Course Syllabus

Department/Faculty: School of Engineering

Graduate Program: Materials Engineering and Nanotechnology

Degree:
☒ Academic Master's ☒ Doctorate (PhD) ☐ Professional Master's

Course Name:
Photonic Materials and Structures

Professor:
Prof. Dr. Christiano José Santiago de Matos

Office hours:
48

Course Overview:

Will be presented materials and structures (micro and nanometric) capable of manipulating and/or changing the properties of light.

Program content:

- Motivation and review of electromagnetic waves
- Optical properties of metals and metallic structures
- Optical properties of dielectrics and dielectric structures
- Semiconductor optical properties
- Materials with optical gain and lasers
- Non-linear materials
- Metamaterials

Letter Grade Assignment
Grade A (Excellent) - Grade points between 9 and 10
Grade B (Good) - Grade points between 8 and 8.9
Grade C (Satisfactory) - Grade points between 7 and 7.9
Grade D (Unsatisfactory) - Grade points between 0 and 6.9

Texts, Materials, and supplies

Basic Bibliography:
SIMMONS, J. H., POTTER, K. S. *Optical Materials*. Academic Press. 2000.
VERDEYEN, J. T. *Laser Electronics*. 3rd Ed. Prentice Hall. 1995.
AGRAWAL, G. P. *Nonlinear Fiber Optics*. 5th Ed. Academic Press. 2012.
JOANNOPOULOS, J. D., JOHNSON, S. G., WINN, J. N., MEADE, R. D. *Photonic Crystals: Molding the Flow of Light*. 2nd Ed. Princeton University Press. 2009.
Scientific Literature Articles.