



SECOND SEMESTER 2020-2021

Course Handout Part II

16-01-2021

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

<i>Course No.</i>	: EEE F246
<i>Course Title</i>	: Electrical and Electronic Circuits Laboratory
<i>Instructor-in-Charge</i>	: Syed Ershad Ahmed
<i>Instructors team</i>	: Prof. Prabhakar Rao, Dr. R. Venkateswaran, Dr. Parikshit Sahatiya

Scope and Objective of the Course: A thorough understanding of the elementary principles of Electrical and Electronics circuits and Signals and response of Systems to signals is fundamental to Electrical, Electronic and Instrumentation Engineers. This Laboratory course gives hands-on experience to the theoretical concepts covered in the theory course.

Textbooks:

1. Lab Manual on Microelectronic Circuits
2. Lab Manual on Signals & Systems

Course Plan:

The laboratory classes will be conducted in the Microelectronic Circuits and Signals and Systems Laboratories. The practicals are intended to provide hands-on experience on the concepts learned in the Microelectronic Circuits and Signals and Systems courses. 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 in Microelectronics Circuits (using LTSpice)

1. Introduction to LTSPICE electronics laboratory
2. Applications of diode (a) Diode Characteristics (b) Clippers and Peak detector
3. Performance measurement of regulated DC power supply
4. Characteristics of BJT in different configuration
5. Frequency response of common-emitter BJT amplifier
6. Characteristics of MOSFET in different configuration
7. Frequency Response of common-Emitter (CE) MOSFET amplifier
8. Frequency Response of common-source (CS) MOSFET amplifier



9. Design of a Current Mirror Circuit
10. Design of a Differential amplifier Circuit

List of Experiments in Signals and Systems (using Matlab)

1. Familiarization with Matlab
2. Matlab Exercises
3. Generation of Signals
4. Signal operations (scaling, shifting, inversion)
5. Synthesis of signals using Fourier Series
6. Convolution
7. Laplace Transforms
8. Sampling and Reconstruction
9. Generation of Spectrum of signals Using FFT
10. Analog Filters

Evaluation Scheme:

Component	Duration	Weightage (%) / Marks	Date & Time	Nature of Component
Laboratory Practical Regular class work	4 hours/ week	50% / (100 M)	Regular lab Performance	Open Book
Midterm Lab Quiz/ Assignment		30% /(60M)	Will be announced	Open Book
Lab Hands on Test / Quiz /Assignment		20% /(60M)	Will be announced	Open Book

Chamber Consultation Hour: Chamber consultation hours of Instructors will be announced separately.

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

Make-up Policy: One Lab Make-up will be granted for genuine reasons, only when prior-permission is obtained from Instructor-in-charge.

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.

INSTRUCTOR-IN-CHARGE

