



**Universitas Negeri Surabaya  
Vocational Faculty,  
D4 Civil Engineering Study Program**

Document  
Code

**SEMESTER LEARNING PLAN**

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>	<b>SEMESTER</b>	<b>Compilation Date</b>		
Concrete Technology and Practicals	99992240104011		T=2   P=2   ECTS=6.36	2	July 17, 2024		
<b>AUTHORIZATION</b>	<b>SP Developer</b>		<b>Course Cluster Coordinator</b>		<b>Study Program Coordinator</b>		
	.....		.....		Puguh Novi Prasetyono, S.Pd., M.T.		
<b>Learning model</b>	Project Based Learning						
<b>Program Learning Outcomes (PLO)</b>	PLO study program that is charged to the course						
	Program Objectives (PO)						
	PLO-PO Matrix						
		P.O					
<b>Short Course Description</b>	This course provides an understanding of testing concrete materials including cement, fine aggregate, coarse aggregate, water and concrete mixing, transporting concrete mix, pouring concrete mix, compacting concrete mix, leveling work, maintenance work. The properties of fresh concrete include ease of work, separation of gravel, separation of water. Concrete mix planning includes characteristic concrete compressive strength, standard deviation of average compressive strength, type of cement used, shape and size and gradation of fine and coarse aggregate, cement water factor, minimum cement amount, number of test objects, compression test and processing. data using a direct learning model.						
	<p><b>References</b> <b>Main :</b></p> <ol style="list-style-type: none"> <li>1. Kardiyono Tjokrodimulyo. 1996. Teknologi Beton . Yogyakarta : Nafiri.</li> <li>2. Aman Subakti. 1984. Beton dalam Praktek . Surabaya: Percetakan Jurusan Sipil ITS</li> <li>3. Sutikno. 2014. Teknologi Beton . Surabaya: Unipress. Unesa</li> <li>4. Sutikno. 2013. Jobsheet Teknologi Beton . Surabaya: Unipress. Unesa</li> <li>5. Jack C. Mc Cormac and Russell Brown. 2008. Design of Reinforced Concrete . New York: Wiley</li> <li>6. Irving Kett. 2010. Engineered Concrete "Mix Design and Test Methods" . 2nd ed. USA: CRC Press.</li> <li>7. Anonim.1989. Pedoman Beton 1989 . Bandung: LPMB</li> <li>8. Anonim. 1971. PBI 1971 N.I-2. Peraturan Beton Indonesia . Jakarta: Departemen Pekerjaan Umum</li> <li>9. American Standard and Testing Materials (ASTM). ASTM International. USA</li> </ol> <p><b>Supporters:</b></p>						
<b>Supporting lecturer</b>	Muhammad Imaduddin, S.T., M.T. Berkat Cipta Zega, S.Pd., M.Eng.						
<b>Week-</b>	<b>Final abilities of each learning stage (Sub-PO)</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>		<b>Learning materials [ References ]</b>	<b>Assessment Weight (%)</b>
		<b>Indicator</b>	<b>Criteria &amp; Form</b>	<b>Offline ( offline )</b>	<b>Online ( online )</b>		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1	Students are able to explain concrete and the materials that make it up	1.Explain the meaning of concrete 2.Explain the materials that make up concrete	<b>Criteria:</b> Perfect score if answered well and correctly	Lectures, discussions and questions and answers 4 X 50			0%
2	Students are able to understand the use of concrete as a construction material	Explain the use of concrete as a concrete construction material	<b>Criteria:</b> Perfect score if answered well and correctly	Lectures, discussions and questions and answers 4 X 50			0%
3	Students are able to understand cement and cement material testing	1.Explain the meaning of cement 2.Explain cement material testing	<b>Criteria:</b> Perfect score if answered well and correctly	Lectures, discussions and questions and answers 4 X 50			0%
4	Students are able to understand aggregates and aggregate material testing	1.Explain the meaning of fine aggregate 2.Explain the meaning of coarse aggregate 3.Explain the fine aggregate material test 4.Explain the coarse aggregate material test	<b>Criteria:</b> Perfect score if answered well and correctly	Lectures, discussions and questions and answers 4 X 50			0%
5	Students are able to understand aggregates and aggregate material testing	1.Explain the meaning of fine aggregate 2.Explain the meaning of coarse aggregate 3.Explain the fine aggregate material test 4.Explain the coarse aggregate material test	<b>Criteria:</b> Perfect score if answered well and correctly	Lectures, discussions and questions and answers 4 X 50			0%
6	Students are able to determine concrete quality and stress characteristics, shape conversion and concrete age, concrete creep and shrinkage	1.Determining the quality of concrete and concrete characteristics 2.Determine the shape conversion and age of concrete 3.Explain creep and shrinkage of concrete	<b>Criteria:</b> Perfect score if answered well and correctly	Lectures, discussions, questions and answers, and 4 X 50 exercises			0%
7	Students are able to understand various concrete mix design methods	Explain various concrete mix design methods	<b>Criteria:</b> Perfect score if answered well and correctly	Lectures, discussions, questions and answers, exercises and presentations 4 X 50			0%
8	UTS	-	<b>Criteria:</b> Perfect score if answered well and correctly	Written Test 2 X 50			0%
9	Students are able to carry out cement testing practicum	1.Carry out cement test practicum 2.Make a cement test practicum report	<b>Criteria:</b> Perfect score if answered well and correctly	Practicum, discussion, reporting and consultation 4 X 50			0%

