

GANESH INSTITUTE OF ENGINEERING AND TECHNOLOGY, POLYTECHNIC

DEPARTMENT OF ELECTRICAL ENGINEERING

Er. Pradyuman Kumar Dash

PROGRESS REPORT

LESSON PLAN CUM

SUBJECT: CONTROL SYSTEM ENGINEERING			SEMESTER: 4TH				BRANCH: ELECTRICAL ENGINEERING		
LECTURE NO.	CO	BT L	TOPIC TO BE COVERED	BOOK NAME./CHAPT. NO./PAGE NO.	WEB REFERENCE IF ANY	TEACHING LEARNING METHOD	PLAN DATE	ACTI ON DATE	REVIEW BY HOD
1	1		Introduction of control system	Control Systems Engineering by I.J.Nagrath and M.Gopal, New Age International (P) Limited, Publishers	https://youtu.be/XMfH2P2Fc6Q?si=0qXUKMDAZvrZwGga	1- Introduction to cse-5 min 2- Prerequisites for EEM- PPT/Smart board-10 min 3- Syllabus & CO discussion-10 min 4- Lecturer-35 min	02-01-2026		
2	1		Classification of control system	Control Systems Engineering by I.J.Nagrath and M.Gopal, New Age International (P)	https://youtu.be/o_Bp7j77Uqc?si=WIXDBIX2_zW5JdxZ	1- Previous class topic Review-5 min 2- Lecturer-45 min	03-01-2026		
3	1		Open loop system and closed loop system and its	Control Systems Engineering by I.J.Nagrath and M.Gopal, New	https://youtu.be/iw54XGteXyE?si=XEty-TNMPnKASjt	1- Previous class topic Review-5 min 2- Lecturer-45 min 3- Doubts	05-01-2026		
4	1		Effects of feedback.	Control Systems Engineering by I.J.Nagrath and M.Gopal, New Age International	https://youtu.be/BJFyyqp dNg4?si=b-IyduJ8R1lcSRGx	1- Previous class topic Review-5 min 2- Lecturer-45 min 3- Doubts	06-01-2026		
5	1		Standard test signal (step, ramp, parabolic, impulse function)	Control Systems Engineering by I.J.Nagrath and M.Gopal, New Age International (P)	https://youtu.be/Srr1srbeZNg?si=cZDeyN_UMmQ3pztE	1- Previous class topic Review-5 min 2- Lecturer-45 min	07-01-2026		
6	1		Servomechanism.	Control Systems Engineering by I.J.Nagrath and M.Gopal, New	https://youtu.be/rbbkqTJdaN8?si=0tHrNsMatZZLj28w	1- Previous class topic Review-5 min 2- Lecturer-45 min	10-01-2026		
7	2		mathematical model of a system)	Control Systems Engineering by I.J.Nagrath and M.Gopal, New Age International (P) Limited,	https://youtu.be/ZAoIhtZsRX8?si=fvnGjouRfsqLg52V	1- Previous class topic Review-5 min 2-	11-01-2026		

