

Teaching Plan

Department of Electronic Science

2022-23

## NAME OF THE PROGRAMME

B.Sc. (Hons.) CBCS in Electronic Science

## **PROGRAMME OUTCOME**

(i) Teaching & Learning

- (ii) Higher Studies & subsequent Research
- (iii) Job in MNCs
- (iv) Job in Govt. organizations
- (v) Self Employment

Notes:

You can merge cells in between and add students' seminars and class tests / internal assessment.

For incorporating PO / CO at UG level, you may refer to your WBSU CBCS syllabus.

If not there you can refer to the UGC model syllabus

https://www.ugc.ac.in/ugc\_notices.aspx?id=MTA3Nw==

			Semester	r I						
Course '	Title	Core Cour	se Theory	y + Pi	ractical					
Course	Code	ELSACOF	R01T+P	Cre	dit		04+02			
Course Outcome Teaching & Learning										
		Sch	eme of In	istruc	ction					
Total D	uration	60-60	Class/W	eek	11	Но	urs/week	11		
Instruct	ion Mode	Offline Te	eaching,	Onlin	e Teac	hing , H	lands on Tr	aining		
		Sche	eme of Ex	amin	ation					
Maximu	ım Score	40+10	Interna	ıl	10+1	5 En	d Semester	75		
		(	Course M	appir	ıg			_		
Units		Course C	ontent			Lectur	e Hour (Cum	ulative)		
1	Basic Circu Capacitors	it Concepts ,	t Concepts , Resistors , Inductor				ors 13			
2	Circuit Ana	lysis , DC T	ransient A	nalys	is		13			

3	AC Circuit Analysis , Power in AC Circuits , Passive Filters	18
4	Network Theorems , Tow Port Networks	16

		\$	Semester			]	[		
Course	Title	Core Cour	se Theory	y + <b>P</b> r	actical				
Course	Code	ELSACOF	R02T+P	Cre	dit		04+02		
Course Outcome Teaching & Learning									
		Sch	eme of In	istruc	tion				
Total D	uration	60-60	Class/W	<b>eek</b> 11		Но	urs/week	11	
Instruct	tion Mode	Offline To	eaching,	Onlin	e Teac	hing , H	ands on Tr	aining	
		Scho	eme of Ex	amin	ation				
Maximu	ım Score	40+10	Interna	l	l 10+15		l Semester	75	
		(	Course M	appir	Ig			_	
Units		Course C	Content			Lectur	e Hour (Cum	ulative)	
1	Ordinary D	ifferential Ec	quations,			14			
	Series solu	tion of Diffe	erential Eq	luatio	ns and				
	Special Fun	tions, Integral Calculus							
		rrices 14							
2	Matrices						14		

4	Complex va	riables and	Functions				16	
			7					
		2	Semester			I	L	
Course 7	ſitle	Core Cou	rse Theor	$\mathbf{ry} + \mathbf{P}$	ractical			
Course (	Course Code		R03T+P	Cred	lit		04+02	
Course Outcome Teaching & Learning								
		Sch	neme of In	istruc	tion			
Total Du	iration	60-60	Class/We	eek	11	Ηοι	ırs/week	11
Instructi	ion Mode	Offline To	eaching,	Onlin	e Teachin	lg , H	ands on Tra	aining
		Scho	eme of Ex	amina	ation			
Maximu	m Score	40+10	Interna	l	10+15	End	l Semester	75
		(	Course M	appin	g			

Units	Course Content	Lecture Hour (Cumulative)
1	Semiconductor Basics , Carrier Transport	14
	Phenomena	
2	P-N Junction Diode	14
3	Bipolar Junction Transistors (BJT)	14
4	Field Effect Transistors, Power Devices	18

	Semester	II					
Course Title	Core Course Theory + Practical						
Course Code	ELSACOR04T+P	Credit	04+02				
Course Outcome							
	Teaching & Learning						

