

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

LESSON PLAN

Semester: 5th

Subject: Process Dynamics and Control (Theory)

Branch: Chemical Engineering

Name of the Faculty Member: Veda Prakash

Period	Module/Number	Topic to be covered
1	01	Feed back and feed forward control system
2	01	Classification of variable
3	01	General structure of feedback , feed forward control system
4	01	Different hardware elements
5	01	Mathematical modelling , process dynamics
6	01	Dead time, CSTR
7	01	Tubular heat exchanger
8	02	Input output model of stirred tank heater
9	02	Degrees of freedom
10	02	Transfer function , poles, zeros
11	02	First order system
12	02	Purely capacitive system
13	02	Mercury in glass thermometer
14	02	Step response of first order system
15	02	Impulse, sinusoidal response of first order system
16	03	Second order systems
17	03	Impulse response of second order systems
18	03	Interacting and noninteracting capacities
19	03	U tube manometer, types of feed back controllers
20	03	Block diagram of closed loop system
21	03	Servo and regulator problem
22	03	Effect of control action on the closed loop response
23	03	Effect of integral control action
24	03	Effect of PI control action
25	03	Closed loop transfer function
26	04	Routh-Hurwitz criterion
27	04	Root locus analysis
28	04	Controller tuning
29	04	Frequency response
30	04	Bode diagram
31	04	Nyquist plot
32	04	Phase margin and gain margin
33	04	Bode stability and Nyquist stability criterion
34	04	Cascade control, feedforward control
35	04	Ratio control, adaptive control, Z-transform