The aim of the subject is to provide a detailed description of the laser systems currently used in both scientific and industrial fields. Specific attention will be paid to cutting-edge applications.

The subject will begin with a brief introduction to the basic concepts of lasers. We will work on characteristics and properties of electromagnetic radiation emitted by lasers, components needed and techniques involved in shaping and characterization of laser beams. Laser beam interaction with materials will be studied in detail.

The final part will deal with laser system, their specifications, control and integration in automatic systems. Scientific and Industrial applications will be studied with special interest.
### Content

**- Laser fundamentals.**

Degree competences to which the content contributes:

**- Laser beam characterization, shaping and transmission.**

Degree competences to which the content contributes:

**- Laser beam interaction with materials.**

Degree competences to which the content contributes:

**- Laser systems.**

Degree competences to which the content contributes:

**- Laser systems applications.**

Degree competences to which the content contributes:

### Qualification system

- Homework
- Final project
- Exam

### Regulations for carrying out activities

The usual in University teaching
Bibliography

Basic:


