

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

Document Code

UNESA																	
		SEMES	STI	ER L	Ε	٩R	NIN	1G	S F	PL/	N						
Courses		CODE		Co	urse	Fan	nily	С	redi	it We	ight		S	EMES	STER	Con	npilation
Analog Electr	ronic Circuits	2020103158					Study ojects		=3	P=0	EC	ΓS=4.	77	3		April 2023	24, 3
AUTHORIZAT	TION	SP Develope	r				Course Cluster Coordinator					tudy l coordi					
		Miftahur Rohr	nan,	S.T., M.	т.		Prof. M.T.		. Baı	mbar	ng Su	priant	о, С	r. Lus		khmav 1.T.	vati, S.T.
Learning model	Project Based Lear	ning					•						•				
Program	PLO study progra	m which is ch	arge	ed to th	е со	urse)										
Learning Outcomes	Program Objective	es (PO)															
(PLO)		le to apply basion ctronics and its				ansist	ors ar	nd O)p-A	mps	to ga	in a th	orou	gh und	lerstar	nding	of analo
	PLO-PO Matrix																
		P.O PO-1															
	PO Matrix at the e	nd of each lea	arnin	g stag	e (Sı	ıb-P	0)										
		P.O								We	ek						
			1	2 3	4	5	6	7	8	9	10	11	12	13	14	15	16
		PO-1															
Short Course Description	Students are able to sources, voltage so multipliers. Transisto	urces, diodes v	work,	includi	ng di	iodes	as r	ectif	fiers	of el , cho	ectroi oke fi	nics, a Iters,	able t clippe	o und ers, cl	erstar ampe	nd hov	w curren d voltage
References	Main:																
	bahasa : H Electronics: Sutrisno.(19	sley &Rico.(199 n.R.F & Driscoll lerman Widodo Analog and [86). Elektronika aannya .jilid 2.Ba	.É.F.(Su Digita : Te	1985). mitro). I Circuit ori dan	Peng Jaka ts ar	juat C rta : nd S	Operas Pene ystem	siona erbit s. 2	ial da t Er 26th	an R lango print	angka ga. M ting.	aian T illman Tokyo	erpac & : Mc	lu Lini Halkia Graw-	er . Eo s (19 Hill B	disi ke 983). I Book (edua (alil ntegrated Co.Japar
	Supporters:																
	J. Millmann. Floyd Thoma						Fifth	Editi	tion.	New	Jerse	ey: Pr	entice	e-Hall I	Interna	ationa	l, Inc.
Supporting lecturer	Dr. Nur Kholis, S.T.,	M.T.															

Week-	Final abilities of each learning stage (Sub-PO)	E	valuation	Lea Stude	elp Learning, rning methods, ent Assignments, estimated time]	Learning materials	Assessment Weight (%)
	,	Indicator	Criteria & Form	Offline (offline)	Online (online)	1	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Students can discuss the basic concepts and principles of electronic components needed in the process of analysis, simulation, design and application description of analog electronic circuits	Evaluation Rubric	Criteria: Evaluation Rubric Form of Assessment: Participatory Activities	Contextual Instruction 3 x 50		Material: Meeting material 1 References: Bogart, Beasley & Rico (1997). Electronic Devices and Circuits. 5th ed. New Jersey: Prentice Hall International Inc. Coughlin RF & Driscoll FF (1985). Operational Amplifiers and Linear Integrated Circuits. Second edition (translation: Herman Widodo Sumitro). Jakarta: Erlangga Publishers. Millman & Halkias (1983). Integrated Electronics: Analog and Digital Circuits and Systems. 26th printing. Tokyo: McGraw-Hill Book Co. Japan Systems.	5%

