RC	GPV (Di	iploma Wing)	S	CHEME FO	R	Brar	nch Code	Course Co	ode	CO Code	LO Code	1
		hopal	LEAR	NING OUT	COME	E	0 3	5 0	2	1	1	Format No. 4
	URSE	Antenna and wave p	oropagation						1		I	
CO Descrip	otion	Compare various mode	s of wave propaga	ation.								
LO Descrip	otion	Define various paramet	ers and laws relat	ed to EM Wave.								
				SCHEME (DF STUDY							
S. No.		Learning Conte	nt	Teaching – Learning Method	Descripti T-L Pro		Teach Hrs.	Pract. /Tut Hrs.	L	Rs Re	quired	Remarks
LO-01	Transverse Time period sinusoidal frequency- Ranges of Communic Review of interferenc Polarizatio Ground wa Space wav	wavelength relation Electromagnetic waves	for for ion, refraction, g and of tilt. rizon	Interactive classroom lecture, PPT, demonstration, quiz, assignments, tutorial	Teacher wil explain the contents an provide han to students. Teacher wil conduct quiz/assign tutorial to n students pra their knowl	d ndouts Il ments/ nake actice	8		Ha boa Nu Pro	kt Book ndouts, ard, cha merical oblems orkbook	, chalk arts,	
				SCHEME OF A	ASSESSME	NT						
S. No.	Method	of Assessment	Desci	ription of Assessn	nent		Maximu Marks	m Reso	urces	s Requ	ired	External / Internal

LO-01	End Se	mester Theory Exam 2.	. Explair . Compa propaga	will be asked to(and/or n EM wave and its proper are different methods of v ation. be Angle of tilt and radio	rties. vireless wave	1	0 Q	uestion paper, scale	, Rating	Extern	ıal
	1	AD	DITION	NAL INSTRUCTION	S FOR THE HO	D/ FACULT	Y (IF AN	Y)			
R	`	Diploma Wing Bhopal	·	SCHEME LEARNING O	_	Branch Code	Cour 3 5	rse Code CC Cod	le Code	ormat N	[o. 4
	URSE ME	Antenna and wave									
CO Descrij	otion	Compare various mod	des of wa	ve propagation.							
LO Descrij	otion	Illustrate the sky wave	propagati	on.							
				SCHEM	ME OF STUDY						
S. No.		Learning Content		Teaching – Learning Method	Description Proce		Teach Hrs.	Pract. /Tut Hrs.	LRs Requir		Rema rks
LO-02	Ionosph effect) Reflecti in ionos Critical usable f Optimum Skip dis	frequency and Maximur requency m working frequency.	waves m	Interactive classroom lecture, PPT, demonstration, quiz, assignments, tutorial.	Teacher will exp contents and prov handouts to stude will conduct quiz/assignments make students pr knowledge.	vide ents. Teacher / tutorial to	7	-	Text Books PPT, Hand chalk boar charts, Numerical Problems workbook	louts, rd,	

S. No.	Method of Assessment	SCHEME OF ASSESSM Description of Assessment	IENT Maximum Marks	Resources Required	External
LO-02	End Semester Theory Exam	 Student will be asked to(and/or): 1. List the various layers of ionosphere. 2. Explain the given parameter for sky wave propagation. 3. Simple numerical on critical frequency, maximum working frequency, optimum working frequency. 	10	Question paper, Rating scale	Internal
	F	ADDITIONAL INSTRUCTIONS FOR THE H	IOD/ FACULI I		

R	GPV (D	oiploma Wing	g)	SC	CHEME FOR		Branch Co	de	C	Course C	ode	CO Code	LO Code	
		Bhopal	/	LEAR	NING OUTCOM	E	E 0	3	5	0	2	2	3	Format No. 4
	URSE ME	Antenna and way	ve proj	pagation			I	1	1				1	
CO Descrij	ption	Explain the workin	g of tra	nsmission line.										
LO Descrij	otion	Define the fundame	ental of	parallel wire tr	ansmission lines.									
					SCHEME OF STUI	DY								
S. No.	Lea	arning Content	r	Feaching – Learning Method	Description of T-L Pro	ocess	Teach Hrs.	/]	act. Fut Frs.		LRs]	Requi	red	Remarks
LO-03	Introdu Need. Paralle line equiv Current parallel wi Primary constant transmis Conditio	sion lines:- action, its types and l wire transmission alent circuit. /voltage distribution ir ire transmission line. and secondary ts of parallel wire ssion line. on for Loss less and less transmission line	cla lec de qu ass	eractive issroom eture, PPT, monstration, iz, signments	Teacher will explain the contents and provide hand to students. Teacher will conduct quiz/ assignments tutorial.		7		-	Ha	ndouts chart ectures	ooks, l , chalk ts.Vide s- NPT others	board, cos	
	1		I		SCHEME OF ASSESS	MEN	T							
S. No.	Method	l of Assessment		Description	of Assessment		ximum Iarks		Res	sourc	es Re	quire	d	External / Internal
LO-03		emester Theory n/ Assignment	 Expl trans Desc line. Drive 	mission line. ribe various pa	e equivalent circuit of rameters of transmission n for Loss less and		10		Ru	ibrics/	/Ratin	g scale		Internal

