PPH106 PHYSICS LAB I

L	T	P	Cr
0	0	4	2

Course Objectives: To experimentally realize digital electronics circuits and expose the student to working of 8085 microprocessor.

List of Experiments:

1. Study the mathematical operations and frequency response of the given operational amplifier.
2. Study the input and output characteristics of a differential amplifier.
3. To construct logic gates AND, NOT, EX-NOR and EX-OR using NANAD gates and verify their truth tables.
4. To design and construct multiplexer and demultiplexer and verify their truth tables.
5. To study the fundamentals of basic memory units and to become familiar with various types of flip-flops and verifying the Truth tables of Flip- Flops.
6. To study BCD to binary decoder and encoder
7. To study binary to seven segment decoder.
8. To design various flip-flops (R-S, D-, T-, J-K, J_K master slave) using gates and verify their truth tables.
9. To design and construct Half/Full adder and subtractor circuits.
10. To study the working of a 4-bit comparator and adder/subtractor chips.
11. To construct and study various ripple counters using J-K flip-flops.
12. To construct and study various synchronous counters using J-K flip-flops.
13. To construct and study various registers using J-K flip-flops.
14. To study 4-bit and 8-bit DAC for various V_{ref}.
15. To study and understand the working of the given 4-bit ADC.
16. To perform various mathematical, logical and jump operations for 8 bit numbers using 8085 microprocessor
17. To perform various mathematical, logical operations and jump operations for 16 bit numbers using 8085 microprocessor
18. To write a program to arrange an array of data in ascending/descending order using 8085 microprocessor.

Course learningoutcomes: Students will have achieved the ability to:

1. design and evaluate various Op-Amp circuits for mathematical operations.
2. design and evaluate various counters and registers.
3. evaluate basic components of the digital circuits like flip-flops, adder, encoders etc.
4. write and execute programs for solving simple problems using 8085 microprocessor.

Evaluation Scheme:

Sr. No.	Evaluation Elements	Weightage (%)
1	Lab Evaluation	100