

## MODULE HANDBOOK

Course:	<b>Experimental Physics I</b>
Module Level:	Undergraduate
Code:	FII201
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	4 <sup>th</sup> / Second Year
Module Coordinator:	Samian S.Si. M.Si.
Lecturer(s):	Samian S.Si. M.Si.; Drs. Djoni Izak Rudyarjo, M.Si.; Nuril Ukhrowiyah, S.Si., M.Si. and Drs. Trianggono Prijo.
Language:	Bahasa Indonesia
Classification within the Curriculum:	Compulsory Course / <del>Elective Course</del>
Teaching format / class hours per week during semester:	4 hours of lectures (50 minutes / hour)
Workload:	4 hours of doing worksheet and pretest preparation, 4 hours of laboratory work, 4 hours of group discussion, searching literature and writing , 13 weeks per semester, and total of 156 hours per semester ~ 5,2 ECTS*
Credit Points:	2
Requirement(s):	(FID103) Basic Physics I, (FIT206) Physics of Wave and (FID201) Modern Physics
Learning Goals/Competencies:	<p><b>General Competence (Skills) :</b></p> <ol style="list-style-type: none"> <li>1. Able to measure of magnitudes physical through the process of acquisition, processing, and data analysis;</li> <li>2. Able to report the results of measurement or experiment in accordance with the rules and regulations; and</li> <li>3. Able to explain the results of measurements based on the theory of optical physics, atomic and nuclear physics, material physics and biophysics which is used as a basis measurement or experiment.</li> </ol> <p><b>Specific Competence :</b></p> <ol style="list-style-type: none"> <li>1. Able to dependently measure, report and explain the results of measurements of optics experiment</li> <li>2. Able to dependently measure, report and explain the results of measurements of material experiment</li> <li>3. Able to dependently measure, report and explain the results of measurements of moder physics experiment</li> <li>4. Able to dependently measure, report and explain the results of measurements of biophysics experiment</li> <li>5. Able to report the result in the form of both paper and oral presentation</li> </ol>

Contents:	<p><b>Optics experiment;</b> Newton's rings, polychromatic grating diffraction, polarization by optical active materials, Michelson Interferometer.</p> <p><b>Material experiment:</b> Tensile and compressive strength, corrosion test, emissivity material.</p> <p><b>Modern physics experiment:</b> Frank_Hertz, Photoelectric Effect, Determining the electric unit charge after Millikan Oil and verifying the charge quantification, Deflection e/m.</p> <p><b>Biophysics experiment:</b> sphygmomanometers, electrostimulation, speed of sonic and ultrasonic wave.</p>
Soft Skill Attribute:	Effort and ethic
Study/Exam Achievements:	<p>Students are considered competent and eligible to pass the course upon obtaining at least 55</p> <p>Pretest 10% + activity daily practical 15 % + Precentation 15% + FinalExam 30% + report 30%</p> <p>Form of final exam is essay and practical test</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>
Form of Media:	Laboratory equipments
Learning Methods:	Practical in laboratory, discussion, demonstration of the model structure
Literature:	<ol style="list-style-type: none"> <li>1. Guidance book of experimental Physics I, Physics Departement, Universitas Airlangga</li> <li>2. Leybold, General Catalogue of Physics Experiments, 1998.</li> <li>3. Phywe, University Laboratory Experiments Physics, 1990.</li> <li>4. Krane, Keneth, Modern Physics, John Wiley &amp; Sons, Inc., 1992.</li> </ol>
Notes:	<p>*Total ECTS = {(total hours workload × 50 min) / 25 hours</p> <p>Each ECTS is equals with 25 hours.</p>