

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
SYLLABUS FOR B.E. IV SEMESTER

INTRODUCTION TO CONTROL SYSTEMS (for other Branches)

Instruction: 1 Hr /week	SEE Marks : 40	Course Code : OE460EC
Credits : 1	CIE Marks : 30	Duration of SEE : 2 Hrs

Course Objective	Course Outcomes
<ol style="list-style-type: none">1 Apply principles of control theory to model physical system.2 Analyze the performance of a given system in time domain..	<p>At the end of the course, students will be able to:</p> <ol style="list-style-type: none">1. Distinguish between open and closed loop control systems.2. Mathematical modeling of systems3. Determine the transfer function and stability for control system.4. Analyze the stability of the system in time domain

UNIT – I

Control System fundamentals and Components: Classification of control systems, Open and Closed loop systems, Error sensing devices – potentiometers and syncros. AC and DC servo motors. Mathematical modeling of mechanical systems and their conversion into electrical systems. Block diagram reduction and Signal flow graphs.

UNIT – II

Time response: Transfer function and Impulse response, types of input. Transient response of second order system for step input. Time domain specifications. Types of systems, static error coefficients, error series, Routh - Hurwitz criterion for stability. Root locus techniques: Analysis of typical systems using root locus techniques. Effect of location of roots on system response.

Suggested Reading:

1. Nagrath, I.J., and Gopal, M., "Control System Engineering," New Age Publishers, 5/e, 2009.
2. Ogata, K., "Modern Control Engineering," 5/e, PHI, 2010.
3. Benjamin C. Kuo, "Automatic Control Systems," 7/e, PHI, 2010