Advanced Micro-Nano Engineering

2 units (selection)
Part-time Lecturer

Target〉 This class introduces micro-nano process, especially photo-induced processes

Outline〉 Basics of micro-nano engineering for the beginners.

Requirement〉 Students are required to have a good understanding of under-graduate level physics and related subjects.

Goal〉 To obtain advanced knowledge for performing a reseach project on micro-nano engineering using a laser.

Schedule〉

1. Basics of micro-nano engineering
2. Various micro-nano process and photo-induced process
3. Laser radiation and oscillator
4. Optical components for laser systems
5. Laser induced phenomena
6. Heat conduction in laser processing
7. Laser welding
8. Laser drilling and cutting
9. Ultra-fast laser processing
10. Micro thermal process
11. Micro/nano processing in industry
12. Thermal inkjet process
13. Piezo inkjet process
14. Inkjet for biotechnology
15. Latest inkjet technology
16. Examination

Evaluation Criteria〉 Assignments counts 100%

Textbook〉 Norimitsu Hirai, Practical Laser Technology, Kyoritsu publishing ISBN4-320-08470-5 Takeshi Amari, Inkjet printer, CMC publishing ISBN4-88231-859-8 Electronic files on Web

Reference〉 Mitsuo Nakazawa, Practical Ultrafine Process and Measurement, NTS ISBN4-86043-035-2 Kenichi Iga, Basic Laser Optics, Ohm-sha ISBN4-274-02137-8 Kunihiko Sato, Yoshihiko Mukai, Masao Toyoda, Welding Engineering, Rikogaku-sha ISBN4-8445-2108-X

Contents〉 http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216803