OBE CURRICULUM FOR THE COURSE

FORMAT-Sheet 3

No. 1/5

Branch	Ele	Electronics & Tele-communicationSemester6										
Course Code	E03	Course Name	CONSU	JMER ELE	CTRO	NICS						
Course (Dutcome 1	Discuss the Audio sy	stem		Teach Hrs	Marks						
Learning	Outcome 1	Explain Different types of microphone (cognitive)810										
Con	itents	 Characteristic loudness. Principle, wo Carbon gr Condense Ribbon m Crystal m Dynamic Electret n 	c of audio wave, freq rking, characteristics ranule microphone. er microphone. hicrophone. hicrophone. microphone. microphone.	uency range	, pitch, tion of	timbre, microphone						
Method of	Assessment	External- End semester examination(theory)										
Learning	Outcome 2	Describe various	8	10								
Con	itents	 Principle & working of speakers Types of speakers: PMMC Frequency response of speaker Audio amplifier Application of audio amplifiers Functional Block diagram of PA system Commercial Sound- stereo. Hi Fi and Dolby system 										
Method of	Assessment	External-End semest	er examination(theor	ry)								
Learning	Outcome 3	Analyze characteristi (Psychomotor)	ics of audio system		5	15						
Con	itents	 Study public address system and its components. Study of audio amplifiers stages (pre amplifier, voltage amplifier, power amplifier) Plotting of directional property of microphones & speakers Plot frequency response of microphone and speaker 										
Method of	Assessment	External- End seme	ster practical/ viva									

OBE CURRICULUM FOR THE COURSE

FORMAT-Sheet 3

No. 2/5

Branch	E	lectronics & Tele-comm	inication	Semester	er 6						
Course Code	E03	Course Name	CONSU	MER ELE	CTRO	NICS					
Course	Outcome 2	Discuss Mobile Hand	Discuss Mobile Handset Teach Marks Hrs.								
Learning	Outcome 4	Describe architecture and features of mobile810handset (cognitive)10									
Со	ntents	Mobile handsecomparison be	t architectures using tween keypad mobil	g block diag le and touch	rams.	nobile					
Method of	f Assessment	Internal									
Learning	Outcome 5	Define functions of va handset (cognitive)	rious components o	f mobile	12	10					
Сол	ntents	• Different electric	 ronic components us Transmitter Charging IC RAM ROM VCO(voltage co Filter(Rx and Tx Flash IC CPU Crystal oscillator microphone Antenna Audio IC Speaker Sensors(proximi)) Displays Modules (wi-fi, 1) 	sed in mobil ntrol oscilla () r ty, motion, Bluetooth, (le phone tor) vibration GPS, car	s n, ambient light nera etc)					
Method of	f Assessment	External - End semester examination(theory)									
Learning	Outcome 6	Demonstrate various c handset.(Psychomoto	omponents of given	mobile	5	10					
Сог	ntents	Study various ofDemonstrationPerform hardw	components of giver of various setting in are test on mobile h	n mobile ha n mobile ha andset.	ndset. ndset.						
Method of	of Assessment Internal										

OBE CURRICULUM FOR THE COURSE

FORMAT-

Sheet No. 3/5

Branch		Electronics & Tele-communicationSemester6												
Course (Code	EO	3	Course Name	CONSUM	IER ELEC	TRONI	CS						
Course	Outco	ome 3	Outlir	he the Video techn	Teach Hrs.	Marks								
Learning	g Out	come 7	Descr	Describe working of analog TV. (cognitive) 14 10										
Co	ontent	s		Block diagram o Scanning and its Need of synchro VSB modulation Composite Vide Concept of Colo Colour Triangle VHF-UHF Chan	of TV communication need nizing and blanking o Signal our Mixing anel allocation.	n system pulses								
Method o	of Asse	essment	Extern	nal										
Learning	g Out	come 8	Illustr	ate TV receiver an	10	10								
Co	ontent	S	 Block diagram and working of B&W TV receiver and PAL TV receiver. Features and working of LCD and LED display. Working principle of DLP, LCD and LED Projector. 											
Method o	of Asse	essment	Extern	nal- End semester	examination(theory)									
Learning Outcome 9Discuss Digital TV and Camera (Psychomotor)510														
Co	ontent	s	•	Features of Smar Introduction to d Features and bas	rt-TV and HDTV. ligital video broadcas sic function of digital	sting (DVB) Camera.	,							
Method of Assessment Internal														