2	Ctudonto con	Evoluation	Ouitania	Comba	T	-towis!	F0/
2	Students can discuss the basic	Evaluation Rubric	Criteria:	Contextual		aterial:	5%
		RubilC	Evaluation Rubric	Instruction		eeting	
	concepts and			3 x 50	m	aterial 1	
	principles of electronic		Form of		R	eferences:	
	components		Assessment :			ogart,	
	needed in the		Participatory			easley &	
			Activities			ico (1997).	
	process of		Activities				
	analysis,					lectronic	
	simulation, design				De	evices and	
	and application				Ci	ircuits. 5th	
	description of				l ec	d. New	
	analog electronic					ersey:	
	circuits					rentice Hall	
						ternational	
						C.	
					Co	oughlin RF	
						Driscoll FF	
						.985).	
]	(1	perational	
]			
]		mplifiers	
]		nd Linear	
					In	tegrated	
]		ircuits.	
						econd	
						dition	
						ranslation:	
						erman	
					l w	⁄idodo	
					l s	umitro).	
						akarta:	
						rlangga	
						ublishers.	
						illman &	
					l Ha	alkias	
						.983).	
						tegrated	
						lectronics:	
						nalog and	
					Di	igital	
					C	ircuits and	
						ystems.	
						6th	
]			
]	<u> pr</u>	rinting.	
]		okyo:	
]	M	cGraw-Hill	
]	Bo	ook Co.	
]		apan	
]		utrisno.	
]			
]	(1	986).	
					<i>El</i>	lectronics:	
]	T <i>i</i>	heory and	
]	Ai	pplication.	
]		olume 1.	
]		andung	
]			
]	IT.		
]		utrisno.	
					(1	.986).	
						lectronics:	
]			
]		heory and	
]		oplication.	
]		olume 2.	
					Ba	andung	
					IT		
	ı			1	i '''	-	

3	Students can	Evaluation	Critorio	Contourus	NA	
3	Students can discuss the basic	Evaluation Rubric	Criteria:	Contextual	Material	
	concepts and	Nubile	Evaluation Rubric	Instruction	Meeting	
	principles of			3 x 50	material	
	principles of electronic		Form of		Referen	ces:
	components		Assessment :		Bogart,	
	needed in the		Participatory		Beasley	&
	process of		Activities		Rico (19	97)
	analysis,				Electron	
	simulation, design					
	and application				Devices	
	description of				Circuits.	
	analog electronic				ed. New	
	circuits				Jersey:	
					Prentice	Hall
					Internation	onal
					Inc.	
					Coughlir	n RF
					& Drisco	
					(1985).	
					Operation	
					Amplifie	
					and Line	
					Integrate	ed
					Circuits.	
					Second	
					edition	
					(translati	ion:
					Herman	
					Widodo	
					Sumitro)	
					Jakarta:	
					Erlangga	
					Publishe	rs.
					Millman	&
					Halkias	-
					(1983).	
						nd .
					Integrate	
					Electron	
					Analog a	and
					Digital	
					Circuits	
					Systems	S
					26th	
					printing.	
					Tokyo:	
					McGraw	-Hill
					Book Co	-1 1111
						·
					Japan	
					Sutrisno	.
					(1986).	
					Electron	ics:
					Theory a	and
					Applicati	ion.
					Volume	
					Bandung	9
					ITB	
					Sutrisno	
					(1986).	
					Electron	ics:
					Theory a	
					Applicati	ion
					Volume	
					Bandung	7
					ITB	

