	Universitas Negeri Surabaya Faculty of Engineering Civil Engineering Undergraduate Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Project Quality Control	2220102160	Study Program Elective Courses	T=2	P=0	ECTS=3.18	5	April 28, 2023

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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Learning model	**Case Studies**

Program Learning Outcomes (PLO)

PLO study program that is charged to the course

Program Objectives (PO)

PO - 1	Students are able to have knowledge about project quality control for carrying out civil engineering work in the field.
PO - 2	Students are able to plan and implement a project quality control system when designing, implementing and supervising civil engineering work.

PLO-PO Matrix

P.O
PO-1
PO-2

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PO-1																
PO-2																

Short Course Description	This course contains basic concepts and statistical tools for quality control and how they apply to the construction industry. Basic concepts will include Definition, History and Quality Management Systems; Quality Management and QA/QC Organization; Construction Quality Assurance & Control; Quality Control at Project Stages; Quality/Quality Costs; Quality management system. Statistical tools for quality control include Statistical Process Control; Flow chart ; Check Sheet; Pareto Chart; Cause and Effect Diagram; Histograms ; Scatter Diagram ; Control Map; Process Capability. At the end of the lecture, case studies on quality control of building construction, road bridges and water structures were presented.

References

Main :

1. Tjiptono Fandy, & Diana Anastasia. 2001. Total Quality Management. Yogyakarta: Penerbit ANDI.
2. Soeharto Iman. 2001. Manajemen Proyek dari Konseptual Sampai Operasional Jilid 2.Jakarta: Erlangga.
3. M. Z. T. Yuri, Nurcahyo Rahmat. 2013. TQM Manajemen Kualitas Total dalam Perspektif Teknik Industri.Jakarta: Indeks.
4. Mears Peter. 1995. QualityImprovement Tools & Techniques. New York: McGraw-Hill.
5. Wiryodiningrat Prijono., et. al. 1997. ISO 9000 Untuk Kontraktor. Jakarta:Gramedia Pustaka Umum.

Supporters:

1. Journal of Construction Engineering and Management (ASCE)

Supporting lecturer	Krisna Dwi Handayani, S.T., M.MT., M.T. Ir. Mas Suryanto H.S., S.T., M.T. Alwan Gangsar Brilian Putra, S.Tr.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	Understand the meaning, history and quality management system.	Students can state the meaning and tell the history of quality	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** History of Quality Control **Literature:** *Tjiptono Fandy, & Diana Anastasia. 2001. Total Quality Management. Yogyakarta: ANDI Publishers.*	5%
2	Understand project quality management and QA/QC organizations.	1. Students can state the objectives of project quality management and explain its aspects 2. Students can describe the QA/QC Organizational Structure and the duties and responsibilities of each personnel	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Quality Control **Literature:** *Soeharto Iman. 2001. Project Management from Conceptual to Operational Volume 2. Jakarta: Erlangga.*	5%
3	Understand construction project quality assurance & control	Students can explain construction project quality assurance & control	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Quality Control **Literature:** *Soeharto Iman. 2001. Project Management from Conceptual to Operational Volume 2. Jakarta: Erlangga.*	5%
4	Understand quality control at the project stage.	1. Students can explain quality control at the engineering design stage 2. Students can explain quality control at the procurement stage 3. Students can explain quality control at the construction stage	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Quality Control **Literature:** *Soeharto Iman. 2001. Project Management from Conceptual to Operational Volume 2. Jakarta: Erlangga.*	10%
5	Understand and calculate quality costs.	Students can calculate and group quality costs and explain their behavior.	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Quality Costs **Literature:** *Tjiptono Fandy, & Diana Anastasia. 2001. Total Quality Management. Yogyakarta: ANDI Publishers.*	10%

