RGPV (DIPLOMA WING) BHOPAL

OBE CURRICULUM FOR THE COURSE

FORMAT-

Sheet No. 1/2

Branch		R	efrigera	ation and Air Cond	itioning	Semester]	V
Course C	ode	401		Course Name	Advanced Air Condit	ioning		
Course	e Out	tcome 1		ribe suitable indoo on comfort criteria	r and outdoor desig	n conditions	Teach Hrs	Marks
Learnir	ng Ou	itcome 1		e the mechanism of ts surrounding	thermal exchange of	human body	08	10
С	onter	nts	Haza	0	man Body With Enviror Jeat, Human Thermo Re Thermal Exchanges		0	<u> </u>
Method	of As	sessment	Paper	-Pen Test Prg 1(Inte	rnal)			
Learnir	ng Ou	itcome 2	-		cting human comfort a and outside conditions		08	10
С	onter	nts	Affect Condit	ing Optimum Effect tions Of Different	Affecting Human Com tive Temperature, Insid Cities , Selection O rmal Comfort Standards	e And Outsid f Outside An	e Summe	r Design
Method	of As	sessment	Theory	y Exam				
Learnir	ng Ou	itcome 3	Select	the appropriate ve	ntilations for healthy r	equirement	04	05
C	Conte	nt	Ventil Requir	ation ,Minimum Frement In A Buildin	Types Of Ventilation Requirements Of Ven g ,Residential Area , Iechanical Ventilation	tilation, Ge	eneral V	entilatior
Method	of As	sessment	Term	Work 1 (Internal)				
Course	e Out	come 2	Apply	Psychometric of air	r conditioning system		Teach Hrs	Marks
Learnir	ng Ou	itcome 4	-	ain The Various 7 onditioning System	Cerms Of Psychometric	c Applied In	04	05
0	Conte	nt	Heat 1		By Pass Factor , Sensi oom Sensible Heat Fac nt,			
Method	of As	sessment	Term	Work 2 (internal)				
Learnir	ng Ou	itcome 5	Grand		Room Sensible Heat Fa at Factor For Summer	nctor,	08	10
0	Conte	nt	Procee Room Psychi	lure To Draw, Sensit Sensible Heat Factor	ble Heat Factor, Room S , Grand Total Sensible Solve Simple Numerica Of Cooling Coil.	Heat Factor, A	DP Line	
Method	of As	sessment	Theory	y Exam				

Course Outcome 3	Describe Different Air Conditioning System For Given Air Conditioning System	Teach hrs	Marks
Learning Outcome 6	Explain The Working Principle Of Evaporative Air- conditioning Systems	10	15
	Introduce Evaporative Cooling Systems, Classify Evaporative Characteristics Of Direct And Indirect Multi –Stage, Ev Systems, Advantages And Disadvantages Of Evaporative Limitations Of Evaporative Cooling System, Applicability Of Ev Systems	aporative Cooling	Cooling Systems,
Method of Assessment	Laboratory work		
Learning outcomes 7	Classify the various types of air conditioning systems	08	10
	Comfort Air Conditioning systems, Commercial Air Condition Industrial Air Conditioning systems, Summer, Winter, and Year Conditioning systems, All Air systems, All Water systems, Air- Air Conditioning	Round A	ir
Method of assessment	Paper-Pen Test Prg 2 (Internal)		
Learning Outcome 8	Explain working of Unitary and Central Air Conditioning System	02+08	10
Content	Types Of Unitary And Central Air Conditioning Systems, Working Of Window, Split, Package Type Air Conditioners, Cap Central Air Conditioning- Types, Direct And Indirect Central Construction Capacity, Application	acity, Ap	plication
Method of Assessment	Laboratory work		
Course Outcome 4	Describe Recent Advancement In Air Conditionir applications	g	
Learning Outcome 9	Explain The Working Of VRF, VRV, Beam Chiller an District System in Air Conditioning		10
Content	VRF Systems, DX (Direct Expansion) System, Air Cooled Syste Cooled System, VRV (Variable Refrigerant Volume) System Cooled System, Chilled Water System- Water Cooled, Chilled Air Cooled, Chilled Beam (radiative or convective) Cooling System Cooling System comparison of VRF Vs Chiller	, VRV V Water Sy	Water stem-
Method of Assessment	Theory Exam	2.	4 10
Learning Outcome 10	Explain The Tranport Air Conditioning SystemsAir Conditioning Systems For Automobiles (Cars, Buses Etc.),	2+4	
content	Systems For Trains, Air Conditioning Systems For Ships Air Conditioning Systems For Ships Air Conditioning Systems For Ships Air Conditional Laboratory work		antoning
Method of Assessment	Apply The Current Codes and Practices in Design Of A	ir 08	10
Learning Outcome 11 Method of Assessment	Conditioning Systems Energy Simulation, ECBC Codes And Its Impact, Green Certification, Radiant Cooling Systems, Indoor Air Quality, Systems, Thermal storage Air Conditioning Systems, C Conditioning, Space Conditioning Air Conditioning, Theory Exam	Buildings Radiant	s, LEED Cooling
Course Outcome 5	Select Relevant Components For Given Air Distribution	Teach	Marks