8	2		Transfer function and impulse response	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New AgeInternational(P) Limited, Publishers	https://youtu.be/plor6ywAXXg?si=pD0gy3sn5_kPione	Previous class topic Review-5 min 2- PPT/Smart board-15 min	12-01-2026		
9	2	1	Properties of transfer function	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New AgeInternational(P)	https://youtu.be/4-EAbSgYmFk?si=TUkSSZ4JiAd9XOnA	1-Previous class topic Review-5 min 2-Lecturer-45 min	13-01-2026		
10	2		advantages, & Disadvantages of transfer function	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New	https://youtu.be/dJtISRjrpFM?si=I52BAFEFaoryk7p0	1-Previous class topic Review-5 min 2-Lecturer-45 min	14-01-2026		
LECTURE NO.	CO	BT L	TOPIC TO BE COVERED		WEBREFERENCEIF ANY	TEACHINGMETHOD	PLAN DATE	ACTI ON DATE	REVIEW BY HOD
11	3		Poles and zeroes of transfer function	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New	https://youtu.be/AZ7_MvANy_Q?si=6r53jCR7wgCgW5sP	1-Previous class topic Review-5 min 2-Lecturer-45 min	17-01-2026		
12	3		Simple problems of transfer function of network	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New AgeInternational(P) Limited, Publishers	https://youtu.be/5ii5WafAGRs?si=mrPExH2JIH73EZDB	1-Previous class topic Review-5 min 2- PPT/Smart board-15 min	18-01-2026		
13	3		Mathematical modelling of Electrical Systems (R, L, C Analogous system)	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New	https://youtu.be/RUwQkXrboag?si=RciCJWUACuXFznz6A	1-Previous class topic Review-5 min 2-Lecturer-	19-01-2026		
14	3		control system components	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New	https://youtu.be/HcLYoCmWOjI?si=QZPLjl2xHGorhYEz	1-Previous class topic Review-5 min 2-Lecturer-	20-01-2026		
15	3		Gyroscope, Synchro's	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New AgeInternational(P) Limited, Publishers	https://youtu.be/xihUgsC69D0?si=XpY9p4mcr710abgC	1-Previous class topic Review-5 min 2- PPT/Smart board-15 min	21-01-2026		
16	3		Study of Tachometer	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New AgeInternational(P)	https://youtu.be/ecotQg_RAm0?si=tm0nB6OabMO86xPp	1-Previous class topic Review-5 min 2-Lecturer-45 min	24-01-2026		
17	3		Study of DC servomotor	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New AgeInternational(P) Limited, Publishers	https://youtu.be/GX67qZcs11Q?si=kR8s0VZdvJzCRRWu	1-Previous class topic Review-5 min 2- PPT/Smart board-15 min	25-01-2026		
18	3		AC Servomotor	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New AgeInternational(P)	https://youtu.be/seysPzL6igt?si=vzRSGAf2SCfwbUfH	1-Previous class topic Review-5 min 2-Lecturer-45 min	28-01-2026		
19	3		Block diagram algebra and signal flow	ControlSystemsEngineering by I.J.Nagrathand M.Gopal, New AgeInternational(P) Limited, Publishers	https://youtu.be/NUUGOgkOd1A?si=ZYCWnGbjl1Fb7TC	1-Previous class topic Review-5 min 2- PPT/Smart board-15 min	01-02-2026		

