UE Geometrical optics - PHY134 -

ECTS
3 crédits

Composante
Département de la licence sciences et technologies (DLST)

Période de l'année
Automne (sept. à dec./janv.)

> **Langue(s) d'enseignement:** Anglais

> **Ouvert aux étudiants en échange:** Non

Présentation

Description

This first year 3 ECTS course is the equivalent of PHY104 taught in English. It gives the basis of geometrical optics (Snell-Descartes laws, formation of images, lenses and optical systems with one or several lenses). It is taught with a problem-based learning (PBL) approach. The objectives are the following:

Analyze: understand how an optical system operates; know the conditions for total reflection; design an optical system from a specification; be able to search for information in an educational document and design an experimental protocol to verify hypotheses.

Perform: Apply Snell-Descartes' laws and conjugation relations, conduct a literal calculation; trace the light rays in an optical system that can contain one or more lenses, a prism, a mirror, a change of medium; Experimentally measure an optical index and a focal length; experimentally form images; measure the characteristics of an optical instrument (lateral and angular magnification).

Validate: Check the properties of the image through an optical system, by plotting light rays and experience; know the expected orders of magnitude of the parameters used; determine measurement uncertainties and use them to validas below.te or invalidate a model.

Communicate: work as a team, write a constructed and synthetic report.

Heures d'enseignement

UE Geometrical optics - TP	TP	10,5h
UE Geometrical optics - TD	TD	15h
UE Geometrical optics - CM	CM	4,5h

Période : Semestre 2

Infos pratiques

Campus

> Grenoble - Domaine universitaire