

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.)

Diplômes intégrant cet élément

- Licence Physique

- Langue(s) d'enseignement: Anglais
- Ouvert aux étudiants en échange: Oui

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 validate or invalidate a model.

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

Infos pratiques

Campus

➤ Grenoble - Domaine universitaire