Т

OBE CURRICULUM FOR THE COURSE

101 17

Branch		I	Electron	iics & Tele-commu	nication	Semester		6								
Course C	ode	EO)3	Course Name	CONSUME	R ELECTI	RONICS	5								
Course	Outco	me 4	Expla system	in solar energy sys n.	stem, security and saf	ety (Teach Hrs.	Mark s								
Learnin	g Outo 10	come	Discu	ss Solar energy sys	stem(cognitive)		10	10								
Co	ntents		•	Introduction to se over view of diff - mono-cry - polycryst - thin- film Series and paralle Classification of - Stand-alone se - Grid tie solar - Grid connect Concept of block	olar energy ferent types of solar r ystalline, alline el connection of mod solar PV plants solar PV plants PV system ed solar PV system sting diode and bypas	nodules lules ,modu s diode	le array	<u></u>								
Method o	f Asses	sment	Extern	nal												
Learnin	g Outo 11	come	Illust (cogn	rate different Secu itive)	urity & Safety System	n	10	10								
Co	ntents		Funct	 ional Block diagra Home walkie Video door p CCTV survei Electronic co Integrated fir Magnetic car RFID 	m and working of : e-talkie whone illance system ombination locks re safety system rd and Near field carc	1										
Method o	f Asses	sment	Extern	nal												
Learnin	g Outo 12	come	Perfor system	rm experiment on s m(Psychomotor)	solar energy system a	and safety	5	15								
Co	ntents		•	Study of security Draw I-V curve of parameters- show at maximum pow Connect a solar p	v and safety systems of solar module and f rt circuit current ,ope ver ,voltage at maxim power to different dc	find out diff in circuit vo num power load.	erent ltage , cı	urrent								
Method o	f Asses	sment	Extern	nal			Connect a solar power to different dc load. External									

RGPV WING	(DIPLON) BHOPA	MA AL	OBE CUI FOR TH	RRICULUM E COURSE	FOR	мат- 3	SI N	heet o. 5/5					
Branch		Electro	nics & Tele-comm	unication	Semest	er		6					
Course Code	E)3	Course Name CONSUMER ELECTRONICS										
Course O	utcome 5	Outli electr	Outline the Miscellaneous Application of electronicsTeach Hrs.Mark S										
Learning 1	Outcome 3	Expla (cogn	ain various Domes aitive)	tic & Consumer App	pliances	10		10					
Cont	ents	 Functional Block diagram, specifications and working of Microwave ovens comparison of microwave oven with convection oven and air fryer Front penal control of Washing machines, Air-conditioners and Refrigerators 											
Meth Assess	od of sment	Interr	nal										
Learning 14	Outcome 4	Understand Automobile electronics (cognitive)											
Cont	ents		Need of Electron Electronic contr Electronic igniti Anti-brake syste Electronically co Instrument pane etc.) Ultrasonic car sa Theft detection	nics in Automobiles ol module. on. em (ABS). ontrolled suspensior l displays (speedom afety system and par and remote locking.	eter, milc king syst	ometer, i em.	fue	l meter					
Meth Assess	od of sment	Interr	nal	and remote locking.									

Suggested List of Experiments*:

S.N.	Experiment	CO
1	Setup a public address system.	1
2	Study of audio amplifiers stages (pre amplifier, voltage amplifier, power amplifier).	1
3	To Plot of directional property of microphones & speakers.	1
4	To Plot frequency response of microphone and speaker	1
5	Identify various components of given mobile handset.	2
6	Demonstration of various setting in mobile handset.	2
7	Perform hardware test on mobile handset.	2
8	Explore and list the Features of Smart-TV and HDTV.	3
9	Study digital video broadcasting (DVB),	3
10	Study Features and basic function of digital Camera	3
11	Draw I-V curve of solar module and find out different parameters- short	4
	circuit current ,open circuit voltage , current at maximum power ,voltage at	
	maximum power	
12	Demonstrate the Connection of solar power to different dc load	4

Suggestions for Practical:

Experiments are expected to be performed

- 1. Using Trainer kits.
- 2. On virtual lab platforms available online

Reference Books/Web Portals:

