

Revised Curriculum For <u>Diploma Programme in Electronics and Telecommunication Engineering</u> Academic Year 2021-22



Dr. Shivaji Ghungrad PRINCIPAL St. Xavier's Technical Institute Mahim, Mumbai - 400 016.

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Mahim, Mumba

XTECH CURRICULUM A.Y. --- 2021-2022



	REVISED AND E FROM JULY	FFECTIV 2018	E				TEACH	HING	AND EXAM	INATION	SCHEME			SEMESTER ONE
	ACADEMIC YEA	R 2021-2	2		TEA	CHING SC	HEME				ЕΣ	AMINATION SCI	HEME	
SR.NO	SUBJ TIT	ECT LE		SUBJECT CODE	TH	TU	P	R	CREDITS	THE	EORY	PRACTICAL	/ ORAL	GRAND TOTAL
										ESA	PA	ESA	PA	
1	Basic Mathematics			ET-18111	4	1	X	Х	5	80	20	XX	XX	100
2	Basic Electronics			ET-18121	4	XX	4	1	8	80	20	50	25	175
3	Basic Electrical Eng	gineering		ET-18113	4	XX	2	2	6	80	20	50	25	175
4	Computer Applicat	ions		ET-18115	ХХ	хх	2	2	2	ХХ	ХХ	50 (ONLINE EXAM)	25	75
5											XX	50	50	
	Electronic Material	ls & Comp	onents	ET-18116	2	2	X	Х	4	XX		(ONLINE EXAM)		100
6	Professional Praction	ces		ET-18117	2	XX	X	Х	2	XX	XX	XX	50	50
7	English Language			ET-18118	4	XX	2	2	6	80	20	XX	50	150
				Total	20	3	1	0	33	320	80	200	225	825
ET-1	<mark>18120 represents "Yo</mark>	oga" which	<mark>i is Non-</mark>	Credit and No	on-Exam ir	<mark>n First Sem</mark>	<mark>ester o</mark>	<mark>f 1 Ho</mark>	our/ Week					
	Total Number of C	Credits = 3	3 <i>,</i> Tota	l Number of S	Student Co	ontact Hou	rs = 34					-	Total Marks =	825
TH Theory For progressive and continuous assessment two periodic tests of														
Abbreviations TU Tutorial									added to the	final theory	examination r	narks, which is of 70) marks	
		PR		Pract	tical				(except for o	nline examin	ations).			
		XX	No TV	V/EXAM(TH	/PR/OR/	Online)		>	All term wor	k marks are	Internal.	17. 1		
		ESA		End Semes	ster Exam				All practical	exams/ oral	are External a rnal	ind Internal .		
		PA		Progressive	assessme	nt		-	An onnie ex		1101			



]	REVISED AND EFI FROM JANUARY	FECTIVE 2019				TEACH	ING ANI	D EXAMINAT	TION SCHEMI	E		SEMESTER TWO
	ACADEMIC YEAR	2021-22	r	ГЕАСНІ	NG SCHE	ME				EXAMINATION SCH	IEME	
SR.NO	SUBJEC TITLE	CT E	SUBJECT CODE	TH	TU	PR	CREDITS	THE	EORY	PRACTICAL /	ORAL	GRAND TOTAL
								ESA	PA	ESA	PA	
1	Engineering Mathe	matics	ET-18211	3	1	xx	4	80	20	XX	хх	100
2	Applied Electronics	;	ET-18222	3	xx	4	7	80	20	50	25	175
3	Electronic Circuits	&							20			
	Applications		ET-18223	3	хх	4	7	80		50	25	175
4	Engg. Drawing & C.	A.D.	ET-18215	xx	xx	2	2	xx	xx	50	25	75
5	Electrical Machines	5	ET-18216	3	хх	2	5	80	20	50	25	175
6	Electronics Worksh	юр	ET-18217	xx	хх	2	2	xx	xx	XX	50	50
7	Environmental Scie	ence *	ET-18219	2	xx	2	4	xx	xx	(Online exam) 100	50	150
8	Communication Sk	ills	ET-18224	2	2	xx	4	xx	xx	xx	50	50
			Total	16	3	16	35	320	80	300	250	950
Тс	otal Number of Cred	its = 35, To	otal Number of Stu	udent Co	ntact Houi	rs = 35				Tot	tal Marks =	950
TH Theory > For progressive and continuous assessment two periodic tests of										of		
Δ	hbreviations	TU	T	utorial				20 marks ea	ch are for all the	e theory subjects. The a	verage of the	ese is
		PR	Pr	actical				lexcept for o	ninal theory examinat	amination marks, which	n is of 70 mai	^r KS
		XX	No TW/EXAM(TH/PR/	OR/ Onlin	e)		All term wor	k marks are Int	ernal.		
		ESA	End Ser	nester E	xam			All practical	exams/ oral are	e External and Internal		
		PA	Progressi	ve asses	sment			All online ex	ams are Interna	l		



	REVISED AND EFF FROM JULY 2	FECTIVE 019				TEACH	ING ANI) EXAMINAT	'ION SCHEME			SEMESTER THREE	
	ACADEMIC YEAR	2021-22		TEACHI	NG SCHE	ME			E	XAMINATION	SCHEME		
SR.NO	SUBJEC TITLE	CT E	SUBJECT CODE	TH	TU	PR	CREDITS	THE	AL / ORAL	GRAND TOTAL			
								ESA	PA	ESA	PA		
1	Applied Mathemat	ics	ET-18311	3	1	хх	4	80	20	XX	xx	100	
2	Principles of Comm	nunication	I* ET-18312	4	хх	2	6	80	20	50	25	175	
3	Electronic Test Inst	ruments	ET-18313	3	хх	2	5	80	20	50	25	175	
4	'C' Programming *		ET-18314	2	хх	4	6	хх	xx	50	25	75	
5	Linear Integrated C	Circuits	ET-18315	4	хх	2	6	80	20	50	25	175	
6	Circuit Building I		ET-18319	хх	хх	4	4	xx	xx	xx	50	50	
7	Academic Skills		ET-18317	хх	хх	2	2	xx	xx	xx	xx	ХХ	
			Total	16	1	16	33	320	80	200	150	750	
*ET	-18320 represents "\	<mark>oga" whic</mark>	h is non-credit an	<mark>d non-exa</mark>	am in 3rd :	Semeste	<mark>r of 2 hou</mark>	irs per week					
Tota	al Number of Credits	= 33, Tota	al Number of Stud	lent Cont	act Hours	= 35					Total Marks =	750	
TH Theory > For p							 For progressive and continuous assessment two periodic tests of 				of		
Abbreviations TU Tutorial 20 marks each are for all the theory								Tutorial 20 marks each are for all the theory subjects. The average of these is			ese is		
		PR	Pi	ractical				(except for o	nline examinatio	nnation marks, v ons).	ation marks, which is of 70 marks		
		XX	No TW/EXAM(TH/PR/	OR/ Onlin	ie)	>	All term wor	k marks are Inte	ernal.			
		ESA	End Sei	nester E	xam			All practical	exams/ oral are	External and Inte	ernal.		
		PA	Progressi	ve asses	sment		~	All online ex	ams are Internal				



	REVISED AND EF	FECTIVE Y2020			TEAG	CHING	AND EX.	AMINATION	SCHEME		S	EMESTER FOUR
	ACADEMIC YEAR	2021-22		TEACHI	NG SCHE	ME				EXAMINATION SC	CHEME	
SR.NO	SUBJE(TITLI	CT E	SUBJECT CODE	TH	TU	PR	CREDITS	/ ORAL	GRAND TOTAL			
								ESA	PA	ESA	PA	
1	Entrepreneurship		ET-18411	3	хх	2	5	xx	хх	(Online exam) 50	50	100
2	Principles of Comm	unication	II ET-18412	3	хх	2	5	80	20	50	25	175
3	Digital Electronics		ET-18413	3	хх	2	5	80	20	50	25	175
4	Circuits and Netwo	rks	ET-18415	3	хх	2	5	80	20	50	25	175
5	Software Simulatio	n Techniq	ues ET-18416	ХХ	хх	2	2	xx	ХХ	XX	50	50
6	Circuit Building II		ET-18419	ХХ	хх	4	4	xx	ХХ	XX	50	50
7	Industrial Electroni	cs	ET-18420	3	хх	2	5	80	20	50	25	175
8	Academic Skills		ET-18421	хх	хх	2	2	xx	хх	xx	xx	XX
			Total	15	0	18	33	320	80	250	250	900
ET-1	.8423 represents Spo	orts And C	ultural which is no	<mark>n-credit</mark> a	and non-ex	am in 4	<mark>th Semes</mark>	ter of 2 hours/	/week			
Tota	al Number of Credits	= 33, Tota	l Number of Stude	ent Conta	ct Hours =	35				Т	otal Marks =	900
		TH	Т	'heory			>	For progress	sive and contin	nuous assessment two	periodic tests o	f
Abbreviations TU Tutorial 20 marks each are for all the theory subject added to the final theory examination mark								he theory subjects. The	e average of the	se is		
		PR	Pi	actical				lexcept for o	nline examina	ations)		KS
		Х	No TW/EXAM(TH/PR/	OR/ Onlin	e)	>	All term wor	k marks are I	nternal.		
		ESA	End Sei	nester Ex	xam			All practical	exams/ oral a	re External and Interna	al .	
PA Progressive assessment							 All online exams are Internal 					
PA Progressive assessment												



