	Universitas Negeri Surabaya Faculty of Engineering, Electrical Engineering Undergraduate Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Programmed Component Design	2020102123		T=2	P=0	ECTS=3.18	6	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Dr. Lusia Rakhmawati, 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

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	understand, design and implement electronic circuits using software as a component replacement.
References	**Main :**

1. Cedar Valley Business. 2011: Monthly Online. Obstructive Sleep Apnea Has Deadly Consequences http://wcfcourier.com/business/columns/article_a0f19aaa-33b3-11e0-878c-01cc4c002e0.html diakses 20 Juni 2011.
2. I Made Agus Setiawan, Elly Matul I., Nulad W.P., P. Mursanto, dan Wisnu Jatmiko. 2010. Heart Beat Classification using Wavelet Feature. Universitas Indonesia.
3. Indonesian Society On Computer & Information Sciences (ICIS). 2002. Modul Workshop Jaringan Saraf Buatan. Universitas Indonesia.
4. National Center on Sleep Disorder Research. 1995. Sleep Apnea. National Institutes of Health National Heart, Lung, and Blood Institute, http://www.smbs.buffalo.edu/pccm/sleep/osanih.pdf diakses pada 1 Juni 2010
5. Tim Riset Sleep Apnea. Development Of Sleep-Awakening TimingController For Occupational Safety And Health Based-OnComputational Intelligent Algorithm.
6. Universitas Indonesia, 2010. A Brief History of VHDL. http://www.doulos.com/knowhow/vhdl_designers_guide/a_brief_history_of_vhdl/ diakses 4 Juni 2011
7. PhysioBank ATM. http://www.physionet.org/cgi-bin/atm/ATM diakses 22 April 2011
8. Wikipedia. http://en.wikipedia.org/wiki/Electrocardiography diakses 6 Juni 2011 Medical University of Gdansk, Department of Histology http://www.ncbi.nlm.nih.gov/pubmed/11729749 diakses 7 April 2012

	Supporters:
Supporting lecturer	Dr. Nur Kholis, S.T., M.T. Miftahur Rohman, 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	Analyze the properties of logic gates	- Describe the nature of logic gates (logic gates) - Simplify logic circuits using Boolean algebra Assemble logic circuits	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2) x Lever Score (3) x UTS Score (2) x UAS Score (3) divided by 10.	Experiments, group discussions and reflections 6 X 50			0%
2							0%
3							0%
4	Simplifying digital circuits using KMAP	- Describe KMAP Simplify logic circuits with KMAP		Experiment, group discussion, and reflection 4 X 50			0%
5							0%
6	Analyzing Encoders	- Describe the Encoder - Assemble the encoder Create a report about the encoder		Experiment, group discussion, and reflection 4 X 50			0%
7							0%
8	UTS	null	**Criteria:** null	null 2 X 50			0%
9	Analyzing decoders	- Describe the decoder - Assemble the decoder Create a report about the decoder		Experiment, group discussion, and reflection 4 X 50			0%
10							0%
11	Analyzing Multiplexers and sevensegments	- Describe the multiplexer and seven segments - Assemble the multiplexer and seven segments Make a report about the multiplexer and seven segments		Experiments, group discussions and reflections 2 X 50			0%

12	Analyze the properties of FLIP FLOP	- Describe the characteristics of the types of Flip Flop - Analyze the circuit		Experiment, group discussion, and reflection 4 X 50			0%
13							0%
14	Analyzing register circuits	- Describe the properties of register circuits. Design register application circuits		Experiments, group discussions and reflections 2 X 50			0%
15	Analyze the counter circuit	- Describe the properties of the counter circuit. Design the counter application circuit.		Experiments, group discussions and reflections 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.