

A. The problem statement for the project is mailed to each student to their respective official email-id. Each problem statement comprises of a model of a real plant and desired specifications to be met are specified.

B. To do:

1. Design a controller/compensator with the technique stated in the problem statement to meet the desired specifications. If the technique is not mentioned in the problem statement, any design technique that is discussed in the lectures can be used.
2. The controller parameters and gains should be derived in detail theoretically with explanations. If it is not possible to derive some or all of the controller parameters or gains theoretically, state the difficulty faced clearly, and proceed with the software-based design.
3. Validate the designed controller using simulations showing that the desired specifications are met.

C. You have to submit a **report with the below structure detailing solutions** to the above mentioned tasks.

1. **Introduction:** Write the system model given and the performance parameters of the true model subject to suitable test signals.
2. **Control Objectives:** Write the desired specifications mentioned in the problem statement. Any other suitable specification can be added.
3. **Controller Design:** Derive and explain the steps involved in the design of controller parameters and gains. Write assumptions and approximations taken, if any.
4. **Simulation Results:** Show the plots of the system output(s), control input(s), any other plot (root locus, bode plot) supporting the design steps and specifications met. Write the observations.
5. **Conclusion.**

Submission Deadline: November 24, 2022 11:59 pm. Submit the report along with the code files.

D. For the presentation/viva, you have to make a **ppt with this structure:** Introduction (1 Slide), Control Objectives (1 Slide), Controller Design (only main steps) (2 Slides), Simulation Results, Conclusion (1 Slide).
