

# **AURORA'S ENGINEERING COLLEGE**

BHONGIR, NALGONDA DIST. – 508116.



*lab manual of*

**MICROWAVE AND DIGITAL COMMUNICATIONS LAB**

**4<sup>th</sup> Year 1<sup>st</sup> Sem. ECE**

(As per 2009 Regulation)

**DEPARTMENT OF  
ELECTRONICS AND COMMUNICATION ENGINEERING  
2014-2015**

## **PREFACE**

Communication is the core area of ECE and constitutes the largest application in use today. One cannot imagine today's world without communication engineering. Communication lab helps students to acquire knowledge about more widely used digital communication concepts. Microwave engineering lab is primarily concerned with measurement of performance indices of transmission systems. In the laboratory course students will be trained to make measurements on microwave bench setups excited by microwave sources. This experience enables students to work on radar transmitter and receivers and modern day satellite communication links. Performance indices like VSWR, attenuation, directivity and losses etc. are measured and compared for different transmission systems. The applications of the measurements made in Microwave and communication labs are broadly in the areas of radar systems, satellite communications at microwave frequency in X-band.

In digital communication, the characteristics of carrier signal vary with the digital input data. In the digital modulation, we can learn the digital binary techniques ASK, FSK, PSK, DPSK and pulse modulation techniques DM and PCM.

The laboratory is intended to make students understand the use of microwave components and digital communication systems in the field of communication.

## **LAB CODE**

1. Students should report to the concerned labs as per the time table schedule.
2. Students who turn up late to the labs will in no case be permitted to perform the experiment scheduled for the day.
3. After completion of the experiment, certification of the concerned staff in-charge in the observation book is necessary.
4. Students should bring a note book of about 100 pages and should enter the readings/observations into the note book while performing the experiment.
5. The record of observations along with the detailed experimental procedure of the experiment performed in the immediate last session should be submitted and certified by the staff member in-charge.
6. Not more than three students in a group are permitted to perform the experiment on a setup.
7. The group-wise division made in the beginning should be adhered to, and no mix up of student among different groups will be permitted later.
8. The components required pertaining to the experiment should be collected from stores in-charge after duly filling in the requisition form.
9. When the experiment is completed, students should disconnect the setup made by them, and should return all the components/instruments taken for the purpose.
10. Any damage of the equipment or burn-out of components will be viewed seriously either by putting penalty or by dismissing the total group of students from the lab for the semester/year.
11. Students should be present in the labs for the total scheduled duration.
12. Students are required to prepare thoroughly to perform the experiment before coming to Laboratory.
13. Procedure sheets/data sheets provided to the students groups should be maintained neatly and to be returned after the experiment.

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**PART –A**

**MICROWAVE  
ENGINEERING**

**Lab**