EE 403 OPTOELECTRONICS

Semester : Fall 2020 (Online Course)
Level of Course: 3rd and 4th Year Engineering Students
Language of Instruction: English

Instructor : Prof Dr M Naci Inci
Instructor’s office hours: by appointment
Instructor’s office no: --
Instructor’s phone no: 0212 359 7602
Instructor’s e-mail address: naci.inci@boun.edu.tr

Class hours & Lecture halls: TTTh 122 on Zoom or Recording
Prerequisite: Consent of the Instructor
Course Description: Maxwell Eq's and light propagation; group velocity, Poyinting Vector, Snell’s Law, Fresnel Eq's, evanescent wave; transmission and reflection in dielectric coatings; multiple interference; Goos-Hanchen shift; temporal and spatial coherence; diffraction and diffraction gratings; dielectric waveguides and optical fibers; polarization; interaction of light and matter; light propagation in crystals; optical activity; Electro-optic effects: Pockels and Kerr Effects, devices based on the electro-optic effects; acousto-optic effect; magneto-optic effect; Nonlinear optics: 2nd and 3rd harmonic generations; Stimulated emission: Gas lasers; Semiconductor fundamentals; semiconductor light sources and detectors; holography.

Recommended Textbook: Optoelectronics & Photonics by S O Kasap, 2nd Ed. or later.
Recommended Readings: Fundamentals of Photonics, 2nd Ed. or later, by B E A Saleh & M C Teich

Grading: A series of exams on Moodle to be used for letter grading at the end of the semester.