Geometrical Optics Lab

Overview

The "Geometrical optics" lab is based on the NI Educational Laboratory Virtual Instrumentation Suite (NI ELVIS II or NI ELVIS II+)platform.

The "Geometrical Optics" lab is a portable highly functional, semi-automated educational solution to explore the word of optics and study the basics of fiber optical communication.

Students are able to control the light source behavior, use multiple lenses, measure reflected and transient light intensity, manipulate the color of the emitted light, imitate optical communication and implement highly visualized demonstrational experiments.It is the best way to use educational time more optimal and meantime implement real world impressive experiments.

Hardware and software

· NI ELVIS II (or NI ELVIS II+)
· Educational board "Geometrical Optics" for NI ELVIS II (or NI ELVIS II+)
· Samples for experiments (lens, optical filters, etc.)
· Software
· User Manual

Features

· Semiautomatic control
· High flexible architecture of the stand
· Students registration mechanism
· Experiment step-by-step instruction
· Graphical presentation of the results of experiments
· Saving the results of completed laborator

List of labs

1. Rectilinear propagation of ray
2. Rigidity-independent propagation of ray
3. Geometrical shadow
4. The Law of reflection
5. Total internal reflection
6. The Law of refraction
7. Ray refraction in triangle prism
8. Lenticular lens
9. Biconcave Lens
10. Filters
11. Optical fibers