



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										
Advanced Electronics	4520102236		T=2	P=0	ECTS=3.18	5	July 17, 2024										
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator											
			Prof. Dr. Munasir, S.Si., M.Si.											
Learning model	Case Studies																
Program Learning Outcomes (PLO)	PLO study program which 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	The Advanced Electronics course covers the electronics material needed to condition signals. Signal conditioning includes: Analog signal conditioning using various op-amp circuits, instrumentation amplifiers and filters. Digital signal conditioners include digital to analog signal converters (DAC) and analog to digital signal converters (ADC)																
References	Main :																
	1. Rahmawati, E., Suchahyo, I . 2016. Hand-out dan LKM Elektronika Lanjut. Surabaya: Unpublished work. 2. Sutrisno . 1978. Elektronika 2. Teori dan Penerapannya. Penerbit ITB Bandung. 3. Sutrisno. 1990. Elektronika Lanjut. Penerbit ITB Bandung. 4. Jung, Walt . 2005. Op-Amps Application Handbook. Elsevier Ltd. 5. Zumbahlen, H . 2008. Linear Circuit Design Handbook. Analog Devices: Elsevier Ltd. 6. Gray, N . 2006. ABCs of ADCs. Analog-to-Digital Converter Basics. National Semiconductor.																
	Supporters:																
Supporting lecturer	Drs. Imam Suchahyo, M.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	Students understand and master the basics of signal conditioning	1.Students can explain the meaning of signal conditioning and examples 2.Students can create a block diagram of an instrumentation system	Criteria: Get full marks if you can complete all the tasks given	Lecture Discussion Problem solving Independent assignment 3 X 50			0%										

2	Students understand and master the basics of signal conditioning	<ol style="list-style-type: none"> 1. Students can explain the meaning of signal conditioning and examples 2. Students can create a block diagram of an instrumentation system 	Criteria: Get full marks if you can complete all the tasks given	Lecture Discussion Problem solving Independent assignment 3 X 50			0%
3	Understand various op-amp based analog signal conditioning circuits	<ol style="list-style-type: none"> 1. Students can explain the meaning of analog signal conditioning 2. Students can design analog signal conditioners in the form of amplifiers, adders, converters, buffers, filters and comparators using op-amps 3. Types of op-amps that are suitable for each signal conditioner 		Lecture Discussion Problem solving Practicum 3 X 50			0%
4	Understand various op-amp based analog signal conditioning circuits	<ol style="list-style-type: none"> 1. Students can explain the meaning of analog signal conditioning 2. Students can design analog signal conditioners in the form of amplifiers, adders, converters, buffers, filters and comparators using op-amps 3. Types of op-amps that are suitable for each signal conditioner 		Lecture Discussion Problem solving Practicum 3 X 50			0%
5	Understand various op-amp based analog signal conditioning circuits	<ol style="list-style-type: none"> 1. Students can explain the meaning of analog signal conditioning 2. Students can design analog signal conditioners in the form of amplifiers, adders, converters, buffers, filters and comparators using op-amps 3. Types of op-amps that are suitable for each signal conditioner 		Lecture Discussion Problem solving Practicum 3 X 50			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: Case Study

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.**