	Universitas Negeri Surabaya Faculty of Engineering, Mechanical Engineering Undergraduate Study Program	Document Code	

SEMESTER LEARNING PLAN

Courses		CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Numerical Methods		2120102054		T=2	P=0	ECTS=3.18	7	July 18, 2024
AUTHORIZATION		SP Developer		Course Cluster Coordinator			Study Program Coordinator	
		....		....			Ir. Priyo Heru Adiwibowo, S.T., M.T.	

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	Understanding Modeling and error analysis, roots of equations, systems of linear algebraic equations, curve fitting, numerical integration, numerical differentiation, ordinary and partial differential equations, matrices, interpolation theory, examples and case studies.

References	**Main :**
	1. Indra Herlamba Siregar, Diktat Metoda Numerik, 2014. Steven C. Chapra , APPLIED NUMERICAL METHODS WITH MATLAB FOR ENGINEERS AND SCIENTISTS, THIRD EDITIOn, McGraw-Hill Companies, Inc 2012 Curtis F,Gerald & Patrick O., *Wheatly AppliedNumerical Analysis* , 5th edition Adison Wisley Pub. Comp 1994 Atkinson,Kendall., *Elementary Numerical Analysis* ,John Wiley & Sons, New York, 1993
	Supporters:

Supporting lecturer	Iskandar, S.T., M.T. Indra Herlamba Siregar, S.T., 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 what and the function of the Numerical Metda course	-	**Criteria:** -	Lectures 2 X 50			0%
2	Students understand the solution of Non-Linear Press	Students are able to complete the Non-Linear Press	**Criteria:** -	Live Learning 2 X 50			0%
3	Students understand the solution of Non-Linear Press	Students are able to complete the Non-Linear Press	**Criteria:** -	Live Learning 2 X 50			0%
4	Students understand the solution of Non-Linear Press	Students are able to complete the Non-Linear Press	**Criteria:** -	Live Learning 2 X 50			0%
5	Students are able to solve Simultaneous Linear Algebra Equation problems	Students are able to solve Simultaneous Linear Algebra Equation problems	**Criteria:** -	Lectures and discussions 2 X 50			0%
6	Students are able to solve Simultaneous Linear Algebra Equation problems	Students are able to solve Simultaneous Linear Algebra Equation problems	**Criteria:** -	Lectures and discussions 2 X 50			0%
7	Students understand Regression	Students are able to solve regression problems	**Criteria:** -	Lectures and discussions 2 X 50			0%
8	Students understand Regression	Students are able to solve regression problems	**Criteria:** -	Lectures and discussions 2 X 50			0%
9	-	-	**Criteria:** Attached	- 2 X 50			0%
10	Students understand Interpolation	Students are able to solve interpolation problems	**Criteria:** -	Lectures and discussions 2 X 50			0%
11	Students understand Interpolation	Students are able to solve interpolation problems	**Criteria:** -	Lectures and discussions 2 X 50			0%
12	Students understand the Numerical Integration Formula	Students are able to solve Numerical Integration Formula problems	**Criteria:** -	Lectures and discussions 2 X 50			0%
13	Students understand the Numerical Integration Formula	Students are able to solve Numerical Integration Formula problems	**Criteria:** -	Lectures and discussions 2 X 50			0%
14	Students understand the function of Numerical Integration	Students are able to solve Numerical Integration Function problems	**Criteria:** -	Lectures and discussions 2 X 50			0%
15	Students understand the Numerical Integration Function	Students are able to solve Numerical Integration Function problems	**Criteria:** -	Lectures and discussions 2 X 50			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.