	REVISED AND E FROM JULY	FFECTIV 2020	Έ			TEAC	HING A	ND EXAMI	NATION S	SCHEME		S	SEMESTER FIVE
	ACADEMIC YEA	R 2021-2	22		TEAC	HING SCH	IEME				EXAMINATIO	N SCHEME	
SR.NO	SUBJ TIT	ECT LE		SUBJECT CODE	TH	TU	PR	CREDITS	THE	ORY	PRACTICA	L / ORAL	GRAND TOTAL
									ESA	PA	ESA	PA	
1	Microprocessors ar Microcontrollers	nd		ET-18519	4	хх	2	6	80	20	50	25	175
2	Signals and System	S		ET-18512	3	1	2	6	80	20	50	25	175
3	Advanced Commun	nication Sy	vstems	ET-18513	4	ХХ	2	6	80	20	50	25	175
4	Project I			ET-18514	xx	ХХ	2	2	хх	ХХ	хх	50	50
5	Basic Control Syste	ms (E1)		ET-18520	4	ХХ	2	6	80	20	50	25	175
6	Vocational Training	5		ET-18516	xx	хх	6	(4+2)=6	хх	хх	50	50	100
7	Circuit Simulation a	ind PCB D	esign	ET-18517	xx	хх	2	2	хх	хх	50	25	75
8	PLC Systems and Ap	oplication	s (E1)	ET-18518	4	хх	2	6	80	20	50	25	175
				Total	15	1	18	34	320	80	300	225	925
	Total Number (of Credits	Studen	t Contact Ho	urs = 3/	1						Total Marks -	025
			Studen		urs – J-	r		> For	nrogressive	and continue	ous assessment tw	vo periodic tests o	92.5
				20 marks each are for all the theory subjects. The average of these is									
A A	bbreviations			l uto Dract				adde	ed to the fin	al theory exa	mination marks, v	which is of 70 mar	*ks
			Νο ΤΜ			(Online)		(exc	ept for onlin orm work r	ne examinatio	ons).		
			NOTW	End Some	/ r K/ Uf	m		\rightarrow All r	oractical exa	ms/ oral are	External and Inte	rnal.	
-		DA		Drogrossive		nont		> All c	online exam	s are Internal	l		
		E1		Electiv	e One								



		U	1										
Ι	REVISED AND EF FROM JANUAR	FECTIVE Y 2021			TEA	CHING	AND EX	AMINATION	I SCHEME		S	SEMESTER SIX	
I	ACADEMIC YEAR	2021-22		TEACH	ING SCH	EME			,		ICCUEME		
							1			LAMINATION			
SR.NO	SUBJE TITL	CT E	SUBJECT CODE	TH	TU	PR	CREDITS	THE	EORY	PRACTIC	AL / ORAL	GRAND TOTAL	
								ESA	PA	ESA	PA		
1	Mobile Communic	ation(E2)	ET-18611	4	хх	2	6	80	20	50	25	175	
2	Digital Signal Proc	essing	ET-18612	3	1	2	6	80	20	50	25	175	
3	Data Commn. & C	omp.											
	Networking(E2)		ET-18613	4	хх	2	6	80	20	50	25	175	
4	Digital Communica	ation	ET-18614	4	хх	2	6	80	20	50	25	175	
5	Mechatronics(E3)		ET-18619	4	хх	2	6	80 20 50 25 175					
6	Project II		ET-18616	xx	хх	4	4	хх	xx	50	50	100	
7	Advanced Power	Electronics	(E3) ET-18617	4	хх	2	6	80	20	50	25	175	
8	Scilab		ET-18618	xx	хх	2	2	хх	xx	хх	50	50	
9	Industrial Manage	ment and											
	Quality Control (IN	AQC)	ET-18620	3	ХХ	хх	3	80	20	ХХ	xx	100	
10	Technical Writing		ET-18621	хх	хх	2	2	xx	xx	хх	50	50	
			Total	18	1	16	35	400	100	250	250	1000	
	Tot	al Numba	r of Crodita Stud	ant Contr	at Hours	- 25	Total Marks – 1000						
	101				ICL HOUIS	= 35	I Otal Marks = 1000						
		TH]	'heory			_ ^	20 marks ea	sive and continu	ous assessment t	WO periodic tests ()I Ise is	
Ab	obreviations	TU	Т	utorial				added to the	final theory exa	mination marks,	which is of 70 mar	·ks	
		PR	P	actical				(except for o	online examinati	ons).			
		XX	No TW/EXAM(TH/PR/	OR/ Onlir	ine) All term work marks are Internal.							
E2,	Elective Two	ESA	End Sei	nester E	xam	All practical exams/ oral are External and Internal.							
E3	and Three	PA	Progress	ve asses	sment		All online exams are Internal						



]	REVISED AND EFFECTIVE FROM JULY 2018	SUMM	ARY OF TEA	ACHING / V	WEEK, CH	REDITS AND) EXAMINATI	ON SCHEME		SEMESTER ONE - SIX			
1	ACADEMIC YEAR 2021-22	TI	EACHING SC	CHEME]	EXAMINATION S	SCHEME				
SR.NO	SUBJECT TITLE	TH	TU	PR	CREDITS	THEORY PRACTICAL / ORAL GRAND TOTAL							
						ESA	PA	ESA	PA				
1	Semester 1	20	3	10	33	320	80	200	225	825			
2	Semester 2	16	3	16	35	320	320 80 300 250 950						
3	Semester 3	16	1	16	33	320	80	200	150	750			
4	Semester 4	15	0	18	33	320	80	250	250	900			
5	Semester 5	15	1	18	34	34 320 80 300 225 925							
6	Semester 6	18	1	16	35	35 400 100 250 250 1000							
	Total	100	09	94	203	2000	500	1500	1350	5350			



ST. XAVIER'S TECHNICAL INSTITUTE, MAHIM, MUMBAI 400 016

Diploma in Electronics and Telecommunication Engineering

Review	ed and Effective from Jar	nuary 2019			Т	EACHIN	NG AND	EXA	MINA	TION	SCHI	EME			SEM T	ESTER WO
	Academic Year 2021-202	22	7	Too obs	ma Ca	h a m a				Б		tion Cohor				
				each	ng Sc	neme				E	xamina	tion Schel	me			
Sr.														TE	RM	
No.	Subject Title	Subject	тн	TI	PR	CREDITS		THE	ORY	PRAC'	ΓICAL	ORA	L	WO	RK	TOTAL
	Subject The	Code	111	10	IK	CREDITS	PAPER							Ma		
							HRS	Max	Min	Max	Min	Max	Min	X	Min	
	Engineering															
1	Mathematics	ET-18211	3	1	XX	4	3	100	40	XX	XX	XX	XX	XX	XX	100
2	Applied Electronics	ET-18222	3	XX	4	7	3	100	40	50	20	XX	XX	25	10	175
	Electronic Circuits &															
3	Applications	ET-18223	3	XX	4	7	3	100	40	50	20	XX	XX	25	10	175
	Engg. Drawing &															
4	C.A.D.	ET-18215	XX	XX	2	2	XX	XX	XX	50	20	XX	XX	25	10	75
5	Electrical Machines	ET-18216	3	XX	2	5	3	100	40	50	20	XX	XX	25	10	175
6	Electronics Workshop	ET-18217	XX	XX	2	2	XX	XX	XX	XX	XX	XX	XX	50	20	50
	Environmontal											(Online				
7	Scionco *	FT_18210	2	vv	2	1	vv	vv	vv	vv	vv	exam) 100	40	50	20	150
1	Communication Shills	ET-10217	2	2	~	-+						vv	+0 vv	50	20	50
8	Communication Skills	E1-18224	2	2		4	XX	XX 400	XX	XX 200	XX	100	лл	30	20	50
		IOIAL	16	3	10	35		400		200		100		250	_	950
Total Nu	$\mathbf{Imber of Credits} = 35, \ \mathbf{Territor}$	otal Number	of Sti	ident	Conta	act Hours :	= 35	1) T		•	1 /1		То	tal Ma	rks =	<u>950</u>
	Abbreviatio	ns: 1) TH		Γ	heory	,	Note		for prog h are for	ressive ar	d contin	uous assessn	nent two) period f these i	ic tests o is added	of 20 marks
		2) TU		Γ	lutoria	ıl		the	ory exan	ination r	narks, wl	hich is of 80	marks (except f	or onlin	e
		3) PR		P	ractic	al		exa	mination	ıs).	-			•		
		4)		N	lo The	eory Exam		2) A	ll term	work mai	rks are Iı	nternal.	17 /			
Prepared	Prepared by Mr. Anil Gurav 3) All practical exams/ oral are External and Internal.															

NOTE:

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The subjects and contents reviewed in July, 2018.

Following are the changes w.e.f academic year 2018-2019 :-

Basic Electronic Circuits (ET-18212) and Electronic Devices And Applications(ET-18214) are removed.

Applied Electronics (ET-18212) and Electronic Circuits And Applications (ET-18223) are added.

Communication Skills is shifted from Semester 1(ET-15114) to Semester 2 (ET-18224), these two course codes are equivalent as there is no change in the syllabus.

Credits for EVS (ET-18219) is reduced from 5 (3TH, 2 Pr) to 4 (2 TH, 2 Pr)

PROGE SEME	RAMME TITLE : STER : Two	Dipl	oma	in E	Elect	ronic	s & [Felecor	nm. E	nginee	ering
C		isite	C	redi	ts	The	Ex cory	amina	tion So	cheme	
Course	Course Title	Preregu	L	Tutoria	Total	T H	T S	PR	OR	TW	Total
ET 18211	ENGINEERING MATHEMATICS	ET-18111	3	1	4	80	20	-	-	-	100
1) T 2) T	heory paper duration a heory paper assessment	3 hrs nt is	Inte	rnal	and	Exte	rnal.				

RATIONALE:

This subject is classified under Foundation courses and intends to teach the students the theory, concepts and principles of Engineering Mathematics. The contents of this subject proceed further with more complex and higher levels of Mathematics related to the Engineering field. The pre-requisite for this subject is Basic Mathematics covered in the previous semester.

COURSE OUTCOMES & CO PO MAPPING

SEM II	ENGINEERING MATHEMATICS
C109	(9TH COURSE IN FIRST YEAR)
C109.1	Solve problems related to functions and Limits in mathematical applications
C109.2	Evaluate derivative of various types of functions.
C109.3	Apply derivatives to find slope, maxima and minima.
C109.4	Construct a Matrix to solve simultaneous Linear equations.
C109.5	Use De Moivre's Theorem for solving Complex equations.
C109.6	Calculate Measures of dispersion using Statistical data.

