

System Engineering

Syllabus Number

3E325

Special Subjects

Elective 2 credit

YAMANE, Ken

1. Course Description

The main topics are as follows: systems approach, optimization, reliability, modeling and simulation, and control. This class also deals with academic fields related to systems science.

2. Course Objectives

This course aims at expanding students' knowledge in the field of systems engineering and systems science. Students will learn basic skills for developing complex engineering systems.

3. Grading Policy

Students are evaluated with a mid-term exam (30%), one report (30%) and a term exam (40%).

4. Textbook and Reference

Textbook

No textbook is used.

5. Requirements(Assignments)

6. Note

7. Schedule

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| [1] | Introduction |
| [2] | What is a system? |
| [3] | Systems approach |
| [4] | System design technique |
| [5] | System optimization |
| [6] | System reliability |
| [7] | System modeling and simulation |
| [8] | System control |
| [9] | Summary, mid-term exam |
| [10] | Intelligent system |
| [11] | Complex system I: fractal, chaos, etc. |
| [12] | Complex system II: cellular automaton, percolation, etc. |
| [13] | Game theory |
| [14] | System theory |
| [15] | Summary, term exam |