RGPV (DIPL) BHO	OMA W PAL	ING)	OBE CURRIC	CULUM FOR THE DURSE	FORMA	.T-3	Sheet No. 1/2
Branch		Cem	ent Technology (C	C 01)	Semester		IV
Course Code	40	4	Course Name	Unit	Operation -	Ι	
Course Outcon	ne 1	Stude cemer	nt will be able to e it plant.	xplain the Mining pr	ocess of	Teach Hrs	Marks
Learning Outco	ome 1	Specif	fy the selection crit	teria of limestone min	ies.	08	10
Contents		Select Assess	ion of Mines, overb sment of life span	ourden removal bore ho of mines, determinatio	oles/drill hole n of paramet	es sampl er of qua	es. arry.
Method of Asse	essment	Paper	pen test				
Learning Outco	ome 2	Define mater	e the method of bla ials	asting and types of ex	plosive	08	10
Contents		Metho materi limeste purpos	ods of blasting, ty als, safety method one up to the crush ses (excavators. doz	pes of explosive ma ls during the blazing ler, equipments needed zers, dumpers).	terials, stora operation, 7 for transpor	ge of e Transpor tation a	xplosive tation of nd filling
Method of Asse	essment	Theor	y exam			1	
Course Outcon	ne 2	Stude mater	nt will be able to d ials.	lescribe the crushing	of raw	Teach Hrs	Marks
Learning Outco	ome 1	State in cen	the theory of crus ient plant.	hing and types of cru	ishers used	10	10
Contents		Theor hamm analys	y of size reduction, er crushers, roller sis of crushed limes	, types of crushers, Jav crusher, Impactor, p tone, Checking crushe	v crushers, g rinciples of r efficiency.	yratory operatio	crushers, on, sieve
Method of Asse	essment	Theor	y exam			T	1
Learning Outco	ome 2	Expla	in the transportat	ion of crushed materi	al.	10	10
Contents		Apron hoppe feeder	conveyer, pipe cors used to store the rs, application of the	onveyer, rope way, be raw materials, types of eir blasters.	elt conveyer, hoppers, apro	cable c on feede	onveyer, rs, weigh
Method of Asse	essment	Quiz	(Term work)				
Course Outcon	ne 3	Stude	nt will be able t	to describe the mixi	ng of raw	Teach	Marks
		mater	ials and dust colle	cting equipments use	d in cement	Hrs	
-		plant.			-		10
Learning Outco	ome 1	Descr	ibe the different ty	pes of stock piles and		08	10
		equip	ments used to mak	ke the stock plies.	1 '1 '	1 .	1 '1
Contents		Differ	ent types of stock	piles, longitudinal st	ock pile, cir	cular st	ock pile,
		stacke	r and reclaimer on	en gantry system	nu reclamer	, circula	i type of
Method of Asse	essment	Theor	y exam	en gunu y system.			

Learning Outcome 2	Categorize the different types of dust collecting	08	10
	equipments.		
Contents	Dust collecting equipments, bag dust collector (bag hous	se), Elec	trostatic
	precipitator (ESP), hybrid dust collector, cyclone and multic	lone, prii	nciple of
	operation, working, selection criteria of dust collecting equip	oment.	
Method of Assessment	Theory exam		
Course Outcome 4	Student will be able to explain the grinding of raw	Teach	Marks
	materials.	Hrs	
Learning Outcome 1	Draw a neat sketch of vertical roller mill with its	10	10
	auxiliaries.		
Contents	Theory of grinding, three taws (Rittingers, Kick ⁱ s & Bonds),	applicat	ion of
	Bond's law In grinding mills, hard grove grindability index	(HGIV),	types
	of grinding mills, vertical roller mill (VRM), construction an	d operat	ion,
	hydraulic system, mill drive system, types of separators & th	eir funct	ions,
	circulating load & separator efficiency, cyclone separators.		
Method of Assessment	Theory exam	1	
Learning Outcome 2	Draw a neat sketch of ball mill and explain its working.	10	10
Contents	Ball mill, construction and operation, tube mill, theory of op	erations	of mills,
	L/D ratio, selection of grinding media, critical speed of mill,	determi	nation
	of critical mill speed, roller press, angle of nip, open and clos	se circuit	mill.
Method of Assessment	Theory exam	1	
Course Outcome 5	Student will be able to describe the homogenization and	Teach	Marks
	transportation of raw meal.	Hrs	
Learning Outcome 1	Explain the Homogenization of raw meal.	09	10
Contents	Types of storage silos, different methods used for the homog	enization	1
	storage cum blending, capacity of homogenization silo, conti	inuous fl	ow
	(CF) silo, continuous blending (CB) silo.		
Method of Assessment	Paper pen test		
Learning Outcome 2	Differentiate between mechanical conveyers and	09	10
	pneumatic conveyers.		
Contents	Mechanical conveyers and pneumatic conveyors, screw conv	veyors, d	rag
	chain conveyors, apron conveyors, belt conveyors, bucket ele	evators,	deep
	drawn pan conveyer, air slides, FK pump, air lift pump, Sele	ction of	
	conveying equipments.		
Method of Assessment	Theory exam		