SEM II			EN	GINEE	RING	MATH		FICS		
C109	(9TH (COUR	SE IN I	FIRST	YEAR	PREF	PARED) BY :	SD
СО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
C109.1	3	1								
C109.2	3	1			1					
C109.3	3	2			1			1		
C109.4	3	2			1					
C109.5	3	2			1					
C109.6	3	1			1					
C 109 TOTAL	18	09	00	00	05	00	00	01	00	00
CORRELATION LEVEL	3	2	0	0	1	0	0	0	0	0

Mapping of Course outcomes (COs) to Program outcomes (POs)

TABLE TO DECIDE CORRELATION LEVELS

CO SUM TOTAL	06	12	18
CORRELATION LEVEL	1	2	3

CO SUM TOTAL	0, 1, 2	3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14	15, 16, 17, 18
CORRELATION LEVEL	0	1	2	3

Mrs. Sanchita Datta

Subject Expert



	SECTION 1		
Sr. No.	Name of the Topic	Periods	Marks
01	FUNCTIONSC109.11.1Study of all types of Functions1.2Even and odd functions1.3Periodic functions1.4Function of functions etc.	05	12
02	LIMITS C109.1 2.1 Introduction of Limits 2.2 Limits of Algebraic functions 2.3 Limits of Trigonometric functions	05	08
03	DIFFERENTIATION C109.2 3.1 Fundamental rules of differentiation (without proof) such as derivatives of sum, difference scalar multiplication, product and quotient.	14	20
	3.2 Differentiation of all types of standard functions.3.2.1 Derivatives of Inverse functions		
	3.2.2 Composite functions		
	3.2.3 Implicit functions		
	3.2.4 Parametric functions		
	3.2.5 Logarithmic differentiation		
	3.2.6 Derivatives of one function w.r.t. another function		
	3.3 Second order derivatives		
	SECTION 2		
04	APPLICATIONS OF DERIVATIVES C109.3 4.1 Geometrical meaning of derivative-slope/gradient_tangent and	04	06
	normal		
	4.2 Maxima and Minima (Simple problems)		
05	 MATRICES C109.4 5.1Definition of matrices of order m x n 5.2Types of Matrices, Addition, Subtraction of Two matrices 5.3 Multiplication of matrices by a scalar, Multiplication of Two matrices (3 x 3 and 2 x 2 only) 	08	14
	5.4 Singular and Non-singular matrices Transpose of matrices5.5 Adjoint of a matrix.		



	TADUS FOR SECOND SEMESTER - JANUART 2022		
	5.6 Inverse of a matrix by using Adjoint of matrix		
	5.7 Solution of simultaneous equations using matrices.		
	COMPLEX NUMBERS C109.5		
06	6.1 Definition with different forms:-	06	10
	6.1.1 Cartesian form		
	6.1.2 Polar form		
	6.1.3 Exponential form		
	6.2 All four operations of mathematics on complex Nos.		
	6.3 De Moivre's Theorem (without proof) and simple problems.		
	STATISTICS C109.6		
07	7.1 Range, Co-efficient of a Range of discrete and grouped data	06	10
	7.2 Mean deviation and standard deviation from mean of grouped		
	and ungrouped data.		
	7.3 Variance and Co-efficient of Variance.		

SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

			Distribution of Theory Marks							
Chapter No.	Title	Teaching Hours	R Level	U Level	A Level	Total Marks				
	Section I									
1	Functions	05	04	08		12				
2	Limits	05		08		08				
3	Differentiation	14	08	08	04	20				
		Section II								
4	Application of Derivatives	04			06	06				
5	Matrices	08	04	10		14				
6	Complex Numbers	06	04		06	10				
7	Statistics	06	04	06		10				
	Total	48	24	40	16	80				

IMPLEMENTATION STRATEGY

1.Teaching plan.

2.Minimum 10 Tutorials.



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ST. XAVIERS TECHNICAL INSTITUTE, MAHIM, MUMBAI

S. No.	Author	Title	Edition	Year of Publication	Publisher & Address
1.	S.P. Deshpande	Mathematics for Polytechnic students (Second Year)	1^{st}	2005	Pune Vidyarthi Griha Prakashan
2.	S.G.Chitale & N.A.Joshi	A new approach to Mathematics and Statistics (Sc. Paper II)	9 th	1998	Sheth Publishers Pvt. Ltd. Mumbai
3	S.P. Deshpande	Mathematics for Polytechnic students (First Year)	11 th	2006	Pune Vidyarthi Griha Prakashan
4.	V.K.Nirmale A.D. Wandhekar	Basic Mathematics	2^{nd}	2018	Technical Publications
5	Sameer Shah	Engineering Mathematics	3 rd	2009	Tech-Max Publications

REFERENCES

E-REFERENCES

https://en.wikipedia.org/wiki/Function_(mathematics) https://www.toppr.com/guides/maths/limits-and-derivatives/limits/ https://tutorial.math.lamar.edu/problems/calci/diffformulas.aspx https://www.cuemath.com/calculus/applications-of-derivatives/ https://www.cuemath.com/numbers/complex-numbers/ https://www.cuemath.com/algebra/solve-matrices/ https://nios.ac.in/media/documents/SrSec318NEW/318_Economics_Eng/318_Econo mics_Eng_Lesson9.pdf

<i>PROGRAMME TITLE</i> : Diploma in Electronics & Telecom. Engineering <i>SEMESTER</i> : Two											
SEMES.		e	Credits		Examination Scheme						
Course		iisit				The	eory				
Code	Course Title	Prerequ	L	Р	Total	T H	T S	PR	OR	TW	Total
ET- 18222	APPLIED ELECTRONICS	ET-18121	3	4	7	80	20	50	-	25	175
 Theory paper duration 3 hrs. Theory paper assessment is Internal and External. The assessment of practical is Internal and External. 											

RATIONALE:

This subject is classified under the Applied Technology group and intended to teach the students the concepts, principles and working of basic electronic circuits. It is targeted to provide a basic foundation for technology areas like communication systems, industrial electronics as well as instrumentation, control systems and electronic circuit design.

COURSE OUTCOMES & CO PO MAPPING

SEM II	APPLIED ELECTRONICS
C110	(10 TH COURSE IN FIRST YEAR)
C110.1	Demonstrate working principle of BJT in different Transistor
	configurations and analyze their Characteristics.
C110.2	Interpret the use of different parameters of BJT
C110.3	Analyze different biasing methods of BJT
C110.4	Identify the need of Amplifier and compare their types
C110.5	Demonstrate the operation & classify different types of Wave shaping
	circuit
C110.6	Select appropriate devices for various Electronics Circuits

SEM II C110	APPLIED ELECTRONICS (10 TH COURSE IN FIRST YEAR) PREPARED BY : AG									
СО	PO1	PÒ2	PO3	PO4	P05	PO6	PO7	PO8	PO 9	PO10
C110.1	3		3		1	1		2	2	2
C110.2	3	1	3			2		3	2	3
C110.3	3		3		1	1		2	2	2
C110.4	1	1	3	1		1		3	3	2
C110.5	3	1	3			2		3	3	2
C110.6	2	2	3	2		1		3	2	2
C 110 TOTAL	15	05	18	03	02	08	00	16	14	13
CORRELATION LEVEL	3	1	3	1	0	1	0	3	2	2

Mapping of Course outcomes (Cos) to Program outcomes (Pos)

TABLE TO DECIDE CORRELATION LEVELS

CO SUM TOTAL	06	12	18
CORRELATION LEVEL	1	2	3

CO SUM TOTAL	0, 1, 2	3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14	15, 16, 17, 18
CORRELATION LEVEL	0	1	2	3

Mr. Anil Gurav

Subject Expert

	SECTION 1		
Sr. No.	Name of The Topics	Periods	Marks
01	BIPOLAR JUNCTION TRANSISTOR C110.1, C110.2	16	24
	1.1. Introduction, types & symbols.		
	1.2 Operating principle of NPN & PNP Transistor.		
	1.3 Transistor Currents & their relations.		
	1.4 Transistor configurations $1.4.1$ CE configuration – Circuit Diagram & Details V-I		
	1.4.1 CE configuration = Clicuit Diagram & Details, V-1 characteristics (I/P& O/P) Current Gain Current relation		
	Leakage Current		
	1.4.2 CB configuration – Circuit Diagram & Details, V-I		
	characteristics (I/P& O/P), Current Gain, Current relation,		
	Leakage Current		
	1.4.3 CC configuration – Circuit Diagram & Details, V-I		
	characteristics (I/P& O/P),Current Gain, Current relation,		
	Leakage Current		
	1.5 Transistor parameters: Input resistance, Output resistance,		
	1.6 Thermal Puneway, & Pole of Heat Sink in Transistor operation		
	1.0 Thermal Runaway & Role of Heat Slifk in Transistor operation.		
02	RIASING OF TRANSISTOR C110.2 C110.3	8	16
02	2.1 Introduction need of biasing	0	10
	2.2 The DC load line & operating point.		
	2.3 Fixed current bias		
	2.4 Voltage Divider bias.		
	2.5 Comparison of basic biasing circuits.		
	2.6 Thermal runaway.		
C.	SECTION 2		
Sr. No	Name of The Topics	Periods	Marks
1101	AMPLIFIER USING BJT C110.4,C110.6		
03	3.1 Introduction	10	16
	3.1.1 Definition, Need of Amplification		
	3.1.2 Types of Amplifier,		
	3.2 RC coupled amplifier		
	3.2.1 Circuit diagram, Working,		
	3.2.2 Advantages, Disadvantages and Applications		
	3.3. Transformer coupled amplifier		
	3.3.1 Circuit diagram, Working,		
	3.3.2 Advantages, Disadvantages and Applications		
	3.4 Comparison of above circuits.		
		1	

Nora

Sr. No.	Name of The Topics	Periods	Marks
04	WAVE SHAPING CIRCUITS: C110.5,C110.6	14	24
	4.1 Need & Types of Wave Shaping Circuits		
	4.2 Non linear circuits – Clippers & Clamper		
	4.2.1 Series Clipper (positive & negative)		
	4.2.2 Parallel Clipper (positive & negative)		
	4.2.3 Bias Clipper. (Positive bias clipper & Negative bias clipper)		
	Operation details, Circuit Diagram, I/O Waveforms.		
	4.2.4 Double Bias Parallel Clipper		
	Operation details, Circuit Diagram, I/O Waveforms.		
	4.2.5 Clipper Circuit examples		
	4.3 Comparison between Clipper Circuits		
	4.4 Clamper circuit (positive & negative)		
	Operation details, Circuit Diagram Output Waveforms.		
	4.5 Voltage Multiplier – Voltage Doubler.		
	4.5.1 Half Wave Voltage Doubler.		
	4.5.2 Full Wave Voltage Douler.		

