

<http://moodle.unigoa.ac.in/enrol/index.php?id=123>

Goa University Moodle

Optics

Home


Calendar

## Bridge Course in Optics

Home / Courses / Directorate of Digital Learning and Initiatives / Optics / Enrolment options

### Enrolment options

Bridge Course in Optics



This is an introductory course to optics. It includes geometrical optics, interference, diffraction and polarization of light. This course will be a pre requisite for the Advanced Optics Course (PHS-623).

Teacher: Sudhir Cherukulappurath  
Teacher: DDLI GU

Self enrolment (Student)

Guests cannot access this course. Please log in.

Continue

You are currently using guest access (log in)

**Programme:** M. Sc. (Physics)

**Course Code:** PHY-003

**Title of the Course:** Bridge Course in Optics

**Number of Credits:** 2

**Effective from AY:** 2022-2023

<b><u>Prerequisites for the Course:</u></b>	B. Sc. Levels courses on mechanics and mathematics	
<b><u>Course Objectives:</u></b>	This course aims to understand the various concepts of geometric and wave optics	
<b><u>Content:</u></b>	<b>1. Geometric Optics</b> Brief history, Propagation of light, Scattering, Reflection and Refraction of light, Fermat's principle, Ray equations, Refraction and reflection by spherical surfaces, Paraxial optics, lenses, mirrors, prisms, optical systems, Total internal reflection, thick lenses, Aberrations. Introduction to eyepieces, Ramsden and Huygens eyepieces.	6 hours
	<b>2. Wave Optics</b> Simple harmonic motion, vibrations, origin of refractive index, sinusoidal waves, one-dimensional wave equation, transverse and longitudinal vibrations, Huygen's principle, plane waves, spherical and cylindrical waves.	6 hours
	<b>3. Interference</b> Superposition of Waves, Division of wavefront & division of amplitude, Formation of colors in thin film- reflected system, transmitted system, wedge shaped film, Newton's Rings and its application to determine refractive index of liquid (Normal Incidence only), Interferometry: Michelson interferometer-its principle, working and its application to determine wavelength and difference between two wavelengths, Coherence.	6 hours
	<b>4. Diffraction</b> Fraunhofer diffraction, Single slit and Double slit patterns, Limit of resolution, Diffraction grating, Fresnel diffraction, zone-plates, Diffraction by circular discs and apertures, Holography.	6 hours
	<b>5. Polarization of light</b> Nature of polarized light, Dichroism, Birefringence, Scattering and Polarization, Polarization by reflection, Brewster angle, Circular polarizers, Wave plates.	
<b><u>Pedagogy:</u></b>	Online lectures and assignments	
<b><u>References/Readings</u></b>	1. Ajoy Ghatak, Optics, 7 <sup>th</sup> Edition, Tata-McGraw-Hill (2020).	

	<ol style="list-style-type: none"> <li>2. Eugene Hecht, Optics, Pearson, 5<sup>th</sup> Edition, (2019).</li> <li>3. Brij Lal, M N Avadhanulu &amp; N Subrahmanyam, A Textbook of Optics, 25<sup>th</sup> edition, S. Chand &amp; Company (2012).</li> <li>4. F.A. Jenkins and H.E. White, Fundamental of Optics, Tata McGraw-Hill (1981).</li> </ol>	
<b><u>Course Outcomes:</u></b>	<p>Students will be able to</p> <ol style="list-style-type: none"> <li>1. Understand geometrical and wave optics</li> <li>2. Understand phenomena of interference and diffraction</li> <li>3. Apply these phenomena to problems in Physics</li> <li>4. Understand concept of polarization of light.</li> </ol>	

# Bridge Course in Optics

[Dashboard](#) / [My courses](#) / [Directorate of Digital Learning and Initiatives](#) / [Optics](#) / [Participants](#)

## Participants

No filters applied



















































Enrol users

Search keyword or select filter ▼

Number of participants: 10

First name All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Surname All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Select	First name ^ / Surname	Email address	Roles	Groups	Last access to course	Status
<input type="checkbox"/>	 <a href="#">Akash K K</a>	phy.23p0430002@unigoa.ac.in	Student 	No groups	206 days 23 hours	Active   
<input type="checkbox"/>	 <a href="#">anirudh parsekar</a>	Phy.23P0430003@unigoa.ac.in	Student 	No groups	1 year 39 days	Active   
<input type="checkbox"/>	 <a href="#">Arya Naik</a>	phy.23p0430007@unigoa.ac.in	Student 	No groups	128 days 1 hour	Active   
<input type="checkbox"/>	 <a href="#">DDL GU</a>	ddli@unigoa.ac.in	Teacher, Course creator 	No groups	46 days 21 hours	Active   
<input type="checkbox"/>	 <a href="#">Govinda Fadte</a>	Phy.23P04300012@unigoa.ac.in	Student 	No groups	1 year 45 days	Active   
<input type="checkbox"/>	 <a href="#">Ruchita Gavde</a>	phy.23p04300035@unigoa.ac.in	Student 	No groups	1 year 45 days	Active   
<input type="checkbox"/>	 <a href="#">Samruddhi Gauns</a>	Phy.23P04300037@unigoa.ac.in	Student 	No groups	207 days 7 hours	Active   
<input type="checkbox"/>	 <a href="#">Simon Fernandes</a>	phy.23p04300043@unigoa.ac.in	Student 	No groups	1 year 45 days	Active   
<input type="checkbox"/>	 <a href="#">Sudhir Cherukulappurath</a>	sudhir.c@unigoa.ac.in	Teacher, Course creator 	No groups	21 secs	Active   
<input type="checkbox"/>	 <a href="#">suharsh padloskar</a>	Phy.23P04300044@unigoa.ac.in	Student 	No groups	1 year 45 days	Active   

Select all Deselect all With selected users... Choose...

Enrol users

 Moodle Docs for this page

You are logged in as Sudhir Cherukulappurath (Log out)

[Home](#)

[Data retention summary](#)

[Get the mobile app](#)