



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

Document Code

**SEMESTER LEARNING PLAN**

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>	<b>SEMESTER</b>	<b>Compilation Date</b>																																	
Artificial intelligence	5520203032		T=3 P=0 ECTS=4.77	3	July 17, 2024																																	
<b>AUTHORIZATION</b>	<b>SP Developer</b>		<b>Course Cluster Coordinator</b>		<b>Study Program Coordinator</b>																																	
	.....		.....		Aditya Prapanca, S.T., M.Kom.																																	
<b>Learning model</b>	<b>Project Based Learning</b>																																					
<b>Program Learning Outcomes (PLO)</b>	<b>PLO study program that is charged to the course</b>																																					
	<b>PLO-2</b>	Able to design and simulate multi-platform technology applications that are relevant to the needs of industry and society using theoretical concepts in the field of computer science/informatics knowledge (KNO-02)																																				
	<b>PLO-4</b>	Have the ability to work in a team (SKI-01)																																				
	<b>PLO-7</b>	Ability to design, implement, and evaluate multi-platform computing-based solutions that meet organizational needs (COM-02)																																				
	<b>Program Objectives (PO)</b>																																					
	<b>PLO-PO Matrix</b>																																					
		<table border="1" style="margin: auto;"> <tr> <td style="width: 20%;">P.O</td> <td style="width: 20%;">PLO-2</td> <td style="width: 20%;">PLO-4</td> <td style="width: 20%;">PLO-7</td> <td style="width: 20%;"></td> </tr> </table>					P.O	PLO-2	PLO-4	PLO-7																												
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<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																						
	<table border="1" style="margin: auto;"> <tr> <td rowspan="2" style="width: 5%;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 5%;">1</td> <td style="width: 5%;">2</td> <td style="width: 5%;">3</td> <td style="width: 5%;">4</td> <td style="width: 5%;">5</td> <td style="width: 5%;">6</td> <td style="width: 5%;">7</td> <td style="width: 5%;">8</td> <td style="width: 5%;">9</td> <td style="width: 5%;">10</td> <td style="width: 5%;">11</td> <td style="width: 5%;">12</td> <td style="width: 5%;">13</td> <td style="width: 5%;">14</td> <td style="width: 5%;">15</td> <td style="width: 5%;">16</td> </tr> </table>					P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																						
<b>Short Course Description</b>	Examining the concepts of soft computing, Perceptron, Neural Network, Fuzzy, Supervised Learning, and unsupervised Learning, as well as their applications in everyday life.																																					
<b>References</b>	<b>Main :</b>																																					
	<ol style="list-style-type: none"> <li>1. Jang JSR., Neuro Fuzzy &amp; Soft Computing, Prentice Hall, 1997</li> <li>2. Purnomo, MH, Supervised Learning Neural Networks, Graha Ilmu. 2006</li> <li>3. Russel Norvig, Artificial Intelligence A Modern Approach, Prentice Hall, 2003</li> <li>4. Cormen T., Leiserson C., Rivest R., Stein C., Introduction to Algorithms, 2nd Edition, McG international Edition, 20045. Haykin, Neural Networks, 1999</li> <li>5. Prihanto, PERBAIKAN LAYANAN ADMINISTRASI PEMBAYARAN SPP SANTRI DI PONPES AL FATTAH SIDOARJO YANG TERINTERGASI DENGAN CHATBOT TELEGRAM MESSANGER, 2021</li> <li>6. Tjahyaningtjas, PENINGKATAN SOFT SKILL MELALUI WORKSHOP PEMANFAATAN ENERGI RENEWABLE BERBASIS ARTIFICIAL INTELLIGENCE BAGI PELAJAR DAN MASYARAKAT DI MANILA 2024</li> <li>7. Buditjahjanto, Kartini, Anifah SOSIALISASI PENGGUNAAN TEKNOLOGI ENERGI TERBARUKAN PEMBANGKIT LISTRIK TENAGA MATAHARI BERBASIS ARTIFICIAL INTELLEGENCE DI KABUPATEN MOJOKERTO 2022</li> </ol>																																					
	<b>Supporters:</b>																																					
<b>Supporting lecturer</b>	Dr. Yuni Yamasari, S.Kom., M.Kom. Dr. Ricky Eka Putra, S.Kom., M.Kom.																																					
<b>Week-</b>	<b>Final abilities of each</b>	<b>Evaluation</b>	<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>	<b>Learning materials</b>	<b>Assessment Weight (%)</b>																																	

