



**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																																											
Standards and Quality Control	2120102086		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																																														
	PO Matrix at the end of each learning stage (Sub-PO)																																															
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td colspan="15" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 10%;"></td> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td> </tr> </table>															Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Week																																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																																
Short Course Description	Understanding of the influence of quality on modern business, quality control tools, control charts, acceptance sampling and national standards for quality management systems.																																															
References	Main :																																															
	1. Douglas.C.Montgomery, <i>Pengantar Pengendalian Kualitas Statistik</i> ,Gajah Mada University Press, Yogyakarta , 1990. Eugene.L.Grant, Richards.Leavenworth; <i>Pengendalian Mutu Statistis</i> ; Penerbit Erlangga, Jakarta , 1988 Praptono; <i>Statistika Pengawasan Kualitas</i> ;Penerbit Karunika Jakarta, Universitas Terbuka, 1985 Bahan-bahandari Internet dan kepustakaan lain																																															
	Supporters:																																															
Supporting lecturer	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.	Criteria: null	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 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%
4	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%
5	Students are able to explain their understanding of rational grouping and group control charts.	1. Explain two ways of grouping according to production sequence2. Calculating control limits for group control charts3. Drawing a group control chart 4. Analyze group control charts.		Lectures, discussions, exercises. 2 X 50			0%

6	Students are able to explain their understanding of X, sigma control charts for large groups and for individual measurements.	1. Calculating control limits of control chart X, large group sigma 2. Drawing control chart X, large group sigma 3. Calculating control limits of control charts for individual measurements4. Draw control charts for individual measurements.		Lectures, discussions, exercises. 2 X 50			0%
7	Students are able to explain their understanding of process capability analysis.	1. Explain the meaning of process capability analysis 2. Analyze process capabilities using histograms3. Analyze process capabilities using control charts.		Lectures, discussions, exercises. 2 X 50			0%
8	Midterm Exam (UTS).	Able to explain the influence of quality in modern business, calculate and draw 7 quality control tools 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 attribute control charts.	1. Calculate the control limits of the p2 map. Drawing a p3 map. Calculating control limits of map c4. Drawing a control chart c.		Lectures, discussions, exercises. 2 X 50			0%
10	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 (Pa)3. Draw operating characteristic curve (KO)4. Calculating expected damage in lots (AOQ)5. Calculating average total inspection (ATI)		Lectures, discussions, exercises. 2 X 50			0%
11	Students are able to explain their understanding of designing a single sampling plan.	1. Explain how to determine n and c using a certain KO curve2. Explain how to determine n and c using nomography.		Lectures, discussions, exercises. 2 X 50			0%
12	Students are able to explain their understanding of multiple acceptance sampling.	1. Explain how to carry out double sampling2. Calculate the probability of acceptance (Pa) for multiple sampling3. Explain the KO curve in double sampling.		Lectures, discussions, exercises. 2 X 50			0%

13	Students are able to explain their understanding of designing multiple sampling plans.	1. Explain how to determine n_1 , n_2 and c_1 , c_2 when $n_1 = n_2$ using the Grubbs2 table. Explain how to determine n_1 , n_2 and c_1 , c_2 when $n_2 = 2n_1$ using the Grubbs table.		discussion lectures, exercises. 2 X 50			0%
14	Students are able to explain their understanding of the MIL STD 105 D sampling standard.	1. Explain the procedure for standard sampling MIL STD 105 D2. Determining the sample size and acceptance number for a certain number of products, in a single sampling3. Determine the sample size and acceptance number for a certain number of products, in double sampling.		Lectures, discussions, exercises. 2 X 50			0%
15	Students are able to explain their understanding of the Dodge-Roaming sampling system.	1. Explain the procedures for the Dodge Roaming system. 2. Determine the sample size and sampling acceptance number with the Dodge Roaming system.	Criteria: null	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.