10	Students are able to carry out cement testing practicum	<ol style="list-style-type: none"> <li>1. Carry out cement test practicum</li> <li>2. Make a cement test practicum report</li> </ol>	<b>Criteria:</b> Perfect score if answered well and correctly	Practicum, discussion, reporting and consultation 4 X 50			0%
11	Students are able to carry out practical aggregate tests (sand and gravel)	<ol style="list-style-type: none"> <li>1. Carry out fine aggregate test practicum</li> <li>2. Carrying out practical coarse aggregate tests</li> <li>3. Make a practical report on fine aggregate tests</li> <li>4. Make a practical report on coarse aggregate tests</li> </ol>	<b>Criteria:</b> Perfect score if answered well and correctly	Practicum, discussion, reporting and consultation 4 X 50			0%
12	Students are able to carry out practical aggregate tests (sand and gravel)	<ol style="list-style-type: none"> <li>1. Carry out fine aggregate test practicum</li> <li>2. Carrying out practical coarse aggregate tests</li> <li>3. Make a practical report on fine aggregate tests</li> <li>4. Make a practical report on coarse aggregate tests</li> </ol>	<b>Criteria:</b> Perfect score if answered well and correctly	Practicum, discussion, reporting and consultation 4 X 50			0%
13	Students are able to carry out practical aggregate tests (sand and gravel)	<ol style="list-style-type: none"> <li>1. Carry out fine aggregate test practicum</li> <li>2. Carrying out practical coarse aggregate tests</li> <li>3. Make a practical report on fine aggregate tests</li> <li>4. Make a practical report on coarse aggregate tests</li> </ol>	<b>Criteria:</b> Perfect score if answered well and correctly	Practicum, discussion, reporting and consultation 4 X 50			0%
14							0%
15	Students are able to carry out practical concrete mix design and concrete stress-strain testing	<ol style="list-style-type: none"> <li>1. Carrying out concrete mix design practicum</li> <li>2. Make a practical report on concrete mix design tests</li> </ol>	<b>Criteria:</b> Perfect score if answered well and correctly	Practicum, discussion, reporting and consultation 4 X 50			0%
16	UAS	-	<b>Criteria:</b> Perfect score if answered well and correctly	Written test 2 X 50			0%

### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

#### 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** 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.
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.