	learning stage (Sub-PO)	Indicator	Criteria & Form	Offline (offline)	Online (online)	[References]	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Understand the introduction to Artificial Intelligence	- Knowing about Artificial Intelligence - Explaining system applications regarding Artificial Intelligence in everyday life	<p><b>Criteria:</b></p> <ol style="list-style-type: none"> <li>1.The assessment criteria are carried out by looking at aspects:</li> <li>2.1. Participation: carried out by observing student activities (weight 2)</li> <li>3.2. UTS: carried out with an assessment during the middle of the semester (weight 2)</li> <li>4.3. UAS: carried out every semester to measure all indicators (weight 3)</li> <li>5.4. Task: carried out on each indicator (weight 3)</li> <li>6.Student Final Grade:</li> <li>7.Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10.</li> </ol> <p><b>Form of Assessment</b> : Participatory Activities</p>	Presentation, group discussion and reflection 3 X 50		<p><b>Material:</b> Introduction to AI in everyday life</p> <p><b>Reference:</b> <i>Russel Norvig, Artificial Intelligence A Modern Approach, Prentice Hall, 2003</i></p>	5%
2	Create simple DSS software using Statistics	- Understand problem solving using statistics. Can create simple DSS programs using statistics	<p><b>Criteria:</b> -</p> <p><b>Form of Assessment</b> : Participatory Activities</p>	Presentation, discussion and reflection 1 X 50		<p><b>Material:</b> Simple DSS using Statistics</p> <p><b>Bibliography:</b> <i>Russel Norvig, Artificial Intelligence A Modern Approach, Prentice Hall, 2003</i></p>	5%
3	Create simple software using Perceptron	- Understanding Perceptron Can create simple DSS programs using Perceptron	<p><b>Criteria:</b> -</p>	Presentation, group discussion and reflection 6 X 50			0%
4	Create simple software using Perceptron	- Understanding Perceptron Can create simple DSS programs using Perceptron	<p><b>Form of Assessment</b> : Participatory Activities</p>	Presentation, group discussion and reflection 6 X 50		<p><b>Material:</b> Create a simple program using Perceptron</p> <p><b>Library:</b></p>	20%

5	Create simple software using Neural Network (NN)	- Understand NN Can create simple programs using NN	<b>Form of Assessment</b> : Participatory Activities, Practical Assessment	Presentation, group discussion and reflection 9 X 50		<b>Material:</b> Creating a simple program using NN <b>Reference:</b> <i>Rusel Norvig, Artificial Intelligence A Modern Approach, Prentice Hall, 2003</i>	5%
6	Create simple software using Neural Network (NN)	- Understand NN Can create simple programs using NN	<b>Form of Assessment</b> : Participatory Activities	Presentation, group discussion and reflection 9 X 50			20%
7	Create simple software using Neural Network (NN)	- Understand NN Can create simple programs using NN		Presentation, group discussion and reflection 9 X 50			0%
8	UTS			3 X 50			0%
9	Create simple software using Fuzzy	- Understanding Fuzzy Can create simple programs using Fuzzy		Presentation, discussion and reflection 3 X 50			0%
10	Create simple software using Fuzzy	- Understanding Fuzzy Can create simple programs using Fuzzy	<b>Form of Assessment</b> : Practical Assessment	Presentation, discussion and reflection 3 X 50		<b>Material:</b> fuzzy <b>Reference:</b> <i>Jang JSR., Neuro Fuzzy &amp; Soft Computing, Prentice Hall, 1997</i>	10%
11	Create simple software using Fuzzy	- Understanding Fuzzy Can create simple programs using Fuzzy		Presentation, discussion and reflection 3 X 50			0%
12	Create simple software using SOM	- Understand SOM Can create simple programs using SOM	<b>Form of Assessment</b> : Participatory Activities	Project Based Learning 6 X 50			20%
13	Create simple software using SOM	- Understand SOM Can create simple programs using SOM		Project Based Learning 6 X 50			0%
14	Create simple software using LVQ	- Understand LVQ Can create simple programs using LVQ	<b>Form of Assessment</b> : Project Results Assessment / Product Assessment	Presentation, discussion and reflection 6 X 50			20%
15	Create simple software using LVQ	- Understand LVQ Can create simple programs using LVQ		Presentation, discussion and reflection 6 X 50			0%
16	UAS			3 X 50			0%

#### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	72.5%
2.	Project Results Assessment / Product Assessment	20%
3.	Practical Assessment	12.5%
		100%

## 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** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities 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.