Learning Outcome 12	Explain The Importance Of Air Distribution in Conditioned Space	08	10
Content	Room Air Distribution - Types Of Supply Air Outlets - Mechanism Of Outlets - Considerations For Selection And Location Of Outlets - Distr Of Outlets - Grills, Diffusers - Registers - Location Of Outlets And Retu Air Flow Pattern, Room Distributions Basics Distribution System- C System, Extended Perimeter System, Construction And Application Of S	ibution rn Air (losed F	Patterns Opening, Perimeter
	Theory Exam		
Learning Outcome 13	Selection Criteria for Fan Used in given Refrigeration ar Air- Conditioning system	id 2+	-8 15
Content	Introduction To Fans, Fan Characteristics, Types Of Fans, Centrifuga And Backward Blade Fans, Axial Flow Fan, Sound Power, Fan Capacity Rate, Fan Pressure, Fan Power And Fan Efficiency, Fan Performance Operating Parameters Of A Fan Selection Of Fan For Various Appl Sizing, Noise Level, Static Pressure, Operation And Performance Issues,	y, Volu The Indications	me Flow mportant
Method of Assessment	Laboratory work		
Learning Outcome 14	Identify The Different Types Of Air Conditioning Ducts	8	10
Content	Pressure Drop in Duct, Friction Loss In Duct, Duct Construction, put Classification of Ducts, Duct Material, Duct Shape, General R Design	*	
Method of Assessment	Theory Exam		
Learning Outcome 15	Describe Different Types Of Air Distribution And Air Handling Equipment Used In Air Conditioning	8	10
Contents	Unitary Equipment - Coil-Equipments ,Washer Equipments , Fa Accessory Equipment Air Handling Unit, Air Filters, Air Locks, A Showers, Air Cleaners, Viscous Impingements Electronic Air Contaminates, Selection of Insulation, Types Of Insulation, Mater Properties	ir Curt Clean	ains, Air ers, Air
Method of Assessment	Theory Exam		

	(Dinla	oma Wing) Bh	onal	SCHEME FOR	LEARNING	В	ranch Co	de	Co	ourse Co	de (CO Code	LO Code	_	1
KGPV		nna wing j dh	opai	OUTC	OME	R	0	1	5	0	2	1	1	Fori	mat No. 4
COURS	E NAME	Advanced Air Con	ditionir	ng							''				
CO Des	cription	CO-1 Describe suit	able ind	oor and outdoor design (conditions based on o	comfor	t crite	ria.							
LO Dese	cription	LO-1 State the me	chanism	of thermal exchange of	human body with its	surrou	Inding	•							
		'		SC	HEME OF STUDY										
S. No.		Learning Content		Teaching –Learning Method	Description of	T-L Pr	ocess		Teac h Hrs.		ract. ut Hrs.	LR	s Requ	uired	Remark
1	With H	Resulting From Heat, Regulation, D g Equations Of T	ological Human Different	Interactive Classroom method, Handout, PPTs, Charts and Videos.	Teacher will explai and provide handou Teacher will condu- make students pract knowledge	it to stu ct Quiz	udents z/visit	.	8			Ch	ndouts arts, deos	5,	NIL
	1			SCHEN	/IE OF ASSESSMEN	Т		I		-					
S. No.	Metho	d of Assessment		Description of A	Assessment		N	/laxin Mar	-	Re	source	s Re	quired	t	External / Internal
1	Paper-Pe		body wit	will be asked to State the h environment , different g exchanges.				10		Tes	t Paper			I	nternal
			AD		ONS FOR THE HOD	/ FAC	ULTY	(IF AI	NY)						

