

**D.N.R COLLEGE OF ENGINEERING & TECHNOLOGY**  
**Department of Electronics and Communication Engineering**  
**Academic Year: 2020- 2021 (ODD Semester)**  
**Innovative Teaching Method**

**B-Tech, Semester& Branch:** III/ I Semester ECE

**Title:** Antenna And Wave Propagation

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

**Name of the Topic:** Aperture antennas

**Name of the Innovative Practice:** Student Team Achievement Divisions

**Date& Duration:** 22.08.2021&50 Minutes

**Justification:**

Student Team Achievement Divisions (STAD) is a most suited collaborative learning model for a Conceptual course. I have chosen STAD among the four learning model (JIGSAW, STAD, TGT, or TAI) suggested. The different types of Aperture antennas and its design procedure can be studied and learned the applications of aperture antennas. Aperture antennas are classified as Horn antenna, Slot antenna, Reflector antenna and Micro strip patch antenna. STAD is a Collaborative Group activity. We can assign Aperture antennas to the student groups to learn the operations and its design procedures better.

**Details of the Implementation:**

**Group Study Time (25 minutes)**

- The time is given for each group to revise/study the Aperture antennas and its design procedures.
- Each group should study the Horn antenna- Introduction, Types of Horn antenna, Feeding methods, Design procedure and Applications
- Each group should study the Slot antenna- Introduction, Types of Slot antenna, Feeding methods, Design procedure and Applications
- The high caliber students take the responsibility of ensuring that every member is well-prepared in the content.
- **Images/ Screen shot of the practice:**



## **REFERENCES**

1. Antenna Theory - C.A. Balanis, John Wiley and Sons, 2nd Edition, 2001.
2. Antennas and Wave Propagation – K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.
3. Transmission and Propagation – E.V.D. Glazier and H.R.L. Lamont, The Services Text Book of Radio, vol. 5, Standard Publishers Distributors, Delhi.
4. Electronic and Radio Engineering – F.E. Terman, McGraw-Hill, 4th Edition, 1955.
5. Antennas – John D. Kraus, McGraw-Hill, 2nd Edition, 1988.

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**Department of Electronics and Communication Engineering**  
**Academic Year: 2020- 2021 (Even Semester)**  
**Innovative Teaching Method**

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

**Title:** Microwave Engineering

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

**Name of the Topic:** Power Divider and Magic Tee

**Name of the Innovative Practice:** Flipped Classroom

**Date& Duration:**03.03.2022 & 50 Minutes

**Justification:**

Power divider and the magic tee are the passive microwave devices which can be understood easily. Flipped classroom practice was chosen because the topic is easy and interesting for the students to refer by themselves.

**Details of the Implementation:**

The students were given with the reference materials to get prepared. The students were asked to make a group among them. The questions were asked from the topic they have prepared. As it is power divider and Magic Tee, most of the questions were related to the ports. As a group, they have discussed and came up with answer for the questions. After that, they were asked to get the class back together to share the individual's group work with everyone. While discussing like this, they can get an in depth knowledge about the topic and they can clearly express their ideologies related to that topic.



**Reflective Critique:****❖ *Feedback of practice from students and other stakeholders:***

1. They can get engaged in class for the entire 50 minutes.
2. The activity acts as a better platform for discussion.
3. It is quite interesting.

**❖ *Benefit of the practice:***

1. They will get exposed to text books and reference materials.
2. Better interaction and communication due to group activity.
3. All the students can effectively take part in the activity and the idea about the topic has been reached more students.

**❖ *Challenges faced in implementation:***

1. To organize the activity little more time has been consumed than expected.

**REFERENCES:**

1. Microwave Principles – Herbert J. Reich, J.G. Skalnik, P.F. Ordnung and H.L. Krauss, CBS Publishers and Distributors, New Delhi, 2004
2. Microwave Engineering- Annapurna Das and Sisir K.Das, Mc Graw Hill Education, 3rd Edition.
3. Microwave and Radar Engineering-M.Kulkarni, Umesh Publications, 3rd Edition.

