Robot Sensing

Syllabus Number 3E332
Special Subjects
Elective 2 credit

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1. Course Description

The main topics are as follows:
(1) Basics of measurement
(2) Principles of sensors and their measuring techniques
(3) Sensors for robot application

2. Course Objectives

This course aims to learn the broader knowledge of sensors and their measuring techniques.

3. Grading Policy

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

4. Textbook and Reference

Textbook
No textbook is used.

5. Requirements(Assignments)

6. Note

7. Schedule

[1]	Introduction
[2]	Basics: technical terms in Japanese, SI units, force, work, energy, power, etc.
[3]	Basics: sensor signal processing
[4]	Basics: statistical processing, filtering
[5]	Basics: spectral analysis, wave form analysis, multivariable analysis
[6]	Position sensor
[7]	Displacement sensor
[8]	Force sensor
[9]	Acceleration sensor
[10]	Image sensor
[11]	Other sensors: ion sensor, gas sensor, electronic noses, electronic tongue
[12]	Active learning: survey
[13]	Active learning: presentation
[14]	Design of robot sensor systems
[15]	Summary