	Universitas Negeri Surabaya Vocational Faculty, D4 Civil Engineering Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Drawing Simple Buildings and Practicals	2230503021		T=3	P=0	ECTS=4.77	1	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	Feriza Nadiar, S.T., M.T.	.....	Puguh Novi Prasetyono, S.Pd., M.T.

Learning model: Project Based Learning

Program Learning Outcomes (PLO)

PLO study program which is charged to the course

Program Objectives (PO)

PO - 1	Students have good morals, ethics and personality and are responsible in completing drawing assignments.
PO - 2	Students are able to work independently in completing drawing assignments with predetermined quality standards
PO - 3	Students are able to explain the science of projection and are skilled at applying it in civil engineering
PO - 4	Students are able to apply building depictions and building details using Autocad software. in accordance with predetermined operating standards and procedures.

PLO-PO Matrix

P.O
PO-1
PO-2
PO-3
PO-4

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																
PO-3																
PO-4																

Short Course Description: Introduction to the types, functions and ways of using drawing tools; Various lines, letters, numbers and symbols and their functions; Explain the various Pictorial, Orthogonal and Perspective projections and their applications in civil engineering; Drawing a simple residential building structure, consisting of floor plan, foundation plan, roof plan, longitudinal section, cross section, front view, side view, sanitation plan, mechanical and electrical plan along with structural details, and simple residential sanitation using AutoCAD software.

References

Main :

1. Affandi, Achmad Irfan. 19 26. Buku Ajar: Menggambar Teknik, Unesa Press
2. Cahyaka, Hendra Wahyu. 19 26 Gambar Teknik. Unesa Press.
3. S. C. Sharma. 1979. Engineering Drawing Part I. New York: Chand-Company Ltd. , Ram Nagar.
4. 26 26 26. , 20 26. Technical Drawing. 26 26. .
5. Khrisbianto, Andi. 2009. AutoCAD 2010 To The Point. Jakarta: Elex Media Komputindo. 6. Jurnal Dimensi Teknik Arsitektur Terakreditasi, Universitas Kristen Petra, Surabaya.

Supporters:

Supporting lecturer	Arik Triarso, S.Pd., M.T. Feriza Nadiar, S.T., M.T. Dr. Wendy Ivannal Hakim, S.T., M.Ars.

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	Identify the types and functions of standard drawing tools, lines, letters, numbers and symbols.	1. Identify types of drawing tools 2. Explain the function of drawing tools 3. Explain the standards for letter and number lines 4. Apply standard drawings of letter and number lines	**Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment		Lecture, discussion, question and answer presentation. 3 X 50	**Material:** Standard lines, letters, numbers and symbols. **Reader:** *SC Sharma. 1979. Engineering Drawing Part I. New York: Chand-Company Ltd. , Ram Nagar.* **Material:** Standard lines, letters, numbers and symbols. **Reader:** *Affandi, Achmad Irfan. 19 26. Textbook: Technical Drawing, Unesa Press* **Material:** Standard lines, letters, numbers and symbols. **Library:** *26 26 26. , 20 26. Technical Drawing. 26 26. .*	5%
2	Students are able to design civil building planning drawings.	1. Describe the floor plan of a multi-storey building. 2. Provide clear information on the function of buildings and rooms. 3. Describes the roof plan plan. 4. Describe the floor plan, beams and columns. 5. Describe the cross-section and longitudinal sections of the building.	**Form of Assessment** : Participatory Activities, Practical Assessment	- Group discussion - example of existing projectq` 3 X 50		**Material:** Terms of working drawings **References:** *Affandi, Achmad Irfan. 19 26. Textbook: Technical Drawing, Unesa Press* **Material:** Technical drawings in civil engineering **Reference:** *Cahyaka, Hendra Wahyu. 19 26 Engineering Drawing. Unesa Press.*	5%

3	Students are able to calculate the load from the roof to plan curtains, handlebars and wind ties and control capacity for safe conditions	1. Describe the load working on the roof. 2. Calculate the amount of load acting on the roof based on the roof plan. 3. Creating models in computer programming for civil engineering. 4. Operate computer programs for civil engineering to obtain structural analysis results in the form of internal forces, moments and support reactions. 5. Calculating internal force capacity. 6. Calculate internal moment capacity. 7. Controlling deflection.	**Form of Assessment** : Participatory Activities, Tests	- Group discussion - example of existing project 3 X 50 minutes3enm		**Material:** Roof technical drawings **Reference:** *Affandi, Achmad Irfan. 19 26. Textbook: Technical Drawing, Unesa Press* **Material:** Roof technical drawings **References:** *Cahyaka, Hendra Wahyu. 19 26 Technical Drawing. Unesa Press.*	5%
4	Able to draw various Orthogonal Projections of simple building shapes	1. Identifying Orthogonal Projection images of simple building shapes 2. Explain Orthogonal Projection of simple building shapes 3. Drawing Orthogonal Projections of simple building shapes	**Form of Assessment** : Participatory Activities, Practice/Performance	Lectures, discussions, questions and answers, and assignments, presentations. 3 X 50		**Material:** Projection image **Reference:** *SC Sharma. 1979. Engineering Drawing Part I. New York: Chand-Company Ltd. , Ram Nagar.* **Material:** Projection drawings **References:** *26 26 26. , 20 26. Technical Drawing. 26 26. .*	5%
5	Able to draw various Orthogonal Projections of simple building shapes	1. Identifying Orthogonal Projection images of simple building shapes 2. Explain Orthogonal Projection of simple building shapes 3. Drawing Orthogonal Projections of simple building shapes	**Criteria:** Full marks are obtained if you work on the projection image correctly **Form of Assessment** : Participatory Activities, Practical Assessment	Lectures, discussions, questions and answers, and assignments, presentations. 3 X 50		**Material:** Projection image **Reference:** *SC Sharma. 1979. Engineering Drawing Part I. New York: Chand-Company Ltd. , Ram Nagar.* **Material:** Projection drawings **References:** *26 26 26. , 20 26. Technical Drawing. 26 26. .*	5%

