				SCHEME F	OR LEARNING	E	Branch C	ode		Course C	ode	CO Code	LO Code	
RGPV		ma wing) B	nopa		TCOME	E	0	3	4	0		1	1	Format No. 4
COURS	E NAME	Analog Integrate	d Circu	lit										1
CO Des	cription	Describethe constr	ruction of	of operational amplifie	ers.									
LO Deso	cription	Construct Op-Amp	o using l	basic amplifier circuits	5.									
					SCHEME OF STUDY									
S. No.	Le	earning Content		Teaching – Learning Method	Description of T-L Process	Te F	each Hrs.	Pı /Tu	act. t Hrs	•	LRs R	equire	ed	Remarks
LO-01	Four stag Operation equivalen Amp (4 andcomm concept inverting and equ Amp, Ide	ge Block diagram of nal Amplifier(Op-A nt circuit of a typica 4 stages), differ nonmodeofoperation ofinverting and input, schematic sy ivalent circuit of eal Characteristics	of an kamp), a l Op- ential a, lnon- mbol Op-	Interactive classroom lecture, PPT, demonstration, quiz, assignments	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/ assignments/ tutorial.		8			Te Ha bc ch leo ot	xt Boo andour ard, arts.V ctures hers	oks, PP ts, chal ïdeos - NPTE	T, Ik L&	
				SC	HEME OF ASSESSMENT									
S. No.	Metho	d of Assessment		Description	of Assessment		M	laxim Mark	um s	Res	ource	s Requ	uired	External / Internal
LO-01	Mid S	emester Theory Exam	Stude 1. Lis 2. Dra Op 3. Exp 4. De cha	ent will be asked to(t out and explain 4 s aw various equivaler p-Amp. plain different mode scribe various conce aracteristics.	and/or): stages of an Op-Amp. nt circuit and/or symbol e of operation. ept and op-amp	of		10		Ques	tion p sc	aper, F ale	Rating	Internal
			A	ADDITIONAL INSTRU	ICTIONS FOR THE HOD/	FAC	ULTY	(IF A	NY)					

RGPV	/ (Diplo	ma Wing) Bl	hopa	SCHEME	FOR LEARNING	Bra	nch Code	C	ourse Cod	le c	CO Code	LO Code	Format No. 4
			1.0.			E	0 5		0		1	2	
COURS	E NAME	Analog Integrate	d Circu	lit									
CO Des	cription	Describe the constr	uction of	of operational amplif	iers.								
LO Dese	cription	Explain basic Op-	Amp cir	cuit parameters.									
					SCHEME OF STUDY								
S. No.	Le	earning Content		Teaching – Learning Method	Description of T-L Pro	cess	Teach Hrs.	ו	Pract. /Tut Hrs.	LR	s Re	quired	Remarks
LO-02	IC Packa Paramete Inputoffs resistance Rejection rate, Gair 741IC character plyrequir	ges of Op-Amps, Ba rs of Op-Amp: etvoltage, Input e, Common Mode Ratio (CMRR), Sle a, Bandwidth, Op-A istics,pinoutandpow ements	ew mp ersup	Interactive classroom lecture, PPT, demonstration, quiz,assignments, tutorial	Teacher will explain the contents and provide handouts to students. Tea will conduct quiz/assignm tutorial to make students practice their knowledge.	acher ents/	8			Tex PP cha cha Nur Pro Wo	tt Boo F, Ha Ik bo rts, meric blem rkboo	oks, andouts oard, cal os ok	3,
				S	CHEME OF ASSESSMENT								
S. No.	Method	l of Assessment		Description of	Assessment	Max M	kimum Iarks		Resou	irces R	equi	ired	External / Internal
LO-02	End S	emester Theory Exam	Stude 1. Li 2. E: 3. Si ca	ent will be asked to st the various pack xplain the given pa imple numerical on alculation.	(and/or): ages of Op-Amp. rameter of Op-Amp. Op-amp parameter		10	Que	estion	paper, 1	Ratir	ng scale	e External

