

D.N.R COLLEGE OF ENGINEERING & TECHNOLOGY
Department of Electronics and Communication Engineering
Academic Year: 2021- 2022 (ODD Semester)
Innovative Teaching Method

B-Tech, Semester& Branch: IV/ I Semester ECE

Title: Optical Communication

Name of the Faculty member(s): K. Sekhar Babu

Name of the Topic: Laser structures and radiation patterns, Single mode laser, External modulation-temperature effort

Name of the Innovative Practice: In ClassTeams

Date& Duration: 18.08.2021&10 Minutes

Justification:

The students will be able to understand the concepts of Laser structures and radiation patterns, Single mode laser, External modulation-temperature effort with the help of In Class Teams activity more easily. The students will be able to easily remember the concepts if they share the concepts with the team members.

Details of the Implementation:

In Class Teams is a collaborative teaching strategy. It can be used to help students form individual ideas, discuss and share with the others in-group. It can be used before reading or teaching a concept and works better with smaller groups.

The students were in the class room. First the students were taught with the concepts of Laser structures and radiation patterns, Single mode laser, External modulation-temperature effort. Then the students were allowed to discuss the topics among their friends. Then two students grouped and shared their views on the topic. Since the students discussed among their friends, they understood the concepts more clearly.

Innovative practice	PO9	PO10	PSO3
	2	2	3
Justification for correlation	In-Class Teams activity helps the students to present results as a team, with smooth integration of contributions from all individual efforts.	The topic deals with optical sources like LED, Laser to find internal and external quantum efficiency. This task is accomplished through team activity.	To analyze the various optical sources, laser structures, radiation patterns & External modulation-temperature effort, classify various types of detectors and to design & compare optical detectors, this activity is really useful.

- **Images/ Screen shot of the practice:**



- **Reflective Critique:**

- ❖ *Feedback of practice from students and other stakeholders:*

The effectiveness of the activity was felt when the students were asked the questions on the topic, they were able to answer easily. They also understood the concepts more easily and able to remember while writing the test.

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

The students were more interested in learning the concepts if they are sharing the concepts through their friends. They clarified their doubts with the neighboring students and the faculty. They learnt the concepts and asked more doubts in the topic and learn many things. Outcome attainment has also been increased since the students' performance in the test is also good.

- ❖ *Challenges faced in implementation:*

Basically sometime is needed to explain the basic concepts of laser structures, radiation patterns to the students and also to discuss among the students.

References: Textbooks:

1. P Chakrabarti, "Optical Fiber Communication, McGraw Hill Education (India) Private Limited, 2016 (UNIT I, II, III)
2. Gerd Keiser, "Optical Fiber communication" MCGraw-Hill international, 4th Edition, 2010

Other References:

Books/Website/Journal/e-books/Videos/NPTEL/ Matlab Online/Online Course etc.

1. John M. Senior, "Optical Fiber communication", Second Edition, Pearson Education, 2007
2. Ramaswami, Sivarajan and Sasaki "Optical Networks", Morgan Kaufmann, 2009
3. J. Senior, "optical communication, principles and practice", Prentice Hall of India, 3rd Edition, 2008.
4. NPTEL video on "Advanced Optical Communication"
Link:
<https://nptel.ac.in/courses/117/101/117101002/>

D.N.R COLLEGE OF ENGINEERING & TECHNOLOGY
Department of Electronics and Communication Engineering
Academic Year: 2021- 2022 (Even Semester)
Innovative Teaching Method

B-Tech, Semester& Branch: III/ II Semester ECE

Title: WWTD

Name of the Faculty member(s): K. Sekhar Babu

Name of the Topic: Horn Antenna

Name of the Innovative Practice: Demonstration

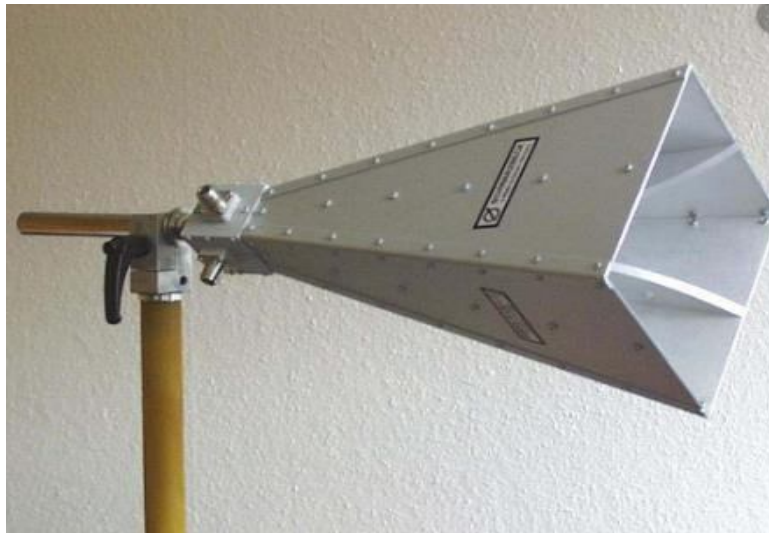
Date& Duration: 09.02.2022& 30 Minutes

Description:

A horn antenna or microwave horn is an antenna that consists of a flaring metal waveguide shaped like a horn to direct radio waves in a beam. Horns are widely used as antennas at UHF and microwave frequencies, above 300MHz. Horn antennas are commonly used as the active element in a dish antenna. The horn is pointed toward the center of the dish reflector. The use of a horn, rather than a dipole antenna or any other type of antenna, at the focal point of the dish minimizes loss of energy (leakage) around the edges of the dish reflector.

Animated video on horn antenna was also shown to the students and the practical applications of the antennas were explained to the students clearly.

References:



1. <https://searchmobilecomputing.techtarget.com/definition/horn-antenna>
2. JohnDKraus,“AntennasforallApplications”,3rdEdition,McGrawHill,2005.
3. Constantine.A.Balanis,“AntennaTheoryAnalysisandDesign”,WileyStudent Edition, 2006

