Control Engineering

SWAYAM Prabha Course Code – E19

PROFESSOR'S NAME	Prof. S.D. Agashe
DEPARTMENT	Electrical Engineering
INSTITUTE	Indian Institute of Technology, Bombay
COURSE OUTLINE	Besides course outline, it should also indicate if there are any pre-requisities (i.e, prior knowledge) required .
	Introduction to control problem : Industrial Control examples. Transfer function models of mechanical, electrical, thermal and hydraulic systems. System with dead-time. System response. Control hardware and their models: potentiometers, synchros, LVDT, dc and ac servomotors, tachogenerators, electro hydraulic valves, hydraulic servomotors, electropeumatic valves, pneumatic actuators. Closed-loop systems. Block diagram and signal flow graph analysis, transfer function. Basic characteristics of feedback control systems : Stability, steady-state accuracy, transient accuracy, disturbance rejection, insensitivity and robustness. Basic modes of feedback control: proportional, integral and derivative. Feed-forward and multi-loop control configurations, stability concept, relative stability, Routh stability criterion. Time response of second-order systems, steady-state errors and error constants. Performance specifications in time-domain. Root locus method of design. Lead and lag compensation.

COURSE DETAILS

S. No	Module ID/ Lecture ID	Lecture Title/Topic

1	**L1**	The Control Problem
2	**L2**	Some more examples
3	**L3**	Different Kinds Of Control Systems
4	**L4**	History of Feedback
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References if Any: