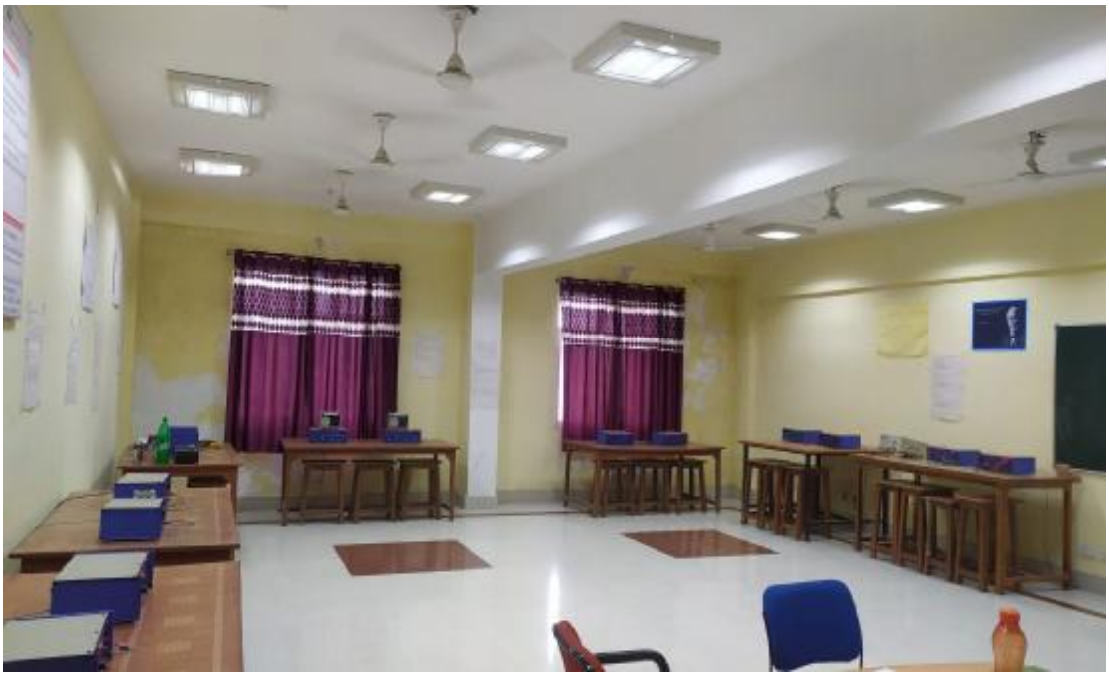
REE553	CONTROL SYSTEM LABORATORY	L T P: 0 0 2	1 Credit

Note: The minimum of 10 experiments are to be performed from the following, out of which at least
three should be software based.

1. To determine response of first order and second order systems for step input for various values of constant
'K' using linear simulator unit and compare theoretical and practical results.
2. To study P, PI and PID temperature controller for an oven and compare their performance.
3. To study and calibrate temperature using resistance temperature detector (RTD)
4. To design Lag, Lead and Lag-Lead compensators using Bode plot.
5. To study DC position control system
6. To study synchro-transmitter and receiver and obtain output vs input characteristics
7. To determine speed-torque characteristics of an ac servomotor.
8. To study performance of servo voltage stabilizer at various loads using load bank.
9. To study behavior of separately excited dc motor in open loop and closed loop conditions atvarious loads.
10. To study characteristics of positional error detector by angular displacement of two servo potentio-meters.
Software based experiments (Use MATLAB, LABVIEW etc. or equivalent open source freeware software
like Scilab using Spoken Tutorial MOOCs)
11. To simulate PID controller for transportation lag.
12. To determine time domain response of a second order system for step input and obtain performance parameters.
13. To convert transfer function of a system into state space form and vice-versa.
14. To plot root locus diagram of an open loop transfer function and determine range of gain 'k' fir stability.
15. To plot a Bode diagram of an open loop transfer function.
16. To draw a Nyquist plot of an open loop transfers functions and examine the stability of the closed loop
system.
Spoken Tutorial (MOOCs):
Spoken Tutorial MOOCs, ' Course on Scilab', IIT Bombay (http://spoken-tutorial.org/)
Reference Books:
1. K.Ogata,"Modern Control Engineering" Prentice Hall of India.
2. Norman S.Nise, "Control System Engineering", John Wiley & Sons.
3. M.Gopal, "Control Systems: Principles & Design" Tata McGraw Hill.


MOTOR UNIT
DC MOTOR POSITION CONTROL
TACHO
+VE
-VE
Vinytics
DC MOTOR POSITION CONTROL
CL-DCM
4 12
VOLT
STEP
CAPTURE
DISP
C.R.O
FORWARD GAIN - K
MOTOR DRIVE
DRIVE MOTION
TACHO GEN
POS DET




Vinytics SERVO STABILIZER TRAINER CL-SST


MOTOR UNIT FOR DC SPEED CONTROL
Vinytics
DC SPEED CONTROL
CL-DCSC
-0.00
1558
RESET
ERROR AMPLIFIER
DRIVER
DC MOTOR
BRAKE
SPEED SENSOR
TACHO GENERATOR
GAIN
FEEDBACK


TEMPERATURE SYSTEM SIMULATOR
19.9
-.000
OVEN UNIT

RAJKIYA ENGINEERING COLLEGE, AMBEDKAR NAGAR

INVENTORY SHEET

Department: **Electrical Engineering**
Control System Lab

Sr. No	Product	Quantity	Remark
1.	Speed-Torque characteristic of AC servomotor.	2	One kit not Working
2.	Temperature system simulator.	2	All working
3.	Resistance Temperature Detector (RTD) Trainer.	2	All working
4.	Synchro Transmitter Receiver.	2	All working
5.	DC speed control.	2	All working
6.	Liner system simulator.	2	All working
7.	Compensation Design system.	2	All working
8.	PID controller.	2	All working
9.	DC motor position control.	2	All working
10.	Servo stabilizer Trainer.	2	All working
11.	CRO	1	All working
12.	Digital Multi meter	1	All working