LIST OF LABORATORY EXPERIENCES

EXP. NO.	TITLE	COURSE OUTCOME MAPPING
1.	B.J.T. Characteristics (Common Emitter	C110.1
	Configuration) (Input Characteristics)	
2.	B.J.T. Characteristics (Common Emitter	C110.1
	Configuration) (Output Characteristics)	
3.	B.J.T. Characteristics (Common Base	C110.1
	Configuration)	
4.	DC Load Line	C110.2
5.	Q-point or Operating Point	C110.2
6.	Stability Factor of a Transistor	C110.3
7.	Frequency Response of R-C Coupled Amplifier	C110.4
8.	Frequency Response of a Transformer Coupled Amplifier	C110.4
9.	Series Clipper (positive & negative)	C110.5
10.	Parallel Clipper (positive & negative)	C110.5
11.	Biased Parallel Clipper Circuit	C110.5
12.	Clamping Circuit	C110.5
13.	Half Wave Voltage Doubler	C110.6
14.	Full Wave Voltage Doubler	C110.6



			Distribution of Theory Marks					
Chapter No.	Title	Teaching Hours	R Level	U Level	A Level	Total Marks		
		Section I						
1	BIPOLAR JUNCTION TRANSISTOR	16	08	10	06	24		
2	BIASING OF TRANSISTOR	8	04	08	04	16		
		Section II						
3	AMPLIFIER USING BJT	10	04	08	04	16		
4 WAVE SHAPING CIRCUITS		14	08	10	06	24		
	Total	48	24	36	20	80		

SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

IMPLEMENTATION STRATEGY

1.Teaching plan

2.Minimum 10 practicals

3. Assignments ((Example : Market survey study of latest Transistors with ratings and applications, Power supply ratings, applications etc)

The table to measure the attainment levels for TERM WORK (on a rating scale of "out of 25") of the defined expected course outcomes is as shown in the format given below:

(Note:.....the table should progress to the right for Lab Experience 7, 8, 9,and so on.....)

LAB EXPERIENCE		1	2	3	4	5	6
	COURSE OUTCOMES	C110.1 (out of 25)	C110.1 (out of 25)	C110.2 (out of 25)	C110.2 (out of 25)	C110.2 (out of 25)	C110.3 (out of 25)
STUDENT SPNO							
1303001							
1303002							
1303004							
1303006							

* The final % attainment level for TERM WORK of each course outcome may then be computed and the overall % attainment level for the course, for term work may then be calculated.



10

The table to measure the attainment levels for PRACTICAL EXAMINATION (on a rating scale of "out of 50') of the defined expected course outcomes is as shown in the format given below: (Note:.....the table should progress to the right for Lab Experience 7, 8, 9,and so on.....)

LAB EXP	ERIENCE	1	2	3	4	5	6
	COURSE	C110.1	C110.1	C110.2	C110.2	C110.2	C110.3
		C110.1	C110.1	C110.2	C110.2	C110.2	C110.5
	OUTCOMES	(out of					
		50)	50)	50)	50)	50)	50)
STUDENT							
SPNO							
1303001							
1303002							
1303004							
1303005							
1303006							
1303008							
1303011							

* The final % attainment level for PRACTICAL EXAMINATION of each course outcome may then be computed and the overall % attainment level for the course, for practical exam may then be calculated.

REFERENCES

Sr. No.	Author	Title	Edition	Year of Publication	Publisher & Address
1.	Robert Boylestad	Electronics Devices & Circuit Theory	9 th	2009	PHI publisher
2.	G.K.Mital	Electronics Devices & Circuits	23 rd	2006	Khanna Publication
3.	DR. R.S.Sedha	APPLIED ELECTRONICS	Revised Edition	2015	S CHAND Publication
4.	David Bell	Fundamentals of Electronic Devices	1^{st}	1990	D B Taraporevala son & Co Pvt. Ltd. Mumbai
5.	Millman and Halkias	Electronics Devices and Circuits	1^{st}	1985	McGraw Hills Inc., New Delhi-2

E-REFERENCES

https://www.tutorialspoint.com/

https://freevideolectures.com

https://nptel.ac.in/courses/

PROGRAMME TITLE : Diploma in Electronics & Telecom. Engineering											
SEME,	SEMESTER : Two										
		te	C	redi	ts	Examination Scheme					
Course		iisi				The	ory				
Code	Course Title	Prerequ	L	Р	Total	T H	T S	PR	OR	TW	Total
ET 18223	ELECTRONIC CIRCUITS AND APPLICATIONS	ET-18121	3	4	7	80	20	50	_	25	175
 Theory paper duration 3 hrs. Theory paper duration 5 hrs. 											

- 2) Theory paper assessment is Internal and External.
- 3) The assessment of practical is Internal and External.

RATIONALE:

This subject is classified under the Applied Technology group and intended to teach the students theory, concepts and principles of operation of various electronic devices related to their use and working in electronic systems and applications.

COURSE OUTCOMES & CO PO MAPPING

SEM II	ELECTRONIC CIRCUITS AND APPLICATIONS
C111	(11TH COURSE IN FIRST YEAR)
C111.1	Analyze the construction, principle of operation and characteristics of
	FET and MOSFETs and their use in engineering field.
C111.2	Classify different types of oscillators based on design and working principles.
C111.3	Analyze the working principles of different types of power amplifiers
C111.4	Appreciate the role of tuned amplifiers in communication circuits.

SEM II C111		ELECTRONIC CIRCUITS AND APPLICATIONS (11TH COURSE IN FIRST YEAR) PREPARED BY : JN									
СО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
C111.1	2	2	3	2				2	2	2	
C111.2	2	2	3	3	1	1		3	2	2	
C111.3	1	3	3	3	1	1		3	2	2	
C111.4	2	3	3	3	1	1		3	2	2	
C 111 TOTAL	7	10	12	11	3	3		11	8	8	
CORRELATION LEVEL	2	3	3	3	1	1		3	2	2	

Mapping of Course outcomes (COs) to Program outcomes (POs)

TABLE TO DECIDE CORRELATION LEVELS

CO SUM TOTAL	04	8	12
CORRELATION LEVEL	1	2	3

CO SUM TOTAL	0,1	2,3,4,5,	6, 7, 8,9	10, 11, 12
CORRELATION LEVEL	0	1	2	3

Mr. Anil Gurav Mrs.Janani Natarajan

Subject Experts

	SECTION 1		
Sr. No.	Name of the Topic	Periods	Marks
01	FIELD EFFECT TRANSISTORSC111.11.1 Introduction1.2 Types of FET1.3 JFET -1.3.1 Types1.3.2 Construction1.3.3 Operation1.3.4 Characteristics and applications.1.3.5 Parameters - g_m , u , IDSS, V_g , V_p and relation between them1.3.6 FET as voltage dependent resistor1.4 MOSFET1.4.1 Types - Enhancement, Depletion1.4.2 Construction1.4.3 Operation1.4.4 Characteristics and applications.1.5 Comparison1.5.1 n-channel and p-channel (FET & MOSFET)1.5.2 JFET and MOSFET1.6 CMOSFET - Operation and application.	16	28
02	 OSCILLATORS USING BJT C111.2 2.1 Introduction 2.2 Principles of oscillators, Barkhausen criterion 2.3 Types 2.4 LC Oscillator - Hartley and Colpitts type. 2.4.1 circuit diagram, working 2.4.2 Advantages, disadvantages, applications, 2.4.3 Expression for frequency of oscillation. 2.4.4Numerical examples on above expressions 2.5 RC Oscillator – Wein bridge & Phase shift type. 2.5.1 circuit diagram, working 2.5.2 Advantages, disadvantages, applications, 2.5.3 Expression for frequency of oscillation (no derivation) 	08	12

	SECTION 2		
Sr. No	Name of the Topic	Periods	Marks
03	 POWER AMPLIFIERS USING BJT C111.3 3.1 Introduction 3.1.1 Types of Amplifiers. 3.1.2 Comparison between Voltage and Power Amplifiers. 3.1.3 Performance Parameters of Power Amplifiers 3.2 Classification of power amplifiers 3.3 Class A Power Amplifier 3.3.1 Working Principle, characteristics, efficiency, merits & demerits 3.3.2 Transformer coupled type 3.4 Class B Amplifier 3.4.1 Working Principle, characteristics, efficiency, merits & demerits. 3.4.2 Class B Push-pull amplifier 3.4.3 Cross over Distortion 3.4.4 Complimentary symmetry Class B Push-pull amplifier 3.5 Class C Amplifier 3.6 Comparison of Power Amplifier Types 	14	24
04	 TUNED AMPLIFIERS C111.4 5.1 Introduction – need, resonant circuits 5.2 Resonance in Parallel RLC circuit – resonance frequency Fr, and selectivity Q 5.3 Types of tuned amplifiers 5.4 Single tuned CE amplifier – operation, frequency response and bandwidth, merits, demerits and applications 5.5 Double tuned amplifier 5.6 Comparison of tuned amplifiers 5.7 Examples 	10	16

LIST OF LABORATORY EXPERIENCES

EXP. NO.	TITLE	COURSE OUTCOME MAPPING
1	F.E.T. Characteristics	C111.1
2	M.O.S.F.E.T. Characteristics	C111.1
3	Frequency Response Characteristics of an F.E.T. Amplifier	C111.1
4	FET as a voltage dependent resistor	C111.1
5	Wien Bridge Oscillator	C111.2
6	R-C Phase Shift Oscillator	C111.2
7	Determine the frequency of oscillations of Colpitts oscillator circuit	C111.2
8	Class B Complimentary Symmetry Power Amplifier	C111.3
9	Class A Power Amplifier characteristics	C111.3
10	Resonance in Parallel RLC circuit	C111.4
11	Single Tuned CE Amplifier	C111.4
12	Double Tuned Amplifier	C111.4
13		

SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

			Dist	tribution of Theory Marks				
Chapter No.	Title	Teaching Hours	R Level	U Level	A Level	Total Marks		
		Section I						
1	FIELD EFFECT TRANSISTORS	16	08	12	08	28		
2	OSCILLATORS USING BJT	08	04	04	04	12		
		Section II						
4	POWER AMPLIFIERS USING BJT	16	12	12		24		
5	TUNED AMPLIFIERS	08	06	10		16		
	Total	48	30	38	12	80		

The table to measure the attainment levels for TERM WORK (on a rating scale of "out of 25") of the defined expected course outcomes is as shown in the format given below:

(Note:.....the table should progress to the right for Lab Experience 7, 8, 9,and so on.....)

