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IIIUnsupported, Design of Beam Bearing plates, Built-up beams, Plate girders and Gantry girders, Splices in beams6CO2IVLength of Columns, Design of Simple and Compound Columns, Lacings & battens, Bracings.9CO3VDesign of footings for steel structures, Grillage foundation. Design of Industrial Buildings - Structural framing, Roofing and Wall Materials, Purlins, Girts and Eave Strut, Floor plates and End Bearings7CO4		Desigr	n of si	mple	beams	S - Later	all	y Supporte	d and			
IV Length of Columns, Design of Simple and Compound Columns, Lacings & battens, Bracings. 9 CO3 V Design of footings for steel structures, Grillage foundation. 7 CO4 V Design of Industrial Buildings - Structural framing, Roofing and End Bearings 7 CO4		Unsup Plata c	ported, D	esign d Con	of Bear	n Bearing p	ola in	tes, Built-up	beams,	6	CO2	
IV Length of Columns, Design of Simple and Compound Columns, Lacings & battens, Bracings. 9 CO3 V Design of footings for steel structures, Grillage foundation. 7 CO4 V Design of Industrial Buildings - Structural framing, Roofing and Wall Materials, Purlins, Girts and Eave Strut, Floor plates and End Bearings 7 CO4		Flate	JIIUEIS all	u Gai	itry girue	ers, oplices		Deams				
V Design of footings for steel structures, Grillage foundation. V Design of Industrial Buildings - Structural framing, Roofing and Wall Materials, Purlins, Girts and Eave Strut, Floor plates and End Bearings 7 CO4 Guest Lectures (if any) 10	IV	Length Lacing	ot Colum	ns, De ns, Br	esign of acings	Simple and	d C	Compound Co	olumns,	9	CO3	
V Design of Industrial Buildings - Structural framing, Roofing and Wall Materials, Purlins, Girts and Eave Strut, Floor plates and End Bearings 7 CO4 Guest Lectures (if any) 40		Design	of footin	as for	steel st	ructures Gr	rilla	ade foundatio	n			
V Design of industrial buildings - Structural framing, Rooling and V 7 CO4 Wall Materials, Purlins, Girts and Eave Strut, Floor plates and End Bearings 7 CO4 Guest Lectures (if any) 10 10		Design			uildinga	Ctructure	c	roming Deal	ing and			
Guest Lectures (if any) 40	V	Wall M	i ui indus Iaterials	uiai B Purlin	ouiiuii1gs s Girte	- Structura	u II Str	rut Floor ola	ing and	7	CO4	
Guest Lectures (if any)		End Be	earings		c, Cirto		20					
	Guest Lectu	res (if any	<i>z</i>							$\left \right $		
1 otal hours 40	Total Hours	s	//							40		

Suggestive list of experiments:	
1. Design & Drawing of Bolted and We	elded Connections.
2. Design & Drawing of Compression	and Tension members.
3. Design & Drawing of Laterally supp	orted and unsupported Beams.
4. Design & Drawing of Plate Girder	
5. Design & Drawing of Built-up Colun	nns (Lacing system and Battening system).
6. Design & Drawing of Flat column ba	ase and Gusseted column base.
7. Design & Drawing of Roof Trusses.	
8. Design & Drawing of Grillage found	ation.
 Design & Drawing of Gantry Girder. 	
10. Design & Drawing of an Industrial P	uilding
Text Book-	
1. Design of Steel Structures, N. Subr	amanian, Oxford University Press
2. Limit State Design of Steel Structur	es, S. K. Duggal, McGraw Hill(India) Education
Pvt. Ltd.	
Reference Books-	
1. Fundamentals of Structural Stee	el Design, M. L. Gambhir, McGraw Hill(India)
Education Pvt. Ltd.	
2. Design of Steel Structures, S. S.	Bhavikatti, I. K. International Publishing House
Pvt. Ltd.	ý 5
Modes of Evaluation and Rubric	
Quiz, Assignment, Mid-term exam, End ter	m exam and Practical Viva.
Rubric: End term exam. Practical: 50% Qui	z and 50% Viva.
List/Links of e-learning resource	
https://nptel.ac.in/courses/105/105/105105162/	
https://pptol.eg.in/gourges/105/106/105106112/	
<u>mups://npte1.ac.m/courses/105/106/105106115/</u>	
Recommendation by Board of studies on	
	16.12.2022
Approval by Academic council on	
Compiled and designed by	
Compiled and designed by	Civil Engineering