4	Ctudonto	Evaluatia :	0.31		I		FC'
4	Students can discuss the basic	Evaluation Rubric	Criteria:	Contextual		terial:	5%
		RubilC	Evaluation Rubric	Instruction		eting	
	concepts and principles of			3 x 50	mat	terial 1	
	electronic		Form of		Ref	erences:	
	components		Assessment:		Bog	art.	
	needed in the		Participatory			asley &	
	process of		Activities		Pice	o (1997).	
	analysis,		, 1011711100			ctronic	
	simulation, design						
	and application					ices and	
	description of					cuits. 5th	
	analog electronic					New	
	circuits				Jers	sey:	
					Prei	ntice Hall	
					Inte	ernational	
					Inc.		
						ughlin RF	
						riscoll FF	
					(198		
					(190	03).	
						erational	
						plifiers	
						l Linear	
						egrated	
						cuits.	
						cond	
					edit		
						nslation:	
						man	
						dodo	
						nitro).	
						arta:	
						angga	
					Pub	olishers.	
					Milli	man &	
					Hall	kias	
					(198		
						egrated	
						ctronics:	
						alog and	
					Digi		
						cuits and	
						stems.	
					26th	h	
						nting.	
					Tok	vo:	
						Graw-Hill	
					Roo	ok Co.	
					Jap		
						risno.	
					(198	86).	
					Elec	ctronics:	
					The	eory and	
					App	olication.	
						ume 1.	
						ndung	
					ITB		
						risno.	
					(198		
						ctronics:	
					The	eory and	
					Ann	olication.	
İ						ume 2.	
İ						ndung	
I					ITB		
					IIIR		

5	Students can	Evaluation	Criteria:	Contextual		Material:	5%
•	discuss the basic	Rubric	Evaluation Rubric	Instruction			3%0
	concepts and	rabile	Evaluation Rubitc			Meeting	
	principles of			3 x 50		material 1	
	electronic		Form of			References:	
	components		Assessment :		l E	Bogart,	
	needed in the		Participatory		l E	Beasley &	
	process of		Activities			Rico (1997).	
	analysis,					Electronic	
	simulation, design					Devices and	
	and application						
	description of					Circuits. 5th	
	analog electronic					ed. New	
	circuits					Jersey:	
					l F	Prentice Hall	
						nternational	
						nc.	
						Coughlin RF	
						& Driscoll FF	
					((1985).	
						Operational	
						Amplifiers	
						and Linear	
						ntegrated	
						Circuits.	
						Second	
						edition	
						translation:	
					F	Herman	
						Nidodo	
						Sumitro).	
						Jakarta:	
						Erlangga	
						Publishers.	
						Millman &	
					F	Halkias	
					l ((1983).	
						ntegrated	
						Electronics:	
						Analog and	
						Digital	
						Circuits and	
						Systems.	
						26th	
						orinting.	
						Гокуо:	
						McGraw-Hill	
					'	Book Co.	
						Japan	
						Sutrisno.	
						(1986).	
					l E	Electronics:	
						Theory and	
						Application.	
						/olume 1.	
						Bandung	
						TB	
						Sutrisno.	
						(1986).	
						Electronics:	
						Theory and	
						Application.	
						/olume 2.	
						Bandung	
						TB	
	i		1	1	l '		

6	Students can	Evaluation	Criteria:	Contextual	Materia	al: 5%
U	discuss the basic	Rubric	Evaluation Rubric			
	concepts and	rabile	Evaluation Rubitc	Instruction	Meeting	
	principles of			3 x 50	materia	
	electronic		Form of		Refere	
	components		Assessment :		Bogart,	
	needed in the		Participatory		Beasle	v &
	process of		Activities		Rico (1	997)
	analysis,				Electro	
	simulation, design				Device	
	and application					
	description of				Circuits	
	analog electronic				ed. Nei	
	circuits				Jersey:	
					Prentic	e Hall
					Interna	tional
					Inc.	
					Coughl	in RE
					& Driso	
					(1985).	[
					Operati	
					Amplific	ers
					and Lin	
					Integra	
					Circuits	
					Second	
					edition	'
					(transla	
					Hermai	
					Widodo)
					Sumitro	o).
					Jakarta	
					Erlange	
					Publish	
					Millmar	
					Halkias	
					(1983).	
					Integra	
					Electro	
					Analog	
					Digital	ana
						and
					Circuits	
					System	is.
					26th	
					printing	l.
					Tokyo:	
					McGra	
					Book C	o.
					Japan	
					Sutrisn	_
					(1986).	
					Electro	nics:
					Theory	and
					Applica	tion.
					Volume	
					Bandur	
					ITB	'9
					Sutrisn	
					(1986).	
					Electro	nics:
					Theory	
					Applica	ition.
					Volume	
					Bandur	ıy
	1		ı	1	ITB	1

