



Module PMRF-ISSS002/IV/2026

## Control Systems & Time Domain analysis

### Name of the PMRF student

Pritam Pal

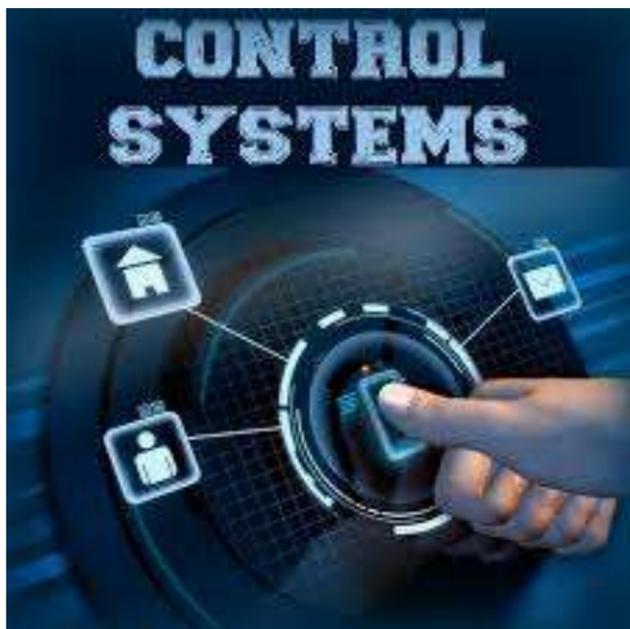
### Required background of the students taught

#### Discipline(s)

Electrical Engineering (EE)

Electronics and Communication Engineering (ECE)

Electrical and Electronics Engineering (EEE)



Control Systems & Time domain Analysis

### Details of the content of the module

#### Module 1 Introduction (2 hours) :

Open Loop, Closed loop control system, Laplace transform(2 hours)

#### Module 2 Transfer Function: (4 hours)

Properties of Transfer Function, Poles-zeros, Open loop, interactive & non-interactive system

#### Module 3 Block Diagrams (4 hours) :

Closed loop system, Transformation Theorems

#### Module 4 Signal Flow Graphs (4 hours) :

Terminology of SFG, construction of SFG, Mason's Gain

#### Module 5 Feedback Characteristics (3 hours)

Feedback & non-feedback system; effect of feedback on overall gain, sensitivity, stability; control over system dynamics; effect of noise (disturbance) and control on the effects.

#### Module 6 Modelling of control systems (3 hours)

Mechanical, electrical, analogous system; complex mechanical system differential equation.

#### Module 7 Time Domain Analysis of Control System (8 hours) :

Steady state & Transient response, steady state error and static error co-efficient, Dynamic error co-efficient and relationship with steady state, Transient state analysis, Dominant pole concept.

### Schedule of the module

**Start Date:** Jan 12, 2026

**End Date:** Jan 21, 2026

**Total Duration:** 28 hours

**Class Schedule:** Everyday

**Class Timings:** 5:30 pm to 8:30 pm

Meeting link : Will be shared later

Contact email ID:

[ppritam@iisc.ac.in](mailto:ppritam@iisc.ac.in) [iiss.forum@gmail.com](mailto:iiss.forum@gmail.com)

Registration link:

[https://docs.google.com/forms/d/e/1FAIpQLSdETrkBlcbpZ0xoPovrD32j\\_oW9ZAV6i3Oc4uyVF7iBprSR3g/viewform?usp=publish-editor](https://docs.google.com/forms/d/e/1FAIpQLSdETrkBlcbpZ0xoPovrD32j_oW9ZAV6i3Oc4uyVF7iBprSR3g/viewform?usp=publish-editor)