DISCIPLINE– ELECTRICAL ENGG	SEMESTER- 6TH	NAME OF THE TEACHING FACULTY- SIBANI PANDA,LECT (ELECT)	
SUB- CSE	NO OF CLASSES/ WEEK – 5P	TIME PERIOD- 22.12.2025 TO 18.04.2026 NO OF WEEKS- 17	
SL NO	CLASS DAY	TOPIC TO BE COVERED	REMARK
1	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	**FUNDAMENTAL OF CONTROL SYSTEM** 1.1. Classification of Control system 1.2. Open loop system & Closed loop system and its comparison 1.3. Effects of Feed back 1.4. Standard test Signals(Step, Ramp, Parabolic, Impulse Functions) 1.5. Servomechanism	
2	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	**MATHEMATICAL MODEL OF A SYSTEM** 2.1. Transfer Function & Impulse response, 2.2. Properties, Advantages & Disadvantages of Transfer Function 2.3. Poles & Zeroes of transfer Function 2.4. Simple problems of transfer function of network. 2.5. Mathematical modeling of Electrical Systems(R, L, C, Analogous systems)	
3	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	**CONTROL SYSTEM COMPONENTS** 3.1. Components of Control System 3.2. Gyroscope, Synchros, Tachometer, DC servomotors, Ac Servomotors.	
4	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	**BLOCK DIAGRAM ALGEBRA & SIGNAL FLOW GRAPHS** 4.1. Definition: Basic Elements of Block Diagram 4.2. Canonical Form of Closed loop Systems 4.3. Rules for Block diagram reduction 4.4. Procedure for of Reduction of Block Diagram	
5	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	4.5. Simple Problem for equivalent transfer function 4.6. Basic Definition in Signal Flow Graph & properties 4.7. Construction of Signal Flow graph from Block diagram 4.8. Mason's Gain formula 4.9. Simple problems in Signal flow graph for network	
6	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	**TIME RESPONSE ANALYSIS.** 5.1 Time response of control system. 5.2 Standard Test signal. 5.2.1. Step signal, 5.2.2. Ramp Signal 5.2.3. Parabolic Signal 5.2.4. Impulse Signal 5 . 3 Time Response of first order system with: 5.3.1. Unit step response 5.3.2. Unit impulse response.	
7	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	5.4 Time response of second order system to the unit step input. 5.4.1. Time response specification. 5.4.2. Derivation of expression for rise time, peak time, peak overshoot, settling time and steady state error. 5.4.3. Steady state error and error constants.	
8	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	5.5 Types of control system.[Steady state errors in Type-0, Type-1, Type-2 system] 5.6 Effect of adding poles and zero to transfer function. 5.7 Response with P, PI, PD and PID controller	
9	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	**ANALYSIS OF STABILITY BY ROOT LOCUS TECHNIQUE.** 6.1 Root locus concept. 6.2 Construction of root loci. **INTERNAL ASSESSMENT 1**	
10	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	6.3 Rules for construction of the root locus. 6.4 Effect of adding poles and zeros to G(s) and H(s).	

11	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	**FREQUENCY RESPONSE ANALYSIS.** 7.1 Correlation between time response and frequency response. 7.2 Polar plots. 7.3 Bode plots.	
12	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	7.4 All pass and minimum phase system. 7 .5 Computation of Gain margin and phase margin. 7.6 Log magnitude versus phase plot.	
13	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	7 . 7 Closed loop frequency response. **NYQUIST PLOT** 8.1 Principle of argument. 8.2 Nyquist stability criterion. 8.3 Nyquist stability criterion applied to inverse polar plot.	
14	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	8.4 Effect of addition of poles and zeros to G(S) H(S) on the shape of Niquist plot. 8.5 Assessment of relative stability. 8.6 Constant M and N circle 8.7 Nicholas chart. **INTERNAL ASSESSMENT 2**	
15	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	REVISION	
16	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	REVISION	
17	1ST DAY 2ND DAY 3RD DAY 4TH DAY 5TH DAY	REVISION	

20.12.25