RGPV	(Diploma	Wing) Bhopal	SCHEME FO	R LEARNING OUTCOM	E Bra	nch C	Code	Co	urse	Code	CO	Code	L Co	Dode F	ormat No. 4
	(P -0 n	······································			C	0	1	4	0	4		1		1	
COU NA	JRSE ME	Unit Operation	1 - I		I	1	1					I		I	
CO Des	cription	Student will be	e able to explain	the Mining process of cem	ent pla	nt.									
LO Des	cription	Specify the sele	ection criteria o	f limestone mines.											
		·		SCHEME ()F STU	DY									
S. No. Learning Content Teaching –Learning Method Description of T-L Teach Pract. /Tut LRs Required Required											Remarks				
1.	Interactive classroom teaching, demonstration, quiz, assignments.	Teacher content handou Teacher assignn make their kn	t will s an ts to winents/ studer owled	expla nd p stu ll cu qui nts p lge.	in the rovicudent ondu z ractio	ne le cs. ct to ce	08		NIL	H ch ba P! ba ch	Iandouts, halk oard, PT, tex ook, harts.	NIL			
				SCHEME OF A	SSESS	MEN'	Г								
S. No.	Metho	od of Assessmen	t	Description of Asse	ssment				N	laxim Mark	um s	Resour	ces R	Required	External / Internal
1.	Р	aper pen test	Student w limestone	ill be asked to specify the sel mines.	ection c	riteria	of			10		Test p	aper - scale	+ rating e	Internal
			ADDITIO	NAL INSTRUCTIONS FO	R THE	HOD	/ FA(CUL	ГΥ (І	F AN	Y)				
				Part of Prog	gressive	– I									

DODU						Bra	nch C	ode	Co	urse (Code	CO Co	de	LO Code		
RGPV (Diploma	Wing) Bhopal	SCHEME F	OR LEARNING OU	TCOME	С	0	1	4	0	4	1		2	Format No. 4	ł
COU NA	URSE ME	Unit Operation	1 - I							1	1	1	l			
CO Des	cription	Student will be	able to expla	ain the Mining proces	s of cemer	nt plai	nt.									
LO Dese	cription	Define the met	hod of blasti	ng and types of explos	sive mater	ials.										
		·		SCI	HEME OF	STU	DY									
S. No. Learning Content Teaching – Learning Method Description of T-L Process Teach Hrs. Pract. /Tut Hrs. LRs Required Remarks 1 Methods of blasting types of Interactive Teacher will explain the 08 NII Handouts chalk NII													S			
1.	Methods explosive during Transport crusher, transport (excavat	s of blasting, e materials, e materials, safe the blazing rtation of limesto equipments tation and fillir ors. dozers, dump	types of storage of ety methods operation, one up to the needed for ng purposes pers).	Interactive classroom teaching, demonstration, quiz, assignments.	Teacher contents a to stude conduct a make stu- knowledge	will ind pronts. Issigni dents e.	expl ovide Teach nents/ pract	ain hando er v quiz ice th	the outs will to neir	08		NIL	Han boa boo	ndouts, cha rd, PPT, te k, charts.	lk NIL ext	
	,			SCHEM	AE OF AS	SESS	MEN	Г								
S. No.	Metho	od of Assessmen	t	Description	of Assess	ment				N	laxim Marl	um ks R	esour	ces Require	d External / Interna	1 1
1.]	Theory exam	Student types of	s will be asked to defin explosive materials.	ne the meth	od of	blastir	ig and			10		Quest rat	tion paper + ing scale	External	l
`			ADDITI	ONAL INSTRUCTI	ONS FOR	THE	HOD	/ FAC	CUL	TY (I	FAN	Y)				
					NIL											

