	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
Dams and Supporting Buildings *	2220102008		T=2	P=0	ECTS=3.18	8	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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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

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: Students understand and are able to explain the definition of Dams and Supporting Buildings in their use in the field of civil engineering. Students are able to explain the meaning of classification, stages of site selection, types of dams. Students are able to explain the definition of intake buildings, the function of various spillway weirs, parts of dams. Students are able to explain , analyze and calculate gravity dams, embankment dams Students understand and are able to explain the principles and types of wooden dams Students understand and are able to analyze the principles of rip-rap dams, supported dams. Students understand and are able to analyze examples of hydraulic designs in dams and explain the principles of bow dams

References

Main :

1. Anonimous . https://1902miner.wordpress.com/bfiabhfcbafhueceaj/bendungan-urugan-tanah-earthfill-dam/
2. Anonimous . https://www.google.co.id/search?q=ukuran bendungan&biw=1366&bih=643&tbm=isch
3. Anonimous . http://olvista.com/teknologi/10-manfaat-bendung-waduk/
4. Anonimous . http://mfakhrypriambodo.blogspot.com/2010/02/mengenal-bendungan-bendung-dan-waduk.html
5. Arsyad, Sitanala. 1989. Konservasi Tanah dan Air. IPB Press. Bogor.
6. Asdak,C.1995. Hidrologi dan Pengelolaan Daerah Aliran Sungai. GajahMada University Press. Yogya.
7. Chow Ven Te, dkk. 1992. Hidrolika Saluran Terbuka (Open Channel Hydraulic), Penerbit Erlangga. Jakarta
8. Linsley, dkk. 1991. Teknik Sumber Daya Air. Erlangga Jakarta.
9. Sosrodarsono, Suyono dan Takeda Kensaku. 1994. Perbaikan dan Pengaturan Sungai. Pradnya Paramita. Jakarta
10. Ripiningtati, 2000. Pengembangan Sumber Daya Air . Program Pascasarjana Universitas Brawijaya Malang

Supporters:

Supporting lecturer: Drs. Djoni Irianto, M.T.
Danayanti Azmi Dewi Nusantara, 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	Understanding the meaning of a dam	Explain the meaning of a dam	**Criteria:** Perfect score if answered correctly	Lectures, discussions and questions and answers 2 X 50			0%
2	Understand the types of dams	Explain the types of dams	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Lectures, discussions and questions and answers 2 X 50			0%
3	Understand the types of dams according to height, large dams are higher than 15 meters and main dams are more than 150 m. Meanwhile, low dams are less than 30 m, medium dams are between 30 - 100 m, and high dams are more than 100 m.	Students are able to explain dams according to height, large dams are higher than 15 meters and main dams are more than 150 m. Meanwhile, low dams are less than 30 m, medium dams are between 30 - 100 m, and high dams are more than 100 m.	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 M Advanced training assignments reading 2 X 50 books			0%
4	Reservoirs	1. Students are able to explain: Types of reservoirs 2. reservoir services	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML Advanced training assignments reading books on water construction 2 X 50			0%
5	Reservoirs and Dams	1. Students are able to explain: Reservoir 2. Dam	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML advanced training assignment reading book making water structures 2 X 50			0%

6	Reservoirs and Dams	1. Students are able to explain: Reservoir 2. Dam	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML advanced training assignment reading book making water structures 2 X 50			0%
7	Reservoirs and Dams	1. Students are able to explain: Reservoir 2. Dam	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML advanced training assignment reading book making water structures 2 X 50			0%
8	UTS			2 X 50			0%
9	Sediment in Reservoir	1. Students are able to explain: The role of water 2. Feasibility of a Reservoir 3. Reservoir Sediment Production	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML Advanced training assignments reading books on water construction 2 X 50			0%
10	Sediment in Reservoir	1. Students are able to explain: The role of water 2. Feasibility of a Reservoir 3. Reservoir Sediment Production	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML Advanced training assignments reading books on water construction 2 X 50			0%

11	Sediment in Reservoir	1. Students are able to explain: The role of water 2. Feasibility of a Reservoir 3. Reservoir Sediment Production	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML Advanced training assignments reading books on water construction 2 X 50			0%
12	Weir Stability	1. Students are able to explain: The Need for Stability 2. Retrieval Building 3. Mudbag 4. Flushing Building	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML advanced training assignment reading book making water structures 2 X 50			0%
13	Weir Stability	1. Students are able to explain: The Need for Stability 2. Retrieval Building 3. Mudbag 4. Flushing Building	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML advanced training assignment reading book making water structures 2 X 50			0%
14	Weir Stability	1. Students are able to explain: The Need for Stability 2. Retrieval Building 3. Mudbag 4. Flushing Building	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML advanced training assignment reading book making water structures 2 X 50			0%

15	Weir Calculation	1. Students are able to explain: Calculation of a Rectangular Channel Shape Weir 2. Calculation of Trapezoidal Channel Weirs	**Criteria:** Have faith, tolerance and good character, be serious, ask questions, give ideas and understand the material	Learning model: direct Approach: problem based learning Strategy: Scientific Method: lecture, 5 ML Advanced training assignments reading books on water construction 2 X 50			0%
16							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.