***SUBJECT NO-EE49001, SUBJECT NAME- CONTROL AND ELECTRONIC SYSTEM DESIGN***

***LTP- 0-0-3,CRD- 2***

**SYLLABUS :-**

**pre requisite: EC21001 and EE31001Design assignments to be provided by teacher on broad areas listed below.A.Design of a practical control system including aspects such as :a.Aspects of plant, actuator, sensor and disturbance modelingb.Controller design from specifications and including typical factors, such as control limit and rate constraints.c.Design of the feedback subsystem including electronic signal conditioningd.Design of electrical actuation systems such as ones based on Power Electronic Circuits.e.Simulation of such systems on MATLABB.Design of signal processing systems including aspects such as : a.Development of Filter specifications from practical considerations,b.Design of Filter transfer function and analog circuit realizationc.Realization of digital filter algorithms and associated circuit designs such as amplifiers, ADC, Sample and hold circuit, Anti-aliasing filter etc.d.Development of the digital filter code on a suitable embedded hardware platform such as microcontroller, DSP.C.Design of measurement systems including aspects such as :a.Development of specifications from practical considerations of the measurement applicationb.Design of interface subsystem for achieving measurement accuracyi.Noise related issues, such as shielding, guarding, groundingii.Compensation issues related to power supply and temperature effects, nonlinearityiii.Calibration, zero and sensitivity adjustmentc.Computing system measurement related specifications based on component level specifications available in electronic data sheetsd.Data Acquisition system for PCsD.Microprocessor-based Industrial Automation including aspects of a.Industrial grade single-loop PID controller realization with features to address integral wind-ups, auto-manual transfers, auto-tuning etc.b.PLC based system design including RLL programmingSimple embedded controllers with features such as remote wireless command for applications such as home automation.**