							Document Code

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

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Digital Signal Processing	4520103169		**T=3**	**P=0**	**ECTS=4.77**	5	July 18, 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 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	Signal classification; random signals, periodic signals, non-periodic signals, discrete signals, finite energy signals, Signal Inversion Fourier Transform, Laplace transform and discrete systems, convolution, correlation and coherence functions, Z-transformation, Fast Fourier Transform, digital filters, sampling and analysis, spectral analysis. Applying learning methods Lectures, discussions, questions and answers and independent assignments

References	Main :	

1. Alan V, Oppenhem, Alan S, Willsky, S, Hamid Wahab.2000. Sinyal & Sistem.Erlangga
2. Steven W, Smith, The Scientist and Engineer's Guide to.2004.Digital Signal Processing, Second Edition. California Technical Publishing San Diego, California
3. J.G. Proakis and D.G. Manolakis.1992. Digital Signal Processing : Principles, Algprithms and Application. MacMilan Publishing. ISBN 0-02-396815-X
4. Edmund lai, , 2003.Prctical Digital Signal Processing For Enggineer and Technicians, Newnes, Elsevier. Digital Signal Processing and Digital Filtering, White

Supporters:	

Supporting lecturer	Dzulkiflih, S.Si., M.T.

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	- Understand digital signal management	explains the basic concepts of digital signal processing	**Criteria:** active in attending lectures	discussion, problems that occur with 5 X 50 digital processing			0%

2	- Understand digital signal management	explains the basic concepts of digital signal processing	**Criteria:** active in attending lectures	discussion, problems that occur with 3 X 50 digital processing			0%
3	Students can explain the concepts of DFT (Discrete Fourier Transforms) and FFT (Fast Fourier Transforms)	explain discrete transformations	**Criteria:** activeness in lectures	Discussion, and ask the answer 3 X 50			0%
4	Students can explain the concepts of DFT (Discrete Fourier Transforms) and FFT (Fast Fourier Transforms)	explain discrete transformations	**Criteria:** activeness in lectures	Discussion, and ask the answer 3 X 50			0%
5	Students can explain the Z transformation	explains the concept of Z transformation and inverse Z transformation with (Power series, partial, fraction and residue	**Criteria:** ask actively	discussion and questions and answers 3 X 50			0%
6	Students can explain the Z transformation	explains the concept of Z transformation and inverse Z transformation with (Power series, partial, fraction and residue	**Criteria:** ask actively	discussion and questions and answers 3 X 50			0%
7	Students are able to explain the Z transformation in digital signal processing	understand correlation calculations with convulsion	**Criteria:** active asking and answering	solving method, discussion and presentation 3 X 50			0%
8	Students are able to explain the Z transformation in digital signal processing	understand correlation calculations with convulsion	**Criteria:** active asking and answering	solving method, discussion and presentation 3 X 50			0%
9	explain the relationship between correlation and convolution	Students understand the relationship between correlation and convolution,	**Criteria:** seriousness in attending college	understand the relationship between the two and its implementation 3 X 50			0%
10	explain the relationship between correlation and convolution	Students understand the relationship between correlation and convolution,	**Criteria:** seriousness in attending college	understand the relationship between the two and its implementation 3 X 50			0%
11							0%
12	Students can explain digital filters	Understand the various types of digital filters	**Criteria:** activeness in attending lectures	discussion presentation and questions and answers 3 X 50			0%
13	Students are able to design digital filters	Filter specifications to be designed, realization of digital filters and ability to design digital filters	**Criteria:** -	Lectures, assignment discussions and questions and answers 3 X 50			0%
14	Students are able to design digital filters	Filter specifications to be designed, realization of digital filters and ability to design digital filters	**Criteria:** -	Lectures, assignment discussions and questions and answers 3 X 50			0%

| 15 | Students are able to design digital filters | Filter specifications to be designed, realization of digital filters and ability to design digital filters | **Criteria:** - | Lectures, assignment discussions and questions and answers 3 X 50 | | | 0% |
| 16 | | | | | | | 0% |

<u>**Evaluation Percentage Recap: Case Study**</u>

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.