

Course	:	<b>Modern optics</b>
Module Level	:	Undergraduate
Code	:	FIO 301
Sub-heading, if applicable:	:	-
Courses included in the module, if applicable:	:	-
Semester/Term	:	6 <sup>th</sup> / Third Year
Module Coordinator(s):	:	Prof. Dr. Moh. Yasin
Lecturer(s):	:	Prof. Dr. Retna Apsari
Classification within the Curriculum	:	<del>Compulsory Course</del> / Elective Course
Workload	:	3 hours of lectures, 3 hours of structural activities, 3 hours of individual study, 13 weeks per semester, and total 117 hours per semester~ 3.9 ECTS*
Credit Points	:	3
Requirement(s)	:	Physics of Wave, Mathematical Physics III
Learning Outcome	:	
Learning Goals/Competences	:	<p><b>General Competence (Skill):</b> Students are able to:</p> <ol style="list-style-type: none"> <li>Understand principle of electromagnetic wave</li> <li>Understand principle of optical phenomena</li> <li>Understand principle of nonlinear optic</li> </ol> <p><b>Specific Competence:</b> Students are able to:</p> <ol style="list-style-type: none"> <li>Understand propagation of electromagnetic wave, reflection and refraction</li> <li>Understand interference, dispersion, coherence and Gaussian beams.</li> <li>Understand Fraunhofer and Fresnel diffraction</li> <li>Understand principle of holography</li> <li>Understand optical modulation</li> <li>Understand principle of nonlinear optics</li> </ol>
Contents	:	Electromagnetic Theory, Reflection and Refraction, Interference, Fourier Analysis, Dispersion, Coherence, Diffraction and Gaussian Beams, Fraunhofer Diffraction, Fresnel Diffraction, Holography, Optical Modulation, Nonlinear Optics.
Soft Skill Attribute	:	Dicipline, persistence
Study/Exam Achievements	:	Students are considered competent and eligible to pass the course upon obtaining at least 40 of maximum score for the exams (midterm test and final exam), structured activity (group discussion).

		<p>Final score is calculated as follow: 20% assignment + 35% midterm + 35% final exam</p> <p>Final grade is defined as follow:</p> <p>A : 75 – 100</p> <p>AB : 70 - 74.99</p> <p>B : 65 - 69.99</p> <p>BC : 60 - 64.99</p> <p>C : 55 - 59.99</p> <p>D : 40 - 54.99</p> <p>E : 0 - 39.99</p>
Forms of Media	:	Powerpoint slides, LCD projectors and whiteboards
Learning Methods	:	Lecture, assessments and group discussion
Referensi	:	<ol style="list-style-type: none"> <li>1. Guenther R.D., Modern Optics, Oxford University Press, 2015</li> <li>2. G. R. Fowles, Introduction to Modern Optics, Holt, Rinehart and Winston, Inc., 1989.</li> </ol>
Notes	:	<p>*Total ECTS = {(total hours workload x5 0 min)/60 min}/25 hours</p> <p>Each ECTS is equals with 25 hours</p>