S.N.	Title	Author
1.	Consumer Electronics	SP Bali. Pearson Education
2.	Audio and video systems	R G Gupta
3.	Modern television practice	R R Gulati
4.	Television and video engineering	A M Dhake
5.	Automobile Electrical and Electronic Systems	Tom Denton, 3rd edition,
6.	Understanding Automotive electronics	William. B. Ribbens,
7.	Solar photovoltaic technology and systems	Chetan Singh Solanki
8.	Solar Photovoltaic : Fundamentals, Technologies and Application	Chetan Singh Solanki
9.	www.swayam.gov.in	
10.	www.nptel.ac.in	

DODU	/ D' 1		SCHEM	IEFORLEARNING	Branch (Code	Cour	se Code	CO Code	LO Code	A
KGPV	(Diplom	a Wing) Bhopal	(DUTCOME	E 0	3	6	0	1	1	Format No. 4
COURSI	E NAME	Consumer Electro	nics						I	1	
CO Desci	ription	Discuss the Audio s	system.								
LO Descr	ription	Explain Different typ	pes of microphone (cogr	nitive)							
				SCHEME OF STUDY							
S. No.	Lear	rning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract./	'TutHrs •		LRs Requi	red	Remarks
LO-01	 Chau fre pit lou Pr chap mi - 	haracteristic of dio wave, equency range, tch, timbre, udness. inciple, working, aracteristics and plication of icrophone Carbon granule microphone. Condenser microphone. Ribbon microphone. Crystal microphone. Dynamic microphone. Electret microphone.	 Interactive classroom lecture, PPT, Video, Demonstration quiz, Assignments. 	Teacher will introduce subject and encourage students to identify and list key applications. Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8			Text Hanc board lectur other	Books, Pl louts, chal d, charts, V re- NPTEL online reso	PT, k /ideo and burces.	
				SCHEME OF ASSESSMENT							
S. No.	Methodo	fAssessment	Descrip	tion of Assessment		Maxin Marks	num s	Reso	ources Requ	ired	External / Internal

LO-01	End semester examination(theory)	 Student will be asked to (and/or):- What is the most common type of microphone What are the features of microphone? Explain particular type of microphone with diagram Define audio Frequency range ,pitch ,loudness Explain Characteristics of sound wave. 	10	Question Paper, rubrics, Rating scale	External

DODU	(D' -1		SCHEMEFO	RLEARNING	Br	ranch Cod	e	C	ourse C	Code	CO Code	LO Code	Λ
KGPV		ia wing) bhopai	OUTCOME E		E	0	3	5	0		1	2	FormatNo.4
COURSE	E NAME	Consumer Electronics											
CO Descr	ription	Discuss the Audio system											
LO Description Describe various types lou			l speaker(cognitive)										
			S	CHEME OF STUDY									
S. No.	Lear	rning Content	Teaching –Learning Method	Description of T-L Process	T	leach Hrs.] /T	Pract. ut Hrs	5.	LRs Required			Remarks
LO-02	 O-02 Principle & working of speakers Types of speakers: PMMC Frequency response of speaker Audio amplifier Application of audio amplifiers Functional Block 		Interactive classroom lecture, PPT, Video, Demonstration, 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				Fext Bo Handou charts, NPTEL online 1	boks, P its, cha Video 1 2 and of resourc	PT, lk boa lecture hers es.	rd, -

	diagram of - Commerci stereo, Hi- system	PA system al Sound- Fi and Dolby				
		SCHEME OF ASSESSM	ENT			
S. No.	Method of Assessment	Description of Assessment	Maxi M	mum arks	Resources Required	External / Internal
LO-02	End sem Theory Exam.	 Student will be asked to(and/or): What are the important parts of a loudspeaker Explain working of PMMC types of speaked diagram Draw and explain block diagram of PA system What is difference between Hi-fi and Dolby system 	er with tem n	10	Question paper, Rating scale	External