Advanced Air Condit CO-1 Describe suitabl LO-2 Explain the fact	oning e indoor and out	nan comfort and	nditions based on com		teria	5 0	2	1	2		at No. 4
CO-1 Describe suitabl LO-2 Explain the fact	e indoor and out	nan comfort and									
LO-2 Explain the fact		nan comfort and									
	ors affecting hum		d need for selecting su	itable							
Learning Conten					inside an	d outside	cond	itions.			
Learning Conten		SCHE	ME OF STUDY								
	t	Teaching – Learning Method	Description of T Process	ſ-L	Teach Hrs.	Pract. / Hrs.		LRs	Requir	red	Remarks
ture, Inside And Outside ns Of Different Cities, Sele de Design Conditions, AS	btimum Effective Summer Design ction Of Outside	Interactive Classroom method, Handout, PPTs, Charts and Videos.	ASHRAE thermal comfort Standards 5 handout to students. Teacher will conduc Quiz/visit to make	e 75. et	08			Mode renew	s, Video ls of able po		
		SCHEME	OF ASSESSMENT								
d of Assessment		Description o	f Assessment			Maximum Marks					ernal / ternal
affe	cting human cor	nfort, factors af	fecting optimum effectiv			10		Paper P	Pen -	Ex	xternal
	ture, Inside And Outside ns Of Different Cities , Sele de Design Conditions, ASI t Standards 55. od of Assessment Exam Stud affe	od of Assessment Exam Student will be aske affecting human cor , Selection of outside	ture, Inside And Outside Summer Design ns Of Different Cities , Selection Of Outside de Design Conditions, ASHRAE Thermal t Standards 55. SCHEME Description o Exam Student will be asked to Factors af affecting human comfort, factors af , Selection of outside and Inside desig	ture, Inside And Outside Summer Design ns Of Different Cities , Selection Of Outside de Design Conditions, ASHRAE Thermal t Standards 55.method, Handout, PPTs, Charts and Videos.ASHRAE thermal comfort Standards 5 handout to students. Teacher will conduct Quiz/visit to make students practice the knowledgeDed of AssessmentDescription of AssessmentExamStudent will be asked to Factors affecting human comfort, factors affecting optimum effective, , Selection of outside and Inside design conditions	ture, Inside And Outside Summer Design ns Of Different Cities , Selection Of Outside de Design Conditions, ASHRAE Thermal t Standards 55.method, Handout, PT's, Charts and Videos.ASHRAE thermal comfort Standards 55.add of AssessmentSchemet Will conduct Videos.Quiz/visit to make students practice their knowledgebd of AssessmentDescription of AssessmentExamStudent will be asked to Factors affecting human comfort, factors affecting human comfort, factors affecting optimum effective tempor , Selection of outside and Inside design conditions	ture, Inside And Outside Summer Design ns Of Different Cities , Selection Of Outside de Design Conditions, ASHRAE Thermal t Standards 55. bd of Assessment Exam Student will be asked to Factors affecting human comfort , factors affecting human comfort, factors affecting optimum effective temperature , Selection of outside and Inside design conditions Method, ASHRAE thermal Method, Comfort Standards 55. handout to students. Charts and Videos. SCHEME OF ASSESSMENT Description of Assessment	ture, Inside And Outside Summer Design ns Of Different Cities , Selection Of Outside de Design Conditions, ASHRAE Thermal t Standards 55. bd of Assessment Exam Student will be asked to Factors affecting human comfort , factors affecting human comfort, factors affecting optimum effective temperature ture, Inside And Outside Summer Design method, Handout, PTs, Charts and Videos. ASHRAE thermal Handout, comfort Standards 55. PTs, handout to students. Charts and Videos. SCHEME OF ASSESSMENT Maximum Marks 10	ture, Inside And Outside Summer Design ns Of Different Cities , Selection Of Outside de Design Conditions, ASHRAE Thermal t Standards 55.	ture, Inside And Outside Summer Design ns Of Different Cities , Selection Of Outside de Design Conditions, ASHRAE Thermal t Standards 55. bd of Assessment Student will be asked to Factors affecting human comfort , factors affecting human comfort, factors affecting optimum effective temperature , Selection of outside and Inside design conditions	ture, Inside And Outside Summer Design ns Of Different Cities , Selection Of Outside de Design Conditions, ASHRAE Thermal t Standards 55. bd of Assessment Student will be asked to Factors affecting human comfort , factors affecting human comfort, factors affecting optimum effective temperature , Selection of outside and Inside design conditions	ture, Inside And Outside Summer Design ns Of Different Cities , Selection Of Outside de Design Conditions, ASHRAE Thermal t Standards 55.

				SCHEME FO	R LEARNING		Branch Co	ode	С	Course Cod	le	CO Code	LO Code	
KGPV		oma Wing) Bho	pai	OUT	СОМЕ	R	0	1	5	0	2	1	3	Format No. Z
COURS	E NAME	Advanced Air Cond	litionin	Ig								1		
CO Des	cription	CO-1 Describe suita	able ind	oor and outdoor desig	n conditions based on	comfo	ort crit	eria.						
LO Des	cription	LO- 3 Select the app	ropriat	e ventilations for healt	thy requirement.									
		1		S	CHEME OF STUDY									
S. No.	L	earning Content	T	eaching –Learning Method	Description of T-L	Proc	ess	Teac Hrs.		Prac /Tut H		LRs	Require	ed Remarks
1	Of Ventil Requirem ,Minimum Ventilatio Requirem ,Residenti Etc. Com	Of Ventilations, Types ations, Fresh Air ents For Ventilation n Requirements Of n, General Ventilation ent In A Building al Area, Hospital, Facto pare Natural Ventilation chanical Ventilation	m Pl V M ut	teractive Classroom ethod, Handout, PTs, Charts and ideos, Working odels of power ilization				4				Hand Char Vide Wor Mod	eos, king	NIL
				SCH	EME OF ASSESSMEN	Т								
S. No.	Method	l of Assessment		Descript	tion of Assessment				ſ	Maxim Mark	-	_	sources equired	
1	Term W	Fr	esh air r	equirements for ventilat	ose of ventilations, typ ion, minimum requireme on with mechanical ven	ents of	ventila			05				Internal
			AD	DITIONAL INSTRUC	TIONS FOR THE HOD	/ FAC	CULTY	(IF AN	Y)					
			AD	DITIONAL INSTRUC	TIONS FOR THE HOD	/ FAC	CULTY	(IF AN	Y)					

