

		<b>Universitas Negeri Surabaya</b> <b>Faculty of Postgraduate School,</b> <b>Master of Technology and Vocational Education</b> <b>Study Program</b>					<b>Document Code</b>																																
		<b>SEMESTER LEARNING PLAN</b>																																					
<b>Courses</b>		<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>		<b>SEMESTER</b>	<b>Compilation Date</b>																																
Energy conversion		8310103011		T=3	P=0	ECTS=6.72	2 July 18, 2024																																
<b>AUTHORIZATION</b>		<b>SP Developer</b>		<b>Course Cluster Coordinator</b>		<b>Study Program Coordinator</b>																																	
		.....		.....		Dr. Ir. Achmad Imam Agung, 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																																						
		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td colspan="7">P.O</td></tr> </table>						P.O																															
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	PO Matrix at the end of each learning stage (Sub-PO)																																						
	<table border="1" style="margin-left: auto; margin-right: auto;"> <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	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>	This course is a skills course in Mechanical Engineering. This course studies a range of ways to convert one form of energy that exists in the world into another form that is more beneficial for human life. In this case, basic courses such as: heat transfer, fluid mechanics, thermodynamics and mathematics are needed as support so that this energy conversion material can be mastered well. Solar energy, wind energy, water energy, geothermal energy, ocean energy (waves, ocean currents, sea waves, etc.) can be converted into energy that humans really need, for example electricity, heat, etc.																																						
<b>References</b>	<b>Main :</b>																																						
	1. 1. El-Wakil, M.M; 1984; Power Plant Technology; McGraw-Hill Book Company; International Edition; Electrical and Mechanical Engineering Series; New York. 2. Obert, E.F; 1960; Concepts of Thermodynamic; McGraw-Hill Book Company; New York 3. Gerhart B; 1961; Heat Transfer; McGraw-Hill Book Company; New York																																						
	<b>Supporters:</b>																																						
<b>Supporting lecturer</b>	Prof. Dr. H. Muchlas, M.Pd. Prof. Dr. Ir. I Wayan Susila, 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							0%
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16							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.

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.