DODU	(D' 1	- W ²) DL	1	S	CHEMEFORLEARNING	-	Branc	ch Code	•	С	course Co	de	CO Code	LO Code	1
KGPV		a wing) Br	opai		OUTCOME		E	0	3	6	0		1	3	FormatNo.
COURS	E NAME	Consumer E	lectronics							-	-			1	
CO Desc	ription	Discuss the	Audio system												
LO Desci	ription	Analyze chara	cteristics of au	dio sys	tem(Psychomotor)										
		·			SCHEME OF STUI	ŊŶ									
S. No. Learning Content Teaching– Description of T-L Learning Method Process] /T	Pract ut H	rs.	I	LRs R	equire	d		Remarks
LO-03	O-03Study public address system and its components.Lab demonstration, hands on practice, lal assignments, V-Lab.•Study of audio amplifiers stages (pre amplifier, power amplifier)assignments, V-Lab.•Plotting of directional property of microphones & speakersPlot frequency response of microphone and speaker		ion, ce, lab -Lab.	 Teacher will explain the contents Teacher with support from lab staff will demonstrate the procedure of lab experiments. Student will conduct lab assignment based on these experiments 			/Tut Hrs. LRs /Tut Hrs. Trainer in 5 with mea instrumen with relev software internet.		ainer instruments/kit th measuring struments, computer th relevant simulation ftware and high speed ernet.						
					SCHEME OF ASSESS	MENT									
S. No. Method of Assessment De				scription of Assessment	otion of Assessment Maximum Marks Resources Req				equired		External / Internal				

LO-03	End semester Practical Exam and Viva	 Student will be asked to: Draw directional property of microphones & speakers. Draw frequency response of microphone and speakers. Make a PA system setup in lab. 	15	Rubrics, Rating scale	External
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		·		SCH	EMEFORLEARNING]	Branch Cod	le	Co	ourse Cod	e	CO Code	LO Code	Λ
KGPV (DI	pioma w	ing) Bhopai			OUTCOME	E	0	3	6	0		2	4	Format No. 🕂
COURSE NA	ME	Consumer Elec	ctronics				_						1	·
CO Descriptio	n	Discuss Mobile	Handset											
LO Descriptio	n	Describe archite	cture and fe	eatures of m	obile handset(cognitive)									
		1			SCHEME OFSTUDY									
S. No.	Learni	ng Content	Teac Learning	hing– g Method	Description of T-L Process	Teach Hrs.	I /Tu	Pract. ut Hrs.		LF	Rs Req	uired		Remarks
LO-04	 Mobile handset architectures using block diagrams. comparison between keypad mobile and touchscreen mobile 			classroom F, Video, ation, gnments.	• Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8		-	Te: Ha cha NP res	xt Boo ndouts arts, V TEL a ources	oks, Pl s, chal ideo 1 and ot s.	PT, lk boar ecture hers of	rd, - nline	
	1				SCHEME OF ASSESSMEN	Т								
S. No.	Method	of Assessment		Descr	ription of Assessment		Maxir Ma	num arks		Resou	rces Re	equired		External / Internal
LO-04 Progressive test/quiz/assignment/presentati on/seminar 2. 3.		ntati 2. 3.	ent will be asked to(and/or): Draw and explain Mobile handset using block diagrams Compare keypad mobile and touch screen mobile Write short note touch screen mobile]	10		Quest scale	ion pa	per, Ra	ting	Internal	
	·		ADI	DITIONALI	NSTRUCTIONSFORTHEHOD	/FACUL	TY(IF	ANY)						·

RGPV (Diploma Wing) Bhopal				SCHEM	ME FOR LEARNING		Branch Co	de	C	ourse Code	CO Code	LO Code	Λ
KGPV (D)	pioma	a wing) Bhopai	l		OUTCOME	E	0	3	6	0	2	5	FormatNo.4
COURSE NA	AME	Consumer Electr	onics				I			<u> </u>	I		
CO Descripti	tion	Discuss Mobile Ha	andset										
LO Descripti	ion ^I	Define functions of	various c	omponents of	mobile handset(cognitive)								
					SCHEME OF STUE	ЭY							
S. No.	Learn	ning Content	Teachi	ing –Learning Method	Description of T-L Process	Teach Hrs.	Pra /Tut I	ct. Hrs.	I	LRs Requi	red		Remarks
LO-05 Diff com pho	Learning ContentTeachDifferent electronic components used in mobile phonesInteract lecture, Demon• Transmitter • Charging IC • RAM • ROM • VCO(voltage control oscillator) • Filter(Rx and Tx) • Filash IC • CPU • Crystal oscillator • microphone • Antenna • Audio IC • Speaker • Sensors(proximity , motion, vibration, ambient light) • Displays • Modules (wi-fi, Bluetooth, GPS,		Interactiv lecture, P Demonstr assignme	e classroom PT, Video, ration, quiz, nts.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	12			Text E Hando charts, NPTEI	Books, PP outs, chall , Video lec L and othe	T, c board, cture- rs.		
		camera etc)			SCHEME OF ASSESSM	AENT							

