# SEMESTER LEARNING ACTIVITY PLANS (SLAP) SEMESTER ODD/EVEN 2022/2023

## SENTESTER ODD/E VEN 2022/202



Physics Undergraduate Study Program Physics Department Laboratory Internship\*\*) MFF 2062/ 1 Credits

Lecturer Coordinator:

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### 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 Semester ODD/EVEN 2022/2023

**Document Number :** 

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## SEMESTER LEARNING ACTIVITY PLANS (SLAP)

Code	Course Name	Credits (Credits)	Semester	Status	Prerequisite				
MFF 2062	Laboratory Internship**)	<i>T: 1 P:</i>	ODD/EVEN	Compulsory	Basic Physics II Experiment (MFF1014)				
Short Description	The Laborat FMIPA UGM Ph provide mastery curriculum of the (PLO 1), Knowle of long life learni in the laboratory experiment with to on the practical m assisted practition	e Laboratory Internship course is a compulsory one-credit course in the 2021 Curriculum of the UGM Physics Study Program. The general objective of holding this Constitutional Court is to mastery of knowledge related to physics practicum material in the introductory lab. The 2021 um of the Courses Physics Study Program is associated with competencies in aspects of Attitude ), Knowledge (PLO 2), general skills aspects (PLO 3), special skills aspects (PLO 4), and aspects life learning/self-development (PLO 5). Learning is carried out based on a face-to-face schedule aboratory for eight weeks, with each week's meeting held for 180 minutes. The steps taken are to nent with the tool before starting the practicum, and then students are asked to make presentations practical material that will be assisted. Next are practicum activities and assessing the reports of practitioners.							
	PLO 1	Attitude. Have faith and fear of God Almighty, and apply good morals, ethics, initiative, and responsibility in completing their duties.							
Program Learning Outcomes (PLO) Imposed on the Course	PLO 2	Knowledge. 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.							
	PLO 3	General Skills. 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.							
	PLO 4	Special Skills. Able to design and carry out experiments/theoretical reviews, able to identify a physical problem based on the results of observations and experiments, and able to operate related technologies.							
	PLO 5	Long Life Learning. Able to analyze various alternative solutions to physical problems and conclude them for appropriate decision-making, both in familiar and new problems.							
	After completing this course, students are expected to be able to:								
	<i>C01</i>	Students can explain the concepts of mechanical phenomena and relate them to the basic concepts that have been obtained [PLO 1, PLO 2, PLO 4, PLO 5]							
	<i>CO2</i>	Students can explain the concepts of heat phenomena and relate them to the basic concepts that have been obtained [PLO 1, PLO 2, PLO 4, PLO 5]							
Course Outcomes (CO)	<i>CO3</i>	Students can explain the concepts of electrical phenomena and relate them to the basic concepts obtained. [PLO 1, PLO 2, PLO 4, PLO 5]							
	<i>CO4</i>	Students can explain the concepts that underlie optical phenomena and relate them to the basic concepts [PLO 1, PLO 2, PLO 4, PLO 5]							
	<i>C05</i>	Students can convey the results of their experiments in the form of written reports [PLO 3].							
	<i>CO6</i>	Students can work individually or in groups in experiments [PLO 3].							

		Learning Materials Learning Methods				ds	Time Allocation			
The Correlation of CO to	CO 1, CO 2, CO 3, CO 4, CO 5, CO 6	Measurement of the thermometer, air humidity, heat-electric equivalence, surface tension, the specific gravity of solids, Laplace constant, multimeter, OSK, incandescent lamp, earth magnet, transformer, Wheatstone bridge, mathematical swing, spring constant, modulus of elasticity of wire and rod, speed earth in air, physical swing, positive lens power, refractive index, microscope, light dispersion, positive and negative lens, mestatement						7X50 minutes		
Learning	Midterm exam/Project Task Results/Case Analysis Results									
Methods, and Time Allocation	CO 1, CO 2, CO 3, CO 4, CO 5, CO 6	Measurement of the thermometer, air humidity, heat-electric equivalence, surface tension, the density of solids, Laplace constant, multimeter, OSK, incandescent lamp, earth magnet, transformer, Wheatstone bridge, mathematical swing, spring constant, modulus of elasticity of wire and rod, velocity earth in the air, physical swing, positive lens power, refractive index, microscope, light dispersion, positive fan negative lens, photometer.			7X50 minutes					
Learning	SCL (Student Centered Learning): Project-based learning (Team-based Project)/Case-based									
Methods	learning/PBL/ot	her SCL metho	ods		8 (			,		
Student Learning Experience	Learn to study and review fundamental physics practicums in service laboratories related to mechanics, heat and thermodynamics, optics, electricity, and magnetism.									
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	Assessment Methods	Assessment Percentage	Criteria/ Indicators	CO1	CO2	CO3	CO4	CO5	CO6	
Synchronizatio n with CO	Participatory Activity*									

	Project Results/ Case Study Results/ PBL Results*								
	Cognitive		1			I .	1 -	1	
	Attendance	30		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Practicum Report	20		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Presentation	20		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Assistance Assesment	30		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	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. Buku Panduan Praktikum Fisika Dasar Layanan.								
Lecturers (Team Teaching)	<ol> <li>Dr. Sc. Ari Dwi Nugraheni</li> <li>Tim Laboratorium Fisika Dasar</li> </ol>								
Authorization	Date of Drafting	Lecture	er Coordinator	Ho Cur Con	ead of riculum nmittee	H	Head of Study Program		gram
		Dr. Sc. Ar	i Dwi Nugraheni			Kus	Dr. Eng. Ahmad Kusumaatmaja, S.Si., M		d , M.Sc.