



**Universitas Negeri Surabaya**  
**Faculty of Engineering,**  
**Mechanical Engineering Education Undergraduate Study**  
**Program**

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>																																										
Ergonomics	8320302028		T=2 P=0 ECTS=3.18	8	July 18, 2024																																										
<b>AUTHORIZATION</b>	<b>SP Developer</b>		<b>Course Cluster Coordinator</b>		<b>Study Program Coordinator</b>																																										
	.....		.....		Ir. Wahyu Dwi Kurniawan, S.Pd., M.Pd.																																										
<b>Learning model</b>	Case Studies																																														
<b>Program Learning Outcomes (PLO)</b>	PLO study program that is charged to the course																																														
	Program Objectives (PO)																																														
	PLO-PO Matrix																																														
		P.O																																													
	<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																														
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="text-align: center;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">8</td> <td style="text-align: center;">9</td> <td style="text-align: center;">10</td> <td style="text-align: center;">11</td> <td style="text-align: center;">12</td> <td style="text-align: center;">13</td> <td style="text-align: center;">14</td> <td style="text-align: center;">15</td> <td style="text-align: center;">16</td> </tr> </table>														P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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<b>Short Course Description</b>	This course provides an understanding of ergonomics as a science about the harmony of tools, work methods and work environments with human abilities and limitations in their efforts to increase comfort in their work environment, as well as being able to design products and work systems that comply with ergonomic rules so that working conditions are achieved & a healthy, safe, comfortable and efficient environment which ultimately creates productivity at work. The approach method is to analyze the physical relationship between humans and work facilities.																																														
<b>References</b>	<b>Main :</b>																																														
	<ol style="list-style-type: none"> <li>1. Nurmianto, E. Ergonomi. 2004. Konsep Dasar dan Aplikasinya . Penerbit Guna Widya Surabaya</li> <li>2. Sedarmayanti. 1996. Tata Kerja &amp; Produktivitas Kerja . Penerbit Mandar Maju Bandung.</li> <li>3. Niebel, B; Freivalds, A. 2004. Methods, Standards &amp; Work Design . McGraw Hill.</li> <li>4. Syafei, Y. 2007. Aplikasi Konsep Ergonomi Dalam Pengembangan Desain Produk akan Memberikan Jual Produk Yang Tinggi &amp; Keunggulan Bersaing. Seminar Nasional : Ergonomic in Product Development</li> <li>5. Effendi, F. 2007. Ergonomi Bagi Pekerja Informa I. Cermin Dunia Kedokteran. No.154.</li> <li>6. Mc. Cormic EJ. 1971. Human Factor in Engineering . Mc, Graww Hill Book company New York AS.</li> <li>7. Bridger, RS. 1995. Introduction to Ergonomic . Mc, Grawhill.</li> </ol>																																														
	<b>Supporters:</b>																																														
<b>Supporting lecturer</b>	I MADE MULIATNA Dyah Riandadari, S.T., M.T.																																														
<b>Week-</b>	<b>Final abilities of each learning stage (Sub-PO)</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>		<b>Learning materials [ References ]</b>	<b>Assessment Weight (%)</b>																																								
		<b>Indicator</b>	<b>Criteria &amp; Form</b>	<b>Offline ( offline )</b>	<b>Online ( online )</b>																																										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)																																								

1	Can describe Ergonomics	1. Explain the meaning of ergonomics 2. State the scope of ergonomics.	<b>Criteria:</b> Perfect score if answered correctly	Reading literature and listening to students' explanations 2 X 50			0%
2	Describing Human Machine Systems	1. Explain the meaning 2. State 3. Explain the relationship	<b>Criteria:</b> Perfect score if answered correctly	Reading literature and discussions. 2 X 50			0%
3	Can describe Motion Study & Work Design	1. Explain the meaning 2. State 3. Explain the principles of economic movement 4. Explain the procedures	<b>Criteria:</b> Excellent marks if answered correctly	Reading literature and listening to learner explanations and discussions 2 X 50			0%
4	Can describe Anthropometry	1. Explain the meaning 2. Mention the types of anthropometric data 3. Explain anthropometric procedures 4. Measure using anthropometric methods	<b>Criteria:</b> Perfect score if answered correctly	Read literature and listen to learner explanations and discussions. 2 X 50			0%
5	Can describe Anthropometry	1. Explain the meaning 2. Mention the types of anthropometric data 3. Explain anthropometric procedures 4. Measure using anthropometric methods	<b>Criteria:</b> Perfect score if answered correctly	Read literature and listen to learner explanations and discussions. 2 X 50			0%
6	Can describe Ergonomics Applications for Workplace Design	1. Explaining the description 2. Mentioning 3. Explaining the procedure	<b>Criteria:</b> Perfect score if answered correctly	Read literature and listen to learner explanations and discussions. 2 X 50			0%
7	Can describe Ergonomics Applications for Workplace Design	1. Explain the procedure 2. Apply ergonomics	<b>Criteria:</b> Perfect score if answered correctly	Read literature and listen to learner explanations and discussions. 2 X 50			0%
8	Midterm Examination (UAS)			2 X 50			0%
9	Can describe Energy Consumption for Heavy Work Activities	1. Explain the meaning 2. Mention	<b>Criteria:</b> Perfect score if answered correctly	Reading literature and listening to learner explanations and discussions 2 X 50			0%
10	Can describe Work Methodology Optimization	1. Explain the meaning 2. State 3. Explain the procedure	<b>Criteria:</b> Perfect score if answered correctly	Reading literature and listening to learner explanations and discussions 2 X 50			0%
11	Able to understand and describe biomechanics.	Can explain biomechanics.		Lectures, discussions, exercises. 2 X 50			0%

12	Can describe work environment factors	Explain the meaning of work environment factors that support performance	<b>Criteria:</b> Perfect score if answered correctly	Reading literature and listening to learner explanations and discussions 2 X 50		0%
13	Can describe Workplace Design	1. Explain the meaning of workplace design 2. State the importance of designing the workplace 3. Identify the need for workplace design	<b>Criteria:</b> Perfect score if answered correctly	Reading literature and listening to learner explanations and discussions 2 X 50		0%
14	Can describe work fatigue & rest time	1. Explain the meaning of fatigue and rest time. 2. Identify the causes of fatigue and the time needed for rest		Reading literature and listening to learner explanations and discussions 2 X 50		0%
15						0%
16	Final Semester Examination (UAS)			2 X 50		0%

#### Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
		0%

#### Notes

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Forms of assessment:** test and non-test.
- 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.
- 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.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- 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%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.