

Lesson Plan

Name of Faculty : Vikram Singh Bhambhu, Assistant Professor
Discipline : ECE
Semester: 5th
Subject : Control System Engineering(PC/ECE/13 -T)
Lesson Plan Duration: 15 weeks
 Work Load (Lecture/Practical) per week (in hours):Lectures-03.

Week	Theory		Actual Covered
	Lecture Day	Topic (Including Assignment/Test)	
1 st	1	System / Plant model	
	2	Illustrative examples of plants & their inputs and outputs	
	3	open loop & closed loop control system & their illustrative examples	
2 nd	4	Mathematical modeling and representation of physical systems	
	5	Concept of transfer function,	
3 rd	6	Relationship between transfer function and impulse response	
	7	order of a system, block diagram algebra	
	8	signal flow graphs: Mason's gain formula & its application,	
4 th	9	characteristic equation	
	10	Derivation of transfer functions of electrical and electromechanical systems.	
	11	Typical test signals	
5 th	12	time response of first order systems to various standard inputs,	
	13	time response of 2nd order system to step input	
	14	, time domain specifications	
6 th	15	steady state error and error constants, concept of stability	
	16	pole-zero configuration and stability	
	17	necessary and sufficient conditions for stability	
7 th	18	Routh stability criterion and relative stability	
	19	Root locus concept	
	20	development of root loci for various systems	
8 th	21	stability considerations.	
	22	Relationship between frequency response and time response for 2nd order system	
9 th	23	Polar plots	
	24	Nyquist plot	
10 th	25	Bode Plot	
	26	Phase margin and gain margin	
	27	relative stability	
11 th	28	frequency response specifications	
	29	Necessity of compensation,	
12 th	30	compensation networks	
	31	application of lag and lead compensation	
	32	basic modes of feedback control	
13 th	33	proportional,	
	34	integral and derivative controllers.	
14 th	35	Synchronous motor	
15 th	36	servomotor	
	37	Stepper motor	
	38	Magmetic amplifier	
	39	revision	