		Sch	eme of Instructi	on						
Total D	uration	60-60	Class/Week	11	Hours/week	11				
Instruct	tion	Offline Tea	ching, Online	<b>Feachin</b>	g , Hands on Trai	ining				
Mode										
		Sche	me of Examinat	tion						
Maximu	ım Score	40+10	Internal	10+15	5 End Semester	75				
	Course Mapping									
Units		Course C	Content		Lecture Hour (Cum	ulative)				
1	Quantum	Physics Bas	ic postulates and		18					
-	-	m of Quantum	-		10					
2	Microstate	es and Macro	states , Cla	ssical-	18					
	Statistics,		atistics, Phono							
	_		solids , Fermi	-Dirac						
	Distributio	on Law								
3	Thermal	Properties			12					
4	Electric a	Electric and Magnetic Properties								

			Semester	III						
Course '	Fitle	Core Cou	rse Theory	+ Pra	ctical					
Course	Code	ELSACO	R05T+P	Cred	it		04+02			
Course Outcome Teaching & Learning										
Scheme of Instruction										
Total D	ıration	60-60	Class/Wee	k	11	Ηοι	urs/week	11		
Instruct	ion Mode	Offline T	eaching, O	nline	Teach	ing , Ha	ands on Tr	aining		
		Sc	heme of Exa	amina	tion					
Maximu	m Score	40+10	Internal		10+1:	5 End	l Semester	75		
			Course Ma	apping	ç					
Units		Course	Content			Lecture	Hour (Cum	ulative)		
1	Diode Ciro	cuits , Recti	fiers , Filter	S	14					
2	Bipolar Ju	nction Tran	sistors (BJT	<b>[</b> )			15			
3	Feedback	Amplifiers					13			

4	MOSFET C	Circuits, P	ower Ampl	ifiers	,		18		
	Single tune	d amplifie	rs						
			~				-		
			Semester			II	1		
Course '	Title	<b>Core Course Theory + Practica</b>				l			
Course	Code	ELSAC	OR06T+P	Crea	lit		04+02		
Course	Outcome								
		Teachin	g & Learni	ing					
			5						
		S	cheme of I	nstruc	ction				
Total D	uration	60-60	Class/We	olz	11	Her	urs/week	11	
Total D		00-00		UK	11			11	

Instruct	ion Mode	Offline Teaching , Online Teaching , Hands on Training										
	Scheme of Examination											
Maximu	im Score	40+10	Internal	10+	15	End Semester	75					
			Course Ma	pping								
Units		Course (	Content		L	ecture Hour (Cum	ılative)					
1	Number Sy and Boole families			-		11						
2	Combinatio	nal Logic A	Analysis an	d Design		13						
3	Sequential l Programma			18								
4	Introduction Language Behavioura Modelling,	n to Verilo ,Data flo lModelling										
		(0)										
	Introduction to VHDL , Introduction to Language   Elements , BehaviouralModelling , Sequential Processing , Data types											
	1		Semester			III						
Course '	Title	Core Cou	rse Theory	y + Practi	cal							
Course	Code	ELSACO	)R07T+P	Credit		04+02						
Course	Outcome											

		Teaching a	& Learning								
		Sch	eme of Instru	ction							
Total D	uration	60-60	Class/Week	11		Hours/week	11				
Instruct	ion Mode	Offline Te	eaching, Onlin	e Teacl	hing	, Hands on Ti	raining				
	Scheme of Examination										
Maximum Score		40+10	Internal	10+15		End Semester	75				
		(	Course Mappin	ng							
Units		Course C	Content		Lecture Hour (Cumulative)						
1	C Program	ning Langua	age, Variables	5	12						
2	Decision m	aking, br	anching & Loo	ping,	19						
	Functions,	Structures,	Introduction to	C++							
3	Data Struct	ures				15					
4	Searching a	nd Sorting,	Trees		14						

		S	Semester			I	I		
Course T	itle		Skil	l Enh	ancem	ent Cou	rse - 1		
Course C	Code	ELSA	SEC01	Cre	dit		02	}	
Course O	Course Outcome Teaching & Learning								
		Sc	cheme of l	[nstru	uction				
Total Du	ration	30	Class/W	eek	11	Ho	urs/week	11	
Instructio	on Mode			Har	nds on T	Feaching	5		
		Scl	neme of E	xami	nation				
Maximur	n Score		Interna	.1		End	l Semester	20	
			Course N	Ларр	ing				
Units	Course Content Lecture Hour (Cumulative)								