S. No.	Method	of Assessment		Descriptio	on of Assessment		Maxi M	imum [arks		Resour	ces Req	uired		External / Internal
LO-05	End ser	n Theory Exam.	Student 1. I 2. I	t will be asked to List the import set Describe the fe components.	o (and/or) tant component of mobile eatures and working of giv	hand ven		10	(Question	paper,]	Rating	scale	External
DODU		117° \ D1 1		SCHEN	MEFORLEARNING	r	Branch	Code	C	ourse Cod	e	CO Code	LO Code	4
KGPV	GPV (Diploma wing) Bhopai OURSE NAME Consumer Electronics				OUTCOME	E) 3	6	0		2	6	FormatNo.4
COURSI	E NAME	Consumer Electro	onics							· · · · ·	I			
CO Desci	ription	Discuss Mobile Ha	undset											
LO Descr	ription	Demonstrate vario	us compo	nents of given	mobile handset.(Psychon	notor)								
					SCHEME OF STUI	DY								
S. No.	Lear	ning Content	Teachi N	ng –Learning ⁄Iethod	Description of T-L Process	Teach Hrs.	P /Tu	ract. 1tHrs.		LRs Re	quired			Remarks
LO-06	 Learning Content Study various components of given mobile handset. Demonstration of various setting in mobile handset. Perform hardware test on mobile handset. 		Lab demo hands on J assignmer	onstration, practice, lab nts, V-Lab.	 Teacher will explain the contents Teacher with support from lab staff will demonstrate the procedure of lab experiments. Student will conduct lab assignment based on these experiments 			5	Image: Construct of the system Image: Construct of the system Image: Construct of the system Trainer instruments/kit with measuring instruments, computer with relevant simulation software and high speed internet.					
					SCHEME OF ASSESS	MENT								

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal	
LO-06	Internal practical/quiz/assignment/ppt /lab record	 Student will be asked to Perform hardware test on mobile handset List various components of given mobile handset List various setting in mobile handset 	10	Rubrics,, Rating scale	Internal	

DODU	(D! 1	- W ²	SCI	HEMEFORLEARNING	r		Branch Coo	de	C	ourse Co	de	CO Code	LO Code	Λ
KGPV		a wing) Bhopai		OUTCOME		E	0	3	6	0		3	7	FormatNo.4
COURSI	E NAME	Consumer Electr	onics				I							·
CO Desci	ription	Outline the Video	o technology											
LO Descr	ription	Describe working	of analog TV. (cog	nitive)										
		1		SCHEME OF STUI	DY									
S. No.	Lear	ning Content	Teaching – Learning Method	ching - arningDescription of T-L ProcessethodProcess			Prac /Tut H	et. Hrs.]	LRs R	equire	d		Remarks
LO-07	 Ble sys Sca Ne syn bla VS Coon Sig Coon Mit Coon VH allo 	Methodck diagram of TV em.Interactive classroom lectu PPT, Video, Demonstration, quiz, assignmen al accept of Colour tring our Triangle F-UHF Channel cation.Interactive classroom lectu PPT, Video, 		Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	14		/Tut Hrs.		Text I Hando charts NPTE	Books outs, c , Vide L and	, PPT, halk to lectuothers.	, poard, ire-		
			·	SCHEME OF ASSESS	MENT									
S. No.	. No. Method of Assessment			cription of Assessment			Maxim Ma	um rks		Resou	rces Re	equired		External / Internal
LO-07 End sem Theory Exam. 2. Wh 9. July 3. Dra 4. Wh		 Student will be a 1. Draw and exp 2. What is need pulses 3. Draw and exp 4. What concep 	t will be asked to(and/or): w and explain block diagram of TV system at is need of synchronizing and blanking ses w and explain composite video signal at concept of colour mixing used in TV system			1	0		Que	estion p se	oaper, F cale	Rating	External	

