

## MODULE HANDBOOK

Course:	<b>Physics I</b>
Module Level:	Undergraduate
Code:	FID 113
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	1 <sup>st</sup> /First year
Module Coordinator (s):	Drs. R. Arif Wibowo, M.Si.
Lecturer (s):	Drs. R. Arif Wibowo, M.Si.; Prof. Dr. Suhariningsih; Dr. Moh. Yasin, M.Si.; Dr. Suryani D Astuti, M.Si.; A H Zaidan, S.Si., M.Si., Ph.D.; Drs. Adri Supardi, M.S.; Drs. Pujiyanto, M.S.; Drs. Siswanto, M.Si; Drs. Bambang, M.Si.; Suprijanto, M.Si.; Drs. Djoni Izak R., M.Si.; Supadi. S.Si., M.Si.; Imam S. S.Si., M.Si.; Jan Ady. S.Si., M.Si.; Samian. S.Si., M.Si.; and Dyah H., S.Si., M.Si.;
Language:	Bahasa Indonesia
Classification within the Curriculum:	Compulsory Course / <del>Elective Course</del>
Teaching format / class hours per week during the semester:	2 hours of lecturers (50 minutes per hour) and 1 hour (60 minutes) of tutorial
Workload:	2 hours of lecturers, 1 hour (60 minutes) of tutorial dan structured activities, 1 hour (60 minutes) of individual study, 13 weeks per semester, and total of 78 hours per semester ~ 2,6 ECTS*
Credit Points:	2
Requirement(s):	-
Learning Goals/ Competencies:	<p><b>General Competence (Knowledge):</b> To understand the concept of vectors and basic concepts and principles in mechanics, fluid, elasticity and oscilatory, sound waves, and thermodynamics.</p> <p><b>Specific Competence:</b></p> <ol style="list-style-type: none"> <li>1. To have an ability to apply the concept of vectors and Newton's laws for a single particle and for a system of particles in 1, 2, and 3 dimensions.</li> <li>2. To understand and able to apply the concept of work-energy for solving simple problems in mechanics.</li> <li>3. To have an ability to formulate, solve and analyze problems of statics and dynamics of rigid body systems.</li> <li>4. To understand and have an ability to solve problems in statics and dynamics of fluids.</li> <li>5. To understand and have an ability to solve problems in sound waves.</li> <li>6. To understand and have an ability to solve problems in thermodynamics.</li> </ol>
Contents:	Introduction of Physics, Measurement and Unit system, Vectors, Kinematics of Point Objects, Dynamics of Point Objects, Dynamics of Point Objects System, Rotational motion (angular momentum, rigid body rotation) Statics and dynamics of fluid, Elasticity and Oscilations, sound waves, and thermodynamics (Temperature, Kinetic theory of

	gases, Heat and Work, Laws of thermodynamics, Efficiency, and Carnot cycle).
Soft Skill Attribute:	Effort and ethic
Study/Exam Achievements:	<p>Students are considered competent and eligible to pass the course upon obtaining at least 40% of maximum mark of the exams and homeworks. Type of test is multiple choice.</p> <p>Final score is calculated as follow: 15% Homework + 15% (Quiz 1 &amp; 2) + 35% midterm test + 35% final exam.</p> <p>Final score is difined 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 and discussion
Literature(s):	<ol style="list-style-type: none"> <li>1. Alonso and Finn, <i>Fundamental University Physics, Vol. 1</i>, Addison Wesley, 1992,</li> <li>2. Tipler, P.A., Mosca G. <i>Physics for scientists and engineers</i> (5ed., extended version)</li> <li>3. Halliday, D., Resnick, R., and Walker, J., <i>Principle of Physics</i>, 9<sup>th</sup> edition (extended), John Wiley &amp; Sons, 2011</li> <li>4. Jewet, J.W. and Serway, R. A., <b>2006</b>, <i>Serway's Principles of Physics, A Calculus Based Text</i>, 4<sup>th</sup> Edition, Thomson &amp; Brooks/Cole, Australia</li> </ol>
Notes:	<p>The course is calculus based.</p> <p>*Total ECTS = {(total hours workload × 50 min) / 25 hours  Each ECTS is equals with 25 hours.</p>