PME3208 Control Systems II

上課老師: 葉廷仁教授

辦公室: 　エー514

上課教室: エー216

上課時間: W3W4F3

演習課時間: 周二 19:00~21:00

Outline of this course

This course is a continuation of control systems (I). It particularly provides the students with basic knowledge in state-space design, digital control and nonlinear systems. As for the state-space design, it begins with reviewing linear-algebra fundamentals and introducing state-space description of linear systems. Students will then learn how to design full-state feedback and estimator of the control system. In digital control, z-transform will be introduced first and controller design using digital equivalents will then be covered. Finally, we will introduce some basic analysis and design tools for nonlinear control systems.

Prerequisites:

Engineering Mathematics (工程數學), Control Systems (I) (控制系統一)

Course Contents

1. Mathematical Foundation – Linear Algebra

2. State-space Description of Linear Systems

3. Full-state Feedback and Estimator Design

4. Compensator Design

5. Z-transform

6. Design Using Discrete Equivalents and Discrete Design

7. Linearization

8. Analysis of Nonlinear Systems

Text Book

Gene F. Franklin, J. David Powell, and Abbas Emami-Naeini, Feedback Control of Dynamic Systems, 7th Edition, Prentice Hall, 2015.

References

1. Farid Golnaraghi, and Benjamin C. Kuo, "Automatic Control Systems", 9th edition, John Wiley & Sons, Inc., 2009.

2. Norman S. Nise, "Control Systems Engineering", 6th edition, John Wiley & Sons, Inc., 2010.

Grading Policy:

- **Homework assignments (30%), Midterms(40%), Final exam(30%),**

Course website:

- **http://www.moodle.nthu.edu.tw**