	Chilanta	Evel of	.				
7	Students can	Evaluation	Criteria:	Contextual		laterial:	5%
	discuss the basic	Rubric	Evaluation Rubric	Instruction		leeting	
	concepts and			3 x 50	m	naterial 1	
l	principles of		Form of		l R	References:	
	electronic		Assessment :			Bogart,	
	components needed in the		Participatory			Beasley &	
	process of		Activities			Rico (1997).	
	analysis,		Activities				
	analysis,					Electronic	
	simulation, design and application					Devices and	
	description of					Circuits. 5th	
	analog electronic				e	d. New	
	circuits				J	ersey:	
	onounc				l P	Prentice Hall	
						nternational	
						nc.	
						Coughlin RF	
						Driscoll FF	
					(2	1985).	
						Operational	
i I						mplifiers	
						nd Linear	
						ntegrated	
						Circuits.	
						Second	
						dition	
						translation:	
						lerman	
					l v	Vidodo	
					s	Sumitro).	
						akarta:	
						rlangga	
						Publishers.	
						1illman &	
						lalkias	
						1983).	
						ntegrated	
					E	lectronics:	
					l A	nalog and	
						Digital	
						Circuits and	
						Systems.	
						6th	
					P	rinting.	
i I						okyo:	
					N	1cGraw-Hill	
l l					B	Book Co.	
, l						apan	
ı l						Sutrisno.	
l l						1986).	
l l						electronics:	
					-	hoon, and	
						heory and	
						pplication.	
						olume 1.	
						Bandung	
						TB	
						Sutrisno.	
						1986).	
						electronics:	
l						heory and	
						pplication.	
						olume 2.	
						Bandung	
						ТВ	

8	Students can	Evaluation	Criteria:	Contextual	Material:	10%
	complete UTS	Rubric	Evaluation Rubric	Instruction	Meeting	
	·			3 x 50	material 1	
			Form of		References:	
			Assessment :		Bogart,	
			Participatory		Beasley &	
			Activities		Rico (1997).	
			Activities			
					Electronic	
					Devices and	
					Circuits. 5th	
					ed. New	
					Jersey:	
					Prentice Hall	
					International	
					Inc.	
					Coughlin RF	
					& Driscoll FF	
					(1985).	
				1	Operational	
				1	Amplifiers	
]	and Linear	
				1	Integrated	
				1	Circuits.	
				1	Second	
					edition	
					(translation:	
					Herman	
					Widodo	
					Sumitro).	
					Jakarta:	
					Erlangga	
					Publishers.	
					Millman &	
					Halkias	
					(1983).	
					Integrated	
					Electronics:	
					Analog and	
					Digital	
					Circuits and	
					Systems.	
					26th	
				1		
				1	printing. Tokyo:	
				1		
				1	McGraw-Hill	
				1	Book Co.	
				1	Japan	
		1		1	Sutrisno.	
				1	(1986).	
		1		1	Electronics:	
				1	Theory and	
		1		1	Application.	
				1	Volume 1.	
		1		1	Bandung	
				1	ITB	
		1		1	Sutrisno.	
				1	(1986).	
				1	Electronics:	
				1	Theory and	
		1		1	Theory and	
				1	Application.	
				1	Volume 2.	
				1	Bandung	
			1		ITB	Ī

