CONTROL SYSTEM AND COMPONENT (TH2) - 6TH SEMESTER ETC		
Week	**No of Periods Alloted (60)**	**Syllabus To be Covered**
1ST	**1.Fundamental of Control System - 5P**	
	1st	1.1 Classification of Control system
	2nd	1.2 Open loop system & Closed loop system and its comparison
	3rd	1.3 Effects of Feed back
	4th	1.4 Standard test Signals(Step, Ramp, Parabolic, Impulse Functions)
2ND	**1st**	1.5 Servomechanism
	2. Transfer Functions - 8P	
	2nd	2.1 Transfer Function of a system & Impulse response,
	3rd	2.2 Properties,Advantages& Disadvantages of Transfer Function
	4th	2.3 Poles & Zeroes of transfer Function
3RD	**1st**	2.4 Poles & Zeroes of transfer Function
	2nd	2.5 Representation of poles & Zero on the s-plane
	3rd	2.6 Simple problems of transfer function of network
	4th	2.6 Simple problems of transfer function of network
4TH	**1st**	2.6 Simple problems of transfer function of network
	3. Control system Components & mathematical modelling of physical System - 5P	
	2nd	3.1 Components of Control System
	3rd	3.2 Potentiometer, Synchros, Diode modulator & demodulator
	4th	3.2 Potentiometer, Synchros, Diode modulator & demodulator
5TH	**1st**	3.3 DC motors, AC Servomotors
	2nd	3.4 Modelling of Electrical Systems(R, L, C, Analogous systems)
	4. Block Diagram & Signal Flow Graphs(SFG) - 8P	
	3rd	4.1 Definition of Basic Elements of a Block Diagram
	4th	4.2 Canonical Form of Closed loop Systems
6TH	**1st**	4.3 Rules for Block diagram Reduction 4.4 Procedure for of Reduction of Block Diagram
	2nd	4.5 Simple Problem for equivalent transfer function
	3rd	4.6 Basic Definition in SFG & properties
	4th	4.7 Mason's Gain formula
7TH	**1st**	4.8 Steps foe solving Signal flow Graph
	2nd	4.9 Simple problems in Signal flow graph for network
	5. Time Domain Analysis of Control Systems - 8P	
	3rd	5.1 Definition of Time, Stability, steady-state response, accuracy, transient accuracy, In-sensitivity and robustness.
	4th	5.2 System Time Response
8TH	**1st**	5.3 Analysis of Steady State Error
	2nd	5.4 Types of Input & Steady state Error(Step ,Ramp, Parabolic)
	3rd	5.5 Parameters of first order system & second-order systems
	4th	5.6 Derivation of time response Specification (Delay time, Rise time, Peak time,Setting time,Peak over shoot)
9TH	**1st**	5.6 Derivation of time response Specification (Delay time, Rise time, Peak time,Setting time,Peak over shoot)
	2nd	5.6 Derivation of time response Specification (Delay time, Rise time, Peak time,Setting time,Peak over shoot)
	6. FeedbackCharacteristics of Control Systems - 6P	
	3rd	6.1 Effect of parameter variation in Open loop System & Closed loop Systems

	4th	6.2 Introduction to Basic control Action& Basic modes of feedback control: proportional, integral and derivative
10TH	1st	6.3 Effect of feedback on overall gain, Stability
	2nd	6.3Effect of feedback on overall gain, Stability
	3rd	6.4 Realisation of Controllers(P, PI,PD,PID) with OPAMP
	4th	6.4 Realisation of Controllers(P, PI,PD,PID) with OPAMP
11TH	**7. Stability concept& Root locus Method - 8P**	
	1st	7.1 Effect of location of poles on stability
	2nd	7.2 RouthHurwitz stability criterion.
	3rd	7.3 RouthHurwitz stability criterion.
	4th	7.3 RouthHurwitz stability criterion.
12TH	1st	7.4 Steps for Root locus method
	2nd	7.5 Root locus method of design(Simple problem)
	3rd	7.5 Root locus method of design(Simple problem)
	4th	7.5 Root locus method of design(Simple problem)
13TH	**8. Frequency-response analysis&Bode Plot -7P**	
	1st	8.1 Frequencyresponse,Relationship between time & frequency response
	2nd	8.2 Methods of Frequency response
	3rd	8.3 Polar plots & steps for polar plot
	4th	8.4 Bodes plot & steps for Bode plots
14TH	1st	8.5 Stability in frequency domain, Gain Margin& Phase margin
	2nd	8.6 Nyquist plots. Nyquiststability criterion.
	3rd	8.7 Simple problems as above
	9. State variable Analysis - 5P	
	4th	9.1 Concepts of state, state variable, state model,
15TH	1st	9.1 Concepts of state, state variable, state model,
	2nd	9.2 state modelsfor linear continuous time functions(Simple)
	3rd	9.2 state modelsfor linear continuous time functions(Simple)
	4th	9.2 state modelsfor linear continuous time functions(Simple)