		ADD	DITIONAL INSTI	RUCTIONS FOR THE	HOD)/ FACULT	Y (IF ANY)		
RO		Diploma Wing) Bhopal		HEME FOR	र.	Branch Code	Course 3 5 0	Code C	CO LO ode Code 2 4	Format No. 4
	URSE ME	Antenna and wave								
CO Descrip		Explain the working of	f transmission line.							
LO Descrip		Describe various parar	neters of transmissic	on line.						
				SCHEME OF STUE	DY					
S. No.	I	earning Content	Teaching – Learning Method	Description of T-I Process	_	Teach Hrs.	Pract. /Tut Hrs.	LRs F	Required	Remarks
LO-04	Characte Incident and stan Reflecti Standing (SWR), Impedat	nce matching its type ingle stub matching) and	Interactive classroom lecture, PPT, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Tea will conduct quiz/assignments/ tutoria make students practice th knowledge.	l to	8	-	Text Boo Handout board, cl	s, chalk	
				SCHEME OF ASSESSN	MEN'	T				
S. No.	Metho	od of Assessment	Description	of Assessment		aximum Marks	Resou	rces Req	uired	External / Internal

LO-04	End Semester Theory Exam	 Student will be asked 1. Explain various transmission line. 2. Calculate Reflection for given line param 3. Describe types of ma 4. What is matching an 	parameters for n coefficient and SWR eters. atching.	10	Question pa	per, Rating scale	External
		ADDITIONAL INSTR	RUCTIONS FOR THE H	OD/ FACULT	Y (IF ANY)		
R	GPV (Diploma Wi	0 /	HEME FOR	Branch Code	Course Coo 3 5 0	de CO LO Code Code 2 2 5	Format No. 4
COU	Bhopal URSE Antonno and w	vave propagation	ING OUTCOME	EU	5 5 0		
NA CO Descrip	Explain the work	ing of transmission line.					
LO Descrij	otion Verify various pa	rameters of transmission l	ine.				
	otion Verify various pa	rameters of transmission 1	ine. SCHEME OF STUDY	7			
	Potion Verify various pa	Teaching –		Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks

		SCHEME OF ASSESSM	1ENT	computer with relevant simulation software and high speed internet.	
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-05	Practical test in laboratory	 Student will be asked to(and/or): Demonstrate the smith chart for transmission line. Calculate input impedance of given transmission line and verify it using smith chart. Simulate and verify transmission line parameters in laboratory using software. 	15	Rubric, Rating scale.	External
	1	ADDITIONAL INSTRUCTIONS FOR THE F	IOD/ FACULTY	(IF ANY)	

