Level: PhD

Course title: Plasma technologies

Status: elective

ECTS: 15

Requirements: Introduction to Plasma Technologies

Learning objectives

Obtaining knowledge about the basic processes in plasma technologies concerning their wide applications.

Learning outcomes

Developed abilities:

- General: general knowledge about plasmas application;
- Specific: knowledge about specific technologies, which can be transferred in practice.

Syllabus

Theoretical instruction

Basic theory of ionized gases. Equilibrium plasmas. Non-equilibrium plasmas. Models od RF and DC discharges. Plasma interaction with surfaces. Discharges on atmospheric and high pressures. Application of plasma chemistry. Thin layers deposition. Ion implantation. Plasma etching. Production of the integrated circuits. Glow discharges. Inductively coupled plasmas. Gaseous lasers. Plasma polymerization. Sterilization by plasmas. Hardness of tool surfaces. Plasmas in energetics. Fusion. Plasma switches. Deposition of carbon layers. Fulerens and nanotubes.

Practical instruction

Plasma interaction with surfaces at atmosphere pressure. Example of MHD generator. Use of plasma switches.

Weekly teaching load				Other:
Lectures: 4	Exercises:	Other forms of teaching:	Student research: 6	