List of Experiments

Experiment # 1: Introduction to CRO, Signal generator, multimeter, breadboard and DC voltage source

Experiment # 2: Ohm's law, Kirchhoff's current law, and voltage law

Experiment # 3: Thevenin's theorem, Norton's theorem

Experiment # 4: Superposition Theorem

Experiment # 5: Maximum Power Transfer Theorem

Experiment # 6: Low Pass and High Pass Filters (Using Resistors and Capacitor).

Experiment # 7: Current-Voltage (I-V) characteristics of a PN junction Diode (Ge and Si)

Experiment # 8: Half-Wave Rectifier with Filter

Experiment # 9: Full-Wave Rectifier

Experiment # 10: Clipper Circuits

Experiment # 11: Clamper Circuit

Experiment # 12: Design of Voltage Regulator using Zener Diode (load regulation and line regulation)

Safety Rules and Laboratory Safety Information

1. Enter in the lab in time. Lab timings are not interchangeable.
2. Strictly follow the written and verbal instructions given by the teacher / Lab Instructor. If you do not understand the instructions, the handouts and the procedures, ask the instructor or teacher.
3. Never work alone! You should be accompanied by your laboratory partner and the instructors/teaching assistants all the time.
4. It is mandatory to come to a lab in a formal dress and wear your ID cards.
5. **Always wear shoes in the lab.**
6. Do not wear loose-fitting clothing or jewelry in the lab. Rings and necklaces are usual excellent conductors of electricity and no hanging-loose-hair style.
7. Mobile phones should be switched off in the lab and kept in your bag. Keep bags in the bag rack.
8. No food and drinks allowed inside the lab.
9. Intentional misconduct may lead to expulsion from the lab.
10. Do not handle any equipment without reading the safety instructions. Read the handout and procedures in the Lab Manual before starting the experiments.
11. Do your wiring, setup, and a careful circuit checkout before applying power. Do not make circuit changes or perform any wiring when power is on.
12. Avoid contact with energized electrical circuits.
13. **NEVER** try to experiment with the power from the wall plug.
14. Immediately report dangerous or exceptional conditions to the Lab instructor/teacher: Equipment that is not working as expected, wires or connectors are broken, the equipment that smells or “smokes.” If you are not sure what the problem is or what's going on, switch off the Emergency shutdown.
15. Never use damaged instruments, wires or connectors. Hand over these parts to the Lab instructor/Teacher.
16. After completion of the Experiment, return the breadboard, trainer kits, wires, CRO probes and other components to lab staff. Do not take any item from the lab without permission.
17. Maintaining an observation book and lab record is mandatory and should be carried to each lab. Readings of current lab experiment are to be entered in Observation book, and previous lab experiment should be written in Lab record book. In each lab session, present the observation book and laboratory record to the concerned faculty.
18. Handling of Semiconductor Components: Sensitive electronic circuits and electronic components must be handled with great care. The inappropriate handling of the electronic component can damage or destroy the devices. The devices can be destroyed by driving to high currents through the device, by overheating the device, by mixing up the polarity, or by electrostatic discharge (ESD). Therefore, always handle the electronic devices as indicated by the handout, the specifications in the data sheet or other documentation.
19. Keep the labs always clean
20. Extra precautions during soldering practice:
    a. Hold the soldering iron away from your body. Don't point the iron towards you.

b. Don't use a spread solder on the board as it may cause a short circuit.
c. Do not overheat the components as excess heat may damage the components/board.
d. In case of burn or injury seek first aid available in the laboratory or at the Univesity medical facility.