DODU	RGPV (Diploma Wing) Bh		SC	HEMEFORLE	ARNING		Branch (Code	0	Course Cod	le	CO Code	LO Code		
KGPV	(Diploma V	wing)	Bhopal		OUTCOM	E	E	0	3	6	0		3	8	FormatNo.4
COURS	E NAME C	Consume	er Electronics	1						-					
CO Desc	ription O	Outline th	ne Video technolog	gy											
LO Desc	ription III	lustrate	TV receiver and D	visplay de	vice(cognitive)										
	I				SCHEM	E OF STUDY									
S. No.	Learnin	ng Conte	nt		Teaching– Learning Method	Description Proces	of T- s	·L	Teach Hrs.	[/T	Pract. 'utHrs	•	LRs	Require	d Remarks
LO-08	 D-08 Block diagram and working of B&W TV receiver and PAL TV receiver. Features and working of LCD and LED display. Working principle of DLP,LCD and LEI Projector. 				Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will ex contents and pr handouts to stu Teacher will co assignments/ quiz/tutorial to students practic knowledge.	xplain ovide dents onduc make ce the	10			Te Ha bo Vi NF	ext Bool andouts ard, cha deo lect PTEL an	ks, PPT , chalk arts, ure- nd others		
					SCHEME O	F ASSESSMEN'	Г								
S. No.	S. No. Method of Description of Assessment			f Assessme	nt	Max M	imum larks	1		R	Resour	ces R	equired	1	External / Internal
LO-08	 End sem Theory Exam. Student will be asked to(and/ 1. Draw and explain Blo receiver Draw and explain Blo Compare LCD and LE Draw block diagram a LCD,DLP and LED F 			d to(and/o lain Bloc lain Bloc and LEI iagram an d LED Pr	r): k diagram of B&W ' k diagram of PAL re D display id explain working o rojectors.	TV 10 receiver of				(Questio	n pap	ber, Ratin	ng	External

DODI				SCHEM	IEFORLEAR	NING	r	Bra	anch Cod	e	(Course Co	ode	CO Code	LO Code	
KGPV	(Diplom	a Wing) Bhopal		(OUTCOME			E	0	3	6	0		3	9	FormatNo.4
COURS	SE NAME	Consumer Electro	onics							1						1
CO Deso	cription	Outline the Video	technolo	gy												
LO Desc	cription	Discuss Digital TV	and Ca	mera(Psychon	notor)											
					SCHEME (OF STU	DY									
S. No.	Lear	ming Content	Teach	ing –Learning Method	Description of Process	T-L	Teacl Hrs.	h . /'	Prac TutH	t. rs.		LRs R	lequire	ed		Remarks
LO-09	 Fe and Int via (D) Fe fun Ca 	 Features of Smart-TV Lab demonstration, , and HDTV. Introduction to digital video broadcasting (DVB). Features and basic function of digital Camera. Teacher with assignments, V- Features and basic function of digital Camera. 			 Teacher with suffrom lab staff v demonstrate the procedure of la experiments. Student will co lab assignment on these experi 	upport vill e b nduct based ments.	-	5 Lab manual, chart experimental trair instruments/kit wi measuring instrum computer with rel simulation softwa high speed interne						rts, ner vith ments, elevant are anc net.	1	
					SCHEME OF A	ASSESS	MENT	Γ								
S. No.	. No. Method of Assessment Description of Assessment				essment	Maxi Ma	mum arks			R	esourc	es Re	quire	1		External / Internal
LO-09	D-09 Internal Practical Make a survey report /presentation followed by quiz on the following/Lab record 5. Dise tech		t will be asked ady of smart T ady of HDTV. at the features of ady of digital c scuss Latest ad chnology.	e asked to: smart TV. HDTV. eatures of DVB. ligital camera. atest advancement in TV y.		10		F	Rubri	cs, Ra	ting sc	cale			Internal	

