



**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	
Materials Technology and Practical	2220103130		T=3	P=0	ECTS=4.77	1 July 18, 2024	
AUTHORIZATION		SP Developer	Course Cluster Coordinator		Study Program Coordinator		
			Yogie Risdianto, S.T., M.T.		
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	This course contains knowledge of building materials in the form of stone, hydraulic binding materials, wood, metal, floor covering materials, exterior and interior wall materials, ceiling covering materials, roof covering materials, and additives. Testing of paving stone, tile, wood, plywood and spec materials. The learning method used is a combination of direct and cooperative learning models.						
	References						
Supporting lecturer	Main :						
	1. Jackson, N. 1978. Civil Engineering Materials. Hongkong: ELB&Macmillan. 2. Puslitbang Pemukiman. 1982. Persyaratan Umum Bahan Bangunan di Indonesia. Bandung: Balitbang. PU. 3. Singh, G. 1979. Materials of Construction. Delhi: Standard Book Service. 4. Ringsun, I Nyoman. 2004. Buku Ajar Ilmu Bahan. Surabaya: Unesa University Press. 5. Brosur-brosur produk bahan bangunan.						
Supporters:							
Supporting lecturer		Arie Wardhono, S.T., M.MT., M.T., Ph.D. Meity Wulandari, 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 the origin and types of natural stone. Practicum: Introduction to materials	<ol style="list-style-type: none"> 1.Explain the circulation of natural stones 2.Explain the types of natural stone 3.Explain the arrangement of stone grains 4.Practicum: Explains the types of building materials for practicum 	Criteria: Full marks are obtained if you do all the questions correctly, writing, correct analysis of practical results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%
2	Students are able to explain the manufacturing process, requirements, and testing methods for bricks and bricks. Practicum: Introduction to building materials testing methods	<ol style="list-style-type: none"> 1.Explains the manufacturing process, requirements, and brick testing methods 2.Explains the manufacturing process, requirements, and brick testing methods 3.Practicum: Explains methods of testing building materials 	Criteria: Full marks are obtained if you do all the questions correctly, writing, correct analysis of practical results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%
3	Students are able to explain the types, properties, classes, defects and testing methods of wood as a building material Students are able to explain plywood as a building material Practical: Bricks, tiles, specs, paving blocks, wood and plywood	<ol style="list-style-type: none"> 1.Explains the types, properties, classes, defects, and testing methods of wood as a building material 2.Explain plywood as a building material 3.Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood 	Criteria: Full marks are obtained if you do all the questions correctly, writing, correct analysis of practical results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%
4	Students can explain various floor materials Students can explain various wall materials Practicum: Bricks, tiles, specs, paving blocks, wood and plywood	<ol style="list-style-type: none"> 1.Explain the various types of flooring materials 2.Explain the various types of wall materials 3.Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood 	Criteria: Full marks are obtained if you do all the questions correctly. Writing, correct analysis of practical results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%

5	Students can explain various types of ceiling covering materials. Students can explain various types of roof covering materials. Practicum: Bricks, tiles, specs, paving blocks, wood and plywood	<ol style="list-style-type: none"> 1.Explains the types, how to make, technical specifications, advantages, disadvantages, and how to install ceiling covering materials 2.Explains the types, how to make, technical specifications, advantages, disadvantages, and how to install roof covering materials 3.Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood 	Criteria: Full marks are obtained if you do all the questions correctly. Writing, correct analysis of practical results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals		0%
6	Students are able to explain various types of hydraulic binding materials. Practicum: Bricks, roof tiles, specs, paving blocks, wood and plywood	<ol style="list-style-type: none"> 1.Explain the types of lime, red cement, gypsum, tras, posolan, Portland cement, white cement, types of mortar 2.Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood 	Criteria: Full marks are obtained if you do all the questions correctly. Writing, correct analysis of practical results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals		0%
7	Students are able to explain various types of metal as building materials. Practicum: Bricks, roof tiles, specs, paving blocks, wood and plywood	<ol style="list-style-type: none"> 1.Explain steel as a building material 2.Explain aluminum as a building material 3.Explain zinc as a building material 4.Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood 	Criteria: Full marks are obtained if you do all the questions correctly. Writing, correct analysis of practical results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals		0%
8	Midterm Exam (UTS)	Able to do UTS questions correctly	Criteria: Full marks are obtained if you do all the questions correctly and present well	Written tests, assignments, presentations 3 X 50		0%

9	Students are able to carry out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups Practicum: Bricks, tiles, specs, paving blocks, wood and plywood	1. Carrying out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups 2. Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood	Criteria: Writing system, completeness and quality of the report, material presentation, group collaboration during the presentation Writing system, correct analysis of practicum results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%
10	Students are able to carry out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups Practicum: Bricks, tiles, specs, paving blocks, wood and plywood	1. Carrying out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups 2. Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood	Criteria: Writing system, completeness and quality of the report, material presentation, group collaboration during the presentation Writing system, correct analysis of practicum results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%
11	Students are able to carry out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups Practicum: Bricks, tiles, specs, paving blocks, wood and plywood	1. Carrying out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups 2. Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood	Criteria: Writing system, completeness and quality of the report, material presentation, group collaboration during the presentation Writing system, correct analysis of practicum results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%
12	Students are able to carry out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups Practicum: Bricks, tiles, specs, paving blocks, wood and plywood	1. Carrying out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups 2. Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood	Criteria: Writing system, completeness and quality of the report, material presentation, group collaboration during the presentation Writing system, correct analysis of practicum results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%

13	Students are able to carry out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups Practicum: Bricks, tiles, specs, paving blocks, wood and plywood	1. Carrying out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups 2. Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood	Criteria: Writing system, completeness and quality of the report, material presentation, group collaboration during the presentation Writing system, correct analysis of practicum results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%
14	Students are able to carry out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups Practicum: Bricks, tiles, specs, paving blocks, wood and plywood	1. Carrying out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups 2. Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood	Criteria: Writing system, completeness and quality of the report, material presentation, group collaboration during the presentation Writing system, correct analysis of practicum results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%
15	Students are able to carry out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups Practicum: Bricks, tiles, specs, paving blocks, wood and plywood	1. Carrying out presentations on the results of material technology practicums (bricks, tiles, specs, paving blocks, wood and plywood) in groups 2. Practicum: Carrying out practicums on bricks, tiles, specs, paving blocks, wood and plywood	Criteria: Writing system, completeness and quality of the report, material presentation, group collaboration during the presentation Writing system, correct analysis of practicum results, completeness of the report	Lectures, discussions, questions and answers, and 3 X 50 practicals			0%
16							0%

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.

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.