			S	CHEME FOR LEARNI	NG	Br	anch Co	de	C	ourse Co	de	CO Code	LO Code		
KGP	v (Dipion	na Wing) Bhop	al	OUTCOME		R	0	1	5	0	2	2	4 F	orma	at No. 4
COUR		Advanced Air Conditi	ioning								· ·		I		
CO De	escription	CO 2 : Apply Psychom	etry to air	conditioning system											
LO De	scription]	LO-4 : Explain The Va	arious Te	rms Of Psychometry Applied to	Air Condit	ioni	ng Sys	stems							
	I			SCHEME OF S	TUDY										
S.No		Learning Content		Teaching –Learning Method	Descr	ripti Proc		T-L		each Irs.	Pra /Tut		LR: Requi		Remarl
1	Sensible Hea Factors, Effect	Learning ContentMethodProductS Factor, Effect Of By Pass Factor , e Heat Factor, Room Sensible Heat , Effective Room Sensible Heat Factor, Total Sensible Heat Factor, ApparatusInteractive Classroom method, Handout, PPTs, Charts and Videos.Teacher will contents and handout to product of the product							4				Hando Charts Videos	,	
				SCHEME OF ASSE	SSMENT										
S. No.	Method Assessm	-		Description of Assessme	ent					-	kimum Iarks	-	sources equired		xternal / nternal
1	TermWorl		ensible Hea	explain Bypass factor, effect of t Factors, Effective Room Sensibl ratus Dew Point							05			Int	ernal
			ADDITIC	ONAL INSTRUCTIONS FOR TI	HE HOD/ F	ΑCL	JLTY	(IF AI	NY)						

			ing) Bhopal								urse Co	de CO Code		de	
RG		oma Wir	ng) Bhopal		OUTCOME	R	0		1	5	0	2 2	5	For	mat No. 4
τοι	JRSE NAME	Advance	d Air Conditionin	g		I						11		1	
CO [Description	CO-2 App	ply Psychometry to	air condition	ning system										
	escription	LO-5 Det	ermine The Effectiv	e Room Sens	sible Heat Factor, Grand	d Total Sensible I	leat F	actor	For	Air-	Condi	itioning Sy	stems		
					SCHEME OF	STUDY									
S. No		Learni	ing Content		Teaching – Learning Method	Descript Pro	ion o cess	f T-L		-	ach rs.	Pract. /Tut Hrs		LRs Required	Remark
	Sensible Hea Heat Factor Lines On Ps	at Factors , 1 , Grand Tot ychrometric roblem to C	ible Heat Factor, F Effective Room Se al Sensible Heat Fa Chart, And Solve Calculate ERSHF,G bil.	nsible actor, ADP Simple	Interactive Classroom method, Handout, PPTs, Charts and Videos.	Teacher will e contents and p handout to stu Teacher will c Quiz/visit to practice their	orovid dents condu make	e ct stude			08		C	landouts harts, 'ideos	
					SCHEME OF AS	SESSMENT									
S. N	o. Metho Assess			De	escription of Assessi	ment						aximum Marks		ources quired	External / Interna
1	Theory	Eff line	fective Room Sensib	le Heat Facto chart, and so	e to draw Sensible Heat or, Grand Total Sensible lve simple numerical pr	Heat Factor, Ap	paratu	s Dev	v Poi	nt, ,		10	Test	Paper	External
			AD	DITIONAL I	NSTRUCTIONS FOR	THE HOD/ FA	CULT	Y (IF	AN	()					

