

Course: Control systems

Course Code: noc20-ee90

Session: 2020-21

Duration: 12 Weeks

Assessment procedures: Weekly Assignment (25%) + proctored certification Exam (75%)

Curriculum of the Course:

Week 1:

- Introduction to Control,
- Classification of Dynamic Systems,
- Closed Loop Control System with Feedback,
- Mathematical Preliminaries – Complex Variables,
- Laplace Transform.

Week 2:

- Standard Inputs,
- Free and Forced Response
- Transfer Function
- Poles and Zeros

Week 3 :

- Response to various Inputs
- Effect of Poles, Notion of Bounded Input Bounded Output (BIBO) stability

Week 4 :

- Effect of Zeros
- Closed Loop Transfer Function
- Dynamic Performance Specification
- First Order Systems.

Week 5 :

- Second Order Systems
- Unit Step Response of Underdamped Second Order Systems
- Concepts of Rise Time
- Peak Time
- Maximum Peak Overshoot and Settling Time.

Week 6 :

- Controllers – Proportional (P)
- Integral (I) and Derivative (D) Blocks
- Examples of PID controller design

Week 7 :

- Routh's Stability Criterion
- Use in Control Design
- Incorporation of Performance Specifications in Controller Design
- Analysis of Steady State Errors.

Week 8 :

- Root Locus and its Application in Control Design.

Week9 :

- Frequency Response
- Bode Plots
- Nyquist Plots

Week 10 :

- Nyquist Stability Criterion
- Relative Stability – Gain and Phase Margins
- minimum and non-minimum phase systems.

Week 11 :

- Control System Design via Frequency Response – Lead
- Lag and Lag-Lead Compensation.

Week 12 :

- Case Studies

List of students enrolled

S. No	Name of Student
1	Ishan Menghani
2	RITIKA AGARWAL
3	VISHNU GUPTA
4	Abhay
5	Abhishek Kumar Sarang
6	Aditi Jain
7	Aditya Gaur
8	Paritosh Ajmera
9	animesh
10	Anjali mukherji

11	Ankush Joshi
12	ANMOL KUMAR
13	Anshul Maurya
14	Anshu Verma
15	Arnav Rajoria
16	Ashish Latiyal
17	Ayush Kumar Jajodia
18	Ayush pawar
19	ayush singh rathore
20	bharat kumar
21	Maharshi bhatnagar
22	Bhavesht Sharma
23	BRIJ KISHORE SHARMA
24	Akshay
25	Pradhum Malhotra
26	Yash kumar sen
27	DAKSH SHARMA
28	Divyansha Jain
29	Divyanshu Acharya
30	Drishti jain
31	Bhoomika Dubey
32	Abhishek Dusad
33	Faisal Khan
34	gari13
35	Gorakh Gupta
36	Gunjan Gupta
37	Hemant Dadhich
38	Shreya sharma
39	Hrithik khangarot
40	Divyanshu

41	Ipsit Samariya
42	IQBAL KHAN
43	ishika agrawal
44	Ishita Vaid
45	Aarambh jangir
46	devanshu jangid
47	Virendra singh rathore
48	JAYESH SINGH SAGAR
49	Jitendra Agrawal
50	Jasmine Bhatti
51	jyoti sharma
52	Harsh kanojia
53	Kunal Kaushik
54	Karishma tomar
55	Kaushal
56	Khushi Garg
57	Mayank Khandelwal
58	Rakshit khandelwal
59	Sanskriti Khandelwal
60	Khushwant Panwar
61	KRISHAN KUMAWAT
62	Krishan Kumawat
63	kritick kapoor
64	Gaurav kumar Khandelwal
65	Yash Verma
66	KUNAL SHARMA
67	LALIT MEENA
68	lokendra singh tanwar
69	Mahima sharma
70	MANALI SHARMA

71	Manish Poswal
72	Manju Choudhary
73	Monika jareda
74	Mohit agrawal
75	Monalisa
76	Pushpendra meena
77	Nakul Singh Jadon
78	naman gupta
79	naveen kumar verma
80	Nikhil Chopra
81	Nikhil Singh
82	nilesh dadheech
83	Nishant Singh
84	Nitin Chittoria
85	POOJA CHAUDHARY
86	Prakhar khatter
87	PRASHU JAIN
88	Rahul Kumar Chapola
89	Rahul Kumar
90	Ratan Soni
91	Parikshit Rathore
92	Rishabh mandawariya
93	Rishi bhargav
94	ritik khandelwal
95	Ritik Verma
96	Rahul Kumar
97	Lakshit Sharma
98	ROHIT JAIN
99	Roshan Suthar
100	Ruchi kumari

101	Rudraksha sharma
102	Rupesh kumar yadav
103	Subhash dudi
104	Aarti shah
105	Cmaune Sharma
106	MADHAV SHARAMA
107	Manan Sharma
108	Sangeeta Sharma
109	Saurabh Sharma
110	Yash kumar Sharma
111	Himanshu Shekhar
112	Shivam choubisa
113	Shreya Meena
114	Shubham Naryani
115	Shivam kumar gaur
116	Siddharth Darji
117	Siddharth rawat
118	Hidanshu sikri
119	Sabhyata Agarwal
120	Amit Yadav
121	sonu saini
122	SOURABHKUMAWAT632000
123	Sourav Soni
124	Shubham Prajapati
125	Shubham Udsaria
126	Antima
127	Suarj choudhary
128	Tanishk Jharwal
129	Udyan Srivastava
130	Ujala Jhanwar

131	Unnati kumawat
132	vishal singh
133	Vipul Gupta
134	Vibhu Mathur
135	Vidushi Pareek
136	Vikas kumar
137	vishal sen
138	Shivam sharma
139	Priyanka jain
140	Yaduveer chaudhary
141	YASH SONI
142	Yatharth Varshney
143	Yogesh Dabodiya