Lab Instructor: Nikita Charankar

Email: ncharank [at] gmu.edu

Lab Hours: Tuesdays, 10:30 AM to 1:20 PM, ENGR 3208; Contact: (703) 993-1569

Office Hours: Mondays, 2:30-4:30PM, ENGR 3208. Other hours by Appointment only.

Pre-requisites: ECE 421 and Basics of Matlab


References: Dr. Beale’s website of ECE 421.

Course Objective: The course will cover the design and analysis of control systems through practical exercises. This will be accomplished by using Matlab/ Simulink to analyze and simulate the performance of realistic system models and to design control systems to satisfy various performance specifications.

Course Policies:

- Attendance at all labs and exams is mandatory. Notify me in advance if you plan to miss the lab or exam.
- If you miss an exam for an unexcused reason, you will NOT be given a make up time. Make up exams must be arranged in advance of the exam date.
- As stated in your lab manual, it is important that each student does the advance preparation before coming to the lab.
- Each student must work on the experiments individually. All experiments must be completed to pass this course ECE 429.
- Students must show me the end results of the experiment in lab in order to receive credit for the experiment. I will then make note of your performance at the same time.
- Lab experiments must be completed within two weeks of assignment. Grades for experiments will drop by 25% per week and will not be accepted after four weeks.
- Lab Reports must be written and submitted individually at the beginning of the lab.
- No reports will be accepted after the start time of your section’s final exam.
- Lab Reports must be legible. Carefully follow the lab report guide in your lab manual.
- The use of phones or other electronic devices in class or during exams is not permitted.
- The GMU Honor code applies to all aspects of this course.
Grading policy:

Attendance: 5%
Lab reports: 35%
Midterm: 25%
Final: 35%

Spring Schedule:

Jan 19          Unit A.1: Review of Computer Aided Control System Analysis and Design Software.
Jan 26          Unit A.2: Time Domain Analysis and Design of Control Systems.
Feb 2           Unit A3: Frequency Domain Analysis and Design of Control Systems.
Feb 9 & 16      Unit B1: Compensator Design for Ship Handling Angle. (2 weeks)
Feb 23 & Mar 2  Unit B2: Evaluation of your Compensator Design for a Ship’s Heading Angle. (2 Weeks)
Mar 9           Spring Recess
Mar 16          MIDTERM
Mar 23          Unit C1: Compensator Design for Depth Rate Control.
Mar 30          Unit C2: Evaluation of your Compensator Design for Depth Rate Control.
Apr 6, 13 & 20  Unit D1: Frequency Domain Compensator Design for a Non-Minimum Phase System. (3 Weeks)
Apr 27          FINAL EXAM