16

LAB EXPERIENCE		1	2	3	4	5	6
	COURSE OUTCOMES	C111.1 (out of 25)	C111.1 (out of 25)	C111.1 (out of 25)	C111.2 (out of 25)	C111.2 (out of 25)	C111.2 (out of 25)
STUDENT SPNO							
1303001							
1303002							
1303004							
1303005							
1303006							
1303008							

* The final % attainment level for TERM WORK of each course outcome may then be computed and the overall % attainment level for the course, for term work may then be calculated.

IMPLEMENTATION STRATEGY

1. Teaching plan

2. Minimum 10 practicals And assignments

The table to measure the attainment levels for PRACTICAL EXAMINATION (on a rating scale of "out of 50') of the defined expected course outcomes is as shown in the format given below:

(Note:.....the table should progress to the right for Lab Experience 7, 8, 9,and so on.....)

LAB EXPERIENCE		1	2	3	4	5	6
	COURSE OUTCOMES	C111.1 (out of 50)	C111.1 (out of 50)	C111.1 (out of 50)	C111.2 (out of 50)	C111.2 (out of 50)	C111.2 (out of 50)
STUDENT SPNO							
1303001							
1303002							
1303004							
1303005							

* The final % attainment level for PRACTICAL EXAMINATION of each course outcome may then be computed and the overall % attainment level for the course, for practical exam may then be calculated. **REFERENCES**

S.	Author	Title	Edition	Year of	Publisher &
No.	7 Tutiloi	THE	Lattion	Publication	Address
Dahart Daadaatad		Electronic Devices			Prentice Hall of
1.	Louis Nashalsky	and Circuit Theory	9th	2006	India Pvt. Ltd.,
	Louis mashelsky	and Circuit Theory			New Delhi
2	DCCadha	Applied Electronics	Revised	2015	S.Chand
۷.	R.S.Sedna	Applied Electronics	1st	2013	Publications
2	C V Mithal	Electronic Devices	22rd	2006	Khanna
3	G.K.Iviiuial	and Circuits	2510	2000	Publications

E-REFERENCES

https://www.tutorialspoint.com/ https://freevideolectures.com

https://nptel.ac.in/courses/

PROGRAMME TITLE : Diploma in Electronics & Telecom. Engineering											
SEME.	STER : Two	-	-								
		te	C	redi	ts		Ex	amina	tion So	cheme	
Course		iisi				The	ory				
Code	Course Title	Prerequ	L	Р	Total	T H	T S	PR	OR	TW	Total
	ENGINEERING										
FТ	DRAWING AND										
18215	COMPUTER		-	2	2	-	-	50	-	25	75
10215	AIDED DESIGN										
	(No Theory exam)										
Assessment of term work is internal											
Asse	ssment of PRACTIC	AL I	EXA	M i	s int	ernal	and	externa	al		

RATIONALE :

This subject is classified under Applied Technology group and intended to teach the students the requirement and importance of concepts and procedures involved in Engineering Drawing. It will be useful for designing and drawing accurate schematics for simple blocks, orthographic and isometric representations, dimensioning, etc., which will be helpful during project work in later semesters, as well as professionally. The objective of this subject is to familiarize the student with the use of AUTOCAD software as a drawing tool.

COURSE OUTCOMES & CO PO MAPPING

SEM II	ENGINEERING DRAWING AND COMPUTER AIDED DESIGN
C112	(12TH COURSE IN FIRST YEAR)
C112.1	Enumerate the basic concepts of Engineering Drawing
C112.2	Use the drawing tools available in the drawing and modify toolbars in AutoCAD
C112.3	Apply various required settings to produce accurate drawings in and efficient manner, in a given time frame/ schedule
C112.4	Draw simple geometric shapes with precision and accuracy using AutoCAD
C112.5	Represent simple blocks with orthographic and isometric drawings using AutoCAD
C112.6	Apply the skills gained for implementing and making required chassis work, etc. in their final semester for project work

DETE SYLLABUS FOR SECOND SEMESTER - JANUARY 2022 Mapping of Course outcomes (COs) to Program outcomes (POs)

SEM II	ENGINEERING DRAWING AND COMPUTER AIDED DESIGN									
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
C112.1	1	1		1				1		3
C112.2	1	2		2				2		3
C112.3	1	2		2				2		3
C112.4	2	2		2				2		3
C112.5	2	2		2				2		3
C112.6	2	2		2				2		3
C 112 TOTAL	09	11	00	11	00	00	00	11	00	18
CORRELATION LEVEL	2	2	0	2	0	0	0	2	0	3

TABLE TO DECIDE CORRELATION LEVELS

CO SUM TOTAL	06	12	18
CORRELATION LEVEL	1	2	3

CO SUM TOTAL	0, 1, 2	3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14	15, 16, 17, 18
CORRELATION LEVEL	0	1	2	3

Mr. Vijay Vaghela

Subject Expert

	ENGINEERING DRAWING THEORY								
Sr.	Name of the Topic	Periods	Marks						
No.									
	 Guest/visiting lecturers to be/ may be invited to provide basic 								
	background knowledge on orthographic and isometric projections and views								
	 Students may be required to also make orthographic and isometric drawings on drawing paper/ graph sheets/ lab manual, as instructed by the concerned teacher 								
	 Students will have to submit the weekly drawings made in autocad on pen drive to the concerned teacher 								

RATIONALE FOR THE EXPERIMENT LIST:

Students will be able to learn the basics of Engineering Drawing. They will also get hands on experience on the various tools using AUTO CAD software. This will enable them to effectively use the software to implement the basic orthographic and isometric representations of objects related to Engineering Drawing.

LIST OF LABORATORY EXPERIENCES

EXP. NO.	TITLE	COURSE OUTCOME MAPPING
1	Creating Drawing Sheets of ISO-A Drawing Sizes	C112.2
2	Construction of Simple Geometrical Shapes	C112.3
3	Construction of Simple Geometrical Shapes	C112.4
4	(Orthographic Projection 1)	C112.5
5	(Orthographic Projection 2)	C112.5
6	Isometric Views 1	C112.5
7	Isometric Views 2	C112.5
8	Dimensioning	C112.6
9	Text and Borders for Your Drawing Sheets	C112.6
10	Additional Drawing Example 1	C112.5
11	Additional Drawing Example 2	C112.5
12	Additional Drawing Example 3	C112.5
13	Additional Drawing Example 4	C112.5
14	Additional Drawing Example 5	C112.5
15	Additional Drawing Example 6	C112.5



NB:

- 1) Introduction to Engineering Drawing may be taken as separate extra lectures for students (visiting/ guest lecturers).
- 2) Students will be/ may be asked to work on drawing paper also and produce two drawing sheets containing simple geometric drawings, orthographic and isometric views of object examples, as assignment, and submit the same, as instructed by the concerned teacher.

NB: The above list of experiments is subject to change, if required.

NB: Students are required to carry their own PEN DRIVE to save weekly work done and submit the soft copy of the same to the concerned teacher.

IMPLEMENTATION STRATEGY

Minimum total 8 practicals and 2 additional practice drawings

References:

- 1. Elementary Engineering Drawing, N.D. Bhatt. Charotar Publishing House.
- 2. Mastering AutoCAD, G. Omura by Sybers (Autodesk press), Wiley India.
- 3. Understanding AutoCAD, Sham Tickou (Autodesk press), Wiley India

The table to measure the attainment levels for TERM WORK (on a rating scale of "out of 25") of the defined expected course outcomes is as shown in the format given below:

LAB EXI	LAB EXPERIENCE		2	3	4	5	6
	COURSE OUTCOMES	C112.2 (out of 25)	C112.3 (out of 25)	C112.4 (out of 25)	C112.5 (out of 25)	C112.5 (out of 25)	C112.5 (out of 25)
STUDENT SPNO							
1303001							
1303002							
1303004							
1303005							
1303008							
1303011							

(Note:.....the table should progress to the right for Lab Experience 7, 8, 9,and so on.....)

* The final % attainment level for TERM WORK of each course outcome may then be computed and the overall % attainment level for the course, for term work may then be calculated.

The table to measure the attainment levels for PRACTICAL EXAMINATION (on a rating scale of "out of 50') of the defined expected course outcomes is as shown in the format given below:

(Note:.....the table should progress to the right for Lab Experience 7, 8, 9,and so on.....)

LAB EXPERIENCE		1	2	3	4	5	6
	COURSE	C112.2	C112.3	C112.4	C112.5	C112.5	C112.5
	OUTCOMES	(out of 50)	(out of 50)	(out of	(out of 50)	(out of 50)	(out of 50)
				50)			
STUDENT							
SPNO							
1303001							
1303002							
1303004							

* The final % attainment level for PRACTICAL EXAMINATION of each course outcome may then be computed and the overall % attainment level for the course, for practical exam may then be calculated.

PROG	PROGRAMME TITLE : Diploma in Electronics & Telecom. Engineering										
SEMESTER : Two											
		te	С	redi	ts	Examination Scheme					
Course		iisi				The	ory				
Code	Course Title	Preregu	L	Р	Total	T H	T S	PR	OR	TW	Total
ET 18216	ET ELECTRICAL $\overbrace{12}^{\text{FI}}$ 3 2 5 80 20 50 - 25 175							175			
1) T 2) T 3) T	heory paper duration a heory paper assessment he assessment of pract	3 hrs nt is tical	Inter is In	rnal tern	and al aı	Extended Ext	rnal.	մ.			

RATIONALE:

This subject belongs to the Applied Technology group and will enable the students to comprehend the theory, concepts and operating principles of electrical machines, generators, alternators, different types of motors along with starting, switching and control circuits for the same, their applications and use in industry, and real time actual use of these in small and heavy machinery in factories. The knowledge acquired by the students will help them to design, test, trouble-shoot problems in electrical motors and generators.

COURSE OUTCOMES & CO PO MAPPING

SEM II	ELECTRICAL MACHINES
C113	(13TH COURSE IN FIRST YEAR)
C113.1	Apply electromagnetic induction concept to generate induced emf
C113.2	Illustrate construction and describe principle of operation, characteristics of AC / DC generators
C113.3	Demonstrate construction and understand the principle of operation, characteristics and Applications of AC / DC motors
C113.4	Illustrate the construction ,working principle ,application and testing methods of transformer
C113.5	Analyze construction and working principle of special types of motors.
C113.6	Justify the importance of preventive maintenance schedule and safety of DC machines.



