

**SEMESTER LEARNING ACTIVITY PLANS
(SLAP)
SEMESTER ODD 2022/2023**



Physics Undergraduate Study Program

Physics Department

Philosophy of Physics

MFF 3015/ 2 Credits

Lecturer Coordinator:

Dr. Arief Hermanto

**UNIVERSITAS GADJAH MADA
FACULTY OF MATHEMATICS AND NATURAL SCIENCE
2022**



Universitas Gadjah Mada
 Faculty of Mathematics and Natural Science
 Physics Department / Physics Undergraduate Study Program
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Code	Course Name	Credits (Credits)		Semester	Status	Prerequisite	
<i>MFF 3015</i>	<i>Philosophy of Physics</i>	<i>T: 2</i>	<i>P: ...</i>	<i>ODD</i>	<i>Compulsory</i>	<i>None</i>	
Short Description	This course is not technical-mathematical but logical-analytic verbal. Learning is carried out face-to-face and giving students literature study assignments (and then presenting them). Assessment is given in a balanced way between midterm exams, final semester exams, and assignments.						
Program Learning Outcomes (PLO) Imposed on the Course	<i>PLO 1</i>	<i>Attitude.</i> Have faith and fear of God Almighty, and apply good morals, ethics, initiative, and responsibility in completing their duties.					
	<i>PLO 2</i>	<i>Knowledge.</i> Able to explain theoretical concepts and principles of classical and modern physics and able to apply basic concepts of physics and related mathematical methods in finding solutions to physical problems.					
	<i>PLO 3</i>	<i>General Skills.</i> Able to communicate the results of problem studies and physical behavior both in writing and verbally, as well as being able to lead and collaborate at various levels of roles in a team.					
	<i>PLO 5</i>	<i>Long Life Learning.</i> Able to analyze various alternative solutions to physical problems and conclude them for appropriate decision-making, both in familiar and new problems.					
Course Outcomes (CO)	After completing this course, students are expected to be able to:						
	<i>CO1</i>	Students can express both orally and in writing various topics quite deep in the theory of relativity, quantum theory, and the fundamental differences between the two based on literature studies, not with mathematical equations but with the qualitative power of logical-analytic verbal expressions.					
The Correlation of CO to Learning Materials and Methods, and Time Allocation		Learning Materials			Learning Methods		Time Allocation
	<i>CO 1</i>	Logic					<i>2X50 minutes</i>
	<i>CO 1</i>	Logic					<i>2X50 minutes</i>
	<i>CO 1</i>	Logic					<i>2X50 minutes</i>
	<i>CO 1</i>	Relativity					<i>2X50 minutes</i>
	<i>CO 1</i>	relativity					<i>2X50 minutes</i>
	<i>CO 1</i>	Relativity					<i>2X50 minutes</i>
	<i>CO 1</i>	Logic and Relativity					<i>2X50 minutes</i>
	Midterm exam/Project Task Results/Case Analysis Results						
	<i>CO 1</i>	Quantum					<i>2X50 minutes</i>
	<i>CO 1</i>	Quantum Comparison and Relativity					<i>2X50 minutes</i>
	<i>CO 1</i>	Comparison of Quantum and Relativity					<i>2X50 minutes</i>
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	<i>CO 1</i>	Comparison of Quantum and Relativity		<i>2X50 minutes</i>
	<i>CO 1</i>	Quantum and Quantum-Relativity Comparison		<i>2X50 minutes</i>
	Final exams/ Project Task Results/Case Analysis Results			
Learning Methods	SCL (Student Centered Learning): Project-based learning (Team-based Project)/Case-based learning/PBL/other SCL methods			
Student Learning Experience	Take notes, collect literature and make ppt			
Access to Learning Media/ LMS and Offline and Online Percentage	Offline (LCD, PPT Slide, Whiteboard, Laptop) and Online (Zoom Meeting, Google Meet, Google Classroom)			
Assessment Methods and Synchronization with CO	Assessment Methods	Assessment Percentage	Criteria/ Indicators	CO1
	Participatory Activity*			
	Project Results/ Case Study Results/ PBL Results*			
	Cognitive			
	Assignment	30		√
	Midterm Exam	30		√
	Final Exam	40		√
	Total	100		
	*) can also be obtained from the Midterm or Final Exam as the result of participatory activities or project/ case study results. According to IKU 7, the percentage of project results/ case study/ PBL results is at least 50%.			
References	Main References; 1. R B Angel, 1980, Relativity : the theory and its philosophy Pergamon.. 2. S Cannavo, 2009, Quantum theory : a philosopher's overview, SUNY.. 3. A Hermanto, 2012, Bahan ajar Filsafat Fisika, FMIPA-UGM.			
Lecturers (Team Teaching)	1. Dr. Arief Hermanto			
Authorization	Date of Drafting	Lecturer Coordinator	Head of Curriculum Committee	Head of Study Program
		<i>Dr. Arief Hermanto</i>		<i>Dr. Eng. Ahmad Kusumaatmaja, S.Si., M.Sc.</i>

