



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

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date	
Standardization and Quality Control	2120102085		T=2	P=0	ECTS=3.18	6	July 18, 2024	
AUTHORIZATION		SP Developer		Course Cluster Coordinator		Study Program Coordinator		
			Ir. Priyo Heru Adiwibowo, S.T., M.T.		
Learning model	Case Studies							
Program Learning Outcomes (PLO)	PLO study program that is charged to the course							
	Program Objectives (PO)							
	PLO-PO Matrix							
		P.O						
Short Course Description	This course contains the influence of quality on modern business, quality control tools, control charts and acceptance sampling.							
	References							
Supporting lecturer	Main :							
	1. Douglas C. Montgomery, Pengantar Pengendalian Kualitas Statistik, Gajah Mada University Press, Yogyakarta, 1990 2. Eugene L. Grant, Richards Leavenworth, Pengendalian Mutu Statistik, Penerbit Erlangga, Jakarta, 1988 3. Praptono, Statistika Pengawasan Kualitas, Penerbit Karunika Jakarta, Universitas Terbuka, 1985 4. Badan Standard Nasional, Standard Nasional Indonesia, 2014.							
	Supporters:							
		UMAR WIWI Dyah Riandadari, 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 are able to explain their understanding of the meaning of quality, the influence of technology and quality assurance methods.	1. Understand the meaning of quality 2. Explain quality as the key to business success3. Explain the effect of an effective quality assurance program on increasing market penetration and productivity as well as reducing costs 4. Explain the relationship between technological development and new product development, competition and quality.		Lectures, discussions. 2 X 50			0%
2	Students are able to explain their understanding of statistical quality control.	1. Explain the statistical methods used in quality control2. Explain the benefits that can be gained by statistical quality control.		Lectures, discussions. 2 X 50			0%
3	Students are able to explain their understanding of standardization.	1. Understand the meaning of standardization 2. Explain the body responsible for standardization issues in Indonesia3. Explain examples of standards and how to measure them.		Lectures, discussions. 2 X 50			0%
4	Students are able to explain their understanding of quality control tools.	1. Explain how to make and the benefits of a checking sheet2. Explain how to make and the benefits of a histogram3. Explain how to make and the benefits of a Pareto diagram4. Explain how to make and the benefits of cause and effect diagrams 5. Explain how to make and the benefits of a defect concentration diagram6. Explain how to make and the benefits of scatter diagrams.		Lectures, discussions, exercises. 2 X 50			0%
5	Students are able to explain their understanding of variable control charts.	1. Calculate the control limits of the X and R2 maps. Draw maps X and R3. Analyzing X and R maps.		Lectures, discussions, exercises. 2 X 50			0%

6	Students are able to explain their understanding of rational grouping and group control charts.	1. Explain two ways of grouping according to production sequence. 2. Calculating control limits for group control charts. 3. Drawing a group control chart. 4. Analyze group control charts.		Lectures, discussions, exercises. 2 X 50			0%
7	Students are able to explain their understanding of \bar{X} , sigma control charts for large groups and for individual measurements.	1. Calculating control limits of control chart \bar{X} , large group sigma. 2. Drawing control chart. 3. Draw control charts for individual measurements.	Criteria: null	Lectures, discussions, exercises. 2 X 50			0%
8	Midterm Exam (UTS)	Able to explain the influence of quality in modern business, calculate and draw control charts and calculate acceptance sampling parameters.	Criteria: Compliance with the answer key.	Midterm Exam (UTS) 2 X 50			0%
9	Students are able to explain their understanding of process capability analysis.	1. Explain the meaning of process capability analysis. 2. Analyze process capabilities using histograms. 3. Analyze process capabilities using control charts.		Lectures, discussions, exercises. 2 X 50			0%
10	Students are able to explain their understanding of attribute control charts.	1. Calculate the control limits of the p map. 2. Drawing a p map. 3. Calculating control limits of map c . 4. Drawing a control chart c .		Lectures, discussions, exercises. 2 X 50			0%
11	Students are able to explain their understanding of single acceptance sampling.	1. Explain how to carry out single sampling. 2. Calculate the probability of acceptance (P_a). 3. Draw operating characteristic curve (OC). 4. Calculating expected damage in lots (AOQ). 5. Calculating average total inspection (ATI).		Lectures, discussions, exercises. 2 X 50			0%
12	Students are able to explain their understanding of designing a single sampling plan.	1. Explain how to determine n and c using a certain OC curve. 2. Explain how to determine n and c using nomography.		Lectures, discussions, exercises. 2 X 50			0%

13	Students are able to explain their understanding of multiple acceptance sampling.	1. Explain how to carry out double sampling 2. Calculate the probability of acceptance (Pa) for multiple sampling 3. Explain the KO curve in double sampling.		Lectures, discussions, exercises. 2 X 50			0%
14	Students are able to explain their understanding of designing multiple sampling plans.	1. Explain how to determine n1, n2 and c1, c2 when n1 = n2 using the Grubbs2 table. Explain how to determine n1, n2 and c1, c2 when n2 = 2n1 using the Grubbs table.		Lectures, discussions, exercises. 2 X 50			0%
15	Students are able to explain their understanding of the MIL STD 105 D sampling standard.	1. Determine the sample size and acceptance number for a certain number of products, in a single sampling 2. Determine the sample size and acceptance number for a certain number of products, in double sampling.		Lectures, discussions, exercises. 2 X 50			0%
16	Students are able to explain their understanding of acceptance sampling with variables.	1. Explain the weaknesses and advantages of variable acceptance sampling 2. Explain the variable sampling procedure using a frequency distribution.		Lectures, discussions, exercises. 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.

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.