

EEM 342: Fundamentals of Control Systems

2023-2024 Spring Semester Syllabus

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General Information: [click here](#)

Laboratory Information for Part II: [click here](#)

(New) Laboratory Sheets for Session 5: [Pre-lab Sheet](#); [In-lab Sheet](#)

Laboratory Grades: [click here](#) (will be updated as new grades become available)

MATLAB Information: [click here](#)

Text Book: Any introductory book on control systems, such as:

- 1) R.C. Dorf and R.H. Bishop, *Modern Control Systems*, Addison-Wesley ([click for note](#)).
- 2) K. Ogata, *Modern Control Engineering*, Prentice Hall.
- 3) J.J. D'Azzo and C.H. Houpis, *Linear Control System Analysis and Design*, McGraw-Hill.

Main Course Material: Weekly Notes (links given under Course Outline)

Grading: Midterm exams (2x20%); Laboratory (20%); Final exam (40%).

Tentative Course Outline:

Week 1: Introduction (see [Notes for week 1](#))

Week 2: Input-Output Modeling (see [Notes for week 2](#); also see [this](#))

Week 3: Internal Modeling (see [Notes for week 3](#))

Week 4: Block Diagrams (see [Notes for week 4](#))

Week 5: Realizations (see [Notes for week 5](#))

Week 6: 1st Midterm Exam ([click for solutions](#))

Week 7: Stability (see [Notes for week 7](#))

Week 8: Eid Holiday

Week 9: Stabilizing Controller Design (see [Notes for week 9](#))

Week 10: Steady-state Response (see [Notes for week 10](#); also see [this](#) for MIMO generalization)

Week 11: Transient Response and Frequency Response (see [Notes for week 11](#))

Week 12: Root-Locus Method (see [Notes for week 12](#))

Week 13: 2nd Midterm Exam

Week 14: Discrete-time Systems (notes to be provided)

Week 15: Sampled-data Control Systems (notes to be provided)