	-										
SEM II		ELECTRICAL MACHINES									
C113		(13TH COURSE IN FIRST YEAR) PREPARED BY : SRB									
CO	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	
C113.1	2	1	2	-	-	-	-	-	3	1	
C113.2	3	2	3	1	1	1	-	1	2	1	
C113.3	3	2	3	1	1	1	-	1	2	1	
C113.4	2	1	3	1	1	1	-	1	3	1	
C113.5	-	2	1	1	1	-	-	1	2	1	
C113.6	-	-	1	1	2	1	1	-	2	1	
C 113 TOTAL	10	08	13	05	06	04	01	04	14	06	
CORRELATION LEVEL	2	1	2	1	1	1	0	1	2	1	

Mapping of Course outcomes (COs) to Program outcomes (POs)

TABLE TO DECIDE CORRELATION LEVELS

CO SUM TOTAL	06	12	18
CORRELATION LEVEL	1	2	3

CO SUM TOTAL	0, 1, 2	3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14	15, 16, 17, 18
CORRELATION LEVEL	0	1	2	3

Mr. S. R. Borkar

Subject Expert

	SECTION 1		
Sr. No.	Name of the Topic	Periods	Marks
01	 ELECTRO MAGNETIC INDUCTION C113.1 1.1 Faradays Laws of Electro magnetic induction 1.2 Statically induced e.m.f, derivation, problems. 1.3 Dynamically induced e.m.f, derivation, problems. 1.4 Self induced e.m.f 1.5 Mutually induced e.m.f., expressions for co-efficient of couplings 1.6 Eddy current. 	06	10
02	 A.C. / D.C. GENERATOR C113.2 2.1 Construction 2.2 Principle of operation of DC generator / AC generator (alternator) 2.3 EMF equation, derivation and explanation 2.4 Types of windings and their applications 2.5 Types of D.C. generators and excitation methods 2.6 Characteristics of DC generator 2.7 Applications of DC generator 	08	14
03	 A.C. / D.C. MOTORS with controls and applications C113.3 3.1 General features of construction of D.C. series, shunt and compound motors. 3.2 Principle of operation, Back EMF, Torque equation, speed equation and load characteristics of D.C. series, shunt and compound motors. 3.3 Starter for D.C. motors, working principle of 3-point starter 3.4 Applications of series, shunt and compound motors. 3.5 A.C motors – different types, characteristics, working and applications 	10	16
	SECTION 2		
04	 TRANSFORMERS C113.4 4.1 General construction and principle of operation. 4.2 E.M.F. equation. 4.3 Open and short-circuit tests. 4.4 Voltage Regulation and Efficiency of single phase transformer. 4.5 losses and efficiency by Direct and Indirect loading methods. 	12	20

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05	 SPECIAL TYPES OF MOTORS AND CONTROLS C113.5 5.1 Synchronous Motors: Principle of operation, construction application and methods of starting. 5.2 Universal-motor: Construction, operation and applications 5.3 Stepper-motors: Construction, operation and applications 5.4 Single phase induction motor and classification 	08	14
06	PREVENTIVE MAINTENANCE C113.6 Importance of preventive maintenance schedule, maintenance schedule for D.C. and A.C. motors. Faults due to poor maintenance.	04	06

LIST OF LABORATORY EXPERIENCES

EXP. NO.	TITLE	COURSE OUTCOME MAPPING
1	Study of Transformers	C113.4
2	Efficiency and Regulation of a Transformer by Direct Loading Method	C113.4
3	Different parts of DC Machines	C113.2
4	Measurement of Winding Resistances of a DC Machine	C113.2
5	Testing of a DC Motor	C113.3
6	Speed control of DC Shunt Motor	C113.3
7	Load Test of a Single Phase Induction Motor	C113.5
8	Testing of an AC motor	C113.3
9	Fault rectification in an AC motor	C113.6
10	Fault rectification in a DC motor	C113.6
11	Speed control of an Universal motor	C113.5
12	3 – Point Starter	C113.5
13	Efficiency and Regulation of a Transformer by Indirect Loading Method	C113.4
14	Significance of Transformer Ratio	C113.4
15	Characteristics of a DC Shunt Motor	C113.3



DETE SYLLABUS FOR SECOND SEMESTER - JANUARY 2022 SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

			Distribution of Theory Marks				
Chapter No.	Title	Teaching Hours	R Level	U Level	A Level	Total Marks	
		Section I					
1	Electromagnetic induction	6	6	4	0	10	
2	AC/DC Generators	8	6	6	2	14	
3	AC/DC Motors with controls and applications	10	8	6	2	16	
		Section II					
4	Transformer	12	10	8	2	20	
5	Special types of motors and controls	8	8	4	2	14	
6 Preventive Maintenance		4	2	4	0	6	
	Total	48	40	32	8	80	

The table to measure the attainment levels for TERM WORK (on a rating scale of "out of 25") of the defined expected course outcomes is as shown in the format given below:

(Note:.....the table should progress to the right for Lab Experience 7, 8, 9,and so on.....)

LAB EXPERIENCE		1	2	3	4	5	6
	COURSE OUTCOMES	C113.4 (out of 25)	C113.4 (out of 25)	C113.2 (out of 25)	C113.2 (out of 25)	C113.3 (out of 25)	C113.3 (out of 25)
STUDENT SPNO							
1303001							
1303002							
1303004							
1303005							
1303006							
1303008							
1303011							
••••							
••••							
••••							
••••							

* The final % attainment level for TERM WORK of each course outcome may then be computed and the overall % attainment level for the course, for term work may then be calculated.

The table to measure the attainment levels for PRACTICAL EXAMINATION (on a rating scale of "out of 50') of the defined expected course outcomes is as shown in the format given below:

(Note:.....the table should progress to the right for Lab Experience 7, 8, 9,and so on.....)

LAB EXPERIENCE		1	2	3	4	5	6
	COURSE OUTCOMES	C113.4 (out of 50)	C113.4 (out of 50)	C113.2 (out of 50)	C113.2 (out of 50)	C113.3 (out of 50)	C113.3 (out of 50)
STUDENT SPNO							
1303001							
1303002							
1303004							
1303005							
1303006							
1303008							
1303011							
•••••							
•••••							

* The final % attainment level for PRACTICAL EXAMINATION of each course outcome may then be computed and the overall % attainment level for the course, for practical exam may then be calculated.

IMPLEMENTATION STRATEGY

- 1. Teaching plan
- 2. Minimum 10 practicals/assignments

REFERENCES

S. No.	Author	Title	Edition	Year of Publication	Publisher & Address
1.	B.L. Theraja	Electrical Technology Vol-I	Ist	2008	S Chand &Co Ramnagar New Delhi
2.	B.L. Theraja	Electrical Technology Vol-II	Ist	2008	S Chand &Co Ramnagar New Delhi
3.	B.P. Patil	Installation Testing and maintenance of Electrical Equipment	Ist	2008	S Chand &Co Ramnagar New Delhi

E- REFERENCES

https://www.iare.ac.in/sites/default/files/lecture_notes/ https://amiestudycircle.com/free-samples https://nitsri.ac.in/Department/Electronics

PROG	RAMME TITLE :	Dipl	oma	in E	Elect	ronic	s & [Felecor	n. Eng	gineeri	ng
SEMESTER : Two											
	Course Title	te	C	redi	ts	Examination Scheme					
Course		iisi				The	ory				
Course Code		Prerequ	L	Р	Total	T H	T S	PR	OR	TW	Total
ET 18217	ELECTRONIC WORKSHOP (No Theory exam)		-	2	2	-	-	-	-	50	50
The asses	The assessment of term work is internal										

RATIONALE:

Electronic Workshop is a Foundation course and plays an important role in the field of electronics for technicians. This is a foundation course and intended to teach the students the use of different tools, PCB making, transformer winding, etc. Students are also provided training of soldering and de-soldering of electronic components on printed circuit boards.

COURSE OUTCOMES & CO PO MAPPING

SEM II	ELECTRONIC WORKSHOP								
C114	(14TH COURSE IN FIRST YEAR)								
C114.1	Illustrate the use of common handtools in electronic workshop								
C114.2	Demonstrate the process of PCB making								
C114.3	Illustrate the construction of a transformer								
C114.4	Demonstrate process of chassis making								
C114.5	Compare soldering and de-soldering practice of electronic								
	components on printed circuit boards								
C114.6	Classify use of carpentry and fitting tools.								

P										
SEM II				ELEC.	TRONIC	; WORK	SHOP			
C114		(147	ΓΗ <mark>C</mark> Οι	JRSE IN	I FIRST	YEAR)	PREPA	RED BY	' : RT	
СО	P01	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
C114.1		2	2	1						
C114.2		2	2	1						
C114.3		2	2	1						
C114.4		2	2	1						
C114.5		2	2	1						
C114.6		2	2	1						
C 114 TOTAL	00	12	12	06	00	00	00	00	00	00
CORRELATION LEVEL	0	2	2	1	0	0	0	0	0	0

Mapping of Course outcomes (COs) to Program outcomes (POs)

TABLE TO DECIDE CORRELATION LEVELS

CO SUM TOTAL	06	12	18
CORRELATION LEVEL	1	2	3

CO SUM TOTAL	0, 1, 2	3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14	15, 16, 17, 18
CORRELATION LEVEL	0	1	2	3

Mr. Roger Titus

Subject Expert

	CONTENT	
Sr.	Name of the Topic	
No.	Name of the Topic	
	Tools C114.1	
1	Use of common Hand-tools in Electronic Workshop like files, taps,	
	drill machines, cutter, pliers, snappers, soldering iron, de-soldering	
	pump etc.	
	Crimping – solder-less connection.	
	P.C.B. manufacturing process C114.2	
2	- hand printing, Etching, drilling.	
3	Transformer Winding C114.3	
	- Coil winding and stacking of laminations.	
4	Chassis Making C114.4	
	General soldering and de-soldering practice and also surface	
5	mounting devices. C114.5	
6	Power supply construction C114.6	

LIST OF LABORATORY EXPERIENCES

EXP. NO.	TITLE	COURSE OUTCOME MAPPING
1	Introduction to Tool Kit	C114.1
2	Files	C114.1
3	Tapping (Outer Tapping)	C114.1
4	Tapping (Inner Tapping)	C114.1
5	Drills/ Drill Bits	C114.1
6	Hand Drill (Practical)	C114.1
7	Drill Machines / Sensitive Drill	C114.1
8	Chassis Construction	C114.4
9	Transformer Winding	C114.3
10	Soldering Techniques / Practice I	C114.2
11	Soldering Techniques / Practice II	C114.2
12	Soldering Techniques / Practice III	C114.5
13	Soldering Techniques / Practice IV	C114.5
14	Introduction To Carpentry Tools.	C114.6
15	Introduction To Fitting Tools	C114.6



The table to measure the attainment levels for TERM WORK (on a rating scale of "out of 50") of the defined expected course outcomes is as shown in the format given below:

(Note:.....the table should progress to the right for Lab Experience 7, 8, 9,and so on.....)

