



**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										
Chemical Materials *	2220102033		T=2	P=0	ECTS=3.18	7	July 17, 2024										
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator											
			Yogie Risdianto, S.T., M.T.											
Learning model	Case Studies																
Program Learning Outcomes (PLO)	PLO study program which is charged to the course																
	Program Objectives (PO)																
	PLO-PO Matrix																
		P.O															
	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
Short Course Description	Concrete Technology, Concrete composition materials, Bonding reactions between the materials that make up concrete, Green concrete, Substitute materials and substitute materials as a substitute for one of the materials that make up concrete, Utilization of waste as one of the materials that make up concrete, Characterization of waste materials as a concrete mixture, disadvantages and advantages of materials resulting from the use of waste for concrete, wood as a construction material, characteristics of wood, methods and technology for processing wood as a construction material, characterization of substitute and additional materials in construction, properties and types of steel as a construction material																
References	Main :																
	<ol style="list-style-type: none"> 1. Soerjadi Sastra Atmaja. 1998. Bahan Bangunan. Bandung: Universitas Parahyangan 2. Standar Spesifikasi Bahan Bangunan. 1989. SK SNIS-04,05,06-1989F Jakarta: Departemen PU 3. Lyall Addeisson. 1972. Material for Building. Volume I-IV d 4. Kunadi, M. 1997. Teknologi Beton I: Bahan-bahan Campuran Beton. Bandung: FT Sipil ITB. 5. Karyoto. 2004. Konstruksi Baja 1 . Surabaya: JTS FT Unesa. 6. Gunawan T. dan Margareth S. 2007. Konstruksi Baja 1 . Jakarta: Delta Teknik 7. Puslitbang pemukiman. 1982. Persyaratan Umum Bahan Bangunan di Indonesia. Bandung: Balitbang 8. PU. h. Yustinus Suranto. 2002. Pengawetan Kayu. Yogyakarta: Kanisius 9. Suparji. 2007. Buku Panduan Pratikum Kayu . Surabaya: Unipress 10. Ruslan Ramang. 2012. Substitusi Agregat Halus Beton Menggunakan Kapur Alam dan Menggunakan Pasir Laut Pada Campuran Beton . NTT. Undana 																
	Supporters:																
Supporting lecturer	Krisna Dwi Handayani, S.T., M.MT., M.T. Arie Wardhono, S.T., M.MT., M.T., Ph.D.																
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 understand the concept of concrete and its constituent components	<ol style="list-style-type: none"> 1.Students can understand the purpose, benefits and types of concrete 2.Students can understand the advantages and disadvantages of concrete 3.Students can explain the components that make up concrete 	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%
2	Students understand the characteristics of concrete constituents	Students can understand the physical and chemical characteristics of concrete	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%
3	Students understand the reactions of concrete components, the bonding process and concrete care (curing).	<ol style="list-style-type: none"> 1.Students can explain the reactions of the components that make up concrete and the bonding process 2.Students can explain the types and methods of concrete care (curing) 	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%
4	Students understand about Green concrete and the concept of the components that make up Green concrete	<ol style="list-style-type: none"> 1.Students can understand the purpose, objectives and benefits of Green concrete 2.Students can understand the advantages and disadvantages of Green concrete 3.Students can understand the components that make up Green concrete 	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%
5	Students understand how to use waste for Green concrete (reaction concept)	<ol style="list-style-type: none"> 1.Students can name the types or types of waste for Green concrete 2.Students can explain the concept of reactions and how to use waste for Gree concrete 	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%

6	Students know about (international) journal case studies on the use of waste for Green concrete in the NSC, HSC and VHSC concepts Students know about (international) journal case studies on the use of waste for Green concrete in the NSC, HSC and VHSC concepts	1.Students can explain the concepts of NSC, HSSC and VHSC 2.Students can find out case studies from (international) journals on the use of waste for Green concrete in the NSC, HSC and VHSC concepts	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%
7	Students learn about case studies of buildings in various countries that adopt Green concrete	Students can provide examples of case studies of buildings in various countries that adopt Green concrete	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%
8	UTS	-	Criteria: -	- 2 X 50			0%
9	Students understand wood as a construction material and its uses	1.Students can understand wood as a construction material 2.Students can understand the types of wood and their distribution or habitat 3.Students can explain the various uses of wood	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%
10	Students know the physical, chemical characteristics of wood and its processing technology as a construction material	1.Students can understand the parts of wood and defects or wounds in wood 2.Students can understand the physical and chemical characteristics of wood 3.Students can explain various types of wood processing technology 4.Students can explain the methods and technology of processing wood for construction materials	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%

11	Students understand polymers and resins as supporting materials for processing wood as construction materials	<ol style="list-style-type: none"> 1. Students can understand the meaning and function of polymers and resins 2. Students can find out the characteristics and differences between polymers and resins 3. Students can explain the use of polymers and resins as supporting materials for processing wood for construction materials 	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50		0%
12	Students know examples of the use of wood as a construction material and its development	<ol style="list-style-type: none"> 1. Students can explain examples of the use of wood as a construction material 2. Students can learn about the latest technology and methods for processing and using wood as a construction material 	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50		0%
13	Students know the characteristics of replacement and additional materials in the world of construction and their functions	<ol style="list-style-type: none"> 1. Students can understand the characteristics of materials in the world of construction 2. Students can explain replacement and additional materials in the world of construction 3. Students can explain the function and role of replacement and additional materials 	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50		0%

14	Students understand the types, examples and descriptions of the characteristics of additional and replacement materials,	1.Students understand the types of characteristics of additional and replacement materials in the world of construction 2.Students can explain examples of additional and replacement materials in the world of construction 3.Students can explain the description of each additional and replacement material	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%
15	Students understand about steel and its constituent components	1.Students can explain the types, advantages and disadvantages of steel 2.Students can find out the components that make up steel	Criteria: Perfect score if answered correctly	Oral questions and answers Group discussion 2 X 50			0%
16							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** 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.
- 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.

