Electronics Laboratory

The rapid growth in technology across the world has been hugely impacted by the development of Electronics. Historically, the genesis of electronics has been based on the theories and concepts of physics. Even today also advanced research in physics is leading to many new technologies in the field of electronics. Truly speaking, we can consider physics and electronics as two inseparable domains wherein it is difficult to draw a boundary between the two. Thus, the subject of electronics becomes vital for the students of physics on two accounts viz. firstly, how principles of physics are applied in electronics and equally important is to understand the functioning of various electronic components, devices, and circuits as they will help them to pursue advanced research in multidisciplinary domains. Keeping this in view, Electronics Laboratory has been equipped with experiments that will enable the students to play with the ideas related to circuits and devices. They may be solid state devices or electrochemical devices.

Electronics Lab in the Department of Physics of IIT Jodhpur provides ample opportunities not only to test the theoretical knowledge but also to go beyond that. It is equipped with instruments that can be used to perform experiments related to transistors, Op-AMP, Digital circuits, etc. The Electronics Lab is being offered in parallel with the theory classes in the first semester of the M.Sc. Physics Program to correlate with what is being taught in the theory course. A list of experiments being currently offered in the Atomic and Nuclear Physics Laboratory includes:

S. No.	Name of Experiment
1	Study of transistor characteristic of npn and pnp transistors.
2	Construction of a signal amplification circuit by using transistor.
3	Construction differentiator, integrator, adder, and subtractor by using Op-Amp.
4	Construction of active low-pass, high-pass, and band-pass filters.
5	Construction of half-adder and full-adder.
6	Construction of R-S, J-K, and D flip-flops circuits.
7	Construction of monostable, and astable multivibrator using 555 timers.
8	Demonstration of 4-bit SISO and SIPO shift registers.
9	Demonstration of D/A conversion using ladder network and weighted resistor method.
10	Demonstration of A/D conversion.