			SCHEME FOR I	LEARNING	j ^e	Branch Co	de	C	ourse Co	de	CO Code	LO Code		
KGP	v (Dipior	na Wing) Bhopal	Ουτςο	ME	R	0	1	5	0	2	3	6	Forma	at No. 4
COUR	SENAME	Advanced Air Conditionin	g		I		_							
CO De	scription	CO-3- Describe Different Ai	r Conditioning Systems											
LO De	scription	LO-6 Explain The Working	Principle Of Evaporative	Air-conditionin	ng Systems									
			SCH	EME OF STUD	Y									
S. No.		Learning Conten	t	Teaching – Learning Method	Descriț Pi	ption (rocess			each Irs.		act. t Hrs.	LR Requ		Remarl
-	Cooling Syst –Stage, Eva	vaporative Cooling System ems, Characteristics Of Di aporative Cooling System aporative Cooling System, Cooling System, Applic ems	rect And Indirect Multi ms, Advantages And Systems, Limitations Of	Interactive Classroom method, Handout, PPTs, Charts and Videos.	Teacher the conte provide l students. conduct make stu practice knowled	ents an handou . Teach Quiz/v idents their	d it to ier wil			8		Hando Chart Video	s, ´	
			SCHEMI	E OF ASSESSN	IENT									
S. No.	Methoo Assessm		Description of Ass	sessment				-	iximu ⁄Iarks			ources Juired		xternal / Internal
	Laborat work		d to Explain evaporative contages and disadvantages of tive cooling system				re	15					Ex	xternal
		AD	DITIONAL INSTRUCTIO	NS FOR THE H	IOD/ FAC	ULTY	(IF AN	IY)						

	//Diala	ma Ming) Phona	SCHEME	FOR LEARNING	В	Branch Co	de	C	ourse Co	ode	CO Code	LO Code	_	
KGP		ma Wing) Bhopa		UTCOME	R	0	1	5	0	2	3	7	Forma	at No. 4
COURS	SE NAME	Advanced Air Condition	ing		!									
CO Des	scription	CO3- Describe Different A	Air Conditioning Sys	tems										
LO Des	cription	LO-7 Classify the various	types of air condition	ning systems										
				SCHEME OF STUDY	(
S. No		Learning Content	:	Teaching – Learning Method	Descrip Pr	otion o rocess			ach rs.		act. Hrs.	LF Requ		Remar
C S C	Conditioning systems, Sur Conditioning	ir Conditioning systems, C g systems, Industrial Air mmer, Winter, and Year Ro g systems, All Air system r- Water systems for Air C	Conditioning ound Air s, All Water	Interactive Classroom method, Handout, PPTs, Charts and Videos.	Teacher explain and pro- handout Teacher conduct to make practice knowled	the convide vide t to stu will Quiz/ studen their	dents. visit		08			Hando Charts Video	5,	
			SC	HEME OF ASSESS	MENT									
S. No.	Metho Assessi		Description	on of Assessment					axim Mark			ources quired		xternal / Internal
	Paper per test(Prg2)	Conditioning , Com	mercial Air Conditio ound Air Conditioning	different air conditioning s ning, Industrial Air Cond g , All Air systems, All Wa	itioning, S	ummer	,		10		Test P	aper	Int	ternal
				RUCTIONS FOR THE H	OD/ FAC	ULTY	(IF AN	IY)						

			SCH	EME FOR LEARNIN	IG B	Branch Co	de	C	Course Co	de	CO Code	LO Code		
RGPV	(Diplom	a Wing) Bhopal		OUTCOME	R	0	1	5	0	2	3	8	Format	No. 4
COURS		dvanced Air Conditionin	g		I					· · · · · ·				
CO Des	cription C	O3 Describe Different Air	Conditioni	ng Systems										
LO Desc	cription L	O-8 Explain working of Un	itary and	Central Air Conditioning Sy	vstem									
	· · ·			SCHEME OF STU	JDY									
S. No.		Learning Content		T-L Method	Descrip Pr	tion o		-	Геасh Hrs.		act. t Hrs.		LRs quired	Rem ark
	Systems, Cor Split, Packag Application (itary And Central Air Condi Istruction And Working Of W e Type Air Conditioners, Cap Central Air Conditioning- Typ Central Air Conditioning Con plication	Vindow, pacity, pes, Direct	Interactive Classroom method, Handout PPTs, Charts and Videos.	Teacher wi contents an handout to Teacher wi Quiz/visit students pr knowledge	nd pro stude ill con to ma ractice	vide nts. duct ke	ne	2	8		Char Vide Expe	os, eriment tup for ess	
				SCHEME OF ASSES	SMENT			I						
S. No.	Method o Assessme		De	escription of Assessment					-	imum arks		source: equired		ernal / ernal
	Laboratory work		w, split, pac	of Unitary and Central air con kage type air conditioners, dir y, application				tion	1()	Tes	t Paper	Inter	nal
		AD	DITIONAL	L INSTRUCTIONS FOR THI	E HOD/ FAC	ULTY	(IF AI	NY)						