			ADD	DITIONA	L INSTRUCTIONS FOR THE	HOD/	FACULTY (IF AN	Y)				
RGPV	(Diplo	oma Wing) Bl	nonal	SCH	EME FOR LEARNIN	G	Branch Coo	le	Co	ourse Code	CO Code	LO Code	Format No. 4
			lopai		OUTCOME		E 0	3	4	0	1	3	
COURS	E NAME	Analog Integrate	d Circuit										
CO Des	cription	Describethe constr	uction of o	perationa	al amplifiers.								
LO Dese	cription	Measure basic char	racteristics	of Op-A	mps.								
					SCHEME OF STU	DY							
S. No.	Lear	ning Content	Teachi Learn Meth	ing – ling lod	Description of T-L Proce	ess	Teach Hrs.	Pra /T Hi	act. 'ut rs.	LR	s Requir	ed	Remarks
LO-03	Measurer racteristic viz. Ou Input Ro Gain, product. and/or Si	mentofDifferentcha csofanOp-Amp utput Resistance, esistance, Voltage gain-bandwidth (On Trainer-Kit mulation)	Lab demonstra hands practice, assignmen Lab.	ation, on lab nts, V-	 Teacher with support from staff will demonstrate the procedure of lab experime Student will conduct lab assignment based on thes experiments. 	n lab ents. e		5	3	Lab ma experir instrun measur compu simulat high sp	nual, cha nental tra nents/kit ring instru ter with r tion softw eed inter	rts, ainer with uments elevan vare an net.	;, t d
	I		I		SCHEME OF ASSESS	MENT			I				1
S. No.	Metho	d of Assessment	D	Descripti	ion of Assessment	Maxii um Mark	m (S	Re	sourc	es Req	uired		External / Internal

LO-03	Practica	l test in laboratory	Studen 1. Verify chara	t will be asked and measure cteristic of Op-	to different Amp.	10		Rubi	rics/Rati	ng sca	le		External
			AD	DITIONAL INS	TRUCTIONS FOR THE	HOD/ F	ACULTY (II	F ANY)					
RGPV	(Dinlo	ma Wing) Bł	nonal	SCHEM	E FOR LEARNIN	G	Branch Code		Course C	ode	Code	LO Code	
			iopui	(DUTCOME		E 0	3	4 0	1	2	4	Format No
COURS	E NAME	Analog Integrate	d Circuit	t									
CO Dese	ription	Classify different (Op-Amps	based circuits.									
LO Desc	ription	Construct general (Op-Amp	based circuits.									
					SCHEME OF STU	DY							
S. No.	Le	earning Content		Teaching – Learning Method	Description of T-L P	rocess	Teach Hrs.	Pr /Tu	act. t Hrs.	LRs	s Requ	iired	Remarks
LO-04	A Different Circuits of Op-Amps Circuit diagram, working concept and formula derivation of: Inverting amplifier, non- invertingamplifier, Voltage follower, Adder andSubtractor, Differentiator, Integrator, LogarithmicamplifierandAntiloga rithmicamplifier			teractive assroom cture, PPT, emonstration, uiz,assignment tutorial	Teacher will explain the contents and provide handouts to students. will conduct assignme quiz/tutorial to make s practice their knowled	ie Teachei nts/ students Ige.	8			Text I Hando board Video NPTE	Books, outs, cl , charts lecture L and	PPT, halk s, e- others	
	SCHEME OF ASSESSMENT												
S. No.	Metho	d of Assessment		Description of	Assessment	Max Ma	imum arks	R	esource	es Req	uired		External / Internal

