Course Code	Course Name	Credits
MTL302	**Applied ElectronicsLaboratory-I**	**01**

Objectives

1. To understand performance and characteristics of transistors and Digital Electronics components
2. To study electrical network synthesis
3. To study characterization of different Electrical Machines

Outcomes: Learner will be able to…

1. Implement switching circuits using BJT, MOSFET, JFET
2. Implement different LOGIC circuits
3. Analyse operational characteristics of different Electrical Machines
4. Simulation of Electrical Networks.

Suggested List of laboratory experiments (Minimum 10):

A.List of experiment based on MTC304

1	To find and draw the input output characteristics of BJT in common emitter configuration or BJT as switch.
2	Implementation of BJT/FET as an amplifier
3	To find transfer characteristics of JFET.
4	To find transfer characteristics of MOSFET.
5	Implementation of the truth table of various logic gates.
6	Implementation of NOR Gate & NAND Gate as universal gates.
7	Implementation of full adder circuit using gates.
8	Verification of state tables of RS, JK, T and D flip-flops using NAND & nor gates.
9	Design and implementation of counters using flip-flops using simulation software like QUCS

B.List of experiment based on MTC305

1	Study of different network theorems for DC and AC circuits
2	To find two port network parameters for electrical network
3	Time domain response of R-L-C series circuit: under, over and critically damped. This can be studied by writing a simple programme using any software tool. Plot time domain response and study effect of change in values of R-L-C
4	Write a simple programme for the transfer function of any R-L-C circuit. Plot frequency domain response and study effect of change in values of R-L-C
5	Speed control of DC shunt and series motor
6	Plot torque speed characteristics of DC shunt motor
7	Speed control of three phase/ single phase Induction Motor
8	Characterization of Stepper motor/ Servo Motor/ Reluctance motor.

Term Work:

Term work consists of performing minimum 10 **(5 from Part A& 5 from Part B)** practical mentioned as above. Final certification and acceptance of the term work ensures satisfactory performance of laboratory work.
The distribution of marks for term work shall be as follows:

- Laboratory work Part A (Experiment/journal) : 10 marks.
- Laboratory work Part A (Experiment/journal) : 10 marks
- Attendance (Theory and Practical) : 05Marks
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End Semester Examination:

Pair of Internal and External Examiner should conduct Practical and Oral. Practical exam (15 marks) will be on any one of the experiments from the list and oral exam (10 marks) will be based on the entire syllabus of the laboratory.