Brain responds to visuals fast, better than text or any other kind of learning material. Remembering stuff from the picture is retained in the mind for a longer time. Through videos, students get to process information fast.

Goals (Learning Outcomes):

1. The students will be able to analyze the reflection factor and reflection loss of the transmission line.
2. The students will be able to understand impedance matching condition and its significance.

Use of appropriate methods:

Justification for choosing the Multimedia Clip:

Some of the students are not shown interest with chalk & talk class. They have asked to show some animated videos regarding the reflection factor and reflection loss of the transmission line. For that, I have chosen reflection factor and reflection loss multimedia clip which is shown to the students.

Effective presentation

Details of the Implementation:

Innovative Teaching Method Execution	
Reflection factor and reflection loss	
	
	

Significance of Results:

Assessment of Effectiveness/Success of the Activity:

- ❖ The success of the activity was assessed by asking questions to the students who are not shown interest towards the subject and they are answered.
- ❖ The assessment of effectiveness of the activity was felt when they have listened the class effectively.

Reflective Critique:

- **Benefits:**

Some of the students confused about the reflection coefficient, reflection factor and reflection loss of the transmission line and also some of them not shown interest. After that, I have shown the animated videos of reflection factor and reflection loss of the transmission line. Most of the students eagerly watched the video and shown interest towards the subject.

- **Challenges:**

Initially, I have shown 10 minutes video regarding about the reflection factor and reflection loss of the transmission line but some of the students are asked some real time issues on transmission lines which it takes another 10 minutes for completing the activity.

Changes required for future (if required): NIL

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	1					2	1		

CO1: The Students will be able to analyze the various types of transmission lines and the losses associated.

References:

1. John D Ryder, "Networks, lines and fields", 2nd Edition, Prentice Hall India, 2015.
2. <https://www.youtube.com/watch?v=ozeYaikl11g>

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Degree, Semester & Branch: VI Semester B.E. ECE A

Course Code & Title: EC8651 Transmission Lines and RF Systems

Name of the Faculty member: Mr.D.Gopinath

Name of the Topic: Measurement of VSWR and wavelength

Name of the Innovative Practice: Hardware Demonstration

Date & Time: 31.01.2020 & 15 minutes

ICT Tool Used:- Smart Class Room

Hardware Demonstration:

A method demonstration is a teaching method used to communicate an idea with the aid of visuals such as flip charts, posters, power point, etc. A demonstration is the process of teaching someone how to make or do something in a step-by-step process.

The benefits of demonstration as a teaching method are a better learning experience in the classroom for students; the generation interest in the subject; help in developing the spirit of inquiry; students cooperating in the teaching-learning process; and the process of learning becoming permanent in the student's life.

Goals (Learning Outcomes):

1. The students will be able to acquire better knowledge about VSWR and wavelength.
2. The students will be able to understand the Measurement of VSWR and wavelength in real time.

Use of appropriate methods:

Justifications for choosing the Hardware Demonstration:

In the Optical and Microwave laboratory, Measurement of VSWR and wavelength using Slotted line method experimental setup is available. I want to correlate this experiment to theory course of Transmission Lines and RF Systems. For that, I want to demonstrate the slotted line section experiment for measuring VSWR and wavelength.

Effective presentation

Details of the Implementation:

Innovative Teaching Method Execution	
Measurement of VSWR and wavelength	
	
	

Significance of Results:

Assessment of Effectiveness/Success of the Activity:

- ❖ While conducting the demonstration, students related the theoretical concepts of measurement of Measurement of VSWR and wavelength.
- ❖ The assessment of effectiveness of the activity was felt when asked viva questions after demonstration.

Reflective Critique:

- **Benefits:**

During the class, most of the students confused about measuring VSWR and wavelength using Slotted line section. After demonstration, they can be acquired better knowledge about measuring these parameters. Some of the students not interested during the demonstration then I counselled them separately and told the importance of hardware demonstration.

- **Challenges:**

Initially, I have planned the activity for 10 minutes but some of the students asked doubts related with slotted line section and I have clarified it which takes another 5 minutes.

Changes required for future (if required): NIL

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO2	2	2	2	1					2	1		

CO2: The Students will be able to analyze different parameters and constraints in high frequency transmission of information.

References:

1. John D Ryder, "Networks, lines and fields", 2nd Edition, Prentice Hall India, 2015.