LO-04	End S	Gemester Theory Exam	Studer 1. Dratoria of at 2. Dertamp	nt will be asked w circuit diagra ny given op-amp ive the express based circuit.	d to (and/or): m and explain working p based circuit. ion for any given op-	10	Qu	uestio	n pape	r, Ratin	g so	cale	External
	1		A	DDITIONAL INS	STRUCTIONS FOR THE HOL)/ FACUL	ry (if A	NY)					
RGP\	/ (Dinlo	nma Wing) B	honal	SCHEM	IE FOR LEARNING	Brand	h Code	C	ourse Code	e Co) de	LO Code	Eormat No. A
			nopu		OUTCOME	Ε	0 3	4	0	2	,	5	Format No
COURS	SE NAME	Analog Integrate	ed Circui	t									
CO Des	cription	Classify different	Op-Amp	s based circuits.									
LO Des	cription	Describe general (Op-Amp l	based filter circu	uits.								
					SCHEME OF STUDY								
S. No.	L	earning Content		Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pı /Tu	ract. It Hrs.	LF	Rs Requ	ire	d	Remarks
LO-05	LO-05 Op-Amp based circuit d working concept and free response of: Active filters such aslow highpass, band pass, bar and all pass filter. Simple numerical proble Op-amp based filter des		am, In ncy c le s, V ject d on as	nteractive lassroom ecture, PPT, /ideo, emonstration, uiz, ssignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8			Text Hand board Vide NPT	Books, douts, cl d, charts o lecture EL and	PP nall s, e- oth	T, k	

					SCHEME OF ASSESSMEN	IT								
S. No.	Metho	d of Assessment		Descript	tion of Assessment	Max m M	kimu Iarks		Reso	urces	s Requ	uired		External / Internal
LO-05	End S	emester Theory Exam	 Student 1. Explawith 2. Draw 3. Calcufilter 	t will be as ain working circuit diag frequency alate cut-of circuit.	sked to (and/or): g of given op-amp based filter gram. response of given filter circuit. f frequencies for any given	1	.0	Que	estion	paper	+ Rat	ting sc	cale.	Internal
			AD	DITIONAL	INSTRUCTIONS FOR THE HOL)/ FAC	CULTY (IF AN	IY)					
RGPV	/ (Diplo	ma Wing) Bl	hopal	SCH	EME FOR LEARNING		Branch Cod	le	Co	urse Coc	le	CO Code	LO Code	Format No. 4
	(OUTCOME	E	0	3	4	0		2	6	
COURS	E NAME	Analog Integrate	d Circuit											
CO Des	cription	Classify different	Op-Amps	based circu	uits.									
LO Dese	cription	Verify different O	p-Amps ba	ased circuit	lS.									
					SCHEME OF STUDY									
S. No.	Lear	ning Content	Teac Lea Me	hing – rning thod	Description of T-L Process	5	Teach Hrs.	Pr / H	act. Tut Irs.		LRs	Requi	ired	Remarks
LO-06	AC/DC inverting amplifier voltage differenti logarithm Verificati pass filte	analysis of and non-inverting , verification of follower, adder, ator, and hicamplifier, on of Op-amp low er (On Trainer-Kit	Lab demons PPT , ha practice assignm	tration, ands on , lab ents.	 Teacher with support from lastaff will demonstrate the procedure of lab experiment. Student will conduct lab assignment based on these experiments. 	b s.			8	Lab Har trai witl inst witl soft	manu ndouts ner ins h mea trumer h relev tware	ual, ch s, expe strum suring nts, cc vant si and h	arts, erimenta ents/kit g omputer imulatio igh	al n

	and/or Si	mulation)							spee	d internet		
	1			I	SCHEN	IE OF ASSESSMENT	•					I
S. No.	Met	hod of Assessment		Des	cription of A	Assessment	Maxii Ma	mum rks	Resou	ces Requ	ired	External / Internal
LO-06	Pract	ical test in laboratory	Stud 7 1. S ci	dent will Simulate a Sircuit.	be asked to nd verify the	given op-amp based	10	0	Rubric	s, Rating s	cale	Internal
			ADD	ITIONAL	INSTRUCTIO	ONS FOR THE HOD/	FACULTY	(IF ANY)			
				SCHE	ME FOR	LEARNING	Branch Co	de	Course Code	CO Code	LO Code	л
KGPV		oma wing) Br	юраг		Ουτο	DME	ΕΟ	3	4 0	3	7	Format No. 4
COURS	E NAME	Analog Integrate	d Circuit									
CO Des	cription	ConstructOp-Amp	based circu	uit for diff	erentapplicat	ions.						
LO Des	cription	Devlop Op-Amp ba	ased compar	rator and	Schmitt trigg	er circuits.						
					SCH	IEME OF STUDY						
S. No.		Learning Conten	t	Tea Le M	aching – earning lethod	Description of T-	L Process	Tea ch Hrs.	Pract. /Tut Hrs.	LRs Rec	quired	Remarks

