

**Vocational School of Health Services / Opticianry**  
**2023 - 2024 Academic Year**  
**GEOMETRIC OPTICS in PHYSICS**  
**Syllabus**

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
GEOMETRIC OPTICS in PHYSICS	OPT1263380	Spring Semester	2+0	2	6
<b>Prerequisites Courses</b>					
<b>Recommended Elective Courses</b>					
<b>Language of Instruction</b>	Turkish				
<b>Course Level</b>	Short Cycle (Associate's Degree)				
<b>Course Type</b>	Required				
<b>Course Coordinator</b>	Lect. Cemil ÖZGÜL				
<b>Name of Lecturer(s)</b>	Lect. Cemil ÖZGÜL				
<b>Assistant(s)</b>					
<b>Aim</b>	Understanding light, physical properties of light and its interaction with matter.				
<b>Course Content</b>	This course contains; Introduction; Geometric optics and it's place and importance in physics,Light and optics,The nature of light,The wave model of light (wavelength, frequency, electromagnetic spectrum),Particle model of light (photon energy),Reflection laws,Fracture laws,Full reflection,Reflection laws in plane and spherical mirror,Fracture on global crushing surfaces,Lens,Thin-edged lens systems,Thick-edged lens systems,Optical systems.				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
At the end of this course, students can be able to1. Define the nature of light1.1. Define vibrating electric and magnetic fields.1.2. Explain Electromagnetic Waves.1.3. Explain an energy which is carries by the wave of Electromagnetic Waves.1.4. Define Particle Model of Light2. Learn a spread of light in space.2.1. Beam2.2. Define an approach of beam in the geometric optics2.3. Define the reflection of the light.2.4. Learn Refraction of Light.2.5. Learn Total Internal Reflection3. Define image formation in mirrors3.1. Learn image Formation in flat mirrors3.2. Learn image Formation of spherical mirrors4. Define lenses.4.1. Recognize thin lenses4.2. Learn image Formation in thin lenses4.3. Recognize the thick lenses and learn image Formation in it.			12, 16, 9	A	
<b>Teaching Methods</b>	12: Problem Solving Method, 16: Question - Answer Technique, 9: Lecture Method				
<b>Assessment Methods</b>	A: Traditional Written Exam				
<b>Lecture Schedule</b>					
<b>Sequenc e</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	Introduction; Geometric optics and it's place and importance in physics	Pre-Reading			
2	Light and optics	Pre-Reading			
3	The nature of light	Pre-Reading			
4	The wave model of light (wavelength, frequency, electromagnetic spectrum)	Pre-Reading			
5	Particle model of light (photon energy)	Pre-Reading			
6	Reflection laws	Pre-Reading			
7	Fracture laws	Pre-Reading			
8	Full reflection	Pre-Reading			
9	Reflection laws in plane and spherical mirror	Pre-Reading			
10	Fracture on global crushing surfaces	Pre-Reading			
11	Lens	Pre-Reading			
12	Thin-edged lens systems	Pre-Reading			
13	Thick-edged lens systems	Pre-Reading			
14	Optical systems	Pre-Reading			
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		40			
General Exam		60			

Resources
Dr. Hülya KURU MUTLU - Dr. Şadiye ÇAKMAK, Physics Geometric Optics I-II, 2019, Akademisyen Publishing House.