Birla Institute of Technology & Science, Pilani
Hyderabad Campus

SECOND SEMESTER 2021-22

Course Handout Part II

15/01/2022

In addition to Part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. : ECE F312
Course Title : Electromagnetic Fields and Microwave Engineering Laboratory
Instructor-in-Charge : Harish V. Dixit
Instructors :

Scope and Objective of the Course: Microwave components and systems have made a great impact on our society with the rapid proliferation of various consumer products. The focus of the Microwave Laboratory will be the development and use for scientific studies of the microwave frequencies. It makes the student aware of basic concept of the Microwave Test-Bench. Experiments based on microwave sources, VSWR measurement, impedance measurement, various microwave components will be carried out in this lab. This lab will also motivate the students to work towards the design and analysis of microwave circuits, filters, couplers and microstrip antennas for microwave wave applications using design software.

Textbooks:

1. Lab Manual on Electromagnetic Fields and Microwave Engineering Laboratory
2. Basic microwave techniques and laboratory manual by M.L. Sisodia
3. Ansys HFSS Manual

Course Plan:

The laboratory classes will be conducted in the Microwave Engineering laboratory. The practical experiments are intended to provide hands-on experience on the concepts learnt in the Electromagnetic Fields and Microwave Engineering course. Details of the experiments will be available in the “Laboratory Manual”. Laboratory marks mentioned includes marks for record and attendance in lab practical.

List of Experiments

Experiment No.	Name of the Experiment	Date
1.	APLAC demo and single stub	January 20, 2022
2.	Double stub, balanced stub and triple stub in APLAC	January 27, 2022
3.	SONNET demo and microstrip line	February 3, 2022
4.	Coupler in SONNET	February 10, 2022
5.	CST/ COMSOL demo and rectangular waveguide	February 17, 2022

6.	Waveguide coupler in CST/COMSOL	February 24, 2022
7.	Design of Planer antennas using COMSOL/CST	March 3, 2022
8.	4nec2 demo and dipole antenna	March 24, 2022
9.	Demo on Microwave test bench	April 7, 2022
10	Demo on fabrication, anechoic chamber and VNA measurement	April 21, 2022

Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Nature of Component
Laboratory Practical Regular class work	2 hours/ week	60%	Regular lab Performance	Open Book
Miniproject/ assignment	Will be announced	30%	Will be announced	Open Book
Final Lab Exam	Will be announced	10%	Will be announced	Closed Book

Chamber Consultation Hour: To be announced in lab
email: hvdixit@hyderabad.bits-pilani.ac.in

Notices: All notices of this course will be displayed in CMS

Make-up Policy: Only One Lab Make-up will be granted for genuine reason with prior-permission from Instructor-in-charge. Makeup for Comprehensive Examination will be given only in **extremely genuine cases** for which prior permission of the instructor-in-charge is required.

Academic Honesty and Integrity Policy: Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

Harish V. Dixit
INSTRUCTOR-IN-CHARGE
ECE F312