LAB EXPE	ERIENCE	1	2	3	4	5	6
	COURSE OUTCOMES	C114.1 (out of 50)					
STUDENT SPNO							
1303001							
1303002							
1303004							
1303005							
1303006							
1303008							
1303011							
•••••							
•••••							
••••							

* The final % attainment level for TERM WORK of each course outcome may then be computed and the overall % attainment level for the course, for term work may then be calculated.

IMPLEMENTATION STRATEGY

- 1. Teaching plan
- 2. Minimum 10 practicals

REFERENCES:

S. No.	Author	Title	Edition	Year of Publication	Publisher & Address
1.	Walter C. Bosshart	Printed Circuit Board - Design and Technology	2 nd	1984	Tata McGraw Hill Publishing Co. Ltd. New Delhi

PROGRAMME TITLE : Diploma in Electronics & Telecom. Engineering											
SEMESTER : Two											
		te	С	redi	ts		Ex	amina	ation Sch	neme	
Course		iisi				The	ory				
Code	Course Title	Preregu	L	Р	Total	T H	T S	PR	Online Exam	T W	Total
ET- 18219	ENVIRONMENTAL SCIENCE		2	2	4				100	50	150
1) T	here is on online exam	for	this	subj	ject.						
2) Online exam assessment is internal											
3) T	he assessment of TERM	1 W	/OR	K (a	issig	nmer	nts/pr	ojects) is Inter	rnal.	
				(•	8		P-		,		

RATIONALE/ GENERAL OBJECTIVE

It is now understood that the subject dealing with Environmental Science, which comes under the Foundation courses group, is not merely a subject but is closely connected to the quality of our lives and surrounding, which is why the understanding and knowledge of this subject is a must. It would be most appropriate to bring about awareness of the importance of environmental issues amongst adolescents. Together with theoretical knowledge, its implementation in day-to-day life is desirable. Different activities like project work and assignments are included in this subject. "Preservation is better than cure", is the purpose of including this subject in the second semester of the Diploma course.

(Note: The contents and activities (assignments/ project work/ reports to be made is based on Mumbai University Standard XI curriculum/ syllabus on environmental Education.)

COURSE OUTCOMES & CO PO MAPPING

SEM II	ENVIRONMENTAL SCIENCE
C115	(15TH COURSE IN FIRST YEAR)
C115.1	Develop an in-depth understanding of various environmental issues and concerns of national and global importance
C115.2	Illustrate basic concepts related to sustainable development vis- avis improvement of quality of life
C115.3	Develop a deeper concern for the environment and a sense of Commitment and responsibility to take proactive action
C115.4	Appreciate the role of individual community national and international agencies in resolving environmental problems
C115.5	Respect customs and traditions related to local conservation practices and accepts indigenous eco-friendly technologies
C115.6	Motivate others and participate in dealing with environmental problems

SEM II											
U115		(15TH COURSE IN FIRST YEAR) PREPARED BY : VV									
СО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
C115.1						3	3		3	3	
C115.2						3	3		3	3	
C115.3						3	3		3	3	
C115.4						3	3		3	3	
C115.5						3	3		3	3	
C115.6						3	3		3	3	
C 115 TOTAL	00	00	00	00	00	18	18	00	18	18	
CORRELATION LEVEL	0	0	0	0	0	3	3	0	3	3	

Mapping of Course outcomes (COs) to Program outcomes (POs)

TABLE TO DECIDE CORRELATION LEVELS

CO SUM TOTAL	06	12	18
CORRELATION LEVEL	1	2	3

CO SUM TOTAL	0, 1, 2	3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14	15, 16, 17, 18
CORRELATION LEVEL	0	1	2	3

Mr. Vijay Vaghela

Subject Expert

DETE SYLLABUS FOR SECOND SEMESTER - JANUARY 2022 Specific Objectives

To enable the students to:

- 1. Develop an in-depth understanding of various environmental issues and concerns of national and Global importance;
- 2. Develop a balanced view of the relationship between environment and Development
- 3. Understand basic concepts related sustainable development vis-avis improvement of quality of life
- 4. Develop a deeper concern for the environment and a sense of commitment and responsibility to take proactive action
- 5. Appreciate the variety in living organisms and recognizes India as a mega-diversity nation
- 6. Appreciate the role of individual community national and international agencies in resolving environmental problems;
- 7. Practice and ways of bringing about qualitative improvement in the environment by assuming leadership role
- 8. Identify self with one's environment with an attitude to personally contribute towards its Improvement
- 9. Respect customs and traditions related to local conservation practices and accepts indigenous ecofriendly technologies
- 10. Develop skills to undertake and participate in investigative studies on various environmental issues
- 11. Motivate others and participates in dealing with environmental problems

er Secretary

	SECTION 1		
Sr.	Name of the Topic	Dominda	Morito
No.	Name of the Topic	Periods	WIAIKS
01	Man and Environment C115.1		
	1.1 Dimensions of environment- physical, biological and	08	20
	social		
	1.1.1 Human being as a rational and social partner in		
	environmental actions.		
	1.2 Society and environment in India; Indian traditions,		
	customs and culture - past and present		
	1.3 Population and environment		
	1.3.1 Impact of human activities on environment -		
	A Environmental problems of urban and rural areas		
	B Natural resources and their depiction		
	C Stress on civic amenities; supply of water and electricity,		
	D Vakiaular amiasiana		
	D venicular emissions		
	E Orbanization - land use, housing, migrating and floating		
02	Environment and Development C115 2 C115 2		
02	2.1 Economic and social needs - as basic considerations	08	20
	for development	00	20
	2.2 Agriculture and industry as major sectors of		
	development		
	2.3 Social factors affecting development - poverty		
	affluence, education, employment, child marriage and		
	child labour, human health, social, cultural and ethical		
	values		
	2.4 Impact of development on environment – changing		
	pattern of land use: land reclamation, deforestation.		
	resource depletion, pollution and environmental		
	degradation		
	2.5 Role of society in development and environment –		
	public awareness through education eco -club,		
	population education programme, campaigns, public		
	participation in decision making		
	2.6 Impact of liberalization and globalization on –		
	agriculture and industries, dislocation of manpower and		
	unemployment, implication for social harmony.		

		SECTION 2		
03	Energy	y C115.4, C115.5	08	20
	3.1 C ar 3.2 E 3.3 R	Changing global patterns of energy consumption from ncient to modern times Intergy consumption as measure of quality of life ising demand for energy, gap between demand and		
	3.4 C fi	upply (Indian context) Conventional energy sources - fossil fuels and rewood, potential (Indian context) and limitations of		
	ea er 3.5 N	ach source, methods of harnessing and nvironmental consequences of their use Ion-conventional energy sources - types of non- onventional sources (biomass, solar, wind, ocean		
	hy an an	ydel, geothermal, nuclear), potential (Indian context) ad limitations of each source, methods of harnessing ad their environmental consequences, need to romote non-conventional energy sources		
	3.6 C	Conservation of energy sources - efficiency in roduction, transportation and utilization of energy		
	3.7 P	lanning and management of energy; future sources of		
	3.8 E ei	inhancing efficiency of the devices and optimizing nergy utilization		
04	Enviro	onmental Pollution and Global Issues C115.5	08	20
	4.1 A	ir, water (fresh and marine), soil pollution – sources		
	4.2 S	ound pollution and pollution due to radioactivity		
	4.3 So 4.4 H	olid, liquid and gaseous pollutants lazardous materials : processes; handling and		
	4.5 O	nanagement of hazardous wastes Doone layer depletion and its effect		
	4.6 G	breenhouse effect - global warming and climatic hanges and their effects on human society, griculture, plants and animals		
	4.7 D cy m	Disasters - natural (earthquakes, droughts, floods, yclones, landslides, tsunamis, avalanches) and man- nade (technological and industrial); their impact		
	4.8 S ¹ ei	n the environment; prevention, control and mitigation trategies for reducing pollution and improving nvironment		

DETE SYLLABUS FOR SECOND SEMESTER - JANUARY 2022 TERM WORK:

Term work shall consist of minimum five project assignments (PROJECT ASSIGNMENTS SHALL BE DESIGNED ON THE TOPICS MENTIONED IN THE SYLLABUS OR ON CURRENT ENVIRONMENT CONCERNS). Examples of these are mentioned below:

- 1) Role of Information Technology in Environment and Human Health
- 2) Natural Resources
- 3) International Organizations for Environmental Conservation
- 4) Endangered Species
- 5) Forests and Environment
- 6) Oil Spills and their Effect on Environment
- 7) Global Warming
- 8) Alternative Energy Resources
- 9) Renewable Energy Resources
- 10) Biodiversity and its Conservation
- 11) Social Issues and Environment
- 12) Human Population and the Environment
- 13) Multidisciplinary Nature of Environment Studies
- 14) Pollution
- 15) Ecosystems
- 16) Noise Pollution and its Adverse Effects
- 17) Disaster Management
- 18) Bio-geographical Classification of India
- 19) Use of Modern Technology in Environment Conservation
- 20) Types of Environmental Pollution

OBJECTIVES (FOR COMPUTATION OF ATTAINMENT OF TERM WORK):

The students will be able to achieve the following criteria in the quality of their assignments in relation to the objectives stated below and the term work marks granted will be on the basis of the implementation of the following in their soft copies of the assignments/ files, both .DOCX and .PPTX submitted by them on pen drive:

- C115.1 -. Content matter
- C115.2 Formatting
- C115.3 Sequencing and flow
- C115.4 Quality of self work and presentation
- C115.5 References in both .DOCX and .PPTX files and image/ photo credits

C115.6 – Attendance, Interaction and Punctuality/ Timely submission of assignments.

