



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

Ketintang Campus, Jalan Ketintang, C3 Building, Surabaya 60231
 Website: <https://pendidikan-fisika.fmipa.unesa.ac.id/>, email: s1-pfis@unesa.ac.id

Undergraduate Programme of Physics Education

Module Handbook

Module Name :	<i>Optik</i> Optics
Module level :	Bachelor degree/Undergraduate Programme
Course Code :	8420302144
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	6/Third Year
Module coordinator(s)	Dr. Titin Sunarti.,M.Si
Lecturer(s):	Dra. Suliyanah, M.Si
Language:	<i>Bahasa Indonesia</i>
Classification within the curriculum:	Compulsory/ Elective
Teaching format/class hours per week during the semester:	3 contact hours of lectures (Indonesia credit semester or sks*)
Workload :	3 x 50 minutes lectures, 3 x 60 minutes structured activity, 3 x 60 minutes individual activity, 14 weeks per semester, 135 total hours per semester ~ 4.77 ECTS**
Credit Point:	3 sks (4.77 ECTS)
Requirements:	Basic Physics I Basic Physics II Modern Physics
Learning goals/competencies:	<ol style="list-style-type: none"> 1. Students are able to apply physical optical systems to the principles and equations of Huygens 2. Students are able to apply the basic concepts of physical optics to interference (wavefront splitting interferometer, and amplitude splitting). 3. Students are able to apply physical optics to various diffraction systems (Fresnell, Frounthoufer, single slit and diffraction grating). 4. Students are able to apply polarization systems to optical systems 5. Students are able to apply geometric optical systems on Fermat's principles of reflection and refraction 6. Students are able to apply the concept of geometric optics to optical instruments 7. Students are able to apply the light propagation system in medium and between mediums
Content	In this lecture, various fission and geometric optical systems are discussed, where physical optics will discuss: Huygens principle, interference (wavefront splitting interferometer, amplitude



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	splitter), diffraction (Fresnel, Frounthoufer, single slit and diffraction grating), polarization and geometric optics. Discusses Fermat's principles of reflection and refraction, optical devices and light propagation in and between mediums.										
Attribute Soft skill:	Scientific report, public speaking, and team work										
Study/exam achievements:	<p>Students are considered to complete the course and pass if they obtain at least 40% of maximum final grade. The final grade (NA) is calculated based on the following ratio:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Assessment Components</th> <th style="text-align: left;">Percentage of contribution</th> </tr> </thead> <tbody> <tr> <td>Participation</td> <td style="text-align: center;">20%</td> </tr> <tr> <td>Assignment</td> <td style="text-align: center;">30%</td> </tr> <tr> <td>Mid-semester test</td> <td style="text-align: center;">20%</td> </tr> <tr> <td>Final semester test</td> <td style="text-align: center;">30%</td> </tr> </tbody> </table>	Assessment Components	Percentage of contribution	Participation	20%	Assignment	30%	Mid-semester test	20%	Final semester test	30%
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Participation	20%										
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Final semester test	30%										
Learning Methods :	Student-centered approach, lecture and discussion, and presentations (structured activities)										
Form of Media:	<i>Power Point</i> slides, e-book file, and multimedia.										
Literature (primary references):	<ol style="list-style-type: none"> 1. Hecht, Eugene, Optics, 4thed. Addison Wesley. Addelphi University, 2002. 2. Pedrotti, S.L., Introduction to Optics, Edisi Kedua, Prentice HallInc., New Jersey, 1993. 3. A collection of articles from various international journals that cover the field of optical science and are relevant, which have a novelty aspect in the field of optical technology. 4. Gerd Keesser , "Optical Fiber Comunication" McGraw-Hill, 4 th edition, 2011. 5. Jenkins, F. A, and H. E. White, Fundamentals of Optics, McGraw-Hill, Kogakusha, Ltd., 4th edition, 1976. 6. Halliday, D dan Resnick, R., 2014,Fundamental of Physics, Edisi Kesepuluh,John Wiley & SonsInc., Kanada. 7. F. J. Bueche and D. A. Jerde, Principles of Physics, McGraw-Hill, 6th edition, New York, 1995. 8. D. C. Giancoli, Physics, Principles with Applications, 4th edition, Prentice Hall International, Inc., Englewood, New Jersey, 1995. 										
Notes:	*1 sks in learning process = three periods 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.										



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	**1 sks = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019
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