DODU						Bra	nch C	ode	Co	urse (Code	CO C	ode	LO Code	A
RGPV (Diploma	Wing) Bhopal	SCHEME I	OR LEARNING O	UTCOME	С	0	1	4	0	4	2		1	Format No. 4
COL NA	JRSE ME	Unit Operation	n - I				1				1	1		1	
CO Des	cription	Student will be	e able to desc	ribe the crushing of	raw materi	ials.									
LO Des	cription	State the theor	y of crushing	g and types of crushe	rs used in o	cemen	t plan	t.							
				SC	HEME OF	F STU	DY								
S. No. Learning Content Teaching – Learning Method Description of T-L Process Teach Hrs. Pract. /Tut Hrs. LRs Required Remains 1 Theory of size reduction types of Interactive Teacher will explain the 10 NII Handouts chalk NII												d Remarks			
1.Theory of size reduction, types of crushers, Jaw crushers, gyratory crushers, hammer crushers, roller crusher, Impactor, principles of operation, sieve analysis of crushed limestone, checking crusher efficiency.Interactive classroom teaching, tutorial, quiz, assignments.					Teacher contents a to stude conduct quiz/tutori make stu knowledge	will and pr ents. ial/ass idents e.	expl ovide Teach ignmer pract	ain t hando ter w nts ice th	the uts vill to eir	10		NIL	Ha boa boa vid	ndouts, cha ard, PPT, t ok, cha leo film.	alk NIL ext ts,
				SCHE	ME OF AS	SESS	MEN	Г							
S. No.	Metho	od of Assessmen	t	Description	n of Assess	ment				N	laxim Marl	ium ks	Resou	rces Require	ed External / Internal
1.]	Theory exam	Student of crush	s will be asked to state ners used in cement pla	e the theory ant.	of cru	ıshing	and ty	pes		10		Ques ra	stion paper + ting scale	External
			ADDIT	IONAL INSTRUCT	IONS FOR	THE	HOD	/ FAC	UL	ГY (I	F AN	Y)			
					NIL										

RGPV	(Diploma	Wing) Bhopal	SCHEME	FOR LEARNING OUTCOM	E Bra	nch C	Code	Co	urse	Code	СО	Code	LO Code	Format No. 4
					C	0	1	4	0	4		2	2	
COU NA	JRSE ME	Unit Operation	1 - I			·	·	-		· · ·				
CO Des	cription	Student will be	able to desc	ribe the crushing of raw mate	rials.									
LO Des	cription	Explain the tra	insportation	of crushed material.										
		·		SCHEME ()F STU	DY								
S. No.		Learning Conte	ent	Teaching –Learning Method	Desc	riptio Proc	on of T cess	Г-L		Teach Hrs.	Pı	ract. /Tut Hrs.	LRs Require	d Remarks
1.	Apron cc way, bel hoppers materials feeders, v their blas	onveyer, pipe cont t conveyer, cabl used to store t, types of hop weigh feeders, ap sters.	e conveyer, e the raw pers, apron pplication of	Interactive classroom teaching, tutorial, quiz, assignments.	Teacher contents handou Teacher quiz/tut to make their kn	r will s an ts to r wi orial/a e stude owled	expla id p stu ll co assignu ents pu lge.	un th rovid udent ondu ment ractio	he de ts. ct ts ce	10		NIL	Handouts chalk board, PPT, tex book	s, NIL xt
				SCHEME OF A	SSESS	MEN'	Т						1	I
S. No.	Metho	od of Assessmen	t	Description of Asses	ssment				Ν	Aaximu Marks	ım S	Resource	s Required	d External / Internal
1.		Quiz	Student materia	ts will be asked to explain the tr ıl.	ansporta	tion o	f crus	hed		10		Rubrics/r	ating scales	s Internal
			ADDIT	IONAL INSTRUCTIONS FO	R THE	HOD	/ FAC	CUL	TY (1	IF ANY	<u>/</u>)			
				Term	Work									

