**19EC21P4 – ANALOG & DIGITAL ELECTRONICS LAB**

(**EEE**)

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| **Course Category:** | Professional Core | **Credits:** | 1 |
| **Course Type:** | Laboratory | **Lecture-Tutorial- Practice:** | 0 - 0 - 2 |
| **Pre-requisite:** | Basic Electrical Sciences and Electronic Devices | **Sessional Evaluation:****External Exam Evaluation :****Total Marks:** | 4060100 |

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| **Course****Objectives:** | Students undergoing this course are expected to learn: |
| 1. The V-I characteristics of various semiconductor devices.
2. The design & analysis of the rectifiers(With & Without filters).
3. The response of the RC coupled amplifier & feedback practically.
4. The realization of logic gates using NAND and NOR Gates
5. About the full adder and full subtractor operation & the operation of decoder and expression using decoder
6. About the multiplexer and expression using MUX.
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| **Course Outcomes:** | Upon successful completion of the course, the students will be able to: |
| CO1 | Plot the characteristics of various semiconductor devices and Transistors experimentally. |
| CO2 | Design & analyse the rectifiers (With & Without filters). |
| CO3 | Calculate the frequency response of the RC coupled amplifier & understand the performance of feedback amplifiers practically. |
| CO4 | Understand the realization of logic gates using NAND and NOR Gates |
| CO5 | Understand the full adder, full subtractor operation & operation of decoder and expression using decoder. |
| CO6 | Understand about the multiplexer and MUX & design and analysis of various combinational circuits and sequential circuits. |
| **Course****Content:** | Minimum of 10 experiments to be completed out of the following:**LIST OF EXPERIMENTS**1.P-N Junction & Zener Diode Characteristics2. a) Bi-Polar Junction Transistor Characteristics (CE Configuration) b) Junction Field Effect Transistor Characteristics c) Uni-Junction Transistor Characteristics3. a) Rectifiers without Filters (HWR, FWR, BR) b) Rectifiers with Filters (C, LC, CLC)4. a) R-C Coupled Amplifier b) FET Amplifier5. Current Series Feedback Amplifier (With & Without feedback) 6. a) Basic Gates using Diode and Transistors b) Logic Gates7. Realization of logic gates using NAND and NOR Gates8. a) Full Adder b) Full Subtractor9 a) Decoder & Implement Expression using Decoder b) Multiplexer & Implement Expression using MUX10. Divide by N-Ripple Counter11.Divide by N-Synchronous Counter12. Shift Register  |