

MODULE HANDBOOK

Course:	Physics of Waves
Module Level:	Undergraduate
Code:	FIT206
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	3 rd / Second Year
Module Coordinator:	Prof. Retna Apsari
Lecturer(s):	Adri Supardi Drs.,MS. and Jan Adi, S.Si. M.Si.
Language:	Bahasa Indonesia
Classification within the Curriculum:	Compulsory Course / Elective Course
Teaching format/ class hours per week during semester:	3 hours of lectures (50 minutes/hour)
Workload:	3 hours of lectures, 3 hours of tutorial and structured activities, 3 hours of individual activities, 13 weeks per semester, and total of 117 hours per semester ~ 3,9 ECTS*
Credit Points:	3
Requirement(s):	(FID101) Basic Physics I, (FID103) Basic Physics II and (MAD106) Calculus II
Learning Goals/Competencies:	<p>General Competence (Knowledge): The ability to formulate the concept of mechanical and electromagnetic waves physically and mathematically as well as its properties</p> <p>Specific Competence:</p> <ol style="list-style-type: none"> 1. Formulate the mathematical and physical principles of wave. 2. Formulate the basic principles of mechanical waves and electromagnetic waves. 3. Formulate the wave propagation in the boundary between medium. 4. To conduct analysis of electromagnetic wave propagation in media, especially waveguide.
Contents:	<p>Oscillation: Harmonics oscillation, coupled oscillator;</p> <p>Mechanical Waves: Wave equation, 1 D wave equation on a string, longitudinal wave in a gas, wave propagation in medium, sound wave, wave behaviour in the boundary between media, reflection dan transmission wave, Fourier analysis, wave modulation;</p> <p>Electromagnetic Waves: Maxwell equation and electromagnetic wave, properties of electromagnetic wave propagation, reflection and transmission, coherence, superposition, Interferensi, and diffraction, electromagnetic wave in conductive media, wave guide.</p>
Soft Skill Attribute:	Effort and ethic
Study/Exam Achievements:	Students are considered competent and eligible to pass the course

	<p>upon obtaining at least 50% of maximum score for the midterm test, final exam, quizzes and home work.</p> <p>Final score is calculated as follow: 20 % homework + 15% quizzes + 30% midterm test + 30% final exam + 5% soft skill.</p> <p>Final grade is defined as follow :</p> <p>A : 75 – 100 AB : 70 - 74.99 B : 65 - 69.99 BC : 60 - 64.99 C : 55 - 59.99 D : 40 - 54.99 E : 0 - 39.99</p>
Forms of Media:	Powerpoint slides, LCD projectors and whiteboards,
Learning Methods:	Lecture, discussion and tutorial
Literature(s):	<ol style="list-style-type: none"> 1. Pain, H.J. 2005. <i>The Physics of Vibrations and Waves</i>. John Wiley and Sons 2. Elmore, C.W. and M.A. Heald, <i>The Physics of Waves</i>, McGraw-Hill 3. Hecht, E and Alfred, Z., 1977., <i>Optics</i> , 3rd ed. Eddison-Wesley Publ. Comp, Sydney. 4. Tjia M.O., 1994, <i>Gelombang</i>, cetakan pertama. Dabara Publisher, Solo. 5. Guentter, 1990. <i>Modern Optics</i>. John Wiley and Sons. New York.
Notes:	*Total ECTS = {(total hours workload × 50 min) / 25 hours Each ECTS is equals with 25 hours.