STATISTICS TECHNO	LOGICU HA		SAN	/RA (F	T ASH	Ok erir	(TECH	N	OLOGICA		TTUTI	
VIDISHA	(An Autonomous Institute Affiliated to RGPV Bhopal) CIVIL ENGINEERING											
Semeste	or/Vear	\/1/			Prog	ram				B Tec		
Subject		Subi	ect	CE-	-1862 -		Subject		Castal	D. TEU	• •	T
Categor	y (A)	Cod	le:	DE	E-1(A)		Name:		Geotechr	iicai Eng	gineering	g – 1
	Theo	IV rv	iaxim	um ivia	arks Alioi	rac	tical			Conta	ct Hours	Total
End Ser	n Mid-S	em	Qı	uiz	End Se	m	Lab-Work	<	Total Marks	L	Т Р	- Credits
70	20		1	0	30		20		150	3	- 2	4
Prerequ Geolog	Prerequisites:											
Course	Objective:	:										
To prov soil, to controll basic kr	vide stude gether wi ing soil be nowledge i	nts wi ith kr havio in eng	ith b nowle ur ar inee	asic edge nd me ring d	understa of bas ethods t lesign o	and sic o d f ge	ling of pl enginee letermine eotechnic	hy rir s s	rsical and m ng procedur soil properties systems	echanic es to s. Stude	al prop identify ents wil	erties of factors l acquire
Course	Outcomes	S:										
At the e	end of the o	course	e, the	e stud	lent will	be	able to:					
1. 2. 3. 4.	 Characterize and classify soils. Compute and analyse the permeability and seepage of water. Understand the principles of compaction and its control. Analyse the stress distribution and identify shear strength parameters for field condition 											
UNITs					Desc	ripti	ons				Hrs.	CO's
1	Basic De mechanic composit behaviou and their based on	finitior cs, His ion, M ir, Soil detern partio	ns & storic linera Stru mina cle si	Index al de als, Ir icture tion, ze ar	Proper velopme nouence , three Consist nd consi	rties ent, e of pha enc	s: Definiti , Formati clay min se syste cy limits, f ncy limits	or er m Cl	n and scope n of soils, Soi als on engine , Index prope assification s	of soil I eering erties systems	9	CO1
11	Soil Wate Determin and seep neutral a	er and ation age p nd tota	Perr of pe ress al str	meab ermea ure. F esses	ility: So ability in Flow-net s.	il wa lab ts, ι	ater, Per oratory a uses of a	m an fl	eability d in field. See ow-net, Effec	epage ctive,	8	CO2
111	Compacti compaction affected to their suita	on: C on tes oy com ibility,	ompa ts, F npact Field	action actor ion, \ comp	n, Field s affect /arious paction o	an ing equ cont	d labora compact ipment fc trol, Lift th	to io or nic	ry methods, n, Properties field compact kness.	Proctor of soi ion and	7	CO3
IV	Effective beneath analysis, distributio	S loade Nev on.	tress ed a vmar	s Dis areas k's	tributior by Bo influenc	n ir ous ce	n Soils: sinesq chart,	S ar C	tress distrib d westerga ontact pres	ution ard's ssure	8	CO4
V	Shear St Mohr's s test, Tri- Vane she paramete	rength tress axial ear te ers, cri	n of S circle com st, M itical	Soils: e, Me press leasu void	Coulom asurem sion tes irement ratio, Li	ib's ient st, i of que	theory o of shea unconfine pore pre efaction	fs r ed	shear failure strength, Sho l compressio sure, pore p	of soils ear box on test ressure	8	CO4

Guest Lectures (if any)										
Total Hours 40 Suggestive list of experiments: 40										
Objective:										
 To understand the laboratory tests used for determination of physical, index and engineering properties of soil. 1. Determine the Water Content and Specific Gravity. 2. Course and find Sieve Analysis 3. Determine the Atterberg Limits (Liquid Limits and Plastic Limits) 4. Determine the Shrinkage Limit 5. Hydrometer Analysis 6. Determine the Permeability test (Constant and variable) 7. Conduct the Direct Shear Test 8. Conduct the Standard Proctor Compaction Test. 9. Conduct the Heavy Compaction Test. 										
Text Book-	roro Std Dublishara Dalhi									
2 Soil Mech & Found By Dr. R.C. Punnia	- Laxmi Publications Delhi									
3. Geotech Engo. By Dr. Alam Singh - IBT	Publishers. Delhi.									
Pafarance Books										
 Geotech Engg. by C. Venkatramaiah - I Soil Mech. & Found. Engg. by Ranjan F Soil Testing for Engg. by T.W. Lambe - Relevant I.S. Codes 	New Age International Publishers Rao and Gupta, New Age John Wiley & Sons. Inc.	s, Delł	ni							
Modes of Evaluation and Rubric										
Quiz, Assignment, Mid-term exam, End tern Rubric: End term exam. Practical: 50% Quiz	n exam and Practical Viva. z and 50% Viva.									
List/Links of e-learning resource										
https://nptel.ac.in/courses/105/101/105101201/ https://nptel.ac.in/courses/105/105/105105168/										
Recommendation by Board of studies on	16.12.2022									
Approval by Academic council on										
Compiled and designed by										
Subject handled by department	Civil Engineering									

ST HUN TECHNOLOGICU M			SAN	/RA	T ASH	O	K TECHI	N	OLOGICA	L INS	TIT	UTE	
	(Engineering College), VIDISHA M.P. (An Autonomous Institute Affiliated to RGPV Bhopal)												
VIDISHA M.P.	4			(An /	Autonom	IV	II FNG	AT IN		- N BUO	pai)		
Semester/Y	ear	VI	/111		Prog	ran	n			B.Te	ch		
Subject	DE-I	Sub	ject	CE-1	862-		Subject		Earth Re	etaining	g Stru	cture	;
Category	(B)	(B) Code: DL-1 (B) Name:											
	Theo	ry	VIAXIIII		F	ra	ctical		Total Marka	Conta	act H	ours	Total Crodite
End Sem	Mid-S	em	Q	Jiz	End Se	m	Lab-Work	:	1000 100	L	Т	P	
70	20			0	30		20		150	3	-	2	4
Prerequisite	rerequisites:												
Geotechni	Geotechnical Engineering												
	ojective						_						
I. To un	derstan	d late	eral ea	arth p	ressure	th	eories and	d I	pressure the	ories a	and c	desig	n
2. To de	sion an	chore	d bu	khea	ds bv di	ffe	rent meth	00	ds.				
3 . To un	derstan	d pre	ssure	enve	elops an	nd	design of	va	arious compo	onents	in b	raced	b
	and coff	erdar	ns.	,					<i>c</i> 1				
4. To un	4. To understand stability of earth dams and its protection and construction.												
After com		of the	cour	so th	o studo	nt	will be abl		to:				
Aller com		Ji the	cour	se, u	le stude	m		ie	10.				
1. To ur	ndersta	nd the	e con	cept (of earth	re	taining str	uc	cture.				
2 To de	osian re	tainir	na wa	الد عا	nchored	h	ulkhoads	h	raced cuts in	offord	ame	and	
earth dar	ms.		iy wa	iiio, a			unticaus,			oncru		and	
UNITs					Des	cri	ntions					Irs	CO's
CINITO	Later	al Pr	essu	re:	200						-		000
I	Basic theor passi spiral surch stratif	con ies, ve p met arge, icatio	cepts graph ressu hods se n, typ	, Ra nical ures: frict epag be of	nkine a methoc Culma ion circ le, ea backfill,	nd ls. nr le rth wa	I Coulomb Determin is, Rebha method. quake, all friction	b nii ar C ar	earth press ng active a n's, logarith consideration wave effo nd adhesion.	ure and mic of ect,		9	CO1
	Retai Uses walls,	i ning , type , back	wall s es, st cfill dr	s: ability ainag	y and c ge, settle	les em	sign princi ent and til	ipl Itir	les of retair ng.	iing			
11	Anch Class suppo and o Desig	ored l sificati ort m equiva gn of a	bulkh ion of ethoc alent ancho	eads anch Is. Ro bear bred r	: nored bu owe's th n metho rods and	ulk neo od: d d	heads, fre bry for fre s for fixed ead man	e e d	and fixed ea earth suppo earth suppo	arth orts rts.		9	CO1
111	Brace Brace press coffer heavi	ed cu ed ex sures rdams ng.	i ts ar cavai in s: use Stab	id Cc tions sand s, typ ility	offerdan and sta and bes, con of ce	ns abi cla np ellu	: lity of ver ay, Brace onents, sta lar coffe	rtic ed at erc	cal cuts, late and celle bility, piping a dams, celle	eral ular and ular		6	CO1

