



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

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date																																
Diesel Motor Technology	8320302189		T=2 P=0 ECTS=3.18	4	July 17, 2024																																
AUTHORIZATION	SP Developer		Course Cluster Coordinator	Study Program Coordinator																																	
	Ir. Wahyu Dwi Kurniawan, S.Pd., M.Pd.																																	
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																																			
Short Course Description	Understanding of disassembling and disassembling Diesel motor components, how to overcome problems when problems occur, testing motor performance.																																				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="width: 10%; text-align: center;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 5%; text-align: center;">8</td> <td style="width: 5%; text-align: center;">9</td> <td style="width: 5%; text-align: center;">10</td> <td style="width: 5%; text-align: center;">11</td> <td style="width: 5%; text-align: center;">12</td> <td style="width: 5%; text-align: center;">13</td> <td style="width: 5%; text-align: center;">14</td> <td style="width: 5%; text-align: center;">15</td> <td style="width: 5%; 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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References	Main : 1. Petrovsky,N. 1968.Manne Internal Combustion Engine.Moscow: MIR Publisher.ObbertEdward F.Internal Combustion Engines andAir Polution. New York: Harper & Row.Anonim, 1995, NewStep 1 Training Manual. Jakarta: PT. Toyota Astra Motor.Anonim, 1995, Materi PelajaranEngine Group Step 2. Jakarta: PT. Toyota Astra Motor.																																				
	Supporters:																																				
Supporting lecturer	Iskandar, 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	Students can explain the history and working events of the diesel motor cycle	A) Students can explain the history of diesel engines. B) Students can explain how the diesel engine cycle works. C) Students can explain the thermodynamic phenomena of diesel motors	Criteria: Non Test	Scientific/Direct Intraction/Inquiry 2 X 50			0%
2	Students can explain the history and working events of the diesel motor cycle	A) Students can explain the history of diesel engines. B) Students can explain how the diesel engine cycle works. C) Students can explain the thermodynamic phenomena of diesel motors	Criteria: Non Test	Scientific/Direct Intraction/Inquiry 2 X 50			0%
3	Students can identify diesel motor components	A) Students can explain the function of diesel engine components. B) Students can explain how diesel motor components work	Criteria: Non Test	Scientific/Direct Intraction/Inquiry 2 X 50			0%
4	Students can analyze the construction and types of diesel motor combustion chambers	A) students can differentiate between direct injection and indirect injection combustion chamber types. B) Students can identify the advantages and disadvantages of diesel motors based on the combustion chamber design	Criteria: Non Test	Scientific/Direct Intraction/Inquiry 2 X 50			0%
5	Students can understand how the conventional diesel motor fuel system works	A) Students can identify the function of conventional fuel system components. B) Students can analyze how conventional fuel systems work	Criteria: Non Test	Scientific/Direct Intraction/Inquiry 2 X 50			0%
6	Students can understand how an in-line type injection pump works	A) Students can explain the function of in-line type pump components. B) Students can explain how the inline type pump components work	Criteria: Non Test	Scientific/Direct Intraction/Inquiry 2 X 50			0%
7	Students can understand how a rotary type injection pump works	A) Students can explain the function of the components of a rotary pump. B) Students can explain how the components of a rotary pump work	Criteria: Non Test	Scientific/Direct Intraction/Inquiry 2 X 50			0%

8	UTS	Students can answer questions regarding the diesel motor cycle, diesel motor components and conventional fuel systems	Criteria: online	Lectures, disassembly practice and trouble shooting. 2 X 50			0%
9	Students can understand how the electronic fuel system of a diesel motorbike (common rail) works	A) Students can explain the function of electronic fuel system components. B) Students can explain how the electronic fuel system components work	Criteria: Non Test	Scientific / Direct Intraction / Inquiry 2 X 50			0%
10	Students can understand how the electronic fuel system of a diesel motorbike (common rail) works	A) Students can explain the function of electronic fuel system components. B) Students can explain how the electronic fuel system components work	Criteria: Non Test	Scientific / Direct Intraction / Inquiry 2 X 50			0%
11	Students can understand how the diesel motor cooling system works	A) Students can explain the function of the components of a diesel motor cooling system. B) Students can explain how the components of a diesel motor cooling system work	Criteria: Non Test	Scientific / Direct Intraction / Inquiry 2 X 50			0%
12	Students can understand how the diesel motor lubrication system works	A) Students can explain the function of the components of a diesel motor lubrication system. B) Students can explain how the components of a diesel motor lubrication system work	Criteria: Non Test	Scientific / Direct Intraction / Inquiry 2 X 50			0%
13	Students can understand the advantages and disadvantages of diesel motor valve mechanism design	A) Students can explain valve diagrams, including open, close, over lapping valves. B) Students can explain the advantages and disadvantages of valve mechanism design. C) Students can explain valve mechanism technology	Criteria: Non Test	Scientific / Direct Intraction / Inquiry 2 X 50			0%
14	Students can understand how turbochargers and intercoolers work	A) Students can explain the function of the turbocharger and intercooler components. B) Students can explain how a turbocharger and intercooler work	Criteria: Non Test	Scientific / Direct Intraction / Inquiry 2 X 50			0%

15	Students can explain verbally and visually the diesel motor material they have studied	Students can present about diesel motorbikes		Individual presentation, Question and answer 3 X 50			0%
16							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** 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.**