



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

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit												
Machine Maintenance Engineering	8320302181		T=2 I												
AUTHORIZATION		SP Developer	Course Cluster Coordinator												
													
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)														
		Week													
			1	2	3	4	5	6	7	8	9	10	11	12	13
Short Course Description	This course explains machine maintenance management, the material discussed in this lecture includes: organization and administration of maintenance work, basic concepts of maintenance, planned maintenance, industrial maintenance, increasing maintenance work schedules, maintaining critical schedules on maintenance work, preventive maintenance, development and use of work standards in the maintenance, manager														
References	Main :														
	1. antohny corder, 1996, Teknik Manajemen Pemeliharaan, Erlangga, Campbell, John .D dan Jardine, Andrew K.S.,(2001), <i>Maintenance Excellence</i> , 1st edition, Marcel Dekker, Inc, New York-USA. Tobias, P. <i>Reliability</i> , 2nd edition, Kluwer Academic Publisher, Norwell, Massachusetts 02061 USA. Suharto.1989. <i>Manajemen perawatan mesin</i> . Jakarta : Rineka Cipta. Maintenance Engineering, Supandi, Manajemer Hand Book Bahan-bahan dari Internet dan kepustakaan lain														
	Supporters:														
Supporting lecturer	BUDIHARDJO ACHMADI HASYIM Dr. Yunus, M.Pd. Iskandar, S.T., M.T. Rachmad Syarifudin Hidayatullah, S.Pd., M.Pd.														
Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]	On										
		Indicator	Criteria & Form			Offline (offline)									
(1)	(2)	(3)	(4)	(5)											
1	Students are able to understand the basic concepts of machine maintenance techniques	Describe the basic concepts of machine maintenance techniques	Criteria: 10-100	%253Cspan%253Electure%252C%2520discussion%252C%2520ask%2520answer%252C%2520and%2520assignment%253C%252Fspan%253E 2 X 50											
2	Students can describe the basic concepts of care	Students can describe 1). Organization of the maintenance department, 2) factors influencing the formation of the maintenance department, 3) Basic concepts of the organization of the maintenance department, 4). Principles of organization of maintenance departments	Criteria: A) If the student can answer each question correctly, the score = 100, B) If the answer is less than perfect = 75	Combination, Lecture, Brainstorming, Discussion, Scientific 2 X 50											
3	Students can describe the planned treatment	Students can explain: 1) Factory operations, 2) Maintenance planning, 3) Considerations in maintenance planning, 4) Maintenance planning targets, 5) Effective maintenance work planning.	Criteria: A) If the student can answer each question correctly the score = 100, B) If the answer is less than perfect = 72	Combination, Lecture, Brainstorming, Discussion, Scientific 2 X 50											
4	Students can describe the planned treatment	Students can explain: 6) Problem determination, 7) The need for effective maintenance planning, 8) organizational systems for effective planning, 9) Work Estimation, 10) Benefits of planned maintenance	Criteria: A) If the student can answer each question correctly the score = 100, B) If the answer is less than perfect = 70	Combination, Lecture, Brainstorming, Discussion, Scientific 2 X 50											

5	Students can describe the support in the planned care system	Students can explain: 1) initial planning, 2) inventory, 3) identification of industrial facilities, 4) list of facilities, 5) list of maintenance plans, 6) work specifications, 7) maintenance program, 8) maintenance time planning, 9) work reports, 10) Historical notes	Criteria: A) If the student can answer each question correctly, the score = 100, B) If the answer is less than perfect = 70	Combination, Lecture, Brainstorming, Discussion, Scientific 2 X 50
6	Students can describe industrial maintenance	Students can explain: 1) maintenance department, 2) Duties of the maintenance department, 3) How to maintain, 4) Basic work in a preventive maintenance program, 5) Benefits of preventive maintenance, 6) Procedures for implementing preventive maintenance, 7) needs -the need for preventive maintenance purposes	Criteria: A) If the student can answer each question correctly, the score = 100, B) If the answer is less than perfect = 70	Combination, Lecture, Brainstorming, Discussion, Scientific, 2 X 50 presentations
7	Students can describe increasing maintenance work schedules	Students can explain: 1) Maintenance efficiency programs, 2) Inhibiting factors in work implementation, 3) practical methods in making maintenance schedules, 4) Chart making, 5) Gantt charts, 6) Resource planning projects	Criteria: A) If the student can answer each question correctly, the score = 100, B) If the answer is less than perfect = 70	Combination, Lecture, Brainstorming, Discussion, Scientific, 2 X 50 presentations
8	Students can spell and answer questions honestly and correctly	Students can answer questions honestly and correctly	Criteria: A) Explain how important machine maintenance management is? 10 marks B) Explain the types of machine maintenance? value 30 C) How do we determine the ideal type of machine maintenance? 10 marks D) Explain the factors that influence the effectiveness of machine maintenance? value 10 E) Create a machine maintenance scheme for 1 asset that you own? value 40	Online 2 X 50
9	Students can describe critical maintenance schedules in maintenance work	Students can explain: 1) What is a critical schedule, 2) Steps in making a critical schedule	Criteria: A) If the student can answer one of the questions correctly = 100, B) If the student gives an imperfect answer = 70	Combination, Lecture, Brainstorming, Discussion, Scientific, 2 X 50 presentations
10	Students can describe preventive maintenance	Students can explain: 1) Preventive maintenance system, 2) Corrective maintenance, 3) Control and evaluation of preventive maintenance	Criteria: A) If the student can answer one of the questions correctly = 100, B) If the student gives an imperfect answer = 70	Combination, Lecture, Brainstorming, Discussion, Scientific 2 X 50
11	Students can describe the development and use of occupational standards in nursing	Students can explain: 1) Standard types of work, 2) Use of standard data, 3) Control using standards	Criteria: A) If the student can answer one of the questions correctly = 100, B) If the student gives an imperfect answer = 70	Combination, Lecture, Brainstorming, Discussion, Scientific 2 X 50
12	Students can describe the management and control of spare parts	Students can explain: 1) spare parts control, 2) Functions of spare parts control, 3) Basics of spare parts control, 4) Economic order quantities, 5) Spare parts storage	Criteria: A) If the student can answer one of the questions correctly = 100, B) If the student gives an imperfect answer = 70	Combination, Lecture, Brainstorming, Discussion, Scientific, 2 X 50 presentations
13	Task presentation	Students can present the results of their work clearly and well	Criteria: A) Students can complete their assignments correctly and honestly Point 40, B) Students can prepare presentation materials well and interestingly, 30 C) Students can present clearly and well, Point 20, D) Students can answer questions when brainstorming Point 10	Online presentation and brainstorming 2 X 50

14	Task presentation	Students can prepare presentation materials and can present	Criteria: A) Students can complete their assignments correctly and honestly Point 40, B) Students can prepare presentation materials well and interestingly, 30 C) Students can present clearly and well, Point 20, D) Students can answer questions when brainstorming Point 10	Online presentation and brainstorming 2 X 50
15	Task presentation	Students can prepare presentation materials and can present	Criteria: A) Students can complete their assignments correctly and honestly Point 40, B) Students can prepare presentation materials well and interestingly, 30 C) Students can present clearly and well, Point 20, D) Students can answer questions when brainstorming Point 10	Online presentation and brainstorming 2 X 50
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Evaluation Percentage Recap: Project Based Learning

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.