

Lecture in Optical Materials and Devices, Part 1

1 unit (selection)

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Target) To understand the current trends of the optical and/or optoelectronic materials and devices.

Outline) This course will cover several several topics on the current trends of the optical and/or optoelectronic materials and devices. Topics treated are focused on the latest fabrication technology and the research for the device application.

Style) Lecture

Keyword) *semiconductor, LED, laser diode*

Relational Lecture) “**Photonic Device**”(0.5), “**Optical properties of materials**”(0.5)

Requirement) Students must have enough knowledges of semiconductor physics comparable to contents in lectures on semiconductor physics for undergraduate students.

Notice) 授業を受ける際には、2時間の授業時間毎に2時間の予習と2時間の復習をしたうえで授業を受けることが、授業の理解と単位取得のために必要である。

Goal)

1. To understand advantages of Nitride semiconductors compared with other semiconductors.
2. To understand the outline of technologies for fabrication process of optoelectronic devices
3. To understand trends of developments and researches for optoelectronic devices

Schedule)

1. guidance
2. semiconductor materials for optoelectronic devices
3. Advantages of Nitride semiconductor
4. Fabrication of optoelectronic devices by Nitride semiconductor
5. Principle of light emitting diode and laser diode
6. History of development for semiconductor light emitting deices
7. Characteristics of power LED
8. Trends on the development of high power light emitting diode
9. Trends on the development of UV light emitting diode
10. Applications of light emitting diode

11. Trends on the development of UV and Blue laser diodes

12. Development of Green Laser Diode

13. Applications of laser diode

14. Market of semiconductor light emitting devices

15. Market and Corporate strategy

Evaluation Criteria) Activity and attendance 40%, reports 60%

Textbook) no text

Contents) <http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216821>

Contact)

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MAIL (Office Hour: 16:10~ 18:00)