

Course Title (Code): Control Systems Analysis (EE250)

Instructor:

Dr Abhilash Patel – apatel@iitk.ac.in
(drop an email for any questions)

Tutors:

Prof Nishchal Verma	nishchal@iitk.ac.in
Prof Ramprasad Potluri	potluri@iitk.ac.in
Prof Soumya Ranjan Sahoo	srsahoo@iitk.ac.in
Dr Aditi Srivastava	aditis@iitk.ac.in
Neeta Yadav	neetayadav23@iitk.ac.in
Pradeep M	pradeepm22@iitk.ac.in
Aditi Saxsena	saditi23@iitk.ac.in

Teaching Assistants:

Swati Priya	21204268	swatipr21@iitk.ac.in
Akshay Kumar Jaiswal	231040605	akjaiswal23@iitk.ac.in
Taruna Verma	241040090	tarunav24@iitk.ac.in
Insha Rahman	241040612	inshar24@iitk.ac.in
Lisa Naik	241040615	lisanaik24@iitk.ac.in
Neelam Verma	241040619	neelamv24@iitk.ac.in
Prakhar Bajpai	241040621	prakharb24@iitk.ac.in
Utkarsh Singh Solanki	242040619	utkarshss23@iitk.ac.in
Animesh Majhi	251040014	animeshm25@iitk.ac.in
Anshul Kumar Soni	251040017	anshulks25@iitk.ac.in
Trilochan Kumar	251040640	tkumar25@iitk.ac.in

Course webpage: https://home.iitk.ac.in/~apatel/EE250_2526.html

Lectures Time: TThF, 11.00-12.00 and **Lectures Venue:** L02

Tutorial Time: W 11.00-12.00 and **Venue:** T101-T105

Prerequisites: EE200 Signal, System & Networks

Objective of the course: The objective of this course is to develop a fundamental understanding of modeling, analysis, and interpretation of feedback control systems, with emphasis on stability and performance.

The course aims to equip students with core analytical skills needed for classical control design and further study in control theory.

Contents (sequence may change):

Negative feedback control systems, Linear time-invariant dynamic systems, Transfer function, Mason's gain formula, Frequency and time domain analysis, Performance analysis, Nyquist stability criterion, Bode plots, Feedback system design using Bode plots, Analysis using root locus, PID control, State space models

Grading Policy:

Mid Sem Exam- 25%

End Sem Exam- 35%

Quizzes -25% (There will be ~8 quizzes including two Major quizzes and few assignments)

Attendance: 10%

Handwritten Class Notes: 5%

Recommended Books:

1. K. Ogata, Modern Control Engineering, 5th ed. Pearson, 2010.
2. I. J. Nagrath and M. Gopal, Control Systems Engineering, 5th ed. New Age International, 2009.
3. W. A. Wolovich, Automatic Control Systems: Basic Analysis and Design, Oxford University Press, 2011
4. R. C. Dorf and R H Bishop, Modern Control Systems, 12th ed, Pearson, 2016
0. <https://controlcartoons.com/> do visit to get a comic exposure to control systems and don't forget to check out the book.