Mathematics for Signals and Systems

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Outline

- Basic course information
- Relationship wiht other courses
- Topics
- Refrences
- Lecture notes

Basic course information

Course: Mathematics for Signals and Systems

Instructor: Sudchai Boonto
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Web-page: `http://staff.kmutt.ac.th/~sudchai.boo/Teaching/inc211/inc211.html`

Grading: Homework 30%, Midterm 30%, Final 40%
weekly home works

Basic course information

- basic mathematic course for Control systems and Instrumentation Engineering.
- prerequisites: Calculus, Basic Circuit Analysis

Basic course information

- Introduction to Signals and Systems
  - Analog or Discrete, Complex or Real and MATLAB
- Theory and Application of Continuous-Time Signals and Systems
  - Continuous-Time Signals
  - Continuous-Time Systems
  - Laplace Transform
  - Applications
- Theory and Application of Discrete-Time Signals and Systems
  - Sampling Theory
  - Discrete-Time Signals and System
  - The z-Transform
  - Applications

Reference

Complete notes will be handed out, so there is no required textbook. However, the notes use some materials from the following books:

Signals and Systems

1. Chaparro, L. F. *Signals and systems using MATLAB*, Academic Press, 2011
2. Lathi, B. P., *Signal Processing & Linear Systems*, Berkeley-Cambridge Press, 1998
3. Siebert, W. M., *Circuits, Signals, and Systems* MIT Press
4. Chaisawadi, A., *Signals and Systems*, The Engineering Institute of Thailand, 2543 (in thai)
5. Sinha, N. K., *Linear Systems*, John Wiley & Son, 1991
6. Hsu, H. P., *Signals and Systems*, Schaum's Outlines series, McGraw-Hill, 1995

Differential Equations

1. Xie, W.-C., *Differential Equations for Engineers*, Cambridge Press, 2010
2. Kreyszig, E., *Advanced Engineering Mathematics*, John Wiley & Son, 8th, 1999
3. Goodwine, B., *Engineering Differential Equations*, Springer, 2011
4. Dejnakarintra, M., *Mathematics for Electrical Engineering*, Chulalongkorn University Press, 2549 (in thai)

Reference

Difference Equation

1. Mahajan, S. and Freeman, D., *Discrete-time Signals and Systems: An Operator Approach*, MIT, 2009
2. Elaydi, S., *An Introduction to Difference Equations*, Springer, 2005