			ADDITIONAL INS	FRUCTIONS FOR THE H	IOD/ FA	CULTY	(IF Al	NY)					
	ו יח		SCHEN	MEFORLEARNING		Branch Co	le	C	ourse Cod	e	CO Code	LO Code	Λ
KGPV (I	Diploma	Wing) Bhopal		OUTCOME	1	E 0	3	6	0		3	10	FormatNo.4
COURSE N	NAME	Consumer Electron	nics										
CO Descrip	otion	Explain solar energy	y system, security and s	safety system.									
LO Descrip	otion	Discuss Solar energy	v system(cognitive)										
		1		SCHEME OF STUD	Y								
S. No.	Lear	ning Content	Teaching– Learning Method	DescriptionofT-L Process	Teach Hrs.	Prac /TutH	et. Irs.		LRs R	Require	ed		Remarks
LO-10	 Intervention Over type of the second se	roduction to solar ergy er view of different bes of solar odules - mono- crystalline, - polycrystalline - thin- film ries and parallel nnection of odules ,module ray assification of solar / plants Stand-alone solar PV plants Grid tie solar PV system Grid connected solar PV system oncept of blocking ode and bypass	 Interactive classroom lecture PPT Video Demonstration, Quiz Assignments. 	 Teacher will explain the contents and provide hand-outs to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge 	10			•	Text PPT Hand chalk chart Lectu other	Books l-outs, kboard s,Vide rre-NP s.	s, o TEL a	nd	

		SCHEME OF ASSESSMENT				Exter
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal	
LO-10	End sem theory exam	 Student will be asked to list different types of solar module explain any one Explain different types of solar PV plants What is the purpose of blocking and bypass diode in solar module? Write note on the following series module parallel module module array 	10	Question paper, Rating scale	External	

RGPV	(Diploma	Wing) Bhop	al	SCHEM	EFORLEARNING	B E	ranch Co	de 3	с 6	ourse Code	CO Code	LO Code	Format No. 4
COURSE	E NAME	Consumer Elec	ctronics	C	JUICOME		U	5	U	U		11	
CO Descr	iption E	xplain solar ene	ergy system,	security and saf	fety system.								
LO Descr	ription II	lustrate differen	t Security &	& Safety System	n(cognitive)								
	•				SCHEME OF STUDY								
S. No.	Learning	Content	Teaching- Met	Learning hod	Description of T-L Process	TeachPract.Hrs./Tut Hrs.			s.	LRs Requ	iired		Remarks
LO-11	Function diagram of : • H t • V F • C s s • H c i i s * • M a a c • H	and Block and working Home walkie- alkie Video door bhone CCTV surveillance system Electronic combination ocks ntegrated fire afety system Magnetic card and Near field card RFID	 Int cla lec Vi De , q as: 	teractive assroom cture, PPT, deo, 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. 	10				 Text PPT Han chal char Lect NPT other 	t Books, d-outs, kboard, ts,Video ure- EL and rs.		
					SCHEME OF ASSESSMENT		Maxim	um					External /

LO-11	End sem Theory Exam.	Student will be askedWhat is electronic combination lock? Explain it.	10	Question paper, Rating scale	External
		2. Draw the block diagram and explain working of given electronic Security & Safety System.			

DCDV (Dinlama Wing) Phon				SCHEM	HEMEFORLEARNING Branch Code			ch Code Cours			Course Code CO Code		LO Code	/		
K	GPV (D	ipioma wing) Br	iopai	(OUTCOME			0	3	6	0		4	12	FormatNo.4	
COURSE NAME Consumer Electronics													-			
CO Desc	ription	Explain solar energ	gy system	, security and sa	afety system.											
LO Desc	ription	Perform experimen	nt on sola	r energy system	and safety syster	n(Psychom	otor)									
	SCHEME OF STUDY															
S. No. Learning Content			Teachi N	ng –Learning Aethod	Description of Process	T-L Tea H	ach rs.	Prac /TutH	t. Irs.	LRs Required				Remarks		
LO-12	 b. Learning Content 12 Study of security and safety systems Draw I-V curve of solar module and find out different parameters- short circuit current ,open circuit voltage , current at maximum power ,voltage at maximum power Connect a solar powe to different dc load. 		 Study of security and safety systems Draw I-V curve of solar module and find out different parameters- short circuit current ,open circuit voltage , current at maximum power Connect a solar power to different dc load. Method Lab demonstration, hands on practice, lab assignments, V-Lab. Teacher y support for support for assignments, V-Lab. Student y conduct la solar power different dc load. 		 Teacher w support fri staff will demonstri- procedure experime Student w conduct la assignme based on experime Industrial solar pow plant 	vith rom lab ate the c of lab nts. vill ab nt these nts. visit to rer	e it to			 Lab manual, charts, experimental trainer, Instruments/kit with measuring instruments Computer with relevant simulation software and high speed internet. 					Kemarks	
	1				SCHEME OF A	SSESSMEN	JT							I		
S. No. Method of Assessment Description of Asses		ssment	Maximum Marks			Resources Required				External / Internal						