20	3		Canonical Form of Closed Loop Systems	ControlSystemsEngineering by I.J.Nagrath and M.Gopal, New AgeInternational(P) Limited, Publishers	https://youtu.be/tQNPg2H3jA?si=dGU5yqPOYibVvFmm	1-Previous class topic Review-5 min 2-PPT/Smart board-15 min	02-02-2026		
21	3		Rules for Block Diagram Reduction	I.J. Nagarath, M.Gopal Page no.45	https://youtu.be/t_k7oRiCmWo?si=5pxVUWnlia92f4hi	1-Previous class topic Review-5 min 2-Lecturer-45 min 3-Doubts & Assignmen	03-02-2026		
22	3		Procedure for reduction of Block Diagram	I.J. Nagarath, M.Gopal Page no.48	https://youtu.be/NUUGOgkOd1A?si=0fKadz6_8vhhNNnW	1-Previous class topic Review-5 min 2-Lecturer-45 min 3-Doubts & Assignmen	06-02-2026		
LECTURE NO.	CO	BT L	TOPIC TO BE COVERED		WEBREFERENCEIF ANY	TEACHING METHOD	PLAN DATE	ACTI ON DATE	REVIEW BY HOD
23	3		Simple Problem for equivalent transfer function	I.J. Nagarath, M.Gopal Page no.52	https://youtu.be/5ii5WafAGRs?si=CZe0QvfeR2QToYjM	1-Previous class topic Review-5 min 2-Lecturer-45 min	07-02-2026		
24	3		Basic Definition in signal Flow Graph and properties.	I.J. Nagarath, M.Gopal Page no.56	https://youtu.be/aAPi01gajl8?si=1LVMx1cqMthzaoV	1-Previous class topic Review-5 min 2-Lecturer-45 min	08-02-2026		
25	3		Construction of Signal flow graph from Block Diagram	I.J. Nagarath, M.Gopal Page no.58	https://youtu.be/uCm4n897cOY?si=FI5nA3gY0mN-p9b	1-Previous class topic Review-5 min 2-Lecturer-45 min	10-02-2026		
26	3		Mason's Gain Formula	I.J. Nagarath, M.Gopal Page no.62	https://youtu.be/k0zeegbCa38?si=iVAYDvDZkn15IJPY	1-Previous class topic Review-5 min 2-Lecturer-45 min	11-02-2026		
27	3		Problems on Mason's Gain Formula	I.J. Nagarath, M.Gopal Page no.65	https://youtu.be/158uYZixjk?si=woBHPjbuXXzFSOO	1-Previous class topic Review-5 min 2-Lecturer-45 min	12-02-2026		
28	3		Simple problems in signal flow graph for network	I.J. Nagarath, M.Gopal Page no.68	https://youtu.be/9eAzSCKuGtc?si=EQQ-F68YqghxWIwi	1-Previous class topic Review-5 min	13-02-2026		
29	4		Time response of control system.	I.J. Nagarath, M.Gopal Page no.72	https://youtu.be/XMfH2P2Fc6Q?si=ul9_SVP_DrwzEkjR	1-Previous class topic Review-5 min 2-Lecturer-45 min	17-02-2026		
30	4		Standard test signal.	I.J. Nagarath, M.Gopal Page no.75	https://youtu.be/Srr1srbeZNg?si=BkVOHB7Nw14ak0W	1-Previous class topic Review-5 min 2-Lecturer-45 min	18-02-2026		

31	4		Step signal.	I.J. Nagarath, M.Gopal Page no.85	https://youtu.be/tI7sEfdnYdE?si=k9xritwWKBgimyIh	1-Previous class topic Review-5 min 2- PPT/Smart board-15 min	19-02-2026		
32	4		Ramp signal.	I.J. Nagarath, M.Gopal Page no.87	https://youtu.be/e0EPWBA CGiU?si=u0cbkkY5jqHOUVaD	1-Previous class topic Review-5 min 2-Lecturer-45 min	20-02-2026		
33	4		Parabolic signal	I.J. Nagarath, M.Gopal Page no.92	https://youtu.be/ZDXxIiS7avo?si=nLpCSdR7glg3y5jF	1-Previous class topic Review-5 min 2-Lecturer-45 min	21-02-2026		
34	4		Impulse signal	I.J. Nagarath, M.Gopal Page no.95	https://youtu.be/gGHfj-Bw60?si=6T5MVDpk3_AcU1lg	1-Previous class topic Review-5 min 2-Lecturer-45 min	24-02-2026		
LECTURE NO.	CO	BT L	TOPIC TO BE COVERED		WEBREFERENCE IF ANY	TEACHING METHOD	PLAN DATE	ACTI ON DATE	REVIEW BY HOD
35	4	3	Time response of first order system with	I.J. Nagarath, M.Gopal Page no.105	https://youtu.be/nJn9TynNxe8?si=FbxgVMIW9wjo6zoX	1-Previous class topic Review-5 min 2-Lecturer-3-Doubts	25-02-2026		
36	4	2	Unit step response.	I.J. Nagarath, M.Gopal Page no.116	https://youtu.be/T8ATyg_Fo6Y?si=3wNHMwHaLkMVjcrB	1-Previous class topic Review-5 min 2- PPT/Smart board-15 min	26-02-2026		
37	4	2	Unit impulse response.	I.J. Nagarath, M.Gopal Page no.118	https://youtu.be/plor6ywAXXg?si=jWmFkviM18s7eV54	1-Previous class topic Review-5 min 2-Lecturer-45 min 3-Doubts & Assignmen	28-02-2026		
38	4	3	Time response of second order system to the unit step input	I.J. Nagarath, M.Gopal Page no.121	https://youtu.be/Q2pP00O1buc?si=R_GfXI4FEE3H5Koj	1-Previous class topic Review-5 min 2-Lecturer-45 min	29-02-2026		
39	4	2	Time response specification.	I.J. Nagarath, M.Gopal Page no.125	https://youtu.be/6wzGCM_EJgU?si=5jyJ-8TpDeEexz7L	1-Previous class topic Review-5 min 2- PPT/Smart board-15 min	01-03-2026		
40	4	2	Derivation of expression for rise time	I.J. Nagarath, M.Gopal Page no.128	https://youtu.be/Q2pP00O1buc?si=eeBiIwjqbb0xJIEn	1-Previous class topic Review-5 min 2-Lecturer-45 min	02-03-2026		
41	4	2	Derivation of expression for peak time	I.J. Nagarath, M.Gopal Page no.132	https://youtu.be/3-NZT1E3kvA?si=JAWFCQ16aCUI9bxi	1-Previous class topic Review-5 min 2-Lecturer-45 min	05-03-2026		
42	4	2	Derivation of expression for peak overshoot	I.J. Nagarath, M.Gopal Page no.145	https://youtu.be/x30WWsgfY0Q?si=vh3QaA6DrToA-TSE	1- Previous class topic Review-5	07-03-2026		