GPV (Dip	loma Wing)	SCHEM	E FOR	Branch Co	de	C	ourse C	ode	CO Code	LO Code	1
· •	0,	LEARNING	OUTCOME	E 0	3	5	0	2	3	6	Format No. 4
SE NAME	Antenna and wa	ve propagation	I								
cription	Explain wave prop	pagation through metallic wa	aveguide.								
cription	Describe various p	propagation parameters and	modes in rectangular w	vaveguide.							
		SCH	EME OF STUDY								
Le	arning Content	Teaching – Learning Method	Description of T-I Process	Z Teach Hrs.	Р			L	Rs Re	quired	Remarks
Introducti with tran Transvers Transvers Cutoff wa in Rectangul Modes in I Concept of Propagation waveguide:- Phase velo	on and its Compariso smission lines. e Magnetic Waves, e Electric Waves, velength and frequer ar waveguide Rectangular wavegui Dominant Mode. parameters in	PPT, demonstration, quiz, assignments, tutorial de,	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments/ tutorial to make students practice their knowledge.	8		-		Han boa Nur Pro	ndouts, rd, cha merical blems	chalk arts, l	
			E OF ASSESSMEN	NT							
Method	of Assessment	Description of	Assessment				Reso	urces	Requ	ired	External / Internal
End Seme	ster Theory Exam	1Explain various modes ex 2Describe the concept of d and TM mode.	ist in waveguide. ominant mode for TE)	(Questi		-	ating	External
	ADDI	ITIONAL INSTRUCTIO	ONS FOR THE HO	D/ FACUL	ΔTY	(IF A	NY)				
	Bho SE NAME cription cription Lea Waveguides Introducti with tran Transvers Transvers Cutoff wa in Rectangul Modes in I Concept of Propagation waveguide:- Phase velo Guide wavele	criptionExplain wave propositioncriptionDescribe various propositionLearning ContentWaveguides: -Introduction and its Comparisonwith transmission lines.Transverse Magnetic Waves,Transverse Electric Waves,Cutoff wavelength and frequerin Rectangular waveguideModes in Rectangular waveguideMethod of AssessmentEnd Semester Theory Exam	Bhopal LEARNING (SE NAME Antenna and wave propagation Antenna and wave propagation Explain wave propagation through metallic ways cription Describe various propagation parameters and para	Bhopal LEARNING OUTCOME SE NAME Antenna and wave propagation cription Explain wave propagation through metallic waveguide. cription Describe various propagation parameters and modes in rectangular waveguide. cription Describe various propagation parameters and modes in rectangular waveguides: - Introduction and its Comparison with transmission lines. Interactive classroom lecture, pPT, demonstration, quiz, assignments, tutorial Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments/ tutorial to make students practice their knowledge. Modes in Rectangular waveguide. Concept of Dominant Mode. Propagation parameters in waveguide:- Description of Assessment Method of Assessment Description of Assessment Method of Assessment Student will be asked to 1Explain various modes exist in waveguide. 2Describe the concept of dominant mode for TE and TM mode. End Semester Theory Exam Calculate wave parameters for given waveguide.	Bhopal LEARNING OUTCOME E 0 SE NAME Antenna and wave propagation Explain wave propagation through metallic waveguide. Image: Comparison of the comparison of the comparison of the comparison of the comparison with transmission lines. Description of T-L Process Teaching - Learning Method Description of T-L Process Teach Hrs. Waveguides: - Introduction and its Comparison with transmission lines. Interactive classroom lecture, PPT, demonstration, quiz, assignments, tutorial Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments/ utorial on make students practice their knowledge. 8 Propagation parameters in waveguide:- Phase velocity, Group velocity, Guide wavelength(Simple numerical) Description of Assessment Maxin Maxi	Bhopal LEARNING OUTCOME E 0 3 SE NAME Antenna and wave propagation Explain wave propagation through metallic waveguide. Explain wave propagation through metallic waveguide. Explain wave propagation parameters and modes in rectangular waveguide. Explain wave propagation parameters and modes in rectangular waveguide. Cription Describe various propagation parameters and modes in rectangular waveguides: - Description of T-L Process Teach Process Process Waveguides: - Introduction and its Comparison with transmission lines. Interactive classroom lecture, PPT, demonstration, quiz, assignments, tutorial Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments/ tutorial to make students practice their knowledge. 8 4 Propagation parameters in waveguide. Student will be asked to IExplain various modes exist in waveguide. 5 10 Method of Assessment Student will be asked to IExplain various modes exist in waveguide. 10 End Semester Theory Exam Student wave parameters for given waveguide. 10	BhopalLEARNING OUTCOMEE035SE NAMEAntenna and wave propagationcriptionExplain wave propagation through metallic waveguide.criptionDescribe various propagation parameters and modes in rectangular waveguide.SCHEME OF STUDYSCHEME OF STUDYVariation of T-L Learning ContentTeaching - Learning MethodDescription of T-L ProcessTeach Hrs.Pract. Hrs.Waveguides: - Introduction and its Comparison with transmission lines. Transverse Hagnetic Waves, Transverse Helectric Waves, Transverse Helectric Waveguide. Concept of Dominant Mode. Propagation parameters in waveguide:- Phase velocity, Group velocity, Guide wavelength(Simple numerical)Description of Assessment8- Hrs.Method of AssessmentStudent will be asked to IExplain various modes exist in waveguide. 2Describe the concept of dominant mode for TE and TM mode. 2 Calculate wave parameters for given waveguide.10	BhopalLEARNING OUTCOMEE0350SE NAMEAntenna and wave propagationcriptionExplain wave propagation through metallic waveguide.criptionDescribe various propagation parameters and modes in rectangular waveguide.SCHEME OF STUDYLearning ContentTeaching - Learning MethodDescription of T-L ProcessTeach Hrs.Pract. /Tut Hrs.Waveguides: - Introduction and its Comparison with transmission lines. Transverse Magnetic Waves, Cutoff Wavelength and frequency in Rectangular waveguide. Concept of Dominant Mode. Propagation parameters in waveguide:- Phase volcity, Group velocity, Guide wavelength(Simple numerical)Interactive classrophic of AssessmentTeacher will explain the contents and provide handouts to students practice their knowledge.8-Method of AssessmentDescription of AssessmentMaximum MarksResoEnd Semester Theory ExamStudent will be asked to a Calculate wave parameters for given waveguide.10Quest	BhopalLEARNING OUTCOMEE03502SE NAMEAntenna and wave propagationcriptionExplain wave propagation through metallic waveguide.criptionDescribe various propagation parameters and modes in rectangular waveguide.SCHEME OF STUDYLearning ContentTeaching - Learning MethodDescription of T-L ProcessPract. /Tut Hrs.LWaveguides: - Introduction and its Comparison with transmission lines. Transverse Electric Waves, Cutoff wavelength and frequency in Rectangular waveguide, Concept of Dominant Mode. Propagation parameters in waveguide:- Phase velocity, Group velocity, Guide wavelength(Simple numerical)Interactive classroom lecture, tutorialTeacher will explain tutorial8-Hat boa boaSCHEME OF ASSESSMENTMethod of AssessmentDescription of AssessmentMaximum MarksResourcesEnd Semester Theory ExamStudent will be asked to LExplain various modes exist in waveguide. 2Describe the concept of dominant mode for TE10Question pa sci	Constrained of the set o	Image Content wing () Bhopal SCHEME FOR LEARNING OUTCOME Image Content E Conte Content Conte Content Content Content Content Co

