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Pothavarappadu, Agiripalli Mandalam, Krishna Dt., Andhra Pradesh - 521212
URL : www.nrigroupofcolleges.ac.in, Ph : 0866 2469666, Email : principal@nriit.edu.in



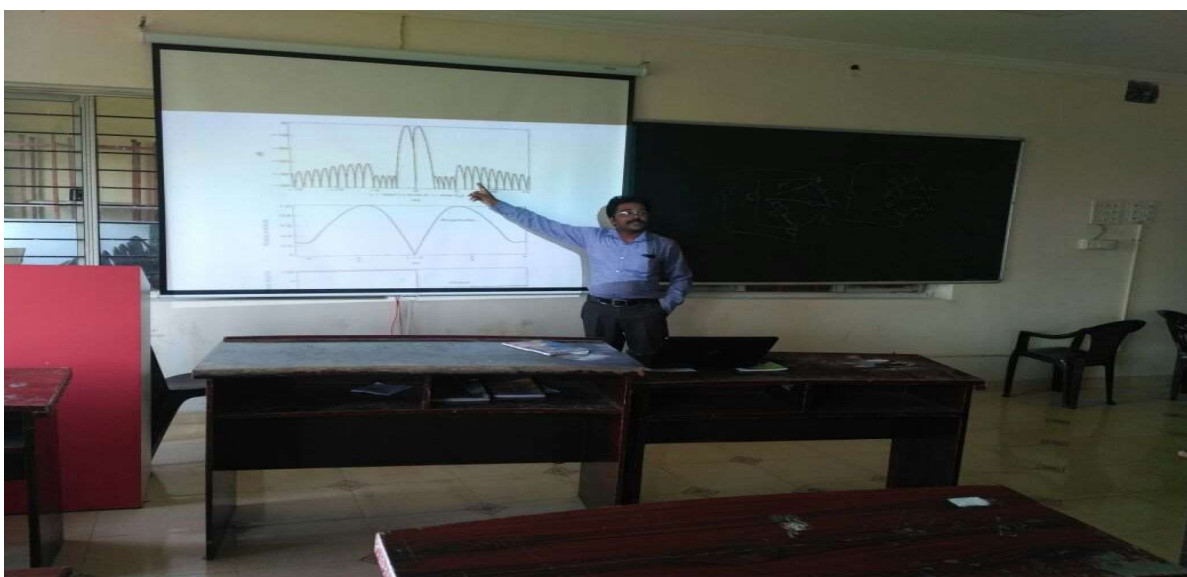
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

| | |
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| Name of the Innovative Practice | Multimedia and Audio-Visual aid |
| Name of the Topic | Cellular Mobile Communication |
| Name of the Faculty member | Dr. S.V.Ramarao |

Description:

Multimedia, is the combination of various digital media types such as text, images, audio and video, into an integrated multi-sensory interactive application or presentation to convey information to the students. Especially for Electronics and communication engineering where there is a need of visualization, we can use audio-visual aid to show video lectures, animations etc. This method imparts knowledge of renowned personalities in the concerned subjects to students by playing their lectures. Computer is an inevitable tool which can be used for variety of applications in teaching; for example showing power point presentation, and showing three dimension graphics to make our teaching effective and easy. LCD Projector is used along with computer.

Implementation(Plan & Execution) with Proof:





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Reflective Critique:

- **Benefits:** By using audiovisual tools in the classroom, **teachers show students how to communicate through various media.** Students are introduced to the concept of conveying information creatively -- which comes in handy when they must give presentations in class or later in their careers.
- **Challenges:** Technical Problems. Regardless of your equipment, there are many things that could go wrong that may derail your presentation.

| Course Outcome | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO4 | | 2 | 1 | | | | 2 | | | | 1 | |

Reference: Mobile Cellular Telecommunications – W.C.Y. Lee, Tata McGraw Hill, 2nd Edn., 2006.

CO4: understand the concepts of handoff and architectures of various cellular systems.



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| Name of the Innovative Practice | Use of models as a teaching aid |
| Name of the Topic | Antennas design practice |
| Name of the Faculty member | Dr. P. Rama Koteswar Rao |

Description:

Models are human inventions, based on an incomplete understanding of how nature works. It is a representation of an idea, object, event, process and system. Models play a crucial role in science and technology teaching. In engineering it is difficult to explain some complex subjects; students may be confused and easy to forget but use of model method we can easily solve these problems. Before going to class every faculty prepare some models that are related to the current topic so that it makes easier to understand of students while teaching the subject. Let observe the following case. It shows easy to understand that the complicated topic is working of different types of antennas.

