



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Computer Science and Electronics

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Bachelor in Electronics and Instrumentation

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MODULE HANDBOOK

Module name	Physics 2
Module level	Undergraduate
Code	MFF-1012
Courses (if applicable)	Physics 2
Semester	Even
Contact person	Dr. Rinto Anugraha NQZ
Lecturer	Dr. Rinto Anugraha NQZ
Language	Bahasa Indonesia
Relation to curriculum	Compulsory Courses for undergraduate program in Bachelor of Electronics and Instrumentation
Type of teaching, contact hours	SCL (Student Centered Learning): Project-based learning (Team-based Project)/Case-based learning/PBL/other SCL methods
Workload	1. Lectures: 3 x 50 = 150 minutes per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes per week. 3. Self-Learning: 3 x 60 = 180 minutes per week.
Credit points	3 credit points
Requirements according to the Examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.
Recommended prerequisites	-
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: CO1 be able to master the concepts, theories, and laws of physics, especially on electricity, magnetism, electromagnetic waves, optics, and modern physics, then formulate them in mathematical formulas, solving physics problems related to the topics above. [PLO 2, PLO 5]. CO2 be able to explain various scientific phenomena in nature and in everyday life related to topics on electricity, magnetism, electromagnetic waves, optics, and modern physics based on the concepts, theories, and laws of physics that have been taught. [PLO 2, PLO 5]. CO3 study advanced fields of physics based on the fundamental physics knowledge that has been taught. [PLO 2, PLO 5].

	CO4 be able to work individually or in groups in experiments [PLO 3]. <table><tr><th colspan="2">PLO</th><th>CO 1</th><th>CO 2</th><th>CO 3</th></tr><tr><td rowspan="5">Program Learning Outcome (PLO)</td><td>PLO1</td><td></td><td></td><td></td></tr><tr><td>PLO2</td><td>√</td><td>√</td><td>√</td></tr><tr><td>PLO3</td><td></td><td></td><td></td></tr><tr><td>PLO4</td><td></td><td></td><td></td></tr><tr><td>PLO5</td><td>√</td><td>√</td><td>√</td></tr></table>	PLO		CO 1	CO 2	CO 3	Program Learning Outcome (PLO)	PLO1				PLO2	√	√	√	PLO3				PLO4				PLO5	√	√	√
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	PLO5	√	√	√																							
Media employed	Offline (LCD, PPT Slide, Whiteboard, Laptop) and Online (Zoom Meeting, Google Meet, Google Classroom)																										
Contents	1. Electrostatics I 2. Electrostatics II 3. Dynamic electricity 4. Magnetism I 5. Magnetism II 6. Maxwell's Equations 7. Electromagnetic Wave 8. Light and Optical Rays 9. Geometric Optics 10. Physical Optics 11. Modern Physics I 12. Modern Physics II 13. Modern Physics III 14. Modern Physics IV																										
Assessments and Evaluation	Cognitive: Midterm Exam, Final Exam, Assignments Psychomotor: Affective:																										
Reading List	1. Halliday, D., Resnick, R and Walker, J., 2018, Fundamental of Physics, Fundamental of Physics Extended, Edisi 11, John Wiley & Sons, Inc, USA. 2. Tipler, P.A., 2008, Physics for Scientists and Engineers, sixth edition, W. H. Freeman and Company, New York, USA 3. Raymond A. Serway, dan John Jewett, 2014, Physics for Scientists and Engineers, Brooks/Cole Cengage Learning, Singapore.																										