Advanced Mechatronics Engineering

2 units (selection)

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Target⟩ This class introduces the basic principle of the diagnosis technology and the control technique of the industrial machine system that uses an electric actuator.

Outline⟩ The objective of this lecture is to give a course on the modeling methods, the sensor techniques, the signal processing methods, the intelligent control algorithms for industrial machines driven by electrical actuators. The applications of these advanced schemes are also included.

Style⟩ Lecture in combination with Portfolio

Keyword⟩ *diagnosis technology, control algorithm, intelligent*

Relational Lecture⟩ "**Control System Design**"(0.5), "**Power Energy Conversion and Control Engineering**"(0.5)

Goal⟩
1. The modeling, the sensor technology, and the diagnosis technology of the control system are introduced.
2. Improvement performances of control system, and Control algorithm for intelligent are introduced.

Schedule⟩
1. Sensor technology for fauilure diagnosis.
2. Signal processing technology for failure diagnosis.
3. Modeling method of electrical machines.
4. Modeling method of electrical machines on faulty conditions.
5. Characteristics of electrical machnes on faulty conditions.
6. Intelligent control method
7. Fuzzy reasoning
8. Control system using fuzzy reasoning
9. Neural networks
10. Control system using neural networks
11. Motion control system
12. Two degree-of-freedom control system
13. Design method of feedback controller for disturbance suppression
14. Design method of feedforward controller for Improvement of responses
15. Responses of two degree-of-freedom control system
16. Return of report, and conclusions

Textbook⟩ The print is distributed.

Contents⟩ http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216897

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