6	Understand the application of sketch drawings and technical specifications in drawing simple residential house plans according to the steps and drawing standards in AutoCAD format.	1. Understand sketch drawing applications and technical specifications for floor plans 2. Identify the steps for drawing a floor plan 3. Identify floor plan drawing standards 4. Draw a simple residential house plan according to the steps and drawing standards.	**Form of Assessment** : Participatory Activities, Practical Assessment	Lectures, discussions, questions and answers, and assignments, 3 X 50 presentations		**Material:** Drawings of floor plans **References:** *Affandi, Achmad Irfan. 19 26. Textbook: Technical Drawing, Unesa Press* **Material:** Drawings of floor plans **References:** *Cahyaka, Hendra Wahyu. 19 26 Engineering Drawing. Unesa Press.* **Material:** AutoCad **Reader:** *Khrisbianto, Andi. 2009. AutoCAD 2010 To The Point. Jakarta: Elex Media Komputindo. 6. Accredited Journal of Architectural Engineering Dimensions, Petra Christian University, Surabaya.*	5%
7	Understand the principles of the law of equilibrium and soil conditions in simple residential house foundation drawings according to the steps and standard drawings in AutoCAD format.	1. Identify the principles of the law of equilibrium and soil conditions in foundation drawings 2. Identify the steps for drawing a foundation 3. Identify foundation drawing standards 4. Draw the foundation according to the steps and drawing standards	**Form of Assessment** : Participatory Activities	Lectures, discussions, questions and answers, and assignments, presentations. 3 X 50			5%
8	Understand the principles of the law of equilibrium and soil conditions in simple residential house foundation drawings according to the steps and standard drawings in AutoCAD format.		**Form of Assessment** : Test	3 X 50			15%

9	Understand the principles of statics and technical provisions in drawing simple residential roof construction according to the steps and drawing standards in AutoCAD format.	1. Identify the principles of statics and technical provisions for roof construction drawings 2. Identify the steps for drawing a roof construction 3. Identify standard roof construction drawings 4. Draw a simple residential roof construction according to the steps and drawing standards.	**Form of Assessment** : Participatory Activities, Practical Assessment	Lectures, discussions, questions and answers, and assignments, presentations. 3 X 50		**Material:** Drawing a roof construction plan based on static principles and technical provisions, in accordance with the sequence: beam-column rings, purlins, ribs and battens as well as complete notations and drawing descriptions in AutoCAD format. **Bibliography:** *Affandi, Achmad Irfan. 19 26. Textbook: Technical Drawing, Unesa Press* **Material:** Drawing a roof construction plan based on static principles and technical provisions, in accordance with the sequence: beam-column rings, purlins, ribs and battens as well as complete notations and drawing descriptions in AutoCAD format. **Bibliography:** *Cahyaka, Hendra Wahyu. 19 26 Technical Drawing. Unesa Press.*	5%

10	Understand the principles of statics and technical provisions in longitudinal and cross section construction drawings in AutoCAD format.	1. Identify the principles of statics and technical provisions for longitudinal and cross section construction drawings 2. Identify the steps and standards of piece construction drawings 3. Draw the longitudinal and cross section construction of a Simple Residential House according to the steps and drawing standards.	**Criteria:** Full marks are obtained if you work on the cut image correctly **Forms of Assessment** : Participatory Activities, Practical Assessment, Practical / Performance	Lectures, discussions, questions and answers, and assignments, presentations. 3 X 50		**Material:** Understand the principles of statics and technical provisions in drawing construction of longitudinal and cross sections. **Reference:** *Affandi, Achmad Irfan. 19 26. Textbook: Technical Drawing, Unesa Press* **Material:** Observing the steps for drawing longitudinal and cross sections of a Simple Residential House. **Reader:** *Cahyaka, Hendra Wahyu. 19 26 Engineering Drawing. Unesa Press.* **Material:** Identifying standard longitudinal and cross section drawings for Simple Residential Houses. **References:** *26 26 26. , 20 26. Technical Drawing. 26 26. .* **Material:** Drawing longitudinal and cross sections of a Simple Residential House with the correct steps and according to drawing standards **Reader:** *Khrisbianto, Andi. 2009. AutoCAD 2010 To The Point. Jakarta: Elex Media Komputindo. 6. Accredited Journal of Architectural Engineering Dimensions, Petra Christian University, Surabaya.*	5%

