| 21CS306ES | ANALOG AND DIGITAL ELECTRONICS LAB | L | T | P | C |
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**COURSE OBJECTIVES:**

- To introduce components such as diodes, BJTs and FETs.
- To know the applications of components.
- To give understanding of various types of amplifier circuits
- To learn basic techniques for the design of digital circuits and fundamental concepts used in the design of digital systems.
- To understand the concepts of combinational logic circuits and sequential circuits.

**COURSE OUTCOMES:** Upon completion of the Course, the students will be able to:

CO1: Know the characteristics of various components.
CO2: Understand the utilization of components.
CO3: Design and analyze small signal amplifier circuits.
CO4: Postulates of Boolean algebra and to minimize combinational functions
CO5: Design and analyze combinational and sequential circuits
CO6: Known about the logic families and realization of logic gates.

**List of Experiments**

**Note: Minimum 12 experiments should be conducted**

1. Full Wave Rectifier with & without filters
2. Common Emitter Amplifier Characteristics
3. Common Base Amplifier Characteristics
4. Common Source amplifier Characteristics
5. Measurement of h-parameters of transistor in CB, CE, CC configurations
6. Input and Output characteristics of FET in CS configuration
7. Design and realization logic gates using universal gates
8. generation of clock using NAND / NOR gates
9. Design a 4 – bit Adder / Subtractor
10. Design and realization a Synchronous and Asynchronous counter using flip-flops
11. Realization of logic gates using DTL, TTL, ECL, etc.
12. PN Junction diode characteristics A) Forward bias B) Reverse bias
13. Zener diode characteristics and Zener as voltage Regulator
14. Design and realization of 8x1 MUX using 2x1 MUX
15. Design and realization of 2 bit comparator

**Major Equipment required for Laboratories:**

1. Regulated Power Suppliers, 0-30V
2. 20 MHz, Dual Channel Cathode Ray Oscilloscopes.
3. Functions Generators-Sine and Square wave signals
4. Multimeters
5. Electronic Components