R	` -	loma Wing) opal	SCHEM LEARNING		Branch Code		Course Co	Code Code	Format No. 4
COU	RSE NAME	Antenna and wave p	ropagation			I	I		
CO De	scription	Explain wave propagati	on of microwave throug	h metallic waveguide.					
LO De	scription	Calculate various param	eters of TE and TM mo	des.					
		1	SCH	EME OF STUDY					
S. No.	Le	arning Content	Teaching – Learning Method	Description of T-L P		Tea ch Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
LO-07	cutoff frequer Group velocit	of cutoff wavelength, ncy and Phase velocity, ty, Guide wavelength for nd verification using train	-	Teacher with support from staff will demonstrate the procedure of lab expering Student will conduct lab assignment based on the experiments.	he ments. b		7	Lab manual, charts, experimental trainer instruments/kit with measuring instruments.	
			SCHEM	E OF ASSESSMENT					
S. No.	Method o Assessmen		Description of A	ssessment		u	xim m arks	Resources Required	External / Internal
Lo-07	Practical test laboratory	-	parameters (cutoff wa	velength, cutoff frequenc wavelength) of rectangul	-	1	.0 R	ubrics, Rating scale	Internal

RC	· _	loma Wing)		CHEME FOR	Branch Code	Course Co	Code Code	Format No. 4
COUT		opal		ING OUTCOME	E 0	3 5 0	2 4 8	
	RSE NAME	Antenna and way Categorize various ki						
	scription	Define various par		1				
LO Des	scription							
			Terest	SCHEME OF STUDY				
S. No.	Learn	ing Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
LO-08	Reciprocity th Radiation rest Isotropic radi Gain & Direc of dB ,dBm,d Radiation pat (Field and po polar plot). Beamwidth of	nna parameter neorem for antenna. istance ator tivity (with Concept Bi) tern of an antenna wer pattern using f an antenna. f an antenna ffective height and ture.	Interactive classroom lecture, PPT, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments/ tutorial to make students practice their knowledge.	8	-	Text Books, PPT, Handouts, chalk board, charts, Numerical Problems Workbook	
			1	SCHEME OF ASSESSME		1		
S. No.	Method of Assessmen			on of Assessment		Maxi mum Marks	Resources Required	External / Internal