RG	iPV (Dipl	V (Diploma Wing) Bhopal	SCHEME FO	R LEARNING	В	ranch Co	de	C	ourse Code		CO Code	LO Code		
		- ·	Ουτα	COME	R	0	1	5	0	2	4	9	Forma	at No. 4
COURS		dvanced Air Condit	ioning						11					
CO Des	cription C	CO- 4 Describe Recent	t Advancement In Air	Conditioning appli	ications									
O Des	cription L	O-9 Explain The Worki	ing Of VRF, VRV, Beam	Chiller and District	System	in Air (Condit	ioning	B					
				SCHEME OF S	STUDY									
S. No.		Learning Cont	ent	T-L Method		riptio Proce		ſ-L	Teach Hrs.		ract. 'Tut Hrs.	LRs R	Required	Remark
	Cooled Syster (Variable Ref Cooled Syster Chilled Water (radiative or o	s, DX (Direct Expansion m, DX Water Cooled Sy frigerant Volume) System m, Chilled Water System r System- Air Cooled, C convective) Cooling Sys em comparison of VRF	ystem, VRV m, VRV Water n- Water Cooled, Chilled Beam Stem, District	Interactive Classroom method, Handout, PPTs, Charts and Videos.	Teacher the com provide students determi entropy	tents a hando s. Exp ination	and out to erime		08				s, Videos, rimental	
				SCHEME OF ASS	ESSME	NT								
S. No.	Method o Assessmen		Description of <i>I</i>	Assessment				-	imum arks		esour equir		External	/ Internal
	Theory Exam		ked to Explain the work led Beam Cooling Syste Vs Chiller			l Chille	ed .	10				I	External	
I		I	ADDITIONAL INST	RUCTIONS FOR 1	THE HOI	D/ FA	CULT	Y (IF /	ANY)					

RGPV (Diploma Wing)					CHEME FOR LEARNING Branch Code Co				ourse Cod	e	CO Code	LO Code		Л			
	B	hopa	h		OUTCOME R 0 1 5					5	0	2	4	10	Format No. 4		
cou	RSE NAME	Adva	inced Air Condit	tioning													
CO D	escription	CO-4	Describe Recen	ent Advancement In Air Conditioning applications													
lo d	escription	LO-	10 Explain The	Tranport Air Conditioning Systems													
					SCH	IEME OF ST	UDY										
S. No.		Learn	ing Content		Teaching – Learning Method	Descript	tion o	f T-L I	Proce	SS	Teac Hrs.		Pract. /1 Hrs.		LRs Required	Remarl	
	(Cars, Buses	Etc.), A	vstems For Automo Air Conditioning Sy ditioning Systems I ing	stems	Interactive Classroom method, Handout,PPTs, Charts and Videos. Models of boilers, mountings and accessories	Teacher will explain thecontents and providehandout to students.Teacher will conductQuiz/visit to make studentspractice theirknowledge							C V E se di		landouts, harts, Videos, xperimental etup for ryness raction		
					SCHEM	E OF ASSES	SME	NT									
S. No.	Metho Assessr			Description of Asses	ssment		ſ	Maximum Marks		Resources Required Test Paper		External / Internal					
	Laborator work	у			sked to Explain Air conditioning systems use buses etc.) and transportation sectors.									1	0		
				ADDI	FIONAL INSTRUCTIO	NS FOR TH	e hoi	D/ FA	CULT	Y (IF	ANY)						
				ADDI	FIONAL INSTRUCTIO	INS FOR TH	e Hoi	D/ FA	CULT	Y (IF	ANY)						

RGP	/ (Diploma	SCHEME FOR LEARNING OUTCOME					Branch (Code		Course Cod	e	CO Code	LO Code	Form	nat No.
Wing	g) Bhopal		R	0	1	5	0	2	4	11		4			
COL	JRSE NAME A	Advanced Air Conditioning CO-4 Describe Recent Advancement In Air Conditioning applications													
CO Des	cription C														
LO Des	cription L	.0-11 Ap	oply The Curren	nt Codes and Practices	s in Design O	f Air (Condit	ioning S	ystems	5					
				SCHI	EME OF STU	JDY									
S. No.	Learni	ing Conte	ent	T-L Method	Descri	ption	of T-I	Proces	s	Teach Hrs.		ract. ut Hrs.	LRs Requir		Remark
	Certification, Radia Indoor Air Quality Systems, Thermal Conditioning Systems	Impact, Green Buildings, LEED Certification, Radiant Cooling Systems, Indoor Air Quality, Radiant Cooling Systems, Thermal storage Air Conditioning Systems, Clean Room Air Conditioning, Space Conditioning Air			Classroom method, Handout PPTs, Charts and Videos, Models and provid Experimen dryness fra				s.	08			Handou Charts, Videos, Experin ntal setu for dryness fraction	ne Ip	
				SCHEMI	E OF ASSES	SMEN	IT								
S. No.	Method of Asse	ssment	D	sment Maximum Ma							Resou Requi			External / Internal	
	Theory Exam		Student will b building codes Systems. Ther Clean Room A	Radiant Coo	oling						ECBC Guidelines and BEE standards			External	
			ADDIT	ONAL INSTRUCTIO	NS FOR THE	HO)/ FAC	CULTY (I	F AN	()					

