

Course Code	TKIE161202	
Course Name	Engineering Physics	
Course Instructors	Priyatmadi; F Danang Wijaya; Oyas Wahyunggoro; Bambang Sugiyantoro; Yusuf Susilo Wijoyo;	
Course Type	Required	
Course Classification	Basic Science & Math	
Credit / Contact Hour per Week	4 / 200 minutes per Week	
Course Description	<p>Engineering Physics Course learns concepts and theories related to Unit System, Kinematics, Statics, Dynamics, Mechanics, Heat, Fluid Mechanics, Waves, Light and Optical Systems, Light Particle Properties</p> <p><i>(Matakuliah ini mempelajari konsep dan teori berkenaan dengan sistem satuan, kinematika, statika, dinamika, mekanika, panas, mekanika fluida, gelombang, cahaya dan sistem optik, sifat partikel cahaya)</i></p>	
Prerequisites Courses	Physics for Electrical Engineering (TKIE161102)	
Covered Student Outcome	Fundamental and Engineering Knowledge (a)	
Learning Outcome		
		Study Program Student Outcome
No	Learning Outcome	SO (a) – SO (k)
1.	Students are able to understand and know the aspects related to kinematics, mechanics, and able to apply Newton's laws in dynamic object and spinning motion. <i>(Mahasiswa mampu memahami aspek kinematika, mekanika, dan dapat menerapkan hukum-hukum Nuewton di gerakan translasi dan rotasi)</i>	Fundamental and Engineering Knowledge
2.	Students are able to understand and know the characteristics of heat, thermodynamic laws and thermal properties of objects. <i>(Mahasiswa mampu memahami karakteristik kalor, hukum-hukum termodinamika dan karakteristik termal benda)</i>	Fundamental and Engineering Knowledge
3.	Students are able to understand and analyze the mechanics and flow of non-viscous and viscous fluids, as well as cohesive forces in the liquid <i>(Mahasiswa mampu memahami dan menganalisis mekanika dan aliran fluida baik viskos maupun tidak, termasuk gaya kohesif di dalam fluida)</i>	Fundamental and Engineering Knowledge
4.	Students are able to understand the wave characteristics, their properties and energies, and finally their application to sound waves. <i>(Mahasiswa mampu memahami karakteristik dan energi gelombang, dan kemudian aplikasinya ke gelombang suara)</i>	Fundamental and Engineering Knowledge
5.	Students are able to understand and analyze light as a wave and its application to the optical system. <i>(Mahasiswa mampu memahami dan menganalisis cahaya sebagai gelombang dan aplikasinya ke sistem optis)</i>	Fundamental and Engineering Knowledge
6.	Students are able to understand and analyze light as particle and quantum mechanics principle with their application. <i>(Mahasiswa mampu memahami dan menganalisis cahaya sebagai partikel dan prinsip mekanika kuantum beserta aplikasinya)</i>	Fundamental and Engineering Knowledge

	[3] Young & Freedman, 2000, University Physics, Addison-Wesley Publishing Co.										
Topic	<ol style="list-style-type: none"> 1. Mechanics, Motions and Newton Laws (Mekanika, Gerakan dan Hukum Newton) 2. Heat and Thermodynamic Laws (Kalor dan Hukum Termodinamika) 3. Fluid Mechanics (Mekanika Fluida) 4. Mechanical and Sound Waves (Gelombang Mekanis dan Suara) 5. Light and Optical System (Cahaya dan Sistem Optis) 6. Quantum Mechanics (Mekanika Kuantum) 										
Direct Assessment	<table border="1"> <thead> <tr> <th>Direct Assessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Group Task ([0;20]%)</td> <td>LO1, LO2, LO3, LO4, LO5, LO6</td> </tr> <tr> <td>Quiz ([0;20]%)</td> <td>LO1, LO2, LO3, LO4, LO5, LO6</td> </tr> <tr> <td>Mid Exam (40%)</td> <td>LO1, LO4</td> </tr> <tr> <td>Final Exam (40%)</td> <td>LO2, LO3, LO5, LO6</td> </tr> </tbody> </table>	Direct Assessment Plan	Measured Learning Outcome	Group Task ([0;20]%)	LO1, LO2, LO3, LO4, LO5, LO6	Quiz ([0;20]%)	LO1, LO2, LO3, LO4, LO5, LO6	Mid Exam (40%)	LO1, LO4	Final Exam (40%)	LO2, LO3, LO5, LO6
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Indirect Assessment	Questionnaire (EDOM)										
References	<ol style="list-style-type: none"> [1] Sternheim MM., Kane JW., 1991, General Physics, John Wiley & Sons. New York [2] Ohanian, 1994, Principles of Physics, W. W. Norton & Company, New York [3] Young & Freedman, 2000, University Physics, Addison-Wesley Publishing Co. [4] Web 										