						l l	
9	identify the	Evaluation	Criteria:	Contextual		Material:	10%
	characteristics of	Rubric	Evaluation Rubric	Instruction		Meeting	
	diodes, bipolar			3 x 50		material 1	
	junction transistors, field		Form of			References:	
	effect transistors,		Assessment:			Bogart,	
	and op-amps		Participatory			Beasley &	
	and op-amps		Activities			Rico (1997).	
						Electronic	
						Devices and	
						Circuits. 5th	
						ed. New	
						Jersey:	
						Prentice Hall	
						International	
						Inc.	
						Coughlin RF	
						& Driscoll FF	
						(1985).	
						Operational	
						Amplifiors	
,						Amplifiers	
						and Linear	
						Integrated	
						Circuits.	
						Second	
						edition	
						(translation:	
						Herman	
						Widodo	
						Sumitro).	
						Jakarta:	
						Erlangga	
						Publishers.	
						Millman &	
						Halkias	
						(1983).	
						Integrated	
						Electronics:	
						Analog and	
						Digital	
						Circuits and	
						Systems.	
						26th	
						printing.	
						Tokyo:	
						McGraw-Hill	
						Book Co.	
				[Japan	
						Sutrisno.	
						(1986).	
				[Electronics:	
						Theory and	
						Application.	
						Volume 1.	
						Bandung	
						ITB	
						IID Cutrion -	
						Sutrisno.	
						(1986).	
						Electronics:	
						Theory and	
						Application.	
						Volume 2.	
						Bandung	
				[ITB	
	İ		ı	1	İ	110	

10	identify the	Evaluation	Criteria:	Contextual	Material:	10%
	characteristics of	Rubric	Evaluation Rubric	Instruction	Meeting	10/0
	diodes, bipolar		Evaluation rabile	3 x 50	material 1	
	junction		Form of	3 × 30	References:	
	transistors, field		Assessment :		Bogart,	
	effect transistors,		Participatory		Beasley &	
	and op-amps		Activities		Rico (1997).	
			Activities			
					Electronic	
					Devices and	
					Circuits. 5th	
					ed. New	
					Jersey:	
					Prentice Hall	
					International	
					Inc.	
					Coughlin RF	
					& Driscoll FF	
					(1985).	
					Operational	1
					Amplifiers	1
					and Linear	
					Integrated	1
					Circuits.	1
					Second	
					edition	
					(translation:	
					Herman	
					Widodo	
					Sumitro).	
					Jakarta:	
					Erlangga	
					Publishers.	
					Millman &	
					Halkias	
					(1983).	
					Integrated	
					Electronics:	
					Analog and	
					Digital	
					Circuits and	
					Systems.	
					26th	
					printing.	1
					Tokyo:	1
					McGraw-Hill	1
					Book Co.	1
					Japan Japan	1
					Sutrisno.	1
					(1986).	1
					Electronics:	1
					Theory and]
					Application.	1
					Volume 1.	1
						1
					Bandung]
					ITB	1
					Sutrisno.	1
					(1986).	1
					Electronics:	1
					Theory and	1
					Application.]
					Volume 2.	1
					Bandung	1
					ITB	1
	1	1	İ	1 1	טוון	1

11	distinguish DC	Evaluation	Criteria:	Contextual	Material:	10%
	bias, AC analysis,	Rubric	Evaluation Rubric	Instruction		1070
	and frequency	Ttubilo	Evaluation Rubite		Meeting	
	effects of each		F	3 x 50	material 1	
	transistor		Form of		References:	
			Assessment :		Bogart,	
			Participatory		Beasley &	
			Activities		Rico (1997).	
					Electronic	
					Devices and	
					Circuits. 5th	
					ed. New	
					Jersey:	
					Prentice Hall	
					International	
					Inc.	
					Coughlin RF	
					& Driscoll FF	
					(1985).	
					Operational	
					Amplifiers	
					and Linear	
					Integrated	
					Circuits.	
					Second	
					edition	
					(translation:	
					Herman	
					Widodo	
					Sumitro).	
					Jakarta:	
					Erlangga	
					Publishers.	
					Millman &	
					Halkias	
					(1983).	
					Integrated	
					Electronics:	
					Analog and	
					Digital	
					Circuits and	
					Systems.	
					26th	
					printing.	
					Tokyo:	
					McGraw-Hill	
					Book Co.	
					Japan	
					Sutrisno.	
					(1986).	
					Electronics:	
					Theory and	
					Application.	
					Volume 1.	
					Bandung	
					ITB	
					Sutrisno.	
					(1986).	
					Electronics:	
					Theory and	
					Application.	
					Volume 2.	
					Bandung	
		1		1	ITB	

