

FCS CEP for TE (EE) 2021

DC motor control for two methods

1. Armature control method
2. Field control method

Tasks:

- 1) Identify physical parameters (for example via system Identification toolbox on MATLAB or via step response method etc.)
- 2) Convert the motor differential equation into Laplace transform (Transfer function)
- 3) Plot or obtain different stable responses studied in FCS by adding a control parameter.
- 4) Apply Routh Criteria and find the range of stability for motor speed control.
- 5) Plot root locus indicating the all the responses.
- 6) Add gears at the shaft of the motor to control different speed levels and repeat above exercises (Bonus Marks)
- 7) Plot bode plot (Bonus Marks)
- 8) And any other analysis you learnt etc. (Bonus Marks)

Note: Get suitable rating of DC motor for your own choice.

Instructions for Group Details and Marks:

- 1) Maximum 5 members in a Group.
- 2) Any control method can be chosen by the group.
- 3) Maximum marks of the project are 20, which are distributed as follows.
 - (a) Marks from Theory sessional (Max: 10)
 - (b) Marks from Practical sessional (Max: 5)
 - (c) Marks from final Lab Viva (Max: 5)
- 4) Ask the details about the bonus marking from your teacher Sir Dr. Riaz Uddin / Sir Javed / Sir Nabeel.
- 5) For any details regarding the CEP/project, please consult your course teacher Sir Dr. Riaz Uddin / Sir Javed / Sir Nabeel.
- 6) Final date of project evaluation and report submission will in the 14th week (exact date will be communicated by the respective course teacher). However, mid-evaluation will be conducted by respective course teachers in the 10th week.