43	4	3	Derivation of expression for settling time and - steady state error	I.J. Nagarath, M.Gopal Page no.148	https://youtu.be/K07T1dSnwxY?si=Aq-XN89e1trLFt_8	1- Previous class topic Review-5	08-03-2026		
44	4	2	Steady state error and error constants	I.J. Nagarath, M.Gopal Page no.151	https://youtu.be/gR5nDxw51ds?si=5Zc4LroV2aluNM6p	1- Previous class topic Review-5 min 2-	09-03-2026		
45	4	3	Types of control system (steady state errors in type-0, type- 1,type-2 system)	I.J. Nagarath, M.Gopal Page no.152	https://youtu.be/vbW3SROtZ9s?si=PL9qo_i0O-QyJJU3	1- Previous class topic Review-5	11-03-2026		
46	4	2	Effect of adding poles and zero to transfer function.	I.J. Nagarath, M.Gopal Page no.162	https://youtu.be/R7_L1vh6eyk?si=l3RbGkS4-IsbsUHj	1- Previous class topic Review-5	15-03-2026		
LECTURE NO.	CO	BT L	TOPIC TO BE COVERED		WEBREFERENCEIF ANY	TEACHING LEARNING METHOD	PLAN DATE	ACTION DATE	REVIEW BY HOD
47	4	3	Response with P, PI, PD, PID controller.	I.J. Nagarath, M.Gopal Page no.168	https://youtu.be/OYPXiC7QjUM?si=rHOOq7K3VyyK7q9-	1- Previous class topic Review-5 min 2-	16-03-2026		
48	5	3	Root locus concept.	I.J. Nagarath, M.Gopal Page no.172	https://youtu.be/o3bRqh4IIICA?si=rprNo8WnX0bqlF	1- Previous class topic Review-5 min	17-03-2026		
49	5	3	Construction of root loci.	I.J. Nagarath, M.Gopal Page no.4 182	https://youtu.be/o3bRqh4IIICA?si=CmdTGM99xrewpPLF	1- Previous class topic Review-5 min	19-03-2026		
50	5	3	Rules for construction of the root locus.	I.J. Nagarath, M.Gopal Page no.185	https://youtu.be/o3bRqh4IIICA?si=jMbHtQnRmoyF2TAc	1- Previous class topic Review-5	21-03-2026		
51	5	3	Effect of adding poles to G(s) and H(s). Effect of adding zeros to G(s) and H(s).	I.J. Nagarath, M.Gopal Page no.186	https://youtu.be/R7_L1vh6eyk?si=Bs4qpIYr44ycWvd	1- Previous class topic Review-5	22-03-2026		
52	5	2	Frequency Response Analysis: Correlation between time response and frequency response.	I.J. Nagarath, M.Gopal Page no.190	https://youtu.be/Srr1srbeZNg?si=cy7LiqCJ7yWrqZR1	1- Previous class topic Review-5 min 2-	23-03-2026		
53	5	4	Explain Polar plots. Bode plots	I.J. Nagarath, M.Gopal Page no.196	https://youtu.be/M8hx5kpSveM?si=bztjVrkm71L6W6mv	1- Previous class topic Review-5	24-03-2026		
54	5	2	All pass and minimum phase system. Computation of Gain margin.	I.J. Nagarath, M.Gopal Page no.203	https://youtu.be/Zl49v3yAcCY?si=qsZ3Skq2JudME9Jt	1- Previous class topic Review-5	25-03-2026		