12	distinguish DC	Evaluation	Criteria:	Contextual	Material:	10%
	hias. AC analysis.	Rubric	Evaluation Rubric	Instruction	Meeting	10/0
	and frequency		Evaluation (abite	3 x 50	material 1	
	and frequency effects of each		Form of	3 X 30	References:	
	transistor		Assessment :			
			Participatory		Bogart,	
			Activities		Beasley &	
			Activities		Rico (1997).	
					Electronic	
					Devices and	
					Circuits. 5th	
					ed. New	
					Jersey:	
					Prentice Hall	
					International	
					Inc.	
					Coughlin RF	
					& Driscoll FF	
					(1985).	
					Operational	
					Amplifiers	
					and Linear	
					Integrated	
					Circuits.	
					Second	
					edition	
					(translation:	
					Herman	
					Widodo	
					Sumitro).	
					Jakarta:	
					Erlangga	
					Publishers.	
					Millman &	
					Halkias	
					(1983).	
					Integrated	
					Electronics:	
					Analog and	
					Digital	
					Circuits and	
					Systems.	
					26th	
					printing.	
					Tokyo:	
					McGraw-Hill	
					Book Co.	
					Japan	
					Sutrisno.	
					(1986).	
					Electronics:	
					Theory and	
					Application.	
					Volume 1.	
					Bandung	
					ITB	
					Sutrisno.	
					(1986).	
					(1300).	
					Electronics:	
					Theory and	
					Application.	
					Volume 2.	
					Bandung	
					ITB	
			l			

13	explain how	Evaluation	Criteria:	Contextual	Mate	
	transistors and op-	Rubric	Evaluation Rubric	Instruction	Meeti	
	amps work .			3 x 50	mater	
			Form of			rences:
			Assessment:		Boga	
			Participatory		Beas	lev &
			Activities		Rico	(1997).
			7 1011711100		Electi	
						es and
						its. 5th
					ed. N	
					Jerse	
						ice Hall
						national
					Inc.	
						hlin RF
						scoll FF
				j	(1985	i).
				j	Opera	ational
				1	Ampl	fiers
				1	and L	
				1	Integr	
				1	Circu	its.
					Seco	
					editio	
					(trans	slation:
					Herm	
					Wido	
					Sumi	
					Jakar	
					Erlan	
						shers.
					Millm	
					Halkid	
					(1983	<i>).</i>
					Integr	
						ronics:
						ng and
					Digita	
					Circu	its and
					Syste	ms.
					26th	
				1	printii	ıg.
					Tokyo	
				1		aw-Hill
				1	Book	
				j	Japai	
				1	Sutris	ino.
				j	(1986	i).
				1	Electi	ronics:
				1	Theo	ry and
				1	Applie	cation.
				1	Volum	ne 1.
				j	Band	una
				1	ITB	9
				1	Sutris	eno l
				1	(1986	3)
				1	(1900) Electric	ronics:
				1	Electi	unics.
				1	I neo	ry and
				j l	Applic	cation.
				1	Volun	
				j	Band	ung
				1	ITB	1

14	summarize the	Evaluation	Criteria:	Contextual	Material	1006
14	advantages and	Rubric	Evaluation Rubric	Contextual	Material:	10%
	disadvantages of	Nubile	Evaluation Rubiic	Instruction	Meeting	
	transistors and		F	3 x 50	material 1	
	opamps		Form of		References:	
			Assessment :		Bogart,	
			Participatory		Beasley &	
			Activities		Rico (1997).	
					Electronic	
					Devices and	
					Circuits. 5th	
					ed. New	
					Jersey:	
					Prentice Hall	
					International	
					Inc.	
					Coughlin RF	
					& Driscoll FF	
					(1985).	
					Operational	
					Amplifiers	
					and Linear	
					Integrated	
					Circuits.	
					Second	
					edition	
					(translation:	
					Herman	
					Widodo	
					Sumitro).	
					Jakarta:	
					Erlangga -	
					Publishers.	
					Millman &	
					Halkias	
					(1983). Integrated	
					Electronics:	
					Analog and	
					Digital	
					Circuits and	
					Systems.	
					26th	
					printing.	
					Tokyo:	
					McGraw-Hill	
					Book Co.	
					Japan	
					Sutrisno.	
					(1986).	
					Electronics:	
					Theory and	
					Application.	
					Volume 1.	
					Bandung	
					ITB	
					Sutrisno.	
					(1986).	
					Electronics:	
					Theory and	
					Application.	
					Volume 2.	
					Bandung	
					ITB	
				1	IID	