RGF	V (Diploma		SCHEME FOR LEAR	NING	NG Branch Code				urse Code	•	CO Code	e LO C			
	ng) Bhopal		OUTCOME	R 0				5	0	2	5	1.	2 Format		No. 4
СС	OURSE NAME	Advanced Air Conditioning													
CO D	escription	CO- 5	Select Relevant Components Fo	or Given Air Distril	oution	Systen	n And A	Air Har	ndling	Equij	oment'	's In Air (Condi	tioning	
LO De	escription	LO- 12	2 Explain The Importance Of A	ir Distribution in C	Condit	ioned S	pace								
				SCHEME OF	STUE	ΟY									
S. No.		Learnir	ng Content	Teaching – Learning Method	De	scripti	cription of T-L Process				ach 's.	Pract. /Tut Hrs.		LRs quired	Rema rk
	Mechanism Of Flor Selection And Loca Outlets - Grills, Dif And Return Air Op Distributions Basic	w Throug ation Of O fusers - I ening, Ai s Distribu Perimeter	bes Of Supply Air Outlets - ch Outlets – Considerations For Outlets - Distribution Patterns Of Registers - Location Of Outlets ir Flow Pattern, Room ation System- Closed Perimeter System, Construction And	Interactive Classroom method, Handout, PPTs, Charts and Videos.	Teacher will explain thecontents and providehandout to students.Teacher will conductQuiz/visit to make studentspractice theirknowledge					8	8		Handouts, Charts, Videos, models		
				SCHEME OF AS	SESSI	MENT									
S. No.	Method o Assessme		Description	of Assessment				Maximum Mar				Resources Required		External Internal	
	Theory exam		of supply air outlets - Mechanis Considerations for selection and patterns of outlets - grills, diffu- and return air opening	lain Room air distribution - types sm of flow through outlets – d location of outlets - Distribution sers - registers - location of outlets sers - registers - location of outlets								st Paper		External	

			ADD	DITIONAL INSTR	UCTIONS FOR	THE HOD	/ FACI	ULTY	(IF AN	Y)							
				SCHEME	FOR LEARNING Branch Code						ourse Cod	e	e CO Code				
RGPV	/ (Diplor	ma Wing) B	hopal	OL	UTCOME R 0 1					5	0	2	5	13	Form	at No. 4	
COURS	SE NAME	Advanced Air Co	onditioning														
CO Des	cription	CO- 5 Select Rele	vant Compo	nents For Given A	Air Distribution	System An	d Air I	Handli	ing Eq	uipm	ent's I	n Air (Condi	tioning			
LO Des	cription	LO-13 Selection	Criteria for	· Fan Used in gi	ven Refrigerat	ion and Ai	ir- Coi	nditio	ning s	ysten	n						
	'				SCHEME OF	STUDY											
S. No.		Learning Content Learning Content Teaching – Learning Method Learning Method						f T-L P	Proces	S	each Hrs.	/т	act. 'ut rs.		.Rs uired	Remar	
1	Introduction To Fans, Fan Characteristics, Types Of Fans, Centrifugal Fan Forward And Backward Blade Fans, Axial Flow Fan, Sound Power, Fan Capacity, Volume Flow Rate, Fan Pressure, Fan Power And Fan Efficiency, Fan Performance, The Important Operating Parameters Of A Far Selection Of Fan For Various Applications, Motor Sizing, Noise Level, Static Pressure, Operation And Performance Issues,				Interactive Classroom method, Handout PPTs, Charts and Videos.	Teacher y contents to studen conduct (students j knowledg	and pro ts. Tea Quiz/vi practic	ovide ther visit to	hando vill make	at 2		8	8 Hando Charts Video model		rts, vos,		
				S	CHEME OF AS	SESSMEN [.]	т										
S. No.	Method	of Assessment	Description of Assessment								ximun 1arks	า	Resources Required			External / Internal	
	Laborator	y Work	Conditioni fan pressure	ng system, Fan so Fan Power and Faperating parameters	Forking of different types of fan used in air bund power, fan capacity volume flow rate, Fan Efficiency, Fan Performance, The rs of a fan Selection of fan for various							T	Test Paper			External	

