

Lecture Plan			
M.Tech (EI)	Semester 2nd	Code E16I 604	
Subject Name	Optimal Control Theory	No. of Credits	4
Unit	Topic	Duration (hours)	References
1	Optimal Control System ,Performance Indices, Formulation of Optimization Problems	2	"Control Systems "by Nagrath & Gopal , "Modern Control System" by K.Ogata
	Time Optimal Control Systems, Characteristics of a Plant, Minimisation of Functions, Numerical problems	2	"Control Systems "by Nagrath & Gopal , "Modern Control System" by K.Ogata
2	Linear dependence of vectors,complete state controllability of continuous time systems, Numerical problems	2	"Control Systems "by Nagrath & Gopal , "Modern Control System" by K.Ogata
	Complete state controllability of discrete time systems, Z-transform,Inverse Z-transform, Numerical problems	4	"Control Systems "by Nagrath & Gopal , "Modern Control System" by K.Ogata
	Alternate form of complete state controllability, output controllability	2	"Modern Control System" by K.Ogata
3	Complete state observability of continuous time systems, Numerical problems	2	"Control Systems "by Nagrath & Gopal , "Modern Control System" by K.Ogata
	Complete state observability of discrete time systems, Numerical problems	2	"Control Systems "by Nagrath & Gopal , " digital Control Systems" by M.Gopal
	Alternate form of complete state observability, Principle of duality, Numerical problems	2	"Modern Control System" by K.Ogata
4	Time optimal control for continuous time systems with bounded control signals, continuous time linear state regulator Numerical problems,	3	"Optimal Control Theory" by A.J.Kirk, "Modern Control System" by M.Gopal
	Time optimal control for discrete time systems,discrete time linear state regulator, Numerical problems	3	"Optimal Control Theory" by A.J.Kirk, "Modern Control System" by M.Gopal
	Optimal control system based on quadratic performance indices, Calculus of variations	4	"Optimal Control Theory" by A.J.Kirk, "Modern Control System" by M.Gopal
	Application of optimal control to dynamic systems, Numerical problems	2	"Optimal Control Theory" by A.J.Kirk, "Modern Control System" by M.Gopal
	Pontryagin Minimum Principle & its applications to optimal control problems with constraints, Numerical problems	3	"Optimal Control Theory" by A.J.Kirk, "Modern Control System" by M.Gopal
	Dynamic Programming , Bellman-Jacobi equation& its applications to optimal control problems, Numerical problems	4	"Optimal Control Theory" by A.J.Kirk, "Modern Control System" by M.Gopal
	Optimal control system for distributed parameter system, Solution of algebraic Ricattii's equation for linear regulator problem	3	"Optimal Control Theory" by A.J.Kirk, "Modern Control System" by M.Gopal
Total		40	

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