Course Syllabus

Department/Faculty
School of Engineering

Graduate Program
Materials Engineering and Nanotechnology

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

Course Name
Nanostructured Devices and Nanosensors

Professor

Office hours
48

Course Overview
Chemical, photonic and optoelectronic devices based on nanostructures are presented, as well as the concepts and fundamentals necessary to understand how they work.

Topics outline

- • Introduction to Sensors
- • Types of nanosensors
- • Nanostructures x Sensors
- • Application of nanosensors
- • Types of nanostructures.
- • Physical chemistry of solid surfaces.
- • Manufacturing on a nanometric scale.
- • Characterization of nanostructures.
- • Properties of nanostructures
- • Examples of applications of nanostructures.
- • Fundamentals and applications of optical and electrochemical nanosensors (potentiometric, voltammetric, conductometric and coulometric).

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

GAPONENKO, S. V**. Introduction to Nanophotonics**. Cambridge Univ. Press. 2010.
GRÜNDLER.P. **Chemical Sensors: An Introduction for Scientists and Engineers**. 2nd ed. Springer. 2007.
MAIER, S. **Plasmonics: Fundamentals and applications**. Springer. 2007.
KHANNA, V. K., **Nanosensors: Physical, Chemical, and Biological**. CRC Press, 2012.
LIM, TEIK-CHENG, **Nanosensors, Theory and Applications in Industry**, Healthcare and Defense. CRC Press, 2011
Artigos da literatura científica