ECE 113 **2022**

Basic Electronics
Tentative Lab Plan

1) Lab 1/Week3: Introduction to LTspice, DSO, power supply, and multimeter.

2) Lab 2/ week4: Experiments On Resistive Circuits
    a) Breadboard introduction
    b) Thevenin's circuit
    c) Norton's circuit

3) Lab 3/ week5: Experiments On Resistive Circuits
    a) Introduction to the potentiometer.
    b) Verification of Maximum power transfer Theorem
    c) Verification of Superposition Theorem

4) Lab 4/ Week 6: Step Response Of RC Circuit
    a) Introduction to Capacitors

5) Lab 5/ Week 9: Steady-State Response Of RLC Circuits to a sinusoidal Input
    a) Introduction to Inductors and LCR meter

6) Lab 6/ Week 10: Operational Amplifier Applications
    a) Inverting Amplifier
    b) Summer Circuit
    d) Voltage follower Circuit
    e) Differentiator
    f) Integrator

7) Lab 7/ Week 11: Applications Of Diode
    a) Rectifier
    b) Clipper circuit
    c) Clamper circuit

8) Week 12: Makeup Lab
9) Week 13: End-sem Lab Exam/project

FILE WORK

1) File
    a) Any practical file except a science notebook
    b) The index should be filled
    c) **Format of lab file**:- All points should be mentioned
        i) Aim
        ii) Resources utilized
        iii) Calculations
        iv) Observation Table
            *Comparison between LTspice, Theoretical and Practical results
        v) Neat and clean hand-drawn Circuits on the blank side of the page.
        vi) Applications
        vii) Conclusion (explain the observation results)

A) **(Individual task)** LTSpice circuit should be submitted on classroom, before coming to the lab and the results should be written in a rough notebook, which will be checked by the TAs during the lab.
B) The file should be submitted upon entering the lab.
C) No file work will be allowed during the session.
D) Each lab's work will be checked in the next week's session.

GRADING POLICIES

1) Each lab experiment is of 10 marks.
2) Working circuit with viva- 4 marks; Working circuit (2), Viva (2)
3) Observation table- 3 marks
4) Application (at least two, explanation is must)- 2 marks
5) Conclusion- 1 mark

Bonus marks for the top 3 students in the lab (**Will be announced at the end of the semester**):-
Parameters to be checked:

1) Time of completion
2) Neat and clean circuit
3) No resource damages
4) Proper file with the index

PENALTIES

1) Resource/ lab infrastructure damage:- 3 marks
2) Lab file not following the above-shared format:- 2 marks
3) Incomplete file without index:- 2 marks
4) Not following the freeze time:- 3 marks

5) Not keeping resources back in their place/arranging the chairs/switching off the devices before leaving the lab: 2 marks
6) Any indiscipline in the lab:- No Lab Access till the course faculty approves