RGPV	(Diploma	Wing) Bhopal	SCHEME FOR	LEARNING OUTCOM	E Bra	nch C	ode	Co	urse	Code	CO	Code	LO Code	Format No. 4
	(······································			C	0	1	4	0	4	Ĵ	3	1	
COURS NAME	SE	Unit Operation	1 - I			1			1					
CO Des	cription	Student will be	able to describe	the mixing of raw materia	als and	dust c	ollect	ting	equip	oments	used in	n cement	plant.	
LO Des	cription	Describe the d	ifferent types of s	stock piles and equipment	s used t	o mak	the	stoc	k pile	es.				
				SCHEME O)F STU	DY								
S. No.		Learning Con	ntent	Teaching –Learning Method	Des	criptio Proc	on of '	Г-L		Teach Hrs.	Pra	act. /Tut Hrs.	LRs Require	d Remarks
1.	Different stock pile stock pil reclaimer reclaimer	Interactive classroom teaching, quiz, assignments.	Teache content handou Teache quiz/as student knowle	r will s an ts to r wi signmo s pra dge.	expla d p stu ll co ents to actice	uin the provident ondu o mal the	ne de ts. ct ct ke eir	08		NIL	Handouts chalk board, PPT, te book an video films.	s, NIL xt nd		
				SCHEME OF A	SSESS	MEN	Г							
S. No.	Metho	od of Assessmen	t	Description of Asses	ssment				N	Maxim Mark	um s	Resourc	es Require	d External / Internal
1.	Theory e	exam	Student will piles and eq	l be asked to describe the di uipments used to make the	fferent stock p	types o les.	of stoc	ck		10		Questi ratir	on paper + ng scale	External
			ADDITION	AL INSTRUCTIONS FO	R THE	HOD	/ FA(CUL	TY (]	IF ANY	Y)			
				NI	L									

DODU	(D)		GOHEME		Bra	anch (Code	Co	urse	Code	CO C	ode	LO Code	_	
RGPV	(Diploma	wing) Bhopai	SCHEME	FOR LEARNING OUTCOMP	C	0	1	4	0	4	3		2	For	mat No. 4
COU NA	URSE ME	Unit Operation	n - I			•				· · ·					
CO Des	cription	Student will be	e able to desc	cribe the mixing of raw materia	als and	dust	collect	ing	equip	ments	used in	ceme	nt plant.		
LO Des	cription	Categorize the	different ty	pes of dust collecting equipmen	nts.										
		1		SCHEME O	F STU	DY									
S. No.		Learning Conte	ent	Teaching –Learning Method	Des	criptio Proc	on of T cess	Ր - Լ		Teach Hrs.	Pra	ct. /Tu Hrs.	ıt LR Requi	s red	Remarks
1.Dust collecting equipments, bag dust collector (bag house), Electrostatic precipitator (ESP), hybrid dust collector, cyclone and multiclone, principle of operation, working, selection criteria of dust collecting equipment.Interactive cla teaching, lab demon quiz, assignments.					Teache content handou Teache quiz/as student knowle	er will ts ar tts to tr wi signm ts pra edge.	expla nd pi o stu ill co ents to actice	in the rovie idention ondu mal the	ne le ts. ct ct ce pir	08		NIL	Hando chalk board, PPT, book, charts, video f Models	uts, text ïlm, s.	NIL
	1			SCHEME OF A	SSESS	MEN	Т		!						
S. No.	Metho	od of Assessmen	t	Description of Asses	sment				N	laximı Mark	um s	Resour	rces Requi	red	External / Internal
1.	Т	Theory exam	Studen collect	t will be asked to categorize the ing equipments.	differer	nt type	s of dı	ıst		10		Ques ra	stion paper ting scale	+	External
			ADDIT	IONAL INSTRUCTIONS FO	R THE	HOD	/ FAC	CUL	TY (I	F ANY	<i>Z</i>)				
				NII	L										

