

FALL 2007

SEMICONDUCTOR LASERS AND PHOTODETECTORS
ESE519

SUNY at Stony Brook
Department of Electrical and Computer Engineering

Instructor: Gregory Belenky

COURSE DESCRIPTION

The course provides an introduction to the design, characterization and fabrication techniques for semiconductor lasers and photodetectors.

Topics include the following: fundamentals of the laser and detectors operation, devices band diagram, characteristics and testing technique for analog and digital lasers as well as avalanche and PIN photodetectors.

Special attention is given to the design and working characteristics of the transmitters and pumped lasers for telecommunication networks.

Prerequisite: BS in Physical Sciences or Electrical or Computer Engineering.

Midterm and Final Examination (oral presentation).

3 credits

1. Title: Introductory Semiconductor Device Physics
Author: Greg Parker
Publisher: Institute of Physics Publishing; New Ed edition (July 2004)
ISBN-10: 0750310219
ISBN-13: 978-0750310215

2. Title: "Semiconductor Laser 1 Fundamentals"
Editor: Eli Kapon
Academic Press
ISBN 0-12-39763