



MINISTRY OF EDUCATION AND CULTURE
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF NATURAL SCIENCES

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Undergraduate Programme in Science Education

Module Handbook

Module Name:	<i>Gelombang Optik</i> (wave and Optics)						
Module Level:	Bachelor degree/Undergraduate Programme						
Course Code:	8420103049						
Abbreviation, if applicable:	GO						
Courses included in the module, if applicable:	Not applicable						
Semester/term	VI/sixth year (senior)						
Module coordinator(s):	Dr. Mohammad Budiyanto, M.Pd.						
Lecturer(s):	Laily Rosdiana, S.Pd., M.Pd. An Nuril Maulida F., S.Pd., M.Pd.						
Language:	<i>Bahasa Indonesia</i> (Indonesian Language)						
Classification within the curriculum:	Compulsory / Elective						
Teaching format/class hours per week during the semester:	3 contact hours of lectures (Indonesia credit semester or <i>sks</i> *)						
Workload:	3 x 50 minutes lectures, 3 x 60 minutes structured activity, 3 x 60 minutes individual activity, 14 weeks per semester, 119 total hours per semester ~ 4.77 ECTS**						
Credit point:	3 <i>sks</i> (4.77 ECTS)						
Requirements:	General Physics (8420103045)						
Learning goals/competencies:	<p>Course Learning Outcomes (CLOs): After taking this course, students will be able to:</p> <ol style="list-style-type: none"> Utilizing science and technology to trace data and information about properties of waves and optics and their use, as well as a tool to communicate search result Analyze wave symptoms and optics for solving relevant problems Able to make strategic decisions based on data and information about waves and optics through practicum activities in the laboratory Responsible for self learning, assignments, and agreements with colleagues 						
Content:	The basics of vibration, waves, light, optical devices and their application in everyday life						
Attribute Soft skill:	Discipline, collaboration, responsibility, and argumentation in the natural classroom setting						
Study/exam achievements:	<p>Students are considered to be competent and pass if at least get 40% of the maximum final grade. The final grade (NA) is calculated based on the following weight:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: yellow;">Assessment Components</th> <th style="background-color: yellow;">Percentage Contribution</th> </tr> </thead> <tbody> <tr> <td>Participation</td> <td>20%</td> </tr> <tr> <td>Assignment</td> <td>30%</td> </tr> </tbody> </table>	Assessment Components	Percentage Contribution	Participation	20%	Assignment	30%
Assessment Components	Percentage Contribution						
Participation	20%						
Assignment	30%						

	Mid-semester test	20%
	Final semester test	30%
	Total	100%
Learning Methods	Student-centered approach, deductive learning, lecturing, discussion, and presentation (structured activities), and flip learning	
Form of Media:	LCD, PowerPoint, hand out, simulation, and whiteboard and e-learning unesa (https://vinesa.unesa.ac.id/course/view.php?id=423)	
Literature (primary references):	<ol style="list-style-type: none"> 1. Bass, Michael. 1995. <i>Hand Book Of Optics</i>. United States: McGraw-Hill Office 2. Crowell, Benjamin. 2003. <i>Vibrations and Waves</i>. California: Fullerrton 3. Sahara Muslim. 2004. <i>Gelombang dan Optik</i>. Jakarta : Depdikbud Dikti 4. Serway, Raymond. A. 2012. <i>Serway College Physic 9 Edition</i>. Chengage Brain User. 	
Notes:	<p>*1 sks in learning process = three contact hours that consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.</p> <p>**1 sks = 1,59 ECTS</p>	