GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 2

Electrical Engineering

Subject Name : Core Laboratory- II

The laboratory deals with the practical aspects of the two core subjects offered in third semester. It is planned to impart the practical insight of these subjects to the students through analysis and/or simulation of some of the theories covered in the subjects. The representative outline of the lab is as under:

Core-4- :

List of laboratory experiments:

1. Torque- angle characteristic of stepper motor.

2. Case study of payback period of energy efficient motor.

3. Operating characteristics of wind mill generator.

4. Fault detection of induction motor.

5. Fault detection of transformer.

6. Performance characteristic of brushless excited motor.

7. Force and torque analysis of linear induction motor.

8. Induction motor modeling by reference frame theory

Core-5:

LABORATORY EXERCISES

1. Write a C code to generate: wave tables using: Interpolation, Truncation, Rounding techniques.

2. Write C-function modules to generate Wave-tables for: Sine, Triangular and Square Wave

3. Write a C code to evaluate DTF and IDFT of a discrete sequence.

4. Study of MATLAB, SIMULINK and Tool boxes- SP, DSP, FDA, SPTools

5. Use Tool boxes to develop MATLAB Codes for the following signal processing operations

(a). Function Generation: Real function , Complex function

(b). Signal Operations: Linear Convolution, Circular Convolution, De convolution, Autocorrelation, Cross correlation,

(c). Sampling: Up Sampling, down sampling, Dissemination, Interpolation

(d). Transforms: DFT, DCT

6. Use FDA, SPTools…

(a). to design Chebyshev, Butterworth, Composite, Moving Average filters.

(b). for Analysis of FIR and IIR Filters