		Document Code
Universitas Negeri Surabaya **Faculty of Engineering,** **Undergraduate Study Program in Informatics Engineering**		

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Biometric System	5520203083		**T=3**	**P=0**	**ECTS=4.77**	7	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	....	....	Aditya Prapanca, S.T., M.Kom.

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	Biometrika contains engineering systems related to biometrics as well as bioinformatics itself, including applications related to security, health or clinical details.

References	**Main :**

1. 1. Jang JSR., Neuro Fuzzy & Soft Computing, Prentice Hall, 1997
2. Purnomo,MH, Supervised Learning Neural Networks, Graha Ilmu. 2006
3. Russel Norvig, Artificial Intelligence A Modern Approach, Prentice Hall, 2003
4. Cormen T., Leiserson C., Rivest R., Stein C., Introduction to Algorithms, 2nd Edition, McG international Edition, 2004
5. Haykin, Neural Networks, 1999

	Supporters:

Supporting lecturer	Dr. Yuni Yamasari, S.Kom., M.Kom. Dr. Ricky Eka Putra, S.Kom., M.Kom.

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 and recognize the definition, types, how systems work and measure the performance of biometric systems	- Know about the definition and types of biometrics - Explain system applications for measuring biometric performance		Presentation, group discussion and reflection 3 X 50			0%

2	Understanding fingerprint biometrics and its applications	- Know the definition of fingerprints - Know the minutiae - Know fingerprint reading techniques - Get to know fingerprint identification Know image storage techniques		PBL and PjBL Presentation, discussion and reflection 3 X 50			0%
3	Understanding fingerprint biometrics and its applications	- Know the definition of fingerprints - Know the minutiae - Know fingerprint reading techniques - Get to know fingerprint identification Know image storage techniques		PBL and PjBL Presentation, discussion and reflection 3 X 50			0%
4	Understanding biometric signatures and their applications	- Understanding the meaning of signature biometrics - Understanding how signature biometrics works - Understanding signature image processing techniques Understanding the signature recognition training process by the system		PbLPjBLPresentation, discussion and reflection 3 X 50			0%
5	Understanding biometric signatures and their applications	- Understanding the meaning of signature biometrics - Understanding how signature biometrics works - Understanding signature image processing techniques Understanding the signature recognition training process by the system		PbLPjBLPresentation, discussion and reflection 3 X 50			0%
6	Understand hand biometrics and its applications	- Understand the meaning of hand geometry. Understand hand geometry identification techniques		PbLPjBL 3 X 50			0%
7	Understand hand biometrics and its applications	- Understand the meaning of hand geometry. Understand hand geometry identification techniques		PbLPjBL 3 X 50			0%
8	UTS			3 X 50			0%
9	Understanding facial biometrics and its applications	- Understand the meaning of facial geometry. Understand facial geometry identification techniques		PbLPjBL 3 X 50			0%

No							
10	Understanding facial biometrics and its applications	- Understand the meaning of facial geometry. Understand facial geometry identification techniques		PbLPjBL 3 X 50			0%
11	Understanding facial biometrics and its applications	- Understand the meaning of facial geometry. Understand facial geometry identification techniques		PbLPjBL 3 X 50			0%
12	Understanding iris, retina biometrics and their applications	- Get to know the iris and retina - Know the iris and retina reading techniques - Know the iris and retina identification techniques Get to know the iris and retina image storage techniques		PbLPjBL 3 X 50			0%
13	Understanding iris, retina biometrics and their applications	- Get to know the iris and retina - Know the iris and retina reading techniques - Know the iris and retina identification techniques Get to know the iris and retina image storage techniques		PbLPjBL 3 X 50			0%
14	Understanding voice biometrics and its applications	- Know the meaning of voice biometrics - Know how to identify voices Know voice image processing techniques		PbLPjBL 3 X 50			0%
15	Understanding voice biometrics and its applications	- Know the meaning of voice biometrics - Know how to identify voices Know voice image processing techniques		PbLPjBL 3 X 50			0%
16			**Form of Assessment** : Project Results Assessment / Product Assessment				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.