RGPV (Diploma Wing) Bhopal OUTCOME R 0 1 5 0 2 5 14 F COURSE NAME Advanced Air Conditioning Advanced Air Conditioning E E E E E 0 1 5 0 2 5 14 F COURSE NAME Advanced Air Conditioning E E E E E E E E E E I F 0 2 5 14 F COURSE NAME Advanced Air Conditioning E E E E E E E E E I E I I E I I E I I E I I I E I	ormat No. 4	
CO Description CO-5 Select Relevant Components For Given Air Distribution System And Air Handling Equipment's In Air Conditioning LO Description LO Description LO-14 Identify The Different Types Of Air Conditioning Ducts SCHEME OF STUDY S. No. Learning Content Teaching –Learning Method Description of T-L Process Pract. Pract. Require R	Format No. 4	
LO Description LO-14 Identify The Different Types Of Air Conditioning Ducts SCHEME OF STUDY SCHEME OF STUDY S. No. Learning Content Teaching –Learning Method Description of T-L Process Teach Hrs. Pract. Lessen and Learning Learning Content Pressure Drop in Duct, Friction Loss In Duct, Duct Construction, purpose of duct, Classification of Ducts, Duct Material, Duct Shape, General Rules For Duct Design Interactive Classroom method, Handout, PPTs, Charts and Videos, Models Teacher will explain the contents and provide handout to students. Teacher will conduct Quiz/visit to make students practice their knowledge 8 Image: Handout Charts, Require		
SCHEME OF STUDYS. No.Learning ContentTeaching –Learning MethodDescription of T-L ProcessTeach Hrs.Pract. /Tut Hrs.Lear RequiPressure Drop in Duct, Friction Loss In Duct, Duct Construction, purpose of duct, Classification of Ducts, Duct Material, Duct Shape, General Rules For Duct DesignInteractive Classroom method, Handout, PPTs, Charts and Videos, ModelsTeacher will explain the contents and provide handout to students. Teacher will conduct Quiz/visit to make students practice their knowledge8Handout Charts, Videos, models		
S. No.Learning ContentTeaching –Learning MethodDescription of T-L ProcessTeach Hrs.Pract. /Tut Hrs.Learning RequinS. No.Pressure Drop in Duct, Friction Loss In Duct, Duct Construction, purpose of duct, Classification of Ducts, Duct Material, Duct Shape, General Rules For Duct DesignInteractive Classroom method, Handout, PPTs, Charts and Videos, ModelsTeacher will explain the contents and provide handout to students. Teacher will conduct Quiz/visit to make students practice their knowledge8Handout Charts Handout Charts, Turbine		
S. No.Learning ContentMethodProcessHrs./Tut Hrs.RequirPressure Drop in Duct, Friction Loss In Duct, Duct Construction, purpose of duct, Classification of Ducts, Duct Material, Duct Shape, General Rules For Duct DesignInteractive Classroom method, Handout, PPTs, Charts and Videos, ModelsTeacher will explain the contents and provide handout to students.8Handout Charts, Videos, modelsImage: Descent of Ducts, Duct Material, Duct Duct Construction of Ducts, Duct DesignInteractive Classroom method, Handout, PPTs, Charts and Videos, ModelsTeacher will conduct Quiz/visit to make students practice their knowledge8Handout Charts, Models		
Duct Construction, purpose of duct, Classification of Ducts, Duct Material, Duct Shape, General Rules For Duct Designmethod, Handout, PPTs, Charts and Videos, Modelscontents and provide handout to students. Teacher will conduct Quiz/visit to make students practice their knowledgeCharts, Charts, Videos, models	Rema ed k	
SCHEME OF ASSESSMENT	f	
S. No. Method of Description of Assessment Maximum Marks Resources Required	External / Internal	
Theory Exam Student will be asked to use of duct ,Classification of Ducts ,Duct Material , Duct Shape, General Rules for duct design 10	External	
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)		

RGPV (Diploma Wing) Bhopal			SC	SCHEME FOR LEARNING			Branch Co	de	C	Course Code			LO Code				
KGPV		ma wing	ј впорат		OUTCOME			0	1	5 0		2	5 15		Format No.		
COURS	E NAME	Advanced A	ir Conditionin	g													
CO Des	cription	CO-5 Select	relevant compo	nents fo	or given air distribution syst	em and Air	hand	lling eo	quipm	ent's i	n air	conditio	ning				
LO Des	cription	LO-15 Descr	ibe Different Ty	pes Of	Air Distribution And Air Ha	andling Equi	ipmer	nt Use	ed In A	ir Con	ditior	ning					
		1			SCHEME OF	STUDY											
S. No.		Learning	Content		Teaching –Learning Method		iptio Proce	on of T ess	-L	Tea Hr		Pract /Tut H			Rs uired	Rema k	
	Equipmen Locks, Ai Viscous In Air Conta Types Of	Equipments , Fan Coil Unit, Accessory Equipment Air Handling Unit, Air Filters, Air Locks, Air Curtains, Air Showers, Air Cleaners, Viscous Impingements Electronic Air Cleaners, Air Contaminates, Selection of Insulation, Types Of Insulation, Material And Their Properties			Charts and Videos, handout Models Teacher Quiz/visi			will explain the and provide to students. will conduct sit to make practice their lge						Handouts, Charts, Videos, models of Impulse and Reaction Turbine			
					SCHEME OF AS	SESSMENT	Г				I						
S. No.		thod of essment		Descr	ription of Assessment			Maximum Marks			Reso	ources	uired	External Internal			
	Theo	ory Exam	distribution an conditioning. Handling Unit Air cleaners, ,air contaminat	nd air h Fan Co t ,air fil viscous tes sele	d to Describe different types of air andling equipment used in air il Unit, accessory equipment Air ters, air locks, air curtains, air showers impingements, electronic air cleaners ction of Insulation, purpose, types of d their properties.			10)						Ex	ternal	