	cofferdams in rock and in deep	soils.								
IV	IV Earth dams- Stability analysis: Classification, seepage control in embankments and foundations, seepage analysis, stability analysis: upstream and downstream for steady seepage, rapid draw down, end of construction, method of slices and Bishop's method.									
V	7	CO2								
Guest Lectu	Guest Lectures (if any)									
Total Hours	s list of experiments:		40							
Suggestive	list of experiments.									
Text Book- 1. Found 2. Analy 1955.	dation design by W. C. Teng, Prer sis and design of foundations by I	ntice Hall, 1962 Bowles. J. W McGraw Hill, 4th eo	dition,							
1. Earth United 2. Soil m Ghola	and Rock-Fill Dams: General Des d States Army Corps of Engineers nechanics in engineering and prace amreza Mesri, 3rd Edition. Wiley In	sign and Construction considerat s, University Press of the Pacific, ctice by Karl Terzaghi, Ralph B. F ndia Pvt Ltd, 2010.	ions b 2004 Peck,	у						
Modes of E	valuation and Rubric									
Quiz, Assi Rubric: Er	gnment, Mid-term exam, End terr nd term exam. Practical: 50% Quiz	n exam and Practical Viva. z and 50% Viva.								
List/Links o	f e-learning resource									
https://nptel.	ac.in/courses/105/106/105106052/ ontent/storage2/courses/105101083/dow	nload/lec26.pdf								
Recommend	lation by Board of studies on	16.12.2022								
Approval by	Academic council on									
Compiled ar	nd designed by									
Subject handled by department Civil Engineering										

SHOK TECHNOLOGICAL	4		SAN	/IRA	T ASH	Oł	K TECHI	N	OLOGICA	L INS	TIT	JTE	
A GAD	SILLE			(E	Ingine	əriı	ng Colle	ge	e), VIDISH	A M.I	Ρ.		
Sundan Charles	(An Autonomous Institute Affiliated to RGPV Bhopal)												
VIDISHA M.P.	1				C	V	IL ENG	IN					
Semester/Y	′ear	VI	/111		Prog	ram	n			B.Te	ch		
Subject Category	DE-I (C)	Subject CE-1862- Subject Rock Mech							chani	anics			
	(-)		Movim	um M	arka Allat	tod	1						Γ
ļ	Theo	ry	VIAXIIII		F	rac	ctical	Т	T (184)	Cont	act Ho	ours	Total
End Sem	Mid-S	ém	Q	Jiz	End Se	m	Lab-Work	(I otal Marks	L	Т	Р	Credits
70	20		1	0	30		20		150	3	-	2	4
Prerequisit	Prerequisites												
Geotechn	ical Eng	ineer	ing										
Course O	hiective	•											
			,					••••	1 1 .	·			
1. Withii	n few ye	ears o	of gra	duati	on our (air ampl	gra	aduates wi	III OC	be making s	signific	cant o	contr	ibutions
2. Out a	raduate	s woi	uld be		cessful i	in d	completing		advance dec	rees a	at tor	o inst	itutions.
Will e	merge a	as ent	trepre	eneur	S		oon pround	9		,			
			•										
Course Ou	tcomes:												
1. Withi	n few ye	ars o	of grad	duatio	on our g	rac	duates will	b	e making sig	gnifica	nt		
contri	butions	as pr	actici	ng er	ngineers	s to	their emp	olo	oyees and so	ociety.			
2. Out g	raduate	S WOL	uid be		cessful i	n c	completing	j a	advance deg	rees a	it top		
monte	110115. V		nerge	as c	nuepiei	iet	ui 5.						
UNITs					Des	cri	ptions				F	lrs.	CO's
	Explor	ation	and	classi	fication	of	rocks and	l r	ock masses.				
I	Physic schiste	al pi osity a	roper and c	ties leava	of rock: ge.	s,	rock forn	na	ation, joints,	fault	s,	8	CO1
	Mecha	nism	ofr	ock	deforma	atic	n differe	'n	t types of t	failura	<u>م</u>		
II	theorie	es of i	rock f	ailure	S.	auc	n, unere	711	i types of f	anure	3,	8	CO1
	Appar	ent el	astic,	visco	o-elastic	; ar	nd elastic	be	ehavior of ro	cks.			
	Mecha	nics	of dri	llina i	n rocks.	e	quipment	ar	nd machines	of roc	:k	8	CO1
	blastin	g, roo	ck-co	re sa	mpling,	rec	covery rati	ю,	RQ.D.	000		•	
	Design		etru	turo		ck	underar	·	und nower	house	_		
IV	stress	es arc	ound	open	ings, de	sig	gn of tunne	els	s and linings		σ,	9	CO2
	Stabili	ty of r	rock s	lopes	s and ro	ck	fills, rock	fil	led dam				
V	Labora	atory	meth	ods o	f rock te	esti	ing, Stratiç	gra	aphy of India	a.		7	CO2
Guest Lectu	res (if an	y)											
Total Hour	S list of co	vnorim	onter					_			4	40	
Suggestive	e list of e	vbenn	ients:										
Taxt Darl													
	KC 8	Zionk	iowio	7 Da	ock Mool	har	nice Engin	<u>.</u>	oring John	Wilov	8 50		ondon

Stagg K.G. & Zienkiewicz, Rock Mechanics Engineering - John Wiley & Sons, London.
 Obert, L & Duvall W.I., Rock Mechanics & Design of structures in Rock (New York)

 Reference Books- 1. Laeger C., Rock Mechanics & Engineering 2. Jaeger, J.C. & Cook N.G.W. "Fundamental of Rock Mechanics" 3. Reynolds H.A. "Rock Mechanics" Grosby Lockword& Sons, London. 										
Modes of Evaluation and Rubric										
Quiz, Assignment, Mid-term exam, End terr Rubric: End term exam. Practical: 50% Quiz	Quiz, Assignment, Mid-term exam, End term exam and Practical Viva. Rubric: End term exam. Practical: 50% Quiz and 50% Viva.									
List/Links of e-learning resource										
https://nptel.ac.in/courses/105/105/105105212/										
https://nptel.ac.in/courses/105/106/105106055/										
Recommendation by Board of studies on	16.12.2022									
Approval by Academic council on										
Compiled and designed by	Compiled and designed by									
Subject handled by department	Civil Engineering									

S LENON TECHNOLOGICAL A	6		SAN	I RA	T ASH	Ok	K TECH	Ν	OLOGICA	LINS	TITU	ΓE	
	(Engineering College), VIDISHA M.P.												
and the	A A			(An	Autonom	nous	s Institute	Af	ffiliated to RG	PV Bho	oal)		
VIDISHA M.P.					C	IVI	L ENG	II	NEERING				
Semester/Y	ear	VI,	/111	CE	Prog	ram	l			B.Tec	h		
Subject Category	DE-II (A)	Sub Co	ject de:	DE	-1863 -II (A)		Subject Name:		Environn	nental E	nginee	rin	g-I
		ſ	Maxim	um M	arks Allot	tted				Conta	ct Hou	rs	Total
End Sem	Theo Mid-S	ry om		uiz	Find Se	Prac	tical	k	Total Marks	1	т	D	Credits
70	20	CIII	1	0	30		20	N.	150	3	-	2	4
Prerequisite	Prerequisites:												
Cnemistry	Chemistry												
Course Ob	ojective	:											
1. To u	ndersta	ind t	the	basic	chara	ctei	ristics o	of	water and	wast	e wa	ter	audits
deterr	ninatior	n in la	borat	ory.			a		I				
2. To pro	ovide a	dequa	ate kr	nowle	dge abo	out	the wate	er	and waste w	ater tr	eatme	nt	process
3. To ex	nose th	ign. he sti	udent	t to i	Indersta	and	the des	sia	in of water s	vlaque	line.	dist	ribution
syster	n, hous	e dra	inage	e syst	em& se	wag	ge syster	m.		596651			
4. To ma	ake the	stude	ents c	apab	le to pre	epar	re water	su	ipply& waste	water	projec	t	
Course Out	tcomes:												
After comp	oletion o	of the	cour	se, th	e stude	nt v	vill be ab	le	to:				
1. Ident	tity the s	sourc	es of	wate	r &wast	e w	ater dem	na	nd.				
2. Appl	y the wa	ater ti	reatm	ient 8 s for	Waste design	wat	ter treatm	ne vət	nt concept a	nd met	nods.	aet	a watar
treat	ment pl	ant.	0003	5 101	ucsign			, ai			as w	u31	c water
4. Appl supp	y water	distr	ibutic	on pro	ocess, c	pe	ration an	nd	maintenanc	e. Prep	aratio	n c	of water
UNITs	<u> </u>				Des	crip	otions				Hrs	i.	CO's
	Estima	ation	of gr	ound	and su	rfac	ce water	re	esources. Q	uality c	f		
1	water	from	differ	ent s	ources,	de	mand &	q	uantity of wa	ter, fire	10		CO1
	demar	ia, w nd foi	ater recas	requi	rement	TOF	various	U	uses, fluctua	tions II	יו		001
	line in the	10, 10				46		f :					
	Impuri disease	lies As r	OT ۱ hveir	water Sal	and	ເກຍ ເຂັ	nd bacte	ITIC ari/	ance, wate	n-dorn Ivsis o	e f		
	water.	wate	er sta	andar	ds for	diff	ferent us	se	s. Intake st	ructure	:		
II	conve	yance	e of	water	r, pipe	ma	terials, p	pu	imps - oper	ation 8	8 8		CO2
	pumpi	ng sta	ations	s, ma	intenano	ce d	of distrib	uti	ion system, A	Analysi	S		
	of dist	ributio	on sys	stem									
	Water	Trea	tmen	t met	hods-the	eory	y and de	si	gn of sedime	ntation	,		
111	coagu	lation	, filtra	ation,	disinfe	ctio	n, aerati	or	h & water so	ftening	, 7		CO3
	metho	n tre de of	rias treati	III SO Ment	eaiment	atic	ות & Tilt	.ra	mon, miscel	aneou	5 '		
			i cau					_	1	-1.			
	Unit o	perat	IONS	and	unit pro		ss for wa	as Irit	ste water tre	atment	,		
117	tank	sedim	nenta	tion 2	and che	s su emir	cal clarifi	int ice	ation, role of	micro	- o		CO4
IV	organi	sm ir	n bio	logica	al treatn	nen	it, Sewa	ge	e filtration- th	neory &			004
	design).		5			•	-		2			

V	Methods of Biological Treatment Sludge process, Oxidation ditc and anaerobic lagoons, septic thickening and digestion sludge	t (Theory & Design) - Activated h, stabilization ponds, aerobic tank & Imhofe tank,, sludge drying beds, sludge disposal.	7	CO4						
Guest Lectur	res (if any)									
Total Hours	S List of sure original sector		40							
Suggestive	list of experiments:	nd monto motor								
1. To st	udy the various standards for water a	nd waste water.								
 10 study of sampling techniques for water and waste water Measurement of turbidity 										
Juncasurement of unbluny A To determine the conc. of chlorides in a given water samples										
4 10 determine the conc. of chlorides in a given water samples										
6 Deter	5. Determination of hardness of the given sample									
 Determination of residual chlorine by "Chloroscope" Determination of Alkalinity in a water sample 										
8 Deter	rmination of Acidity in a water samp	le								
9. Deter	rmination of Dissolved Oxygen (DO)) in the water sample.								
10. Deter	rmination of BOD in the waste water	sample								
1 Mot		nmia Lavmi Rublicationa (R) Ltr		Dalhi						
1. Walt	er Supply Engineening by B.C. Ful	G S Birdi - Laxmi Publications (F) Lu	ע שער ג. (D) ו	td Now						
2. Val	i	0.5. Difui - Laxini i ubications	(1)							
Reference B	ooks-									
1. Wa	ater & Waste Water Technology	by Mark J.Hammer - Prentice	- Hall	of India,						
Ne	w Delhi	,		,						
2. En	vironmental Engineering - H.S	S. Peavy&D.R.Rowe - McGra	aw Hi	ill Book						
Co	mpany, New Delhi									
3. Wa	ater Supply & Sanitary Engg. by S	S.K. Husain								
4. Wa	ater & Waste Water Technology -	G.M. Fair & J.C. Geyer								
5. Wa	aste Water Engg Treatment I	Disposal & Reuse" - Metcalf &	k Eddy	/ - Tata						
Mo	Graw Will, New Delhi									
6. Wa	aste Water Treatment - Arceivala	- Tata McGraw Will, New Delhi								
7. Inc	lustrial Pollution Control, hand bo	ok - Lund H.F. Tata McGraw Will	, New	Delhi						
Modes of E	valuation and Rubric									
Quiz, Assi	gnment, Mid-term exam, End tern	n exam and Practical Viva.								
Rubric: Er	nd term exam. Practical: 50% Quiz	z and 50% Viva.								
Liet/Linko.o	f a learning resource									
https://nptel	ac in/courses/103/107/103107084/									
<u>inteps.//iipter.</u>	ac.m/courses/105/107/105107004/									
https://nptel.	ac.in/noc/courses/noc19/SEM2/noc19-g	e <u>22/</u>								
Recommend	lation by Board of studies on									
		16.12.2022								
Approval by	Academic council on									
Compiled ar	nd designed by									
Subject hand	lled by department	Civil Engineering								
Subject half	and by department									

S ISHON TECHNOLOGICAL	à	SAN	MRA	T ASH	Oł	K TECH	N	OLOGICA	L INST	ITUTE	
(Engineering College), VIDISHA M.P. (An Autonomous Institute Affiliated to RGPV Bhopal)											
and the	1		(An	Autonom	iou	s Institute	Af	filiated to RGI	PV Bhop	al)	
PIDISHA M.P.				C		IL ENG	IN	NEERING		-	
Semester/Y	ear	VI/III	CE	Prog	ram	1		ENVIDON			ACT
Subject Category	DE-II (B)	SubjectCD 1003SubjectEnvironmentationCode:DE-II (B)Name:ASSESSMENT									ACI
		Maximum Marks Allotted Contact Hours Total									
End Sem	I heo Mid-S	ry em O	uiz	End Se	rac m	ctical	<	Total Marks		ТР	Credits
70	20	1	0	30		20	Ì	150	3	- 2	4
Prerequisite	Prerequisites:										
	Environmental Engineering										
Course Ol	ojective										
1. To pr	ovide b	asic unde	rstan	ding of	EI/	A process	8 a	as it is used	for res	earch,	planning
projec	t or pro	gram eval	uatio	n, monit	orir	ng & regu		tory enforce	ment.	ical pr	and of
z. ro m	rina or e	evaluating	envir	onment	su ali	mpact do		instrative an iment.	u techn	ical pro	
3. To re	late the	use of so	cientif	ic resea	arch	h to pract	tic	al situation	in proje	ct planr	ning and
decisi	on mak	ing							. ,		5
Course Out	tcomes:										
After com	oletion o	of the cour	se, th	ne stude	nt ۱	will be abl	le	to:			
1. Carry asses	out sco sment.	ping or s	creen	ning of o	dev	velopmen	t j	project for E	Environr	nental	& social
2 Expla	in differ	ent metho	noloh	iies for e	nv	ironmenta	al i	imnact nredi	ction an	d asses	sment
3. Fully	participa	ate in inter	discip	olinary e	nvi	ronmenta	al r	eport prepai	ration.	4 40000	Jonnonn.
4. Plan	utilize E	EIA docun	nent	for polic	у (developm	ner	nt, project p	lanning	or for	legal or
politic	al actio	n.									
5. Evalu & prei	ate env pare ap	propriate i	i imp nitial	act asse studies.	ess	ment rep	or	t for possible	e enviro	nmenta	I effects
LINITs	· - · [-			Dee	crir	otions				Hre	C.O.'s
	Conce	pt of EIA	: Intr	oductior	1 0	f EIA, Uti	litv	/ and scope	of EIA.	1113.	003
	Signifi	cant En	viron	mental		Impacts,	.,	Stage of	EIA,		224
I	Enviro	nmental	Inven	itory, E	nvi	ironmenta	al	Impact Sta	atement	9	CO1
	(EIS)										
	Metho	ds of Imp	oact I	dentific	ati	on: Envir	or	nmental Indi	ces and		
11	indicat	ors for c	lescri	ibing th	e	affected	e.	environment,	matrix	9	CO2
	metho	dologies, r	netwo	ork, chec	KIIS	st, and ot	ne	er method.			
	Impac	t analys	is: F	- ramewo	ork	, statem	er	nt predicatio	on and		
	assess	sment of II	mpac	t of air,	wa	ater, noise	e a	and socio-ed	conomic	6	CO3
	D							··· · · ·			
	Prepa	ration of N	writte	en docu	me	entation:	Ini	Itial planning	phase,		
IV	inform	ation. co-c	y pri ordina	tion of t	ear	n writing	, eff	fort.	CICVAIII	9	CO4
	Dublic	Darticin	ation	in En	vir	onmente	<u></u>	Decision n	nakina		
V	Basic	definition	s. R	egulator	VII V	requirem	en en	nts. Advanta	ades &	7	CO5
	disadv	antages	of P	ublic P	<u>árt</u> i	cipation,	S	Selection of	Public		

participation techniques, P implementation.	ractical considerations for	
Guest Lectures (if any)		
Total Hours		40
Suggestive list of experiments:		
Text Book- 1. Canter R.L., Environmental Impact Asse	essment, McGraw Hill, New Delhi	i.
Reference Books- 1. Shukla S.K. & Shrivastava P.R., Conce Welth Publication, New Delhi 1992	pt in Environmental Impact Anal	ysis, Common
Modes of Evaluation and Rubric		
Quiz, Assignment, Mid-term exam, End terr	n exam and Practical Viva.	
Rubric: End term exam. Practical: 50% Qui	z and 50% Viva.	
List/Links of e-learning resource		
https://nptel.ac.in/courses/103/107/103107084/		
https://nptel.ac.in/noc/courses/noc19/SEM2/noc19-g	e <u>22/</u>	
Recommendation by Board of studies on	16.12.2022	
Approval by Academic council on		
Compiled and designed by		
Subject handled by department	Civil Engineering	

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S. Caro				(E	Ingine	erin	ig Colle	g	e), VIDISH	A M.F).	
VIDISHA M.P.	X			(An /	Autonom	ious	Institute	Af	filiated to RGI	PV Bho	pal)	
Semester/V	oor	\/1/			Prog	ram			NEEKING	B Ter	• 	
Subject	DE-II	Sub	iect	CE	-1863		Subiect		COST E	FFECT	VE & E	CO-
Category	(C)	Code: DE-II (C) Name: FRIENDLY STRUCTURES						RES				
	Thee	N	Maximum Marks Allotted Contact Hours T						Total			
End Sem	Mid-S	em	Qı	Jiz	End Se	m	Lab-Work	Vork Total Marks L		L	ΤP	Credits
70	20		1	0	30		20		150	3	- 2	4
Prerequisite	es:											
1. Underst	and the	Defir	nition	, Con	cept & (Obje	ectives o	of t	the terms cos	st effec	tive & E	со-
Friendly	constru	ction										
 Apply State t 	cost effe he impo	ective ortanc	tech e of o	nique cost-e	es in cor	nstru e coi	uction nstructio	n	& evaluate th	ne obje	ctives of	green
buildin 4. Explai	gs. n how P	re-Er	aine	ered	Constru	ctio	n can be	e c	ost effective	& sele	ct altern	ative
Constr	uction §	Syster	n.									
5. Know	the con	cept c	of Inte	egrate	ed Life c	sycle	e design	O	Materials ai	nd Stru	ctures	
Course Ob	ojective											
1. Under	rstand t	he De	finitio	on, Co	oncept &	& O	bjectives	6 0	f the terms c	ost eff	ective &	Eco-
2. Apply	cost eff	fective	e tech	nniqu	es in co	nstr	ruction					
3. State	the imp	ortan	ce of	cost-	effective	e cc	onstructio	on	& evaluate t	he obje	ectives c	of green
4. Expla	ngs. in how I	Pre-E	ngine	ered	Constru	uctio	on can b	e	cost effective	e & sele	ect alterr	native
Const	ruction	Syste	m. of Int	oarot	od Lifo	ovol	lo docian		f Matariala a	nd Stri	icturos	
J. KIIOW		icept		egrat		Cyci	le design					
Course Ou	tion of	<u>+haaa</u>			atualanat	<u> </u>		_ 1	4a			
1. State	the imp	ortan	ce of	, ine cost-	effective	s wi e cc	nstructio	e i on				
2. Identi	fy Envir	onme	ntal I	ssues	S	_	_		-			
3. Know	the app	olicatio	on of	Ferro	cemer	nt & an h	Ferro co	ono	crete Structu	res		
5. Comp	are Initi	al Co	st of	Cost	Effectiv	e &	Eco-Frie	en	dlv Construc	tion V/	s Conve	ntional
Const	ruction											
UNITs					Des	crip	tions				Hrs.	CO's
	Conce	epts	of e	energ	gy effic	cien	nt & ei	nv	vironment f	riendl	y	
	Cost e	effect	ive r	nater	ials: - (Soil	, Fly ash	٦.	Ferrocemen	t. Lime		
	Fibres	, Sto	ne [Dust,	Red r	nud	l, Gypsi	ı'n	n, Alternate	Wood	,	
	Polym Energ	er. v Effi	icien	t & F	Environ	mei	nt friend	ıı	y building n	nateria	8	CO1
	produ	cts: -	Basic	con	cepts of	En	ergy effic	cie	ent buildings,	Walls	-	
	Stabili	sed a	nd s	un dr	ied, soi	l blo	ocks & t	ori	cks, Solid &	Hollov	v	
	masor	nry blo	ocks,	Ferr	; ocemen	it da	artitions.	R	oofs - Preca	st R.C		
	Plank	& Jois	sts ro	of, P	recast c	han	nel roof,	, F	Precast L-par	nel root	,	

	Precast Funicular shells, Ferrocement shells, Filler Slab,							
	tile, Pavelled Blocks							
II	9	CO2						
	Cost effective sanitation: - (a) Waste water disposal system (b) Cost effective sanitation for rural and urban areas (c) Ferrocement Drains	8	CO3					
IV	Low-Cost Road Construction: - Cost effective road materials, stabilization, construction techniques tests, equipment used for construction, drainage, maintenance.	8	CO4					
V Cost analysis and comparison: - (a) All experimental materials (b) All experimental techniques 7 CO5								
Guest Lectu	(if any)							
Total Hour	<u>s</u>	40						
Suggestive	e list of experiments:							
Text Book- 1. Alterr Rama 2. Integr	native Building Materials and Technologies – By K S Jagadeesh, a Reddy & K S Nanjunda Rao – New Age International Publishers rated Life Cycle Design of Structures – By AskoSarja – SPON Pres	B V V	/enkatta					
Reference B 1. No Ne 2. Bu	Books- on-conventional Energy Resources – By D S Chauhan and S K S aw Age International Publishers hildings How to Reduce Cost – Laurie Backer - Cost Ford	reeva	sthava –					
Modes of E	Evaluation and Rubric							
Quiz, Ass Rubric: Er	ignment, Mid-term exam, End term exam and Practical Viva. nd term exam. Practical: 50% Quiz and 50% Viva.							
List/Links of	of e-learning resource							
https://nptel	.ac.in/courses/105/102/105102195/							
https://nptel.ac.in/courses/127/101/127101014/								

Recommendation by Board of studies on	16.12.2022
Approval by Academic council on	
Compiled and designed by	
Subject handled by department	Civil Engineering

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The cel				(An	Autonom	iou	s Institute	Af	ffiliated to RG	PV Bhop	oal)	
VIDISHA M.P.	2				C	IV	IL ENG	IN	NEERING			
Semester/Y	ear	٧I	/111		Prog	ram	n			B.Tec	h	
Subject Category	DE-III (A)	Sub Co	ject de:	CE DE-	-1864- -III (A)		Subject Name:		STRUCTU	RAL A	NALYS	IS – II
		N	Maxim	um M	arks Allot	ted	1			Canto	ot Llouro	Tatal
	Theo	ry	_		F	Prac	ctical		Total Marks	Conta		Credits
End Sem	Mid-S	em		uiz 0	End Se	m	Lab-Work	<	100	L	T P	3
10	20			0					100	5		
Prerequisite	es:											
Structural	Analysi	s – I										
Course Ob	jective:											
1. To an	alyse a	nd ev	aluat	e sys	tems in	str	ructural e	nc	ineering usi	ng vario	ous forc	e and
displa	cement	meth	nods.	,				U	, ,	0		
2. Appro	oximate	analy	/sis o	f stru	ctures fo	or g	gravity an	nd	lateral loads	, matrix	flexibil	ty and
stiffne	ess metl	nods	of str	uctur	al analy	Sis	station of t	th.	o otructural (nainaa	ring pro	bloma
3. Stude	rm nlast	tic an	alvsis	ipule	arious s	iei tru	ctures	LT I	e structural e	inginee	ang pro	plems.
5. Stude	ents will	be co	ompe	tent t	o provid	e s	solution fo	or	most of the r	eal life	structu	al
Engin	eering	oroble	ems		•							
Course Outcomes:												
After completion of the course, the student will be able to:												
1. Under	stand	vario	us c	lassi	cal and	d	matrix n	ne	thods of s	structur	al ana	vsis for
detern	ninate a	ind in	deter	mina	te struct	ure	es.					j
2. Perfor	m ana	lysis	of v	ariou	s civil	en	gineering	:	structures for	or stati	c and	dynamic
loadin	gs.		d from		بمنمم مام	:		_				
3. Analys	se bean fluence	line d	d frar Jiaora	nes t ams f	or static	asu allv	v determir	s. na	ate &amn [.] ind	letermi	nate str	icture
1. Draw in	naenee		lagic		or otatio	unj	y dotonini		ao damp, inc			
UNITs					Des	cri	ptions				Hrs.	CO's
	Mome	nt dis	stribut	tion r	nethod	in	analysis	of	f frames with	h sway	,	
	analys	IS Of	box t	rame	s, analy	SIS	s of portal	S Ir	frames with	Inclined	1 , 9	CO2
	Kani's	meth	od	515 0	Deams), t	sway anu		1011-Sway IIa	mes by		
	Analyz	in of		from								
	Analys	ons (iaii or lat	Tram oral	ies, win Ioads A	ia Inn	and ean	ເກຍ ຈ	quake loads	, coua ultistori		000
11	frames	s for v	ertica	al and	d lateral	loa	ads.	a	11019313 01 111	unision	/ 9	CO2
	Motrix	mot	bodo	of				_	Iovibility Mc	thad 9	,	
111	Stiffne	meu ss Me	ethod	for b	eams a	nd	trusses.	Г	Texionity Me	enioù c	8	CO1
	Diactio			of bor		fr	2000					
IV		anal	y 313 (1110				<u> </u>	7	CO3
V	Influen	ice li	nes f	for in	idetermi	na	te structu	ure	es, Muller-B	reslau's	5 7	CO2
	princip	ie, Al	laiysi	5 01 1	Seam-C							
Guest Lectur	res (if any	/)									40	
LIST OF EX	, CPERIME	ENTS:									40	I

Refe	rence Books-									
1.	Wang C.K., Intermediate structural analysis, M	cGraw Hill, New York.								
2.	Kinney Sterling J. Indeterminate structural Ana	lysis, Addison Wesley.								
3.	Reddy C.S., Basic Structural Analysis, Tata Mo	cGraw Hill Publishing Company, New Delhi.								
4.	Norris C.H., Wilbur J.B. and Utkys, Elementar	y Structural Analysis, McGraw Hill nternational,								
	Tokyo.									
5.	5. Ghali A and Neville M, Structural Analysis-A unified classical and Matrix Approach, Chapman									
	& Hall, New York.									
6.	Weaver W. & amp; Gere J.M., Matrix M	Methods of Framed Structures, CBS Publishers &								
	Distributors, Delhi									
Mod	es of Evaluation and Rubric									
Quiz	z, Assignment, Midterm exam and End t	term exam.								
Rub	ric: End term exam.									
List/	Links of e-learning resource									
https	://nptel.ac.in/courses/105/105/105105109/									
-	•									
https	://nptel.ac.in/courses/105/101/105101086/									
https	://nptel.ac.in/courses/105/106/105106050/									
D	more detion has Decord of studies on									
Reco	ommendation by Board of studies on	16.12.2022								
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Appi	oval by Academic council on									
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Com	piled and designed by									
		Civil Engineering								
Subj	ect handled by department	0 0								

LUIUN TECHNOLOGICAL		SAMRAT ASHOK TECHNOLOGICAL INSTITUTE (Engineering College), VIDISHA M.P.												
VIDISHA M.3	A LE			(An	Autonom C	nou: IVI	s Institute IL ENG	Af IN	filiated to RGF	PV Bhop	al)			
Semester/Y	ear	VI	/111		Prog	ram	า			B.Tec	า			
Subject Category	DE-III (B)	Sub Co	oject de:	CE DE	-1864- -III (B)		Subject Name:		Struc	tural D	ynamics	8		
		1	Maxim	um M	arks Allo	tted	1			Conta	et Hours	Total		
End Som	Theo	ry om		ui-z	F	Prac	ctical	,	Total Marks	I		- Credits		
70	20	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$						3						
							•					•		
Prerequisites:														
Structural	Analysi	S												
Course Ol	ojective													
The main	object	ive o	of the	cou	rse is t	to	introduce	0	dynamic loa	ding ar	nd the	dynamic		
performan	ce of th	ne str	uctur	es to	the stu	dei	nts. Diffei	rei	nt types of d	lynamic	loadin	g also to		
loading is	also on	e of t	he for	a siu cus o	if the cou	ne urs	penoma			lies ui	ider ea	ппциаке		
Course Or	utcomes	6: 01 1		<u></u>										
At the end	of the	cours	e. stu	ident	will hav	e tl	he knowle	ed	de to analys	e struct	ures su	biected		
to dynam	ic load	ing a	and t	o de	esign th	e	structures	S	for seismic	loadin	g as p	er code		
provisions		-			-									
					Dee						1.	00'-		
UNITS	THEO	RY O		3R A 1		scrip	ptions				Hrs.	CO's		
	Differe	nce	betw	een	static I	oa	dina and		dvnamic loa	ndina -	-			
	Degre	e of f	reedo	om –	idealisa	tio	n of struc	ctu	ire as single	degree	•			
I	of free	dom	syst	em -	- Formu	llat	ion of Ec	qu	ations of mo	otion o	9	CO1		
	SDOF	syste sd for	em -	D'Ale	emberts	pr	rinciples -	- (effect of dar	nping -	-			
	– Resr	ia ioi Jonse	to h	armo	nic and	nei nei	riodic forc	u ee	nuampeu su s	uclures	•			
	MULT	IPLE	DEG	REE	OF FRI	EEI	DOM SYS	ST	EM					
	Two o	degre	e of	free	dom sy	/ste	em – mo	od	les of vibra	tions -	-			
	formul	ation	of eq	quatio	ons of m	noti	ion of mu	ılti	degree of f	reedom	9	CO1		
	(MDOI	=) sys	stem	- Eig	en value	es a	and Eiger	n '	vectors – Re	sponse		001		
	to free	and n – M	torce	eunei	prations	ר - 0 היו	amped a ethods	ano	a undamped	MDOF				
	ELEM	ENTS	S OF	SEIS	MOLOC	GY								
	Eleme	nts o	f Eng	ineer	ing Seis	mc	ology - Ca	au	ses of Eartho	quake -	-			
111	Plate 7	Tecto	nic th	eory	 Elasti 	c re	ebound T	he	eory – Chara	cteristic	; 6	CO1		
	of ea	rthqu	ake	– E	stimatio	n	of earth	qı	uake param	eters		001		
	Accele	ude	anc n	a in	tensity	0	or eartho	qu	akes – t	spectra				
	RESP	ONSI	EOF	STR	UCTUR	ES	TO EAR	Tł	HQUAKE		1			
	Effect	of ea	rthqu	ake d	on differ	ent	t type of s	str	uