Optical Information and Communication Engineering

Special Subjects
Elective 2 credit

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1. Course Description

The aim of this graduate seminar is to master the investigation technique of prior art through some case studies.
Specifically, we learn and discuss the following.
(1) Basics of optical fiber communications.(for preparation of the case studies)
(2) Investigation of prior art on your master thesis subject.

2. Course Objectives

The goals of this course are to
・ be able to illustrate basics of optical fiber.
・ be able to investigate prior art, and then be able to explain precisely about the survey method, and results of the survey and some approach to solve various problems in prior arts.

3. Grading Policy

30% Report on your investigation
70% Participation in discussions

4. Textbook and Reference

Textbook
Reference will be posted on the course website.

5. Requirements(Assignments)

The most necessary thing for graduate students is to develop the habit of thinking by themselves.

6. Note

7. Schedule

[1]	Guidance
[2]	Components of optical communication systems
[3]	Nature of light 1 (reflection, refraction)
[4]	Nature of light 2 (interference, coherence)
[5]	Nature of light 3 (phase velocity and group velocity)
[6]	Nature of light 4 (polarization)
[7]	Multi-mode Optical fiber
[8]	Single-mode Optical fiber
[9]	Propagation characteristics of Optical fiber
[10]	Introduction of my study 1 (Characteristics of a single-mode fiber beyond the cutoff frequency of the LP11 mode)
[11]	Dispersion and dispersion-shifted fiber
[12]	Optical communication system 1 (transmitter, receiver and repeater)
[13]	Optical communication system 2 (loss-limited transmission distance, dispersion-limited transmission distance)
[14]	Introduction of my study (An ultra-low power consumption tunable laser diode module using a micro Peltier module as a temperature controller)
[15]	Presentation (Investigation on topics of recent optical technology)