LO-07	Compara inverting ofcompar crossing Schmittti inverting output we hysteresi	tors:Fund and non- rator, Op- letector rigger: In with circ aveforms svoltage	ctionsof acomparate -inverting operation en loop-zero verting andnon- cuit diagram, input a and threshold leve curve	or, Interactive classroom PPT, Vide demonstra quiz, assig and s,	lecture, o, tion, nments.	Teacher will expla contents and provid to students. Teacher conduct assignmen quiz/tutorial to ma practice their know	in the de handouts er will its/ ke students /ledge.	8		Te: PP cha cha lec and	xt Boo T, Har alk boa arts, Vi ture- N d othei	ks, idouts, ird, deo IPTEL 's.	
	1			I	SCHEN	ME OF ASSESSMEN	т						
S. No.	Meth Assess	od of sment		Description	n of Ass	essment		Maxi Ma	mum Irks	Re R	esourc equire	es ed	External / Internal
Lo-07	Mid Se Theory	mester [,] Exam	Student will be1. Explain opera2. Describe oper3. Explain Schm4. Derivethresho	asked to(and/c tion of inverting a loop zero crossin itt trigger with ci ld levels of Schm	or): and non- ng detect rcuit diag aitt trigge	inverting comparator tor. gram and i/p & o/p w er and simple numeri	r. vaveform. cal on it.	1	0	Ques Ra	tion pa ting sc	aper, ale	Internal
			A	DDITIONAL INS	TRUCTI	ONS FOR THE HOD	/ FACULTY	(IF AN	Y)				
	/ (Diplo		ling \ Phonal	SCHEM	e for	LEARNING	Branch Co	de	Cou	rse Code	CO Code	LO Code	/
KGPV			лпд / Бпора	C	DUTC	OME	E 0	3	4	0	3	8	Format No. 🕂
COURS	E NAME	Integrated Circu	it										
CO Des	cription	ctOp-Amp based c	ircuit for differen	tapplicat	tions								
LO Des	cription	Explain	Op-Amp based S&	H circuits, rectif	iers and f	function generators.							
					SCI	HEME OF STUDY							
S. No.	Le	earning	Content	Teaching – Learning	Des	scription of T-L Process	Teach Hrs.	Pra /Tut	ct. Hrs.	LRs R	equire	ed	Remarks

				Method								
LO-08	Sample an Wave Prec Op-Amp b WeinBridg Phaseshift Wave Gen Wave Gen	ndHold cisionR based geOscil tOscilla nerator, nerator	circuit, Half ectifier, lator, tor, Square Triangular	InteractiveIclassroomclecture, PPT,HVideo,Idemonstration,aquiz,tassignments.t	Feacher will explain the contents and provide handouts to students. Feacher will conduct hassignments/ quiz/tutorial o make students practice heir knowledge.	8		Tex Har boa Vide NP	t Books, ndouts, cl rd, charts eo lecture TEL and	PPT alk , e- othe	rs.	
				:	SCHEME OF ASSESSMEN	г						
S. No.	Metho Assessn	d of nent		Description	of Assessment		Maxin um Marks	n Reso	ources R	equi	red	External / Internal
LO-08End Semester Theory ExamStudent will be asked to (and/or): 1. What is sample and hold circuitand its need. 2. Explain given op-amp based oscillator with circuit diagram. 3. Compare different oscillator and rectifier circuit.10Question paper , Rating scale							2	External				
	1		1	ADDITIONAL INST	RUCTIONS FOR THE HOD,	/ FACULTY ((IF ANY)				!	
			ling \ Dhang	SCHEME	FOR LEARNING	Branch Co	de	Course Coo	le Co	e	LO Code	л
KGPV		ma v	ипд ј впора	0	UTCOME	E 0	3 4	0	3		9	Format No. 4
COURS	E NAME	Analo	g Integrated Circ	uit		- <u> </u>	· !					
CO Des	cription	Constr	uctOp-Amp based	circuit for differenta	pplications.							
LO Dese	cription	Verify	different applicati	ons of Op-Amp base	d circuits.							
					SCHEME OF STUDY							
S. No.	Lea	arning	Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract /Tut Hrs.	•	LRs Req	uire	d	Remarks