6	Understand the quality management system.	Students can explain the quality management system.	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Quality Management System **Literature:** *MZT Yuri, Nurcahyo Rahmat. 2013. TQM Total Quality Management in an Industrial Engineering Perspective. Jakarta: Index.* **Material:** ISO 9000 For Contractors **Library:** *Wiryodiningrat Prijono., et. al. 1997. ISO 9000 for Contractors. Jakarta:Gramedia Public Library.*	5%
7	Understand the basics of Statistical Process Control, Flow Charts, and Check Sheets for quality control.	1. Students can explain the use of Statistical Process Control tools for quality control. 2. Students can make flow charts for quality control. 3. Students can create check sheets for quality control.	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Statistical Process Control **Literature:** *Tjiptono Fandy, & Diana Anastasia. 2001. Total Quality Management. Yogyakarta: ANDI Publishers.* **Material:** Flow Chart **Reader:** *MZT Yuri, Nurcahyo Rahmat. 2013. TQM Total Quality Management in an Industrial Engineering Perspective. Jakarta: Index.*	5%
8	Midterm Exam (UTS)						0%
9	Understanding Pareto's Diagrams and Cause and Effect Diagrams for quality control.	1. Students can draw Pareto's Diagram for quality control. 2. Students can draw Cause and Effect Diagrams for quality control.	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Pareto Diagram **Literature:** *Tjiptono Fandy, & Diana Anastasia. 2001. Total Quality Management. Yogyakarta: ANDI Publishers.* **Material:** Cause and Effect Diagram **Bibliography:** *Mears Peter. 1995. Quality Improvement Tools & Techniques. New York: McGraw-Hill.*	10%

10	Understand the creation and use of Histograms for quality control.	1. Students can make a Histogram. 2. Students can explain the use of Histograms for quality control.	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Histogram **Bibliography:** *Mears Peter. 1995. Quality Improvement Tools & Techniques. New York: McGraw-Hill.* **Material:** Histogram **Literature:** *MZT Yuri, Nurcahyo Rahmat. 2013. TQM Total Quality Management in an Industrial Engineering Perspective. Jakarta: Index.*	5%
11	Understand the creation and use of Scatter Diagrams for quality control.	1. Students can create a Scatter Diagram. 2. Students can explain the use of Scatter Diagrams for quality control.	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Scatter Diagram **Literature:** *Tjiptono Fandy, & Diana Anastasia. 2001. Total Quality Management. Yogyakarta: ANDI Publishers.* **Material:** Scatter Diagram **Literature:** *MZT Yuri, Nurcahyo Rahmat. 2013. TQM Total Quality Management in an Industrial Engineering Perspective. Jakarta: Index.*	5%
12	Understand the creation and use of Control Chart Diagrams for quality control.	1. Students can create Control Chart Diagrams. 2. Students can explain the use of Control Chart Diagrams for quality control.	**Criteria:** Good marks if questions are answered correctly. **Form of Assessment** : Participatory Activities	Lectures, discussions and questions and answers. 2 X 50	Lectures and questions and answers. 2 X 50	**Material:** Control Map **Bibliography:** *Tjiptono Fandy, & Diana Anastasia. 2001. Total Quality Management. Yogyakarta: ANDI Publishers.* **Material:** Control Map **Bibliography:** *Mears Peter. 1995. Quality Improvement Tools & Techniques. New York: McGraw-Hill.*	5%
13	Understand the quality control of building construction projects	Students can present quality control of building construction projects.	**Criteria:** Good marks if the presentation and questions can be answered well and correctly. **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations and group discussions. 2 X 50	Presentations and group discussions. 2 X 50	**Material:** Quality Control **Literature:** *Soeharto Iman. 2001. Project Management from Conceptual to Operational Volume 2. Jakarta: Erlangga.*	10%

14	Understand the quality control of road and bridge projects.	Students can present quality control of road and bridge projects.	**Criteria:** Good marks if the presentation and questions can be answered well and correctly. **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations and group discussions. 2 X 50	Presentations and group discussions. 2 X 50	**Material:** Quality Control **Literature:** *Soeharto Iman. 2001. Project Management from Conceptual to Operational Volume 2. Jakarta: Erlangga.*	10%
15	Understand the quality control of water construction projects.	Students can present quality control of water construction projects.	**Criteria:** Good marks if the presentation and questions can be answered well and correctly. **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations and group discussions. 2 X 50	Presentations and group discussions. 2 X 50	**Material:** Quality Control **Literature:** *Soeharto Iman. 2001. Project Management from Conceptual to Operational Volume 2. Jakarta: Erlangga.*	10%
16	Final Semester Examination (UAS)						0%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	55%
2.	Project Results Assessment / Product Assessment	45%
		100%

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.