

Course Code	TKIE161102
Course Name	Physics for Electrical Engineering (Course + Tutorial)
Course Instructors	F. Danang Wijaya; Eka Firmansyah; Oyah Wahyunggoro; Yusuf Susilo Wijaya; Bambang Sugiyantoro; Suharyanto
Course Type	Required
Course Classification	Basic Science & Math
Credit / Contact Hour per Week	4 / 200 minutes per Week
Course Description	This course is a physic freshman course with emphasis in the fundamental concepts, laws and theories of electromagnetism. The explanation of these concepts is tailored to be relevant in the context of electrical engineering and information technology.
Prerequisites Courses	-
Covered Student Outcome	Fundamental Engineering Knowledge (a)

Learning Mapping		
Code	Learning Outcome	Student Outcome (SO a - SO k)
LO1	Students are able to understand and explain the laws of physics related to electricity and magnetism.	Fundamental and Engineering Knowledge (a)
LO2	Students are able to translate natural phenomena related to electricity and magnetism into the principles of physics.	Fundamental and Engineering Knowledge (a)
LO3	Students are able to analyze and solve simple problems in the field of electrical and magnetic using the method of integral-differential calculus	Fundamental and Engineering Knowledge (a)
LO4	Students are able to analyze and interpret data or graphs related to electricity and magnetism and draw conclusions related to the laws of electrical and magnetic physics.	Fundamental and Engineering Knowledge (a)

Topic	<ol style="list-style-type: none"> 1. Introduction and electrostatics 2. Electric Field 3. Gauss Law 4. Electric potential 5. Capacitance and dielectric 6. Current and resistance 7. Electric circuit 8. Magnetic Field 9. Magnetic field sources 10. Electromagnetic induction 11. Inductance 12. Electric material 											
Direct Asessment	<table border="1"> <thead> <tr> <th>Direct Asessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Mid Exam</td> <td>LO1, LO2</td> </tr> <tr> <td>Final Exam</td> <td>LO3, LO4</td> </tr> <tr> <td>Quiz</td> <td>LO1, LO2</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Direct Asessment Plan	Measured Learning Outcome	Mid Exam	LO1, LO2	Final Exam	LO3, LO4	Quiz	LO1, LO2		
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	Mid Exam	LO1, LO2										
	Final Exam	LO3, LO4										
	Quiz	LO1, LO2										
Indirect Assesment	Questionnaire and direct communication											
References	[1] Halliday, D., Resnick R., 2013, Physics 9th Edition, John Wiley & Sons, Inc, [2] Ohanian, 1994, <i>Principles of Physics</i> , W. W. Norton & Company, New York [3] Young & Freedman, 2000, <i>Universitry Physics</i> , Addison-Wesley Publishing Co.											