The progress level of the assignment activities is to be monitored on a regular basis, based on the student **commitment and interaction, as defined in OBJECTIVES stated above during the practical time** allotted to them for the **ASSIGNMENT/ PRACTICAL WORK** by the concerned teacher. The final table to measure the attainment levels (on a rating scale of "out of 50") for the attainment levels of course outcomes through **observation of performance** as well as the **ASSIGNMENTS submitted** by students is as shown in the format given below:

The **TERM WORK** for this subject is out of **50 marks**.

	COURSE OUTCOMES	C115.1 (out of 50)	C115.2 (out of 50)	C115.3 (out of 50)	C115.4 (out of 50)	C115.5 (out of 50)	C115.6 (out of 50)
STUDENT							
SPNO							
1303001							
1303002							
1303004							
1303005							
1303006							
•••••							
•••••							
•••••							
••••							

* The final average % attainment level of course outcomes for the course, for term work may then be calculated.

IMPLEMENTATION STRATEGY

- 1. Teaching plan
- 2. Use of PowerPoint slide shows and videos
- 3. Referencing from the Internet.
- 4. Minimum five projects/assignments

THE FIVE ASSGINMENT TOPICS FOR THE TERM WORK MARKS TO BE DONE ARE IN GENERAL MEANT TO COVER ALL THE COURSE OUTCOMES. Students are assigned with 5 different topics related to environmental issues for which they have a prepare 5 individual Microsoft Word Document files and 5 individual Microsoft PowerPoint Presentation files for each topic and present the same to the class, as well as submit these completed assignments to the assigned staff member on pen drive.

REFERENCES

S. No.	Author	Title	Publisher & Address		
1	Erach Bharucha,	Text Book of Environmental Studies	Universities Press/Orient Blackswan		
2	Jagdish Krishnaswami, R J Ranjit Daniels	Environmental Studies	Wiley India Private Ltd. New Delhi		
3	Anindita Basak	Environmental Studies	Pearson		
4	Benny Joseph	Environmental Studies	Tata McGRAW HILL		
5	D L Manjunath	Environmental Studies	Pearson		
6	R Rajgopalan	Environmental Studies	Oxford		
7	Alok Debi	Environmental Science and Engineering	University Press		

PROG	PROGRAMME TITLE : Diploma in Electronics & Telecom. Engineering										
SEMESTER : Two											
		te	С	redi	ts		Ex	aminat	tion So	cheme	
Course		iisi		als		The	ory				
Code	Course Title	ıbə.	L	toria	otal	Т	Т	PR	OR	TW	Total
		ren		Tu	Ţ	H	S		011		1000
	~~~~~~~~~~~	I		5							
ET	COMMUNICATION		•	2	4					50	50
18224	SKILLS		2	Tu	4			-	-	50	50
	(No Theory exam)										
1) There is no theory or practical exam											
2) A	ssessment of term wor	k is	Inte	rnal	•						
2) A	ssessment of term wor	K 15	me	man	•						

# **RATIONALE:**

It is important to note that the subject of Communication Skills, which belongs to the Foundation group, is not just about English language, but is concerned with various other aspects of human interaction, since communication is universal and takes place through various languages and means across the world. This subject attempts to bring about various aspects of skills involved in communication, different methods of communication, principles of communication, hindrances to communication, concepts and importance of verbal and non-verbal communication, visual communication, use of appropriate body language and also writing skills. Thus the target of this subject is to inculcate a greater amount of effectiveness in the manner of communication in formal, informal and social situations.

# **COURSE OUTCOMES & CO PO MAPPING**

SEM II	COMMUNICATION SKILLS
C116	(16TH COURSE IN FIRST YEAR)
C116.1	Enumerate various stages of the process of communication.
C116.2	Enumerate the concepts of various types of communication.
C116.3	Compare Verbal and Non Verbal communication.
C116.4	Illustrate the use of effective communication in real life situations.
C116.5	Enhance vocabulary and language skills.
C116.6	Develop writing skills to write different types of letters

SEM II C116		COMMUNICATION SKILLS ( 16TH COURSE IN FIRST YEAR) PREPARED BY : VV									
CO	<b>PO1</b>	PO2	PO3	PO4	PO5	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO</b> 9	PO10	
C116.1					2		2	3	3	3	
C116.2					2		2	3	3	3	
C116.3					2		2	3	3	3	
C116.4					2		2	3	3	3	
C116.5					2		2	3	3	3	
C116.6					2		2	3	3	3	
C 116 TOTAL	00	00	00	00	12	00	12	18	18	18	
CORRELATION LEVEL	0	0	0	0	2	0	2	3	3	3	

### Mapping of Course outcomes (COs) to Program outcomes (POs)

## TABLE TO DECIDE CORRELATION LEVELS

CO SUM TOTAL	06	12	18
CORRELATION LEVEL	1	2	3

CO SUM TOTAL	0, 1, 2	3, 4, 5, 6, 7, 8	9, 10, 11, 12, 13, 14	15, 16, 17, 18
CORRELATION LEVEL	0	1	2	3

Mr. Vijay Vaghela

Subject Expert

	SECTION 1		
Sr. No.	Name of the Topic	Periods	Marks
1	<ul> <li><b>PRINCIPLES OF COMMUNICATION C116.1</b></li> <li>1.1 Definition of communication and the communication cycle: Sender, information, medium, listener, cognition and response</li> <li>1.2 Process of communication</li> <li>1.3 Various stages of the process, namely, definition of the context, type of audience, message design, encoding, use of appropriate medium, sending, receiving, understanding and providing feedback.</li> <li>1.4 Examples related to above.</li> </ul>	04	
2	COMMUNICATION TYPES C116.2 2.1 Formal and informal communication: examples 2.2 Vertical, horizontal and diagonal communication 2.3 Verbal and non-verbal communication 2.4 Oral and written communication 2.5 Body language and graphic language 2.6 Examples related to the above	04	
3	NON-VERBAL COMMUNICATION C116.3 3.1 Examples of non-verbal communication 3.2 Body language and types of body language with examples 3.3 Using and understanding of visuals, graphics, symbols, charts, maps, graphs, etc. (Non-verbal codes: Kinesecs, Proxemics, Haptics, Vocalics, Physical appearance, Chronemics, Artifacts)	04	
4	<b>EFFECTIVE COMMUNICATION C116.4</b> 4.1 Barriers in communication and overcoming them 4.2 Making communication effective: Thought process regarding purpose, audience type, message structuring, use of appropriate medium, and methods obtaining feedback for effectiveness / success of achievement of purpose. 4.3 Examples related to the above	04	

	<b>SECTION 2</b>		
Sr. No.	Name of the Topic	Periods	Marks
5	<ul> <li>SENTENCE MAKING/ CHOOSING THE APPROPRIATE WORD/S for the same, with related exercise examples C116.5</li> <li>5.1Structure of a sentence</li> <li>5.2Agreement of the verb with the subject in person / persons</li> <li>5.3Tenses of verbs</li> <li>5.4Use of model words: can, could, may, might, shall, should, will, would, etc.</li> <li>5.5Vocabulary: (a) Differentiating similar words         <ul> <li>(b) Different meanings of same words</li> </ul> </li> <li>5.6 Use of Active and Passive voice</li> <li>7.7 Direct and indirect narration</li> <li>5.8 Punctuation</li> <li>5.9 Comprehension of simple Passages on Scientific and Technical Subjects.</li> </ul>	06	
6	<ul> <li>WRITING SKILLS C116.6</li> <li>6.1 Formal and informal letters</li> <li>6.2 Articles, reviews, etc. for magazines and newspapers</li> <li>6.3 Format and Drafting of official letters, job application, resume, notices, circulars, memos, etc.</li> <li>6.4 Report writing examples</li> <li>6.5 Business correspondence: Enquiry letters, Orders, Receipts, complaints, proforma invoices, etc.</li> <li>6.6 Writing Technical / user manuals, specifications, precautions, procedures / instructions for use of equipments, description, components, functions, applications</li> <li>6.7 Written queries from management to employees and written responses from employees to management</li> <li>6.8 Differentiating between bio-data, resume and curriculum vitae</li> </ul>	10	

# **IMPLEMENTATION STRATEGY:**

- 1) Use of PowerPoint presentations and Videos
- 2) References from internet ( for teachers as well as students)
- 3) Extensive use of examples and situations
- 4) Group discussions and role plays
- 5) Assignments for writing skills

The above strategy can be followed in the classroom teaching –learning process as well as extensively during the tutorial class by the teacher.



#### LIST OF TUTORIAL ASSIGNMENT/ EXPERIENCES

EXP.	TITLE	COURSE OUTCOME
NO.		MAPPING
1	Questions and Answers Activities:	C116.1
	Barriers to Communication	
2	Questions and Answers:	C116.1
	Elements of Communication	
3	Questions and Answers:	C116.2
	Listening Skills	
4	Essay Writing based on video clips shown:	C116.4
	History of Communication	
5	Communication Failure: Questions and Answers	C116.3
	based on video clip shown	
6	Creative Story Writing (based on given ten	C116.5
	words)	
7	Informal Letter Writing	C116.6
8	Formal Letter Writing	C116.6
	č	
9	Debate / Group Discussion Activity:	C116.4
	Based on given topics	

The table to measure the attainment levels for TERM WORK (on a rating scale of "out of 50") of the defined expected course outcomes is as shown in the format given below:

(Note:.....the table should progress to the right for Lab Experience 7, 8, 9, ....and so on.....)

LAB EXPERIENCE		1	2	3	4	5	6
	COURSE	C116.1	C116.1	C116.2	C116.4	C116.3	C116.5
	OUTCOMES	(out of 50)					
STUDENT							
SPNO							
1303001							
1303002							
1303004							
1303005							
1303006							
1303008							
1303011							
••••							
••••							
••••							
••••							

* The final % attainment level for TERM WORK of each course outcome may then be computed and the overall % attainment level for the course, for practical exam may then be calculated.

## **REFERENCES**

S. No.	Author	Title	Edition	<u>Year of</u> Publication	Publisher & Address
1		A Course of			Curriculum
1		Book – 1			TTTI Bhopal
2		A Course of Technical English			Curriculum Development Centre –
		Book – 2			TTTI Bhopal
3	MSBTE, Mumbai	Text book of Communication Skills			MSBTE, Mumbai
4	M. Ashraf Rizvi	Effective Technical communication			Tata McGraw Hill
5	Krushna Mohan, Meera Bannerji	Developing Communication Skills			Macmillan
6	Joyeeta Bhattacharya	Communication Skills			Reliable Series
7	Jayakaran	Every ones guide to effective writing			Apple Publishing