



# THE MODULE HANDBOOK

## FACULTY OF BIOLOGY

### Physics

<b>Module code</b>	MSF 1107IUP
<b>Module level</b>	1 <sup>st</sup> year of Undergraduate Program in Biology
<b>Abbreviation, if applicable</b>	-
<b>Sub-heading, if applicable</b>	-
<b>Courses included in the module, if applicable</b>	-
<b>Semester/term</b>	Odd
<b>Module coordinator(s)</b>	Dr. Ari Dwi Nugraheni, M.Sc
<b>Lecture(s)</b>	Dr. Ari Dwi Nugraheni, M.Sc
<b>Language</b>	English
<b>Classification within the Curriculum</b>	Compulsory Course
<b>Teaching format/class hours per week during the semester</b>	This course is taught in semester 1, has been planned to have 13 or 14 week-meetings per semester and 2 – 3 weeks of examination. Combine with teacher centered method, Student Centered Learning (SCL) method using Problem Based Learning (PBL) approach is applied during some week teachings, especially when teaching topics need elaboration of students' knowledge.
<b>Workload</b>	Estimated working hour: 14 hours/week.
<b>Credit points</b>	2-1 credits
<b>Requirements</b>	-
<b>Learning goals/competencies</b>	<ol style="list-style-type: none"><li>1. Be able to present unit, calculate vector and calculus properly, and apply them in physics studies.</li><li>2. Be able to define: position, velocity, and acceleration of an object.</li><li>3. Be able to calculate effort by various of styles.</li><li>4. Be able to perform central force calculation and gravity parameters.</li><li>5. Be able to calculate kinetic energy and angular momentum of particles system.</li><li>6. Be able to calculate the humidity moment, and motion rolling.</li><li>7. Be able to calculate the humidity moment to the axis of Random.</li><li>8. Be able to formulate deviation and calculate physical</li></ol>



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	<p>parameters of vibration and wave.</p> <ol style="list-style-type: none"><li>9. Be able to calculate atmospheric pressure and fluid physical parameters.</li><li>10. Be able to calculate the intimate power of gas, and the temperature rises on substances.</li><li>11. Be able to calculate the amount of the electromagnetic waves.</li><li>12. Be able to count parameter on mirrors and lenses as well as be able to design optical devices.</li><li>13. Be able to calculate parameters: interference and diffraction of light.</li></ol>
<b>Content</b>	<p>This course learns about the basic concepts of physics, kinematics, dynamics, central force, system of particles, kinematics and dynamics of rigid body, the motion of a rigid body in space tridimensional, vibrations and waves, fluid mechanics, heat, electromagnetics waves, geometry optics and instrumentation optic, optical physics.</p>
<b>Study/ exam achievements</b>	<ol style="list-style-type: none"><li>1. Midterm: 40%</li><li>2. Final examination: 40%</li><li>3. Individual task: 10%</li><li>4. Group assignment: 10%</li></ol>
<b>Forms of media</b>	<p>White board, LCD and laptop</p>
<b>Literature</b>	<ol style="list-style-type: none"><li>1. Jati, B.M.E., 2002: Fisika Dasar I, Buku Ajar, UGM, Yogyakarta</li><li>2. Jati, B.M.E., 2002: Fisika Dasar II, Buku Ajar, UGM, Yogyakarta</li><li>3. Tipler, P. A., 1998. Fisika, Jilid I, Terjemahan, Penerbit Erlangga, Jakarta</li><li>4. Blatt, F.J., 1986: Principles of Physics, II<sup>nd</sup> edition, Allyn and Bacon, Inc., Boston</li></ol>