EE6491D INDUSTRIAL POWER & AUTOMATION LABORATORY - 1

1. SCADA Experiments
   a) SCADA- Transmission Module RTU in Local and Remote Mode.
      a. Ferranti Effect
      b. VAR Compensation (Series and Shunt)
      c. Transmission Line Modelling
   b) SCADA- Distribution Module RTU in Local and Remote Mode.
      a. Load Shedding
      b. Transformer Loading
      c. Study of Communication Link
2. PLC Programming Experiments

   a) Lift Control
   b) Speed Control of AC Servo Motor
   c) Automatic Star Delta Starter of Three Phase Induction Motor
3. AC Servo Motor Control using dSPACE
4. Stepper Motor speed control and step angle control using 8051 Microcontroller.
5. Simulation of Pick and Place Robot in robot studio software and implementation in ABB IRB 1200
6. Distributed Control Systems application and logic operations with master and slave controllers.
7. Conveyor Sorting System with color sensing fiber unit by using PLC and DCS.
8. Stamping Process by using Programmable Logic Controller and DCS.
9. STATCOM and FACTS based Experiments.
   a) Reactive Power Compensation using solar and wind based STATCOM.
   b) Power Factor Compensation and Voltage Regulation using three phase FACTS controller.

EE6492D INDUSTRIAL POWER & AUTOMATION LABORATORY - 2

1. PLC Programming Experiments
   1. Water Level Control
   2. Control of Batch Process Reactor

2. DSP Programming Experiments
   a. Speed control of BLDC motor (2812/2407 kit)
   b. Speed control of Induction motor (2812/2407 kit).
   c. Speed control of DC motor (2812/2407 kit).

3. Vector control drive for SRM using FPGA.

4. Level Control of tank using Cascade Controller.

5. Level Control of tank using Split Range Controller.

6. Feed forward Control for various disturbances in the temperature process control.

7. MIMO system for multiple level, flow and temperature controls.

8. Experiments on LabVIEW and MATLAB.
   1. State Space Modeling of DC motor in MATLAB and LabVIEW.
   2. PID, fuzzy and fuzzy-PID controller based speed control of dc motor in MATLAB.
   3. PID Controller based speed control of DC motor in LabVIEW.