LO-09	Verificat Schmitt t Oscillato generato Trainer-I software	ion of comparator, trigger, Phase Shift or and triangular wave r using Op-Amp, (On Kit and/or Simulation)	Lab demonstration PPT , hands on practice, lab assignments.	 Teacher with suffrom lab staff videmonstrate the procedure of later experiments. Student will collab assignment 	upport vill b b nduct based			8	Lab Han exp inst mea inst com	manual, c douts, erimental ruments / asuring ruments, nputer wit	harts, trainer kit with	
				on these exper	iments.				soft	ware and ed interne	high t.	
	1		1	SCHEME OF ASSESS	MENT							I
S. No.	Met	hod of Assessment	Description	n of Assessment	Ma> M	kimum Jarks		Reso	urces	Require	1	External / Internal
LO-09	Pract	tical test in laboratory	Student will be 1. Design and based compa Schmitt trigg	asked to verify given op-amp arator, oscillator & ger circuits.		10		Rubr	ics, R	ating scale	;	Internal
			ADDITIONAL INS	STRUCTIONS FOR THE	HOD/	FACULTY	(IF AN	Y)				
			SCHEM	IE FOR LEARNIN	G	Branch Co	ode	Co	urse Cod	e CO	LO Code	_
RGPV	/ (Diplo	oma Wing) Bhop	al	OUTCOME		E 0	3	4	0	4	10	Format No. 4
COURS	E NAME	Analog Integrated Circ	cuit			i		I	I	· · · · · · · · · · · · · · · · · · ·		
CO Des	cription	Compare voltage regula	tors and converters									
LO Des	cription	Classify different voltage	e regulator ICs.									
	1			SCHEME OF STU	IDY		1					
S. No.	L	earning Content	Teaching –	Description of T	-L	Teach	Pra	ct.	L	Rs Requi	ed	Remarks

				Learning Method	Process	Hrs.	/Tut Hrs.				
LO-10	Voltage r Fixed vol and 79XX connection Adjustab using LM connection Simple nu fixed and regulator	egulators: Itage regulator-78XX X series ICs with typen on diagram and work le voltage regulator I317 IC with typical on diagram and work umerical problems of adjustable voltage s.	In X cla bical lea king. V - de qu king as on	teractive assroom cture, PPT, ideo, emonstration, uiz, signments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8		Text I Hando board Video NPTE	Books, PP outs, chall , charts, lecture- EL and oth	T,	
					SCHEME OF ASSESSMENT	•					1
S. No.	Metho	d of Assessment		Descriptio	n of Assessment	Maxim	um Marks	Resou	rces Requ	uired	External / Internal
LO-10	No.Method of Assessment10End Semester Theory Exam			t will be asked out fixed voltag ection and worl ain working of circuit diagram e simple numer stable voltage re	d to (and/or): e regulator ICs with typical king. adjustable voltage regulator ical problemson fixed and egulator.		10	Que Ra	estion pape ating scale	er,	External
			AD	DITIONAL INS	STRUCTIONS FOR THE HOD	FACULTY	(IF ANY)				
RGPV	RGPV (Diploma Wing) Bho			SCHEM	E FOR LEARNING OUTCOME	Branch C E O	code C 3 4	ourse Code	CO Code 4	LO Code 11	Format No. 4
COURS	E NAME	Analog Integrate	d Circuit	•		ı I			II		1
CO Des	cription	Compare voltage i	egulators	and converters							
LO Dese	cription	Describe operation	n of variou	is converter ICs							

