	Universitas Negeri Surabaya **Faculty of Mathematics and Natural Sciences** **Undergraduate Physics Study Program**	**Document Code**

SEMESTER LEARNING PLAN

Courses	**CODE**	**Course Family**	**Credit Weight**			**SEMESTER**	**Compilation Date**
Physical Systems Analysis	4520102007		**T=2**	**P=0**	**ECTS=3.18**	4	July 18, 2024

AUTHORIZATION	**SP Developer**	**Course Cluster Coordinator**	**Study Program Coordinator**
	.....	.....	Prof. Dr. Munasir, S.Si., M.Si.

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix

P.O

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Short Course Description	Control Systems is a branch of science that studies electronic equipment related to systems and feedback control systems, as well as servo mechanisms, photovoltaics, photo conductive, photo electricity, and is also considered a sub-field of photonics. In this context, the light studied also includes all the spectrum of light in electromagnetic waves (electromagnetic spectrum) Control Systems - Applications and instrumentation of control systems Control Systems - Elements of instrumentation systems •Introduction to Control Systems •Mathematical Modeling •Laplace Transformation •Transfer Functions •Behavior 1st and 2nd Order System Dynamics •System Response
References	**Main :**

1. Ogata, K. 1995. Teknik Kontrol Automatik (Sistem Pengaturan) . Penerbit Erlangga.
2. Golnaraghi, F., Kuo, B.C. 2010. Automatic Control System . Ninth Edition. John Wiley & Sons, Inc.
3. Ogata, K. 2002. Modern Control Automatic. Fourth Edition. Pearson Education International.
4. Hunt, B. R., et al. 2001. A Guide to MATLAB. For beginner and Experienced User . Cambridge University Press.

Supporters:	
Supporting lecturer	Prof. Dr. Madlazim, M.Si. Dzulkiflih, S.Si., M.T. Endah Rahmawati, S.T., M.Si. Meta Yantidewi, S.Si., M.Si. Dr. Rohim Aminullah Firdaus, S.Pd, M.Si Dr. Muhimmatul Khoiro, S. Si.

Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline (*offline*)	Online (*online*)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1							0%
2							0%
3							0%
4							0%
5							0%
6							0%
7							0%
8							0%
9							0%
10							0%
11							0%
12							0%
13							0%
14							0%
15							0%
16							0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.

8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.