Course Title Optical Communications

Course Number LE426

Credit Hours 45 hours/ 1 semester

Prerequisites LE220 (Electromagnetic Theory)

Instructor Dr. Pongsak Mahachoklertwattana
Title Lecturer
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Course Descriptions Cylindrical dielectric waveguides and propagating conditions; structure and types of optical fiber; optical fiber parameters; optical fiber production; optical cable types; signal degradations in optical fiber; optical sources; modulation techniques; optical detectors; optical receivers; optical repeaters and amplifiers; optical components; link budget calculations.

Tentative Course Schedule Overview of optical communications and review of electromagnetic waves (1 week) Slab waveguides (1) Cylindrical waveguides and optical fibers (2) Signal degradations in optical fibers (2) Optical sources and modulations (1) —**MIDTERM EXAM**— Power launching and coupling (1) Photodetectors and optical receiver operation (2) Digital systems (1) Analog systems (1) WDM and optical networks (2) Measurement (1)

Textbook and Reference

[1] G. Keiser, *Optical Fiber Communications 4th*, McGraw-Hill, 2008.
[2] G. P. Agrawal, *Fiber-Optic Communication System 3rd*, John Wiley & Sons, 2002.
[3] C. R. Pollock, *Fundamentals of Optoelectronics*, Irwin Inc., 1995.
[4] R. P. Khare, *Fiber Optics and Optoelectronics*, Oxford University Press, 2004.
[5] Lecture notes and slides

Grading

Attendance & Assignments	20%
Midterm	30%
Comprehensive Final	40%
Presentation	10%
Total	100%