1	PCB Funda	mentals			9	
	Classificati	on of PCB				
2	Schematic a	& Layout Design			9	
3	Technology	OF PCB		9		
4	PCB Techn	ology		3		
	1	Semester		Γ	V	I
Course	Title	Core Course Theory	y + Practic	al		
Course	Code	ELSACOR08T+P	Credit		04+02	
Course	Outcome					
		Teaching & Learnin	ıg			

		Sch	eme of Instru	ction				
Total D	uration	60-60	Class/Week	11	Hours/week	11		
Instruct	tion Mode	Offline Te	eaching , Onlir	e Teac	hing , Hands on '	Fraining		
		Sch	eme of Examin	ation				
Maxim	um Score	40+10	Internal	10+1	5 End Semesto	er 75		
			Course Mappin	ng				
Units		Course C	Content		Lecture Hour (Cu	imulative)		
1	7uBasic Op	erational Ar	nplifier,		18			
	Op-Amp pa	arameters						
2	Op-Amp Ci	ircuits , Com	parators,		18			
	Signal gene	erators						
3	Multivibrat	ors (IC 555)	, Phase locked	l loops	18			
	(PLL), F	ixed and var	iable IC regula	tors,				
	IC LM317							
4	Signal Con	ditioning Cir	rcuits , Active I	Filters	12			

		S	Semester		1	Γ	V				
Course '	Title	Core Cours	se Theory	y + Pra	actical						
Course	Code	ELSACO	R09T+P	Cred	it		04+02				
Course	ourse Outcome Teaching & Learning										
Scheme of Instruction											
Total D	uration	60-60	Class/W	eek	11	Но	urs/week	11			
Instruct	ion Mode	Offline Te	aching, (	Online	Teacl	hing , H	ands on Tra	aining			
		Sche	me of Ex	amina	tion						
Maximu	im Score	40+10	Interna	ıl	10+1:	5 Enc	l Semester	75			
		C	Course M	apping	3						
Units		Course Co	ontent			Lecture	e Hour (Cumi	ulative)			
1	Signals and	Systems					17				
2	Linear Time	e -Invariant Sy		13							
3		ries Represe operties of co					18				

	Fourier Transform	
4	Laplace Transform	12

	Semester					IV					
Course Title	Core Cour	<b>Core Course Theory + Practical</b>									
Course Code	ELSACO	R10T+P	Cree	dit		04+02					
Course Outcome											
	Teaching & Learning										
	Scheme of Instruction										
Total Duration	60-60	Class/We	eek	11	Hour	rs/week	11				

Instruct	tion Mode	Offline Tea	ching	, Onlin	e Teac	hing	, Hands on Tra	ining				
		Schen	ne of H	Examin	ation							
Maximu	ım Score	40+10	Inter	nal	10+1	5 I	End Semester	75				
		Co	ourse I	Mappir	ıg							
Units		Course Co	ntent			Lecture Hour (Cumulative)						
1	-	Measurement Instruments , Connectors and										
2		nt of Resistant -A Conversion		id Impe	edance		15					
3	Oscilloscop	es ,Signal Ger	nerator	ſS			16					
4	Transducers	s and sensors					14					
	1	Sem	nester			-	IV					
Course	Title		Skill Enhancemen				urse - 2					
Course	Code	ELSASE	C02	Credi	t		02					

Course	Outcome		ng & Learning								
Scheme of Instruction   Total Duration 30 Class/Week 11 Hours/week 11											
				1							
Instruct	ion Mode		Har	nds on To	eaching						
Scheme of Examination											
Maximu	ım Score		Internal		End Semester	20					
			Course Mapp	ing							
Units		Course	Content		Lecture Hour (Cumulative)						
1	Programming	g Enviro	nments		8						
2	Actuators Sensors				7						
3	LCD interfac Characters L Timer / Cour Communicat	6	8								
A			2007		7						
4	Interfacing to	D PICI6F	1887		7						

