

Weeks	Class Day	Theory	Notes
13/02/2023	2 nd	Fundamental of Control System: classification of Control System	01/04/2023
to	3 rd	• Open loop System & closed loop system with Comparison.	
15/02/2023	4 th	• Effect of feedback	03/04
	5 th	• Standard test Signals	to
	1 st	— Maha Shiva Ratri —	05/04
20/02/2023	2 nd	• Servomechanism	
to	3 rd	Mathematical model of a system: Transfer func ⁿ & Impulse response	
25/02/2023	4 th	• Properties, Advantage & disadvantage of T-F.	10/04/20
	5 th	• Poles & Zeros of T-F	to
	1 st	• Simple problems of Transfer function of network.	15/04/2
27/02/2023	2 nd	• Mathematical modelling of R, L, C, Analogous System.	
to	3 rd	Control System Components: Components of Control System:	
04/03/2023	4 th	• Gyroscope	17/04/20
	5 th	• Synchros	to
	1 st	• Tachometer	22/04
06/03/2023	2 nd	• DC Servomotors	
to	3 rd	— Gola Purnima —	
	4 th	— Holi —	
11/03/2023	5 th	• AC Servomotors	24/04
	1 st	Block diag algebra & SFG: definitions & elements of block diagram.	to
13/03/2023	2 nd	• Canonical form of a closed loop system.	29/04
to	3 rd	• Rules for block diagram reduction.	
15/03/2023	4 th	• Procedure for reduction of block diagram.	
	5 th	Simple problem for equivalent transfer function.	02/05
	1 st	• Basic definition & properties of signal flow graph.	to
20/03/2023	2 nd	• Construction of SFG from block diagram.	06/05
to	3 rd	• Mason's Gain formula	
25/03/2023	4 th	Simple problems in SFG for network.	02/05
	5 th		to
	1 st	Time response analysis: Time response of Control System.	12/05
27/03/2023	2 nd	• Standard step signal and Ramp signal.	
to	3 rd	• Parabolic signal and Impulse signal.	

Weeks	class day	Theory
01/04/2023	4 th 5 th	— Rama Navami — — Vrkal Divali —
02/04 to 05/04	1 st 2 nd 3 rd 4 th 5 th	<ul style="list-style-type: none"> • Time response of 1st order system with unit step response. • Time response of 1st " " " " unit impulse response. • Time response of 2nd order system to the unit step input. • Time response specification. • Derivation for rise time, Peak time, T_r, T_s, Peak Overshoot.
10/04/2023 to 15/04/2023	1 st 2 nd 3 rd 4 th 5 th	<ul style="list-style-type: none"> • Steady state error & error constants. • Types of L.S. Steady state errors in Type-0 & Type-1. • Steady state errors in Type-2 system. • Effects of adding Poles & zero to T.F. • Response with P
17/04/2023 to 22/04/2023	1 st 2 nd 3 rd 4 th 5 th	<ul style="list-style-type: none"> • Response with PI • Response with PD • Response with PID Controller. • Analysis of stability by Root Locus Technique: Root Locus Concept
24/04/2023 to 29/04/2023	1 st 2 nd 3 rd 4 th 5 th	<ul style="list-style-type: none"> — Id-UL-Fitne — • Construction of Root Loci. • Rules for construction of the Root Locus. • Effect of adding Poles & zeros to $G(s)$ and $H(s)$.
02/05/2023 to 06/05/2023	1 st 2 nd 3 rd 4 th 5 th	<ul style="list-style-type: none"> • Frequency Response Analysis: Correlatⁿ betⁿ time response & frequⁿ response. • Polar Plots • Bode plots
02/05/2023 to 06/05/2023	1 st 2 nd 3 rd 4 th 5 th	<ul style="list-style-type: none"> • All pass & minimum Phase System. • Computation of Gain Margin & Phase margin. • Log magnitude • Phase Plot
02/05/2023 to 12/05/2023	1 st 2 nd 3 rd 4 th 5 th	<ul style="list-style-type: none"> • Log magnitude versus Phase Plot • Closed loop frequency response. • Nyquist Plot: Principle of Argument. • Nyquist stability Criterion. • Nyquist stability Criterion applied to inverse polar Plot.

Weeks class day

Theory

	1 st	• Effects of addition of Poles and zeros to $G(s)H(s)$
15/05/2023	2 nd	on the shape of Nyquist Plot.
to	3 rd	• Assessment of relative stability.
20/05/2023	4 th	• Constant M and n circle.
	5 th	{ Nichols chart.
22/05/2023	1 st	
to	2 nd	Revision
27/05/2023	3 rd	Revision.

Seen
14/02/2023