15	explore various	Evaluation	Criteria:	case	Material:	10%
-	formulas from	Rubric	Evaluation Rubric	method	Meeting	10/0
	opamp theory,			3 x 50	material 1	
	categorize circuit		Form of	3 x 30	Reference	
	applications that		Assessment :		Bogart.	55.
	use transistors and		Participatory			
	opamps to solve		Activities		Beasley &	7)
	problems in analog		Activities		Rico (199)	
	electronic circuits				Electronic	
					Devices a	
					Circuits. 5	th
					ed. New	
					Jersey:	
					Prentice H	lall
					Internation	nal
					Inc.	
					Coughlin I	RF
					& Driscoll	
					(1985).	' '
				1	Operation	al l
				1	Amplifiers	
				1	and Linea	
				1		
				1	Integrated	
					Circuits.	
					Second	
					edition	
					(translatio	n:
					Herman	
					Widodo	
					Sumitro).	
					Jakarta:	
					Erlangga	
					Publishers	s.
					Millman &	
					Halkias	
					(1983).	
					Integrated	
					Electronic	
					Analog an	u
					Digital	
					Circuits ar	ia
					Systems.	
]	26th	
				1	printing.	
				1	Tokyo:	
				1	McGraw-F	Hill
				1	Book Co.	
				1	Japan	
				1	Sutrisno.	
				1	(1986).	
				1	Electronic	s:
				1	Theory an	d
				1	Application	2
]	Volume 1.	
				1	Bandung	
				1	ITB	
				1		
				1	Sutrisno.	
]	(1986).	
				1	Electronic	S.
				1	Theory an	d
				1	Application	n.
				1	Volume 2.	
				1	Bandung	
				1	ITB	
			I	1	1 110	1

16	Carry out UAS	Evaluation	Criteria:	case	Material	10%
-0	Meetings 1 to 15	Rubric	Evaluation Rubric	method	Meeting	. 10%
			Evaluation rabite	3 x 50	material	1
			Form of	3 x 30	Referen	
			Assessment :		Bogart,	Les.
			Participatory		Beasley	ه ا
			Activities		Rico (19	27)
			Activities			
					Electroni	
					Devices	
					Circuits.	5tn
					ed. New	
					Jersey:	
					Prentice	
					Internation	onal
					Inc.	
					Coughlin	RF
					& Drisco	II FF
					(1985).	
					Operatio	nal
					Amplifier	S
					and Line	ar
					Integrate	d
					Circuits.	
					Second	
					edition	
					(translati	on:
					Herman	
					Widodo	
					Sumitro)	
					Jakarta:	'
					Erlangga	,
					Publishe	re
					Millman	
						×
					Halkias	
					(1983).	-1
					Integrate	a
					Electroni	
					Analog a	na
					Digital	.
					Circuits a	
					Systems	
					26th	
					printing.	
					Tokyo:	
					McGraw	
					Book Co	.
					Japan	1
					Sutrisno.	1
					(1986).	
					Electroni	cs:
					Theory a	
					Applicati	on.
					Volume .	1.
					Bandung	
					ITB	
					Sutrisno.	
					(1986).	
						os:
					Electroni	
					Theory a	iiu
					Applicati	
					Volume 2	<u> </u>
					Bandung	'
	1	1	i	1	ITB	

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	125%
		100%

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
- 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.
- 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.
- 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.