Implementation(Plan & Execution) with Proof:





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Directive Gain (G_d) :-
Directive gain of the Antenna is defined as the ratio of radiation intensity of test antenna in a specific direction w.r.t radiation intensity of isotropic Antenna.

$$G_d = \frac{R.I \text{ of Test Antenna in a specific direction.}}{R.I. \text{ of Isotropic Antenna}}$$

where:- $G_d = \frac{v(\theta, \phi)}{V_0}$

where:-
 $v(\theta, \phi)$ - radiation intensity in θ and ϕ directions.
(θ, ϕ)

It is also defined as the ratio of radiation intensity in specific direction with respect to average radiation intensity of Antenna.

$$G_d = \frac{R.I \text{ of Test Antenna in specific direction.}}{\text{Average R.I of antenna}}$$
$$G_d = \frac{v(\theta, \phi)}{V_{avg}}$$



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Reflective Critique:

- **Benefits:** 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.
- **Challenges:** Time management is complicated one to shown the cable to the students individually

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

Reference: Antennas for All Applications – John D. Kraus and Ronald J. Marhefka, 3rd Edition, TMH, 2003

CO2: Identify basic antenna parameters and Analyze antenna measurements to assess antenna's performance.



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| Name of the Innovative Practice | Project Method |
| Name of the Topic | IOT |
| Name of the Faculty member | Dr. V. Ramesh Babu |

Description:

This method is highly used and very popular in Electronics Engineering. It deals with the many aspects of learning together. Projects have been defined as that form of coordinated activity that is directed towards the earning of a significant skill. It involves at least four steps of active learning viz. purposing, planning, executing and judging. The project should be purposeful, useful and practically applicable to the students, with clear, well-defined objectives. The level of complexity of the project should match the ability level of the students.

Implementation(Plan & Execution) with Proof:





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VoLTE LTE 1 LTE 85% 10:55 am

Farmar Assisant

Show devices

Hydraulic up

Hydraulic dwn

Sprayer

Power

Rotavator

Seed feeder

Error 516: Unable to write: Broken pipe

Drive

Left

Right

Reverse



VoLTE LTE 1 LTE 85% 10:55 am

AJS_BC

06:3B:54:6E:B6:D5 BT V9

28:39:26:9C:B6:D0 DESKTOP-GR4IHVS

00:22:03:01:1F:2E HC-05

7F:E2:DE:64:01:AA Twills PTWE03

F9:E7:39:84:DC:8A 3.0 BT



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Reflective Critique:

- **Benefits:** It allows students who are motivated to be creative, freely inquisitive, and self-guided in their education and it helps in growing knowledge very effectively as results of their close cooperation on social participation in the spirit of democracy.
- **Challenges:** The project cannot be planned for all subjects and whole subject matter cannot be taught by this strategy.

| Course Outcome | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO 3 | 2 | 2 | | | | | | | | 1 | 1 | 2 |

Reference: Embedded Systems Architecture- By Tammy Noergaard, Elsevier Publications, 2013.

CO3: Understand the various embedded firmware design approaches on embedded environment.



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| Name of the Innovative Practice | Demonstration |
| Name of the Topic | MWOC Lab |
| Name of the Faculty member | S.A.Rehman |

Description:

Demonstration involves a scientific experiment which is carried out for the purpose of illustrating principles, rather than for hypothesis testing or knowledge gathering. It is a technique which involves illustration with examples rather than simple explanation. In this technique, the learners observe, collect data, assist in setting up the experiment for the facilitator initially and later perform the given task independently.





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Reflective Critique:

- **Benefits:** The demonstration method is a wonderful way to explain things to students and help them learn the necessary skills and it is a process of teaching someone how to make or do something in a step-by-step process. As you show how, you “tell” what you are doing.
- **Challenges:** Lack of participation can make a large impact on the group.

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

Reference: Microwave Devices and Circuits – Samuel Y. Liao, PHI, 3rd Edition, 1994.

CO1: Understand the function, design, and integration of the major microwave components to building a Microwave test bench setup for measurements