**Course Name**      **:** Electronics Laboratory Practicum

**Course Number**      **:** PH-525P

**Credits**      **:** 0-0-5-3

**Prerequisites**      **:** Electronics

**Intended for**      **:** I-PhD

**Distribution**      **: Core for i-PhD (Physics)**

**Semester**      **:** Even

***Preamble***      **:** To provide instruction and acquaintance with electronic devices and instrumentation techniques important in the modern physics laboratory. This course will serve as an introduction to practical laboratory electronics by way of covering the application of analog, digital, frequency and mixed signal electronics to experiments in the physical sciences.

**Course Outline**      : The course is a laboratory support to the electronics course PH 414.

**List of Experiments**
1. To design and use bipolar junction transistor (BJT) as an amplifier and switch, based on common emitter (CE), common collector (CC) and common base (CB) configurations.
2. Design of Integrator, Differentiator, low pass and high pass filter using operational amplifier (OpAmp) IC 741.
3. Design of Wein Bridge and Colpitts oscillator.
4. Verify mathematical expression of De-morgans theorem using electronic circuits.
5. Design of 4-bit Multiplexer and Demultiplexer using flip flops.
6. Design of 4-bit Shift registers and Counters using flip flops.
7. Design and verify A/D and D/A converters using OpAmp.
8. Design of Astable and Mono stable Multivibrator using IC 555.
9. Study of 8085 Microprocessor.

***References:***

3. Basic Electronics, B.L. Thareja
4. Principles of Electronics, V.K. Mehta and Rohit Mehta