		Semester					V	•		
Course	Гitle	Core Cours	se Theory	y + Pi	ractica	l				
Course	Code	ELSACOF	R11T+P	Cre	dit			04+02		
Course	Outcome	itcome								
	Teaching & Learning									
		Sche	eme of In	struc	tion					
Total Du	uration	60-60	Class/W	eek	11		Hou	ırs/week	11	
Instruct	ion Mode	Offline Tea	aching , (	Onlin	e Teac	hing	g, Ha	ands on T	raining	
		Schei	me of Exa	amina	ation					
Maximu	m Score	40+10	Interna	l	10+1	15	End	Semester	75	
		С	ourse Ma	appin	g					
Units		Course Co	ontent			Le	cture	Hour (Cur	nulative)	
1		n to Micropro ssor 8085 , 80		iction	S			18		

2	Microcont	rollers			10
2	whereeout	Tomers			10
3	PIC16F88	7 Microcontroller			18
4	Interfacing	to PIC16F887			14
		Semester		V	7
Course '	Title	<b>Core Course Theory</b>	+ Practical		
Course	Code	ELSACOR12T+P	Credit		04+02
Course	Outcome				
		Teaching & Learning	Ţ		
			,		

	Scheme of Instruction												
Total D	uration	60-60	Class/W	eek	11		Hours/week	11					
Instruct	tion Mode	Offline Te	eaching, (	Online	e Teach	ing	, Hands on Tra	aining					
		Sch	eme of Ex	amin	ation								
Maximu	ım Score	40+10	Interna	al	10+15		5 End Semester						
			Course M	appin	ıg			-					
Units		Course (	Content			Le	cture Hour (Cum	ulative)					
1	Vector Ana	alysis , Electi			16								
2		Equation and f Laplace's E atics	-	s Equa	tion,	14							
3	Time-Vary Equations	ving Fields ar	nd Maxwe	ll's		13							
4		gnetic Wave ectromagnetic	ution		17								
		S	emester				V						

Course	Title		Disci	pline	Specifi	c Elect	ive - 1				
Course	Code	ELSAD	SE01T+P	Cre	dit		04+02				
Course Outcome Teaching & Learning											
Scheme of Instruction											
Total D	al Duration 60-60 Class/Week 11 Hours/weel							11			
Instruct	tion Mode	Offline	e Teaching	, Onli	ine Teac	ching, I	Hands on Tra	ining			
		Sc	heme of Ex	xami	nation						
Maximu	ım Score	40+10	Internal	l	10+15 <b>End</b>		d Semester	75			
			Course M	Iappi	ng						
Units		Course	Content			Lectur	re Hour (Cum	ulative)			
1	Power Devi Silicon Con				12						
2	Insulated Ga	Diac and Triac ,14Insulated Gate Bipolar Transistors (IGBT)14Application of SCR , Power MOSFETS14									
3	Power Inver	ters , Cho	oppers				17				

4	Electromech	anical M	achines			17				
			S			7				
			Semester		```	/				
Course	Гitle		Discij	pline Speci	ific Electiv	ve - 2				
Course	Code	ELSAI	OSE02T+P	Credit		04+02				
Course Outcome Teaching & Learning										
		S	Scheme of I	istruction						
Total Du	uration	60-60	Class/Wee	<b>k</b> 1	1 <b>Ho</b>	urs/week	11			
Instruct	ion Mode	Offline	Teaching,	Online Te	aching , H	lands on Tra	aining			
		So	cheme of Ex	amination	1					
Maximu	im Score	Score40+10Internal10+15End Semester75								
			Course M	apping						

Units		Course Content		Lecture	e Hour (Cumulative)	
1	Electromagr	netic Wave Propagati	on		15	
2	Transmissio	n Lines	17			
3	Waveguides	and Waveguide Dev	ices	13		
4	Radiation of Antenna Par Types of An		/es ,	15		
		Semester		V	I	
Course	Title	Core Course Theor	ry + Practic	al		
Course	Code	ELSACOR13T+P	Credit		04+02	
Course	Outcome					

