

## 220220641 Basic Physics

<b>Module Name</b>	<b>Basic Physics</b>
<b>Module Level, if applicable</b>	Beginner
<b>Code if Applicable</b>	220220641
<b>Subtitle, if applicable</b>	-
<b>Courses, if applicable</b>	220220641 Basic Physics
<b>Semester(s) in which the module is taught</b>	1st
<b>Person responsible for the module</b>	Devi Dwi Siskawardani, S.TP., M.Sc.
<b>Lecturer</b>	Dony Prasetyo, S. Pi., M.Si
<b>Language</b>	Indonesian
<b>Relation to curriculum</b>	Compulsory Course for undergraduate program in the Food Technology Department, Faculty of Agriculture and Animal Science
<b>Type of teaching</b>	Lecture, project
<b>Workload</b>	<ul style="list-style-type: none"> <li>• Lecture: 3 SKS X 50 minutes X 16 weeks</li> <li>• Project: 3 SKS X 60 minutes X 16 weeks</li> <li>• Independent learning: 3 SKS X 60 minutes X 16 week</li> </ul>
<b>Credit points</b>	3 SKS X 1.5 = 4,5 ECTS
<b>Requirements according to the examination regulations</b>	<ol style="list-style-type: none"> <li>1. Registered in this course</li> <li>2. Minimum 80% attendance in this course</li> </ol>
<b>Recommended prerequisites</b>	-
<b>Module Objectives (Intended learning outcomes)</b>	<p>After this course, the students will able to:</p> <ul style="list-style-type: none"> <li>• Understand the scope of physics in the field of processing industry</li> <li>• Understand and can do the practice problem for : work and energy kinetic, potential, power, speed, mass, and energy</li> <li>• Understand and can do the practice problem for : Stress, strain, elasticity and plasticity, and elastic modulus</li> <li>• Understand and can do the practice problem for : Hydrostatics in fluids, pressure measurement, vacuum pumps, and Archimedes</li> <li>• Understand and can do the practice problem for : Hydrodynacide and viscosity related to continuity</li> </ul>

	<p>equations, Bernouli equations and their applications, viscosity, Poissulle's and Stokes' laws</p> <ul style="list-style-type: none"> <li>• Understand and can do the practice problem for : temperature, thermometer, temperature scale (Celsius, Rankine, Fahrenheit), and expansion of solid and liquid substances, as well as heat transfer, heat quantity, heat capacity and measurement</li> <li>• Understand and can do the practice problem for : Thermal Properties of materials related to perfect gases, PVP laws, critical and triple points</li> <li>• Understand and can do the practice problem for : Laws of Thermodynamics related to adiabatic, isochoric, isothermal processes, Isobaric and its application</li> <li>• Understand and can do the practice problem for : Polarization, causes of polarization, and scattering of light and shadows as objects, thin lenses, divergent lenses, and related equipment</li> <li>• Understand and can do the practice problem for : Properties of light, light source, wave, speed of light, and refractive index inference principles, Young's experiment, thin membranes on glass, Fresnel diffraction, X-rays, Huygens principle, perfect reflection, refraction by prisms, disperse and rainbows</li> </ul>
<p><b>Module Content</b></p>	<p>This course introduces students to the fundamental principles of physics and their applications in the field of food science and technology. It explores the physical properties of food materials, the behavior of food systems under different conditions, and the underlying physics behind various food processing techniques.</p>

	The class activity used whiteboard and PowerPoint. It can add some tools to support some activities.
<b>Study and examination requirements and forms of examination</b>	<p><b>Cognitive:</b> Midterm exam, Final exam, Quizzes, Assignments</p> <p><b>Affective:</b> Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.</p>
<b>Media employed</b>	The course may be delivered through a combination of lectures, laboratory experiments, demonstrations, and problem-solving sessions. Students may engage in hands-on activities to apply theoretical concepts to real-world scenarios and conduct experiments to investigate the physical properties of food materials.
<b>Recommended Literature</b>	<p><b>For Class</b></p> <p><b>A. Compulsory</b></p> <ol style="list-style-type: none"> <li>1. Ling SJ., Sanny J., and Moebs W. 2016. University Physics Volume 1. OpenStax. USA.</li> </ol> <p><b>B. Option</b></p> <ol style="list-style-type: none"> <li>1. Incropera, F.P. and D.P de Win, 1990. Fundamental of Heat and Mass Transfer. John Wiley &amp; Sons. New York.</li> </ol>
<b>Date of Last Amendment</b>	20 <sup>th</sup> January 2022