11	Understand the principles of statics and technical provisions in longitudinal and cross section construction drawings in AutoCAD format.	1. Identify the principles of statics and technical provisions for longitudinal and cross section construction drawings 2. Identify the steps and standards of piece construction drawings 3. Draw the longitudinal and cross section construction of a Simple Residential House according to the steps and drawing standards.	**Criteria:** Full marks are obtained if you work on the cut image correctly **Forms of Assessment** : Participatory Activities, Practical Assessment, Practical / Performance	Lectures, discussions, questions and answers, and assignments, presentations. 3 X 50		**Material:** Understand the principles of statics and technical provisions in drawing construction of longitudinal and cross sections. **Reference:** *Affandi, Achmad Irfan. 19 26. Textbook: Technical Drawing, Unesa Press* **Material:** Observing the steps for drawing longitudinal and cross sections of a Simple Residential House. **Reader:** *Cahyaka, Hendra Wahyu. 19 26 Engineering Drawing. Unesa Press.* **Material:** Identifying standard longitudinal and cross section drawings for Simple Residential Houses. **References:** *26 26 26. , 20 26. Technical Drawing. 26 26. .* **Material:** Drawing longitudinal and cross sections of a Simple Residential House with the correct steps and according to drawing standards **Reader:** *Khrisbianto, Andi. 2009. AutoCAD 2010 To The Point. Jakarta: Elex Media Komputindo. 6. Accredited Journal of Architectural Engineering Dimensions, Petra Christian University, Surabaya.*	5%

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13	Understand the technical provisions of Structural Details, ME and Sanitation in AutoCAD format	1. Identify technical provisions for Structure Details, ME and Sanitation 2. Identify Structural, ME and Sanitary Detail measures and standards 3. Drawing structural, ME and Sanitary Details of Simple Residential Houses according to drawing steps and standards.	**Criteria:** Full marks are obtained if you complete the detailed structural, ME and sanitation drawings correctly **Form of Assessment** : Participatory Activities, Practical Assessment	Lectures, discussions, questions and answers, and assignments, presentations. 3 X 50		**Material:** Understanding technical provisions, structural details and sanitation. **Reference:** *Affandi, Achmad Irfan. 19 26. Textbook: Technical Drawing, Unesa Press* **Material:** Observing the detailed steps of structure and sanitation of a simple residential house. **Reader:** *Cahyaka, Hendra Wahyu. 19 26 Engineering Drawing. Unesa Press.* **Material:** Identifying standard drawings for Structural Details and Sanitation for Simple Residential Houses **Reader:** *SC Sharma. 1979. Engineering Drawing Part I. New York: Chand-Company Ltd. , Ram Nagar.* **Material:** Drawing a detailed structure and sanitation plan for a simple residential house using the correct steps and according to drawing standards. **Library:** *26 26 26. , 20 26. Technical Drawing. 26 26. .*	5%

14	Understand the technical provisions of Structural Details, ME and Sanitation in AutoCAD format	1. Identify technical provisions for Structure Details, ME and Sanitation 2. Identify Structural, ME and Sanitary Detail measures and standards 3. Drawing structural, ME and Sanitary Details of Simple Residential Houses according to drawing steps and standards.	**Criteria:** Full marks are obtained if you complete the detailed structural, ME and sanitation drawings correctly **Form of Assessment** : Practical Assessment	Lectures, discussions, questions and answers, and assignments, presentations. 3 X 50		**Material:** Understanding technical provisions, structural details and sanitation. **Reference:** *Affandi, Achmad Irfan. 19 26. Textbook: Technical Drawing, Unesa Press* **Material:** Observing the detailed steps of structure and sanitation of a simple residential house. **Reader:** *Cahyaka, Hendra Wahyu. 19 26 Engineering Drawing. Unesa Press.* **Material:** Identifying standard drawings for Structural Details and Sanitation for Simple Residential Houses **Reader:** *SC Sharma. 1979. Engineering Drawing Part I. New York: Chand-Company Ltd. , Ram Nagar.* **Material:** Drawing a detailed structure and sanitation plan for a simple residential house using the correct steps and according to drawing standards. **Library:** *26 26 26. , 20 26. Technical Drawing. 26 26. .*	5%

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16	Final Semester Examination (UAS)		**Form of Assessment** : Test	3 X 50			15%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	27.51%
2.	Project Results Assessment / Product Assessment	1.67%
3.	Practical Assessment	27.51%
4.	Practice / Performance	10.84%
5.	Test	32.5%
		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.