LO-12 External practical exam/ viva 2. 3.			 Student will be asked to Draw I-V curve of seand find out different short circuit current voltage, current at m power ,voltage at ma Connect a solar power different dc load Visit the solar power 	Ident will be asked to Draw I-V curve of solar module and find out different parameters- short circuit current ,open circuit voltage , current at maximum power ,voltage at maximum power Connect a solar power to 					External			
	ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)											
RCPV (Dinloma Wing) Rhonal			SCHEME	SCHEME FOR LEARNING				Course Code		Code Code		FormatNo 4
		a ((ing) znopu	OU	OUTCOME			3 6	0		5	13	
COURS	E NAME	Consumer Electron	nics									
CO Desc	ription	Outline the Miscellar	neous Application of ele	ctronics								
LO Desc	ription	Explain various Dome	estic & Consumer Applia	nces.(cognitive)								
				SCHEME OF STUD	ЭY							
S. No. Learning Content			Teaching –Learning Method	Description of T- Process	L	Teach Hrs.	Prac /Tut H	rs.	s. LRs Required		red	Remarks
LO-13	 Functional Block diagram, specifications and working of Microwave ovens comparison of microwave oven with convection oven and air fryer Front penal control of Washing machines, Air- 		 Interactive classroom lecture, PPT, Video, Demonstration, quiz, Assignments. 	 Teacher will extra the contents an provide handou students. Teacher will coassignments/ quiz/tutorial to students practice knowledge 	xplain d uts to onduct make ce their	10			 Te PF Ha ch bo ch vh vh leo NH 	extBoo PT, and-ou alk oard, arts deo cture- PTEL a	uts	

conditioners and			others.	
Refrigerators				

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-13	Progressive test/quiz/assignment/presentati on/seminar	 Student will be asked to (and/or) Explain working of Microwave ovens with block diagram Compare of microwave oven with convection oven and air fryer. List front panel control of washing machine / air conditioner / refrigerators and write there functions. 	10	Rubrics, Rating scale	Internal

DCDV (Dinloma Wing) Dhanal				SCHEMEFORLEARNING OUTCOME				Branch Cod	le	Course Code			CO Code	LO Code	/
KGPV	KGI V (Dipionia Wing) Dilopai						E	0	3	6	0		5	14	FormatNo.4
COURSE NAME Consumer Electronics															
CO Descr	ription	Outline the Miscellar	neous A	application of e	lectronics										
LO Desci	ription	Understand Automobi	ile elect	ronics(cognitive	e)										
	SCHEME OF STUDY														
S. No. Learning Content			Teachi N	ng –Learning ⁄Iethod	Description of ' Process	Г-L Теа Н	ich rs.	Prac /Tut H	et. Hrs.]	LRs Required		Remarks		
LO-14	 Learning Content Need of Electronics in Automobiles. Electronic control module. Electronic ignition. Anti-brake system (ABS). Electronically controlled suspension. Instrument panel displays (speedometer,milomet er, fuel meter etc.) Ultrasonic car safety system and parking system. Theft detection and remeta backing 		 Intclate PF Dete qu As 	teractive assroom cture, PT, Video, emonstration, iz, ssignments.	 Process Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge. 		0			 Text Books, PPT, Handouts chalk board, charts Video lecture-NPTEL and others. 			rd, Ire- d		
				I	SCHEME OF AS	SSESSMEN	T								
S. No. Method of Assessment Description of A			scription of Asses	sment	Maximum Marks			Re	esourc	es Reo	quired			External / Internal	

		Student will be asked to (and/or):			
LO-14	Progressive test/quiz/assignment/presenta tion/seminar	 Explain Electronic ignition with neat diagram. How Electronically controlled suspension works What is the technic of Ultrasonic car safety system and parking system 	10	Rubrics, Rating scale	Internal