Level: master

Course title Laser tissue interactions

Status: elective

**ECTS**: 9

Requirements: Fundamentals of laser physics or Physics and technology of lasers

## Learning objectives

Introduce students to the basic processes of interaction of laser radiation with tissue, laser applications in medicine and diagnostics by domains and the security of working with different types of lasers.

## Learning outcomes

-To introduce students to the basic knowledge for understanding the fundamental physical principles underlying the surgical, diagnostic and therapeutic applications of laser radiation in medicine.

-Students learn to work with the simplest laser systems.

## Syllabus

Theoretical instruction

Laser light and matter. Optical properties of tissue. Photon transport through tissue. Medical lasers. Interaction mechanisms. Photochemical, thermal, photomechanical and photodynamic interaction. Biostimulation. Optothermal interaction and application. Plasma induced ablation. Photodestruction. Applications of laser radiation interaction with tissue in different areas of medicine. Tissue diagnostic using lasers. Laser safety.

Practical instruction

The exercises that follow the content of lectures.

Weekly teaching load				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 1	Student research:	