LO-08	End Semeste Theory Exar	1. What is a2. Define value3. Draw thepresent in4. Solve Sin	e asked to (and/or): antenna and Explain its worki arious parameters of antenna. e radiation pattern of antenna a n it. mple numerals on calculation e the received power using frii	and explain various l of antenna parameter		10	-	tion pap ting scal		External
		ADDI	TIONAL INSTRUCTION	IS FOR THE HOI	D/ FACUL	TY (IF A	ANY)			
R	GPV (Dip	loma Wing)	SCHEME	FOR	Branch Cod	le C	Course Code	CO Code	LO Code	
	Bho	opal	LEARNING O	UTCOME	E 0	3 5	0 2	4	9	Format No.
COUR	RSE NAME	Antenna and way	e propagation			i i i i i i i i i i i i i i i i i i i				
CO De	scription	Categorize various l	kind of antenna.							
LO Des	scription	Explain the structur	e of basic antenna and antenn	a array.						
		1	SCHE	ME OF STUDY						
S. No.	Learn	ing Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. Hrs		LRs Re	quired	Remarks
LO-09	Hertizian ante antenna, half folded dipole marconi ante Introduction o and its need. Point Sources	wave antenna and , antenna and nna. of Antenna arrays	Interactive classroom lecture, PPT, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments/ tutorial to make students practice	8	-	F b N P	ext Bool andouts oard, cha umerica roblems /orkbool	, chalk arts, l	,

			S	CHEME OF ASSESSN	MENT			
S. No.	Method	of Assessment	Description	of Assessment	Maximum Marks	Resourc	es Required	External / Internal
LO-09	End Seme	ster Theory Exam		vorking of dipole Ferent dipole antenna. Tha array and how it is iation pattern of	10	Question pa	per, Rating scale	External
		ADDI	TIONAL INSTR	UCTIONS FOR THE	HOD/ FACULT	Y (IF ANY)		
D <i>(</i>	PV (Din	loma Wing)	SCI	HEME FOR	Branch Code	Course Co	de CO LO	
R	· •	loma Wing) opal		HEME FOR ING OUTCOMI	Branch Code E 0	Course Co 3 5 0	deCO CodeLO Code2410	Format No. 4
	· •	0	LEARN				de Code Code	Format No. 4
COUI	Bho	opal	LEARN ve propagation				de Code Code	Format No. 4
COUI CO De	Bho RSE NAME	Antenna and way Categorize various	LEARN we propagation kind of antenna.		E 0		de Code Code	Format No. 4
COUI CO De	Bho RSE NAME scription	Antenna and way Categorize various	LEARN we propagation kind of antenna.	ING OUTCOMI	E 0		de Code Code	Format No. 4
COUI CO De	Bho RSE NAME scription scription	Antenna and way Categorize various	LEARN we propagation kind of antenna.	ING OUTCOMI	E 0		de Code Code	Format No. 4

		A	ADDITI(ONAL INSTR	RUCTIONS FOR THE HO	D/ FACUL	ΓY (IF A	NY)			
LO- 10	Practical test in Japoratory		1. Drav anter 2. Drav	Student will be asked to (and/or):1. Draw voltage and current distribution for basic antenna.2. Draw and verify the radiation pattern of basic antenna in laboratory.		10	10 Rul		Rubrics, Rating scale.		Internal
S. No.	Method of	Assessment			SCHEME OF ASSESSME	NT Maxin Mar			esources equired		External / Internal
		f power beam ole antenna (ha we, folded)	lf-		experiments.			ir co re si so h	neasuring nstruments, omputer wit elevant imulation oftware and igh speed nternet.	h	

LO-11	LO-11 Physical structure, working, radiation pattern and applications of the following Antennas:- Yagi-Uda Antenna with concept of parasitic array. Parabolic reflector antenna Horn antenna Loop & helical antenna Log periodic antenna Turnstile antenna Sector Antenna			Interactive classroom lecture, PPT, quiz, assignments, tutorialTeacher will explain the contents and provide handouts to students. Teacher will conduct quiz/assignments/ practice their knowledge.		its 8			ooks, uts, cl charts ical P ook	S		
	·			S	CHEME OF ASSESSME	NT	·				· · ·	
S. No.	S. No. Method of Assessment			Descriptio	n of Assessment	Maxin	Maximum Marks		Resou Requ	External / Internal		
LO- 11	LO- 11End Semester Theory Exam1. Ex 2. Co			dent will be asked to (and/or): Explain Physical structure of given antenna. Compare different antenna based on their application Draw the radiation pattern of given antenna.			10			Question paper, Rating scale.		
			ADDI	FIONAL INSTR	UCTIONS FOR THE HO	D/ FACUL'	TY (IF ANY)				
R	GPV (Dip		ng)		HEME FOR	Branch Cod	e Course	Code	CO Code	LO Code	Format No. 4	
Bhopal				I	ING OUTCOME	EU	3 5 0			12		
	RSE NAME			e propagation								
	scription			kind of antenna.								
LO Des	scription	Verify the ra	diation	pattern of different	antennas.							
					SCHEME OF STUDY							