			SCHEME OF STUDY				
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs	LRs Required	Remarks
LO-11	Converters: Voltage to current converter floating load and its applicati low voltage DC and AC voltmeter. Voltage to current converter grounded load. Current to voltage converter its application in digital to an converter using IC 1408. Digital to Analog Conversion using binary weighted register R2R registers using Op-Amp 351. Analog to digital conversion using successive approximat using Op-Amp as comparato	ion in Interactive classroom classroom lecture, PPT, Video, demonstration, with quiz, assignments. and halog n ers, o IC ion or.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8		Text Books, PPT, Handouts, chalk board, charts, Video lecture- NPTEL and others.	
			SCHEME OF ASSESSMENT				
S. No.	Method of Assessment	Descriptio	on of Assessment	Maximur	n Marks	Resources Required	External / Internal
LO-11	Mid Semester Theory Exam	 Student will be asked Explain voltage to culoads and application Draw and explain culapplication in DAC. Explain different type amp. 	to (and/or): Inrent converter with different In rrent to voltage converter andits es of ADC & DAC using op-	1	0	Question paper , Rating scale.	Internal
		ADDITIONAL IN	STRUCTIONS FOR THE HOD/ FA	ACULTY (IF	ANY)		

	/ (Diple	ma Wing \ Phone	SCHEME F	OR LEARNING	Branch C	ode	Co	urse Co	de CC Cod	e C	LO ode	_	1	
KGPV		onia wing j bhopa	" OU	OUTCOME			4	0	4	4 12 Fo			ormat No. 4	
COURS	E NAME	Analog Integrated Circ	uit											
CO Des	cription	Compare voltage regulate	ors and converters											
LO Description Verify the working of voltage regulator& converter ICs.														
				SCHEME OF STUDY										
S. No.	L	earning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Prac /Tut H	ct. Hrs.	LRs Required				LRs Required Rema		
LO-12	Verificat Voltage o ICs (On Trai Simulatio	tion of 78XX, 79XX, to current and current to converter using Op-Amp ner-Kit and/or on)	Lab demonstration, PPT , hands on practice, lab assignments.	 Teacher with support from lab staff will demonstrate the procedure of lab experiments. Student will conduct lab assignment based on these experiments. 		8		Lab manual, charts, Handouts, experimental trainer instruments/kit with measuring instruments, computer with relevant simulation software and high speec internet.			tal t r on ed			
			sc	CHEME OF ASSESSMENT										
S. No.	Met	hod of Assessment	Description of Assessment		Maximum Marks			Resources Required			ed	External / Internal		
LO-12	Pract	tical test in laboratory	 Student will be asked to Design and verify voltage regulator for given ICs. Verify voltage to current and current to voltage converter circuit using Op-Amp ICs. 		10			Rubrics, Rating scale			External			
			ADDITIONAL INSTRU	JCTIONS FOR THE HOD/	FACULTY	(IF ANY	()							

RGPV (Diploma Wing) Bhopal				SCHEME FOR LEARNING			ode 3 4	Course Co	ode CO Code	LO Code	Format No. 4
COURS	E NAME	Analog Integrat	ed Circu	it							
CO Des	cription	Illustrate 555 tim	er and PL	L ICs for variou	s applications.						
LO Dese	cription	Construct multi-v	vibrator ci	ircuits using 555	timer IC.						
					SCHEME OF STUDY						
S. No.	Le	earning Content		Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs	t. LRs Required			Remarks
LO-13	Function 555 time 555 IC, N IC: mono astable, 555 IC as Square w tooth way angular v	al block diagram o r IC, Pin configurat Aulti-vibrator using o-stable, bi-stable a s wave generators: ravegenerators, Sav ye generatorsand T vavegenerators.	f a I tion of c g 555 1 nd V c w a ri-	nteractive elassroom ecture, PPT, Video, lemonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8		Text Books, PPT, Handouts, chalk board, charts, Video lecture- NPTEL and others.			
					SCHEME OF ASSESSMENT	•					
S. No.	Method	of Assessment		Descriptio	Maxim	um Marks	Res	ources Re	External / Internal		
LO-13	Mid Se	emester Theory Exam	Studen 1. Drav 2. Expl 3. Cons	t will be asked v pin and block of ain different ope struct given wave	to (and/or): liagram of timer 555 ICs. ration modes of 555 ICs. eform generator using 555 ICs.	10		(Question pa Rating sca	per , le.	External
			Α		STRUCTIONS FOR THE HOD/	FACULTY	(IF ANY)				