Scheme of Instruction								
Total Duration60-60Class/Week11Hours/week11								
Instruction Mode Offline Teaching , Online Teaching , Hands on Train								
	Se	cheme of Exami	nation					
m Score	40+10	Internal	10+1	5	End Semester	75		
		Course Mappi	ing					
	Course	e Content		Lecture Hour (Cumulative)				
1 Electronic communication					10			
Amplitude N	Iodulatic	on , Angle modul	ation	20				
				14				
4 Digital Carrier Modulation Techniques					16			
r	on Mode n Score Electronic co Amplitude N Pulse Analog Pulse Code I	ration 60-60 on Mode Offline So n Score 40+10 Electronic communic Amplitude Modulatio Pulse Analog Modula	ration60-60Class/Weekon ModeOffline Teaching , OnliScheme of Examinn Score40+10InternalInternalCourse MappiCourse MappiElectronic communicationAmplitude Modulation , Angle modulPulse Analog ModulationPulse Code Modulation	ration60-60Class/Week11on ModeOffline Teaching , Online TeachingScheme of Examinationn Score40+10Internal10+1n Score40+10Internal10+1Course MappingCourse ContentElectronic communicationAmplitude Modulation , Angle modulationPulse Analog ModulationPulse Code Modulation	ration   60-60   Class/Week   11     on Mode   Offline Teaching , Online Teaching , Online Teaching , Online Teaching , Online Teaching     Scheme of Examination   Scheme of Examination     n Score   40+10   Internal   10+15     Course Mapping   Course Mapping   Course Mapping     Electronic communication   Amplitude Modulation , Angle modulation   Letter Modulation     Pulse Analog Modulation   Pulse Code Modulation   Internal   Internal	ration 60-60 Class/Week 11 Hours/week   on Mode Offline Teaching , Online Teaching , Hands on T   Scheme of Examination   n Score 40+10 Internal 10+15 End Semester   Course Mapping   Course Content Lecture Hour (Cun   Electronic communication 10   Amplitude Modulation , Angle modulation 20   Pulse Analog Modulation 14		

		S	Semester			V	Ι	
Course	Course Title Core Course Theory + Practical							
Course	Code	ELSACOR14T+P Credit 04+02						
Course Outcom	Course Outcome Teaching & Learning							
		Sch	eme of Ir	stru	ction			
Total Du	uration	60-60	Class/Week 11		Ηοι	ırs/week	11	
Instruct Mode	ion	Offline	e Teachin	-	nline T raining		g , Hands	on
		Scho	eme of Ex	amir	ation			
Maximum Score		40+10	Interna	ıl	10+15		l nester	75
	Course Mapping							
Units		Course Content Lecture Hour   (Cumulative)						
1	Interaction	s an Electromagnetic Wave , on of electromagnetic waves 22 dielectrics , Interference , on						

2	Polarizat	ion					13	
3	-	ight Emitting Diodes , Lasers , hotodetectors , LCD Displays					13	
4	Guided V	Waves and th	ne Optical	Fiber			12	
	1	,	Semester		1	V	[	
Course '	Title		Discipl	ine Sp	ecific E	lective	e - 3	
Course	Code	ELSADSE	C04T+P	Cred	it		04+02	
Course Outcom	e	Teaching o	& Learnii	ng				
		Scł	neme of Ir	istruc	tion			
Total D	uration	Scł 60-60	neme of In Class/W		<b>tion</b> 11	Hou	rs/week	11

Mode		Training							
	Scheme of Examination								
Maximu	ım Score	40+10	Internal	10+1	5 End Semester	75			
	Course Mapping								
Units		Lecture Hou (Cumulative							
1	Advance	d Digital Mo	dulation T	echnique	16				
2	Optical C	Communicatio	on		10				
3	Cellular	Communicati	17						
4		communicati ea networks (	17						
		S	emester		VI				

Course	Fitle	Discipline Specific Elective - 4						
Course	Code	ELSADSI	E <b>06T+P</b>	Cre	edit		04+02	
Course Outcom	e	Teaching d	& Learnii	ng				
		Sch	eme of Ir	nstru	ction			
Total Du	uration	60-60	Class/W	eek	11	Hou	irs/week	11
Instruct	ion	Offline Teaching , Online Teaching , Hands on						
Mode				Training				
		Sche	eme of Ex	amin	ation			
Maximu	m Score	40+10	Interna	l	10+15	End	Semester	75
		(	Course M	appir	ıg	<u> </u>		
Units		Course	Content				ecture Hour	
						(	Cumulative)	
1	1 Discrete Time systems					15		
2	Z-Transform , System Function					15		
3	Discrete	Fourier Trar	isform			15		

4	Digital Filters	15