DODU	(D • • •				Bra	nch Coo	le	Co	urse	Code	CO Code	LO Code		_
RGPV	(Diploma	Wing) Bhopal	SCHEME	FOR LEARNING OUTCOME	C	0	1	4	0	4	4	1	Forn	nat No. 4
COU NA	URSE ME	Unit Operation	1 - I			I			1					
CO Des	cription	Student will be	e able to expl	ain the grinding of raw materi	ials.									
LO Des	cription	Draw a neat sk	etch of verti	cal roller mill with its auxiliar	ies.									
		1		SCHEME	OF STU	DY								
S. No.		Learning Conte	ent	Teaching –Learning Method	Desc	ription Proces	of T s	ſ -L		Teach Hrs.	Pract. /Tu Hrs.	t LR Requi	s red	Remarks
1.	Theory (Rittinge application mills, ha (HGIV), vertical construct system, separator circulatin efficiency	Interactive classroom teaching, lab demonstration, quiz, assignments.	Teacher contents handout Teacher quiz/ass students knowled	will ex and s to will ignment pract lge.	xplai pr stu co ts to ice	in the	he de ts. ict ke eir	10	NIL	Handout chalk b PPT, book, cl video fil Models.	s, oard, text narts, m,	NIL		
				SCHEME OF	ASSESS	SMENT	•							
S. No.	Metho	od of Assessmen	t	Description of Asses	ssment				N	/laximu Mark	ım s Resou	irces Requi	red	External / Internal
1.	Theory e	exam	Studen chemic	t will be asked to describe the di al properties of cement.	fferent p	hysical	and			10	Questio	on paper + ra scale	ting	External
			ADDI	FIONAL INSTRUCTIONS FO	OR THE	HOD/	FA	CUI	LTY	(IF AN	Y)			
				N	IL									

DODU					Bra	nch (Code	Co	urse	Code	CO Cod	e L	O Code		4
RGPV	(Diploma	Wing) Bhopal	SCHEME FOR LEA	ARNING OUTCOMI	C	0	1	4	0	4	4		2	Form	nat No. 4
COU NA	URSE ME	Unit Operation	1 - I		I		1		1					1	
CO Des	cription	Student will be	e able to explain the gr	inding of raw mater	ials.										
LO Des	cription	Draw a neat sl	xetch of ball mill and e	xplain its working.											
				SCHEME C)F STU	DY									
S. No.		Learning (Content	Teaching – Learning Method	Des	criptio Proc	on of T cess	Г-L		Teach Hrs.	Pract H	/Tut rs.	LRs Requi	s red	Remark s
1.	Ball mill theory of of grind determin angle of	Interactive classroom teaching, demonstration, quiz, assignments.	Teache content handou Teache quiz/as student knowle	r will ts an ts to r wi signmo s pra odge	expla nd p o stu ll co ents to actice	in the rovice ondu ondu omale the	ne de cs. ct ct ct ct ct ct	10	N	L	Handou chalk bo PPT, book, charts, video fi Models.	ts, pard, text lm,	NIL		
				SCHEME OF A	SSESS	MEN	Т								
S. No.	Metho	od of Assessmen	t	Description of Asses	ssment				N	/laxim Mark	um s Re	sourc	es Requir	ed	External / Internal
1.	Theory e	exam	Student will be as content.	sked to perform the di	fferent	est me	ention	ed in		10		uesti) ratii	on paper + 1g scale	-	External
			ADDITIONAL I	NSTRUCTIONS FO	R THE	HOD	/ FAC	CUL	ГY (I	FAN	Y)				
				NI	L										

