

FACULTY OF MICROSYSTEM ELECTRONICS AND PHOTONICS

SPECIALIZED COURSES

- Prof. Sergiusz Patela

Advanced photonic structures

The aim of the course is to present the current state of knowledge and applications of photonic structures, including in particular: selected aspects of semiconductor structures (epitaxy), properties of quantum structures, technologies and properties of advanced optoelectronic devices, basic structures and technologies of advanced photonics structures, advanced semiconductor sources light and radiation detectors, optical logic circuits, basics of nonlinear optics, properties and technologies of photonic crystals and finally introduction to Plasmonic.

- Prof. Rafał Walczak

Emerging microengineering and microsystem technologies

The course covers issues related to the latest knowledge on technologies in microengineering and microsystems. In particular it covers such problems as additive printing technologies (2D, 3D, 4D, roll-to-roll), manufacturing technologies of microelectronic and microsystem devices. Additionally, it is meant to discuss development aspects and trends of microsystems technology, with particular emphasis on vacuum nanoelectronics and microsystems for harvesting and accumulating energy from the environment. The last but not the least the applications of analytical microsystems for medicine and veterinary medicine will be presented.

- prof. Artur Wymysłowski

Micromechatronic systems in automatics and robotics

The aim of the course is to provide the current state of knowledge, design methods and application examples of micromechatronic systems in automation and robotics. The content contains a functional description of micromechatronic systems and interdisciplinary prototyping methods including such aspects as microcromechanics, electromagnetics, thermodynamics, fluid flows, software engineering in order to integrate a micromechatronic systems into a complex device, which can be used in automation and robotic applications. The scope of the course includes such theoretical aspects as basics of micromechanics, electronics, material engineering, control systems (detectors, sensors, actuators, drives), analog and digital electronics, software engineering, numerical methods, interdisciplinary modelling, computer simulations and optimization

ADDITIONAL M.Sc. LEVEL COURSES THAT CAN BE TAKEN BY Ph.D. STUDENTS

ETD008081 Statistics for EPM

ETD008082 Numerical Methods

ETD008083 Optimization Methods

ETD008084 Solid state electronics

ETD008085 Nanotechnology

ETD008564 Optical Fibers

ETD008566 Autonomous Power Supplying Systems

ETD008567 MOEMS

ETD008568 Vacuum and Plasma Techniques

ETD009078 Sensors and actuators

ETD009079 Diagnostics and Reliability

ETD009571 Optical-Fiber Networks

ETD009572 Operating Systems

ETD009574 Photovoltaics

ETD009575 Microsystem modeling

ETD009576 Analytical Microsystems