SCHEME FOR LEARNING							Branch Code (de CO Code	LO Code	
RGPV	(Diplo	oma Wing) Bl	hopal	OUTCOME			0	3	4	0	5	14	Format No. 4
COURS	E NAME	Analog Integrate	d Circuit	•		1			1		<u> </u>		1
CO Des	cription	Illustrate 555 time	r and PLI	L ICs for variou	s applications.								
LO Description Explain working and applications of Phase Lock Loop(PLL) IC.													
		·			SCHEME OF STUDY								
S. No.	L	earning Content		Teaching – Learning Method	Description of T-L Process	Te H	ach Irs.	Pra /Tut	act. : Hrs.	LRs Required			Remarks
LO-14	LO-14 Phase Lock Loop (PLL) 565 IC: functional block diagram with working principle, Lock & Capture range, transfer characteristics Applications of PLL – FM demodulation and frequency multiplier			teractive assroom cture, PPT, ideo, emonstration, iiz, signments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.		8	-		Text Books, PPT Handouts, chalk board, charts, Video lecture- NPTEL and othe			
					SCHEME OF ASSESSMENT	Г							
S. No.	Method of Assessment			Description of Assessment			Maximum Marks			Res	ources Re	External / Internal	
LO-14	O-14 End Semester Theory 1 Exam 2 3			 dent will be asked to (and/or): Explain working principle of PLL. Define capture and lock range of PLL. List out application of PLL and explain it. 			10			Que	stion paper scale.	g External	
			AD	DITIONAL IN	STRUCTIONS FOR THE HOD	/ FAC	CULTY	(IF AN	IY)				

RGPV	/ (Diplo	ma Wing) Bl	hopal	SCHEM	Branch C	ode	Course Code		CO Code	LO Code	Format No. 4				
				(`_	JUICOIME	EU	5 4	0		5	13				
COURS		Analog integrate			1 •										
CO Des	cription	Illustrate 555 timer	r and PL	L ICs for various	s applications.										
LO Dese	cription	Assemble and veri	fy 555-ti	mer and PLL bas	sed circuits.										
	SCHEME OF STUDY														
S. No.	o. Learning Content			Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs	5.	LRs Required			Remarks			
LO-15	-15 Astablemultivibrator&Sawtooth waveform generator using 555 IC. PLL565 IC as a frequency multiplier. (On Trainer-Kit and/or Simulation Software)			ab emonstration, PT , hands on ractice, abassignments.	 Teacher with support from lab staff will demonstrate the procedure of lab experiments. Student will conduct lab assignment based on these experiments. 		8	La H ex in w in co re sc sc	Lab manual, cha Handouts, experimental trainer instruments/kit with measuring instruments, computer with relevant simulat software and hig speed internet.			Lab manual, charts, Handouts, experimental trainer instruments/kit with measuring instruments, computer with relevant simulation software and high speed internet.			
	SCHEME OF ASSESSMENT														
S. No.	Method	of Assessment		Description	of Assessment	Maximu m Marks	Resources Required			External / Internal					

LO-15	Practical test in laboratory	 Student will be asked to Assemble circuit of astable multi-vibrator and verify output using 555 ICs. Simulate circuit of saw-tooth waveform generator and verify output using 555 ICs. Verify application of PLL ICs as frequency multiplier. 	10	Rubrics, Rating scale	Internal
		ADDITIONAL INSTRUCTIONS FOR THE HO	D/ FACULTY	(IF ANY)	