S. No.	Learn	ing Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Requir	ed Remark	
LO-12	Study of radia different anter Yagi-Uda An Parabolic refl Horn antenna Loop & helica Log periodic Turnstile anter Sector antenn	tenna ector antenna al antenna antenna enna	Lab demonstration, hands on practice, lab assignments, V-Lab.	Teacher with support from lab staff will demonstrate the procedure of lab experiments. Student will conduct lab assignment based on these experiments.		7	Lab manual, cha experimental trai instruments/kit v measuring instruments, com with relevant simulation softw and high speed internet.	iner vith nputer	
	·		SCHEME	OF ASSESSMEN'	T			I	
S. No.	Method	of Assessment	Description of As	sessment	Maximum Marks Resources Require		urces Required	External / Internal	
LO- 12	LO- Practical test in laboratory		Student will be asked to (1. Draw and verify the radiat given antenna in laboratory.		15 Question paper, Ratin scale.			External	
		ADD	ITIONAL INSTRUCTION	S FOR THE HOD)/ FACULTY	(IF ANY)			
RGPV (Diploma Wing) Bhopal		SCHEME LEARNING O		Branch Code E 0 3	Course Co	rde CO Code Code 2 5 13	Format No. 4		
COUR	RSE NAME	Antenna and wa	ve propagation	I	I I		1 1 1		
CO Des	scription	Select advance ant	enna as per application requiren	nent.					
	scription	Describe the work	ing of micro-strip antenna.						

			SCHE	ME OF STUDY				
S. No.	Learning Conte	ent	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
LO-13	 -13 Rectangular Micro-strip Antennas – Introduction, Features, Advantages and Limitations. Rectangular Patch Antennas – Geometry and Parameters, Types of Feeding (Coaxial feed and micro-strip feed) Characteristics of rectangular micro- strip Antennas. Impact of dielectric constant and thickness of substrate on characteristics 		Interactive classroom lecture, PPT, demonstration, quiz, assignments	Teacher will explain the contents and provide handouts to students. Teacher will conduct quiz/ assignments/ tutorial.	8	-	Text Books, PPT, Handouts, chalk board, charts. Videos lectures- NPTEL& others	
	of rectangular micro-strip a	intenna.	SCHEME	COF ASSESSMENT				
S. No.	Method of Assessment		Description of Asse		Maximu Marks			External / Internal
LO-13	Mid-Semester Theory Exam/ Assignment	 What is r advantag List and o strip ante Identify t 	explain various feeding	g methods of micro- and thickness on	10	R	ubrics, Rating scale	Internal
	1		1	NS FOR THE HOD/ I	FACULTY	Y (IF ANY	·)	

RGPV (Diploma Wing)			SC	HEME FOR	Branch Code	Co	Course Code		LO Code	Λ	
	Bh	opal	LEARN	LEARNING OUTCOME		3 5	0 2	5	14	Format No. 4	
COURSE NAME Antenna and wa			ve propagation								
CO De	scription	Select advance ante	enna as per applicat	ion requirement.							
LO Des	scription	Illustrate the struct	ure of smart antenn	a.							
				SCHEME OF STUDY							
S. No.	Learr	ning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.		Requir	ed	Remarks	
LO-14			Interactive classroom lecture, PPT, demonstration, quiz, assignments	Learning MethodDescription of 1-L ProcessInteractiveTeacher will explain the contents and providelecture, PPT,handouts to students.demonstration,Teacher will conduct quiz/ assignments/ tutorial.		-	LRs Required Text Books, PPT, Handouts, chalk board, charts. Videos lectures- NPTEL& others		k -		
			\$	SCHEME OF ASSESSME	ENT						
S. No.	Method of	Assessment	Descriptio	on of Assessment	Maxim Mark		Resour	rces Ree	quired	External / Internal	

LO- 14	Mid-Semester Theory Exam / Assignment	 Student will be asked to(and/or): 1. Draw the structure of smart antenna and explain its working. 2. Compare and list the advantages of smart antenna with basic antenna. 3. Describe different types of smart antenna. 4. Explain MIMO technology. 	10	Rubrics, Rating scale	Internal
	A	ADDITIONAL INSTRUCTIONS FOR THE HOI	D/ FACULTY (IF A	NY)	