



# Nonlinear and Adaptive Control

## **PROF. SHUBHENDU BHASIN**

Department of Electrical Engineering  
IIT Delhi

**PRE-REQUISITES** : Nonlinear Systems/Nonlinear Control

### **COURSE OUTLINE :**

This is an advanced course on control system design, covering fundamental aspects of adaptive control. A general methodology is developed for systematic design of controllers for systems with parametric uncertainty. It is expected that the students interested in taking this course should have a basic understanding of Lyapunov Stability Theory and working knowledge of MATLAB/Simulink.

### **ABOUT INSTRUCTOR :**

Prof. Shubhendu Bhasin is currently an Associate Professor in the Department of Electrical Engineering at IIT Delhi. He is part of the Control and Automation group, and work in the area of nonlinear control and applications. Prior to joining IITD, He did his MS and PhD from the University of Florida, Gainesville, where he was part of the Nonlinear Controls and Robotics Lab. Research Interests: Nonlinear and Adaptive Control, Robotics, Autonomous Systems, Reinforcement Learning Control, Approximate Dynamic Programming

### **COURSE PLAN :**

- Week 1** : Introduction to Adaptive Control
- Week 2** : Model Reference Adaptive Control
- Week 3** : Robust Adaptive Control – 1
- Week 4** : Robust Adaptive Control – 2