DODU					Bra	nch	Code	Co	urse	Code	CO Co	ode I	LO Code		4
KGPV (Diploma	Wing) Bhopal	SCHEME	FOR LEARNING OUTCOME	C	0	1	4	0	4	5		1	Forn	nat No. 4
COU NA	JRSE ME	Unit Operation	n - I						1						
CO Des	cription	Student will be	e able to desc	ribe the homogenization and t	ranspo	rtatio	on of r	aw n	neal.						
LO Des	cription	Explain the Ho	omogenizatio	on of raw meal.											
		·		SCHEME	OF STU	JDY									
S. No. Learning Content Teaching -Learning Method Description of T-L Process Teach Hrs. Pract. Hr 1 Types of storage siles different Interacting slaggers and slaggers a													LRs Requir	ed	Remarks
1.	1. Types of storage silos, different methods used for the homogenization storage cum blending, capacity of homogenization silo, continuous flow (CF) silo, continuous blending (CB) silo. Interactive classroom teaching, lab demonstration quiz, assignments.							ain the providuation ondu ondu o mal the	he de ts. ict ke eir	09	N	IIL	Handouts chalk bo PPT, book, ch video filr Models.	s, bard, text arts, n,	NIL
				SCHEME OF	ASSES	SME	NT								
S. No.	Metho	od of Assessmen	t	Description of Asses	sment				N	Iaximu Mark	im s I	Resourc	ces Requir	ed	External / Internal
1.	Р	aper pen test	Studen meal.	t will be asked to explain the hor	mogeniz	zation	of rav	V		10	Te	est paper	r + rating s	cale	Internal
			ADDI	FIONAL INSTRUCTIONS FO	OR TH	E HO	D/ FA	CUI	LTY	(IF AN	Y)				
				Part of Prog	gressive	e – II									

DODU					Bra	nch (Code	Co	urse (Code	CO Co	de I	LO Code	
RGPV	(Diploma	Wing) Bhopal	SCHEME	FOR LEARNING OUTCOME	C	0	1	4	0	4	5		2	Format No. 4
COU NA	URSE ME	Unit Operation	1 - I				I I	1		II		I		
CO Des	cription	Student will be	e able to desc	ribe the homogenization and t	ranspo	rtatio	n of ra	w m	neal.					
LO Des	cription	Differentiate b	etween mecł	nanical conveyers and pneuma	tic conv	veyers	•							
		·		SCHEME O	F STU	DY								
S. No.		Learning Conte	ent	Teaching –Learning Method	Dese	riptio Proc	on of T- cess	-L		Teach Hrs.	Prac F	t. /Tut frs.	t LRs Requir	ed Remarks
1. Mechanical conveyers and pneumatic conveyors, screw conveyors, drag chain conveyors, apron conveyors, belt conveyors, bucket elevators, deep drawn pan conveyer, air slides, FK pump, air lift pump, Selection of conveying equipments.					Teacher content handou Teacher quiz/tut to make their kn	r will s an ts to r wi orial/a e stude owled	explain d pro stuc ll con assignm ents pra lge.	n th ovid lent nduc nent actic	ie le s. ct s xe	09	ſ	ΠL	Handou chalk board, PPT, t book, charts, video fil models.	ts, NIL ext lm,
				SCHEME OF A	SSESS	MEN'	Г							
S. No.	Metho	od of Assessmen	t	Description of Asses	sment				N	laxim Mark	um s R	esourc	ces Requir	ed External / Internal
1.	Т	Theory exam	Studen convey	t will be asked to differentiate be ers and pneumatic conveyers.	etween	necha	nical			10		Questi rati	ion paper + ng scale	External
			ADDIT	IONAL INSTRUCTIONS FO	R THE	HOD	/ FAC	ULI	ГY (I	F ANY	Y)			
				NII	Ĺ									