55	5	2	Computation of phase margin.	I.J. Nagarath, M.Gopal Page no.205	https://youtu.be/ThoA4amCAX4?si=z7qMkaibZfuCJGb-	1- Previous class topic Review-5	26-03-2026		
56	5	3	Log magnitude versus phase plot. Closed loop frequency response.	I.J. Nagarath, M.Gopal Page no.212	https://youtu.be/M4Qa3DWQMuA?si=LrHYPRVbZBdBSZSA	1-Previous class topic Review-5 min 2-Lecturer-45 min	28-03-2026		
57	5	3	Nyquistplot:Principle of argument. Nyquist stability criterion.	I.J. Nagarath, M.Gopal Page no.218	https://youtu.be/sof3meN96MA?si=e1H_axiJPZJuPCpU	1-Previous class topic Review-5 min 2-Lecturer-45 min 3-Doubts & Assignmen t-10 min	29-03-2026		
58	5	2	Nyquist stability criterion applied to inverse polar plot.	I.J. Nagarath, M.Gopal Page no.225	https://youtu.be/TVbiRywszco?si=hiictsNdfuqftBe	1-Previous class topic Review-5 min 2-Lecturer-45 min	30-03-2026		
LECTURE NO.	CO	BT L	TOPIC TO BE COVERED		WEB REFERENCEIF ANY	TEACHING LEARNING METHOD	PLAN DATE	ACTI ON DATE	REVIEW BY HOD
59	5	3	Effect of addition of poles to G(S) H(S) on the shape of Nyquist plot & Effect of addition of zeros to G(S) H(S) on the shape of Nyquist plot	I.J. Nagarath, M.Gopal Page no.228	https://youtu.be/R7_L1vh6eyk?si=L5XBBKzoSnHvVJPI	1- Previous class topic Review-5 min 2-	01-04-2026		
60	5		Assessment of relative stability.	I.J. Nagarath, M.Gopal Page no.235	https://youtu.be/jUX-3XIyH2E?si=wmqFxetdxYQPjB0G	1- Previous class topic Review-	02-04-2026		
61	5		Constant M & N Circle	I.J. Nagarath, M.Gopal Page no.242	https://youtu.be/4uvikleO3zY?si=IR-eNUSjNff8tZze	1- Previous class topic Review-5 min 2- Lecturer	03-04-2026		
62	5		Nicholas chart.	I.J. Nagarath, M.Gopal Page no.251	https://youtu.be/ntsoQK-6WeQ?si=H1nXvosXo7txfhiM	1- Previous class topic Review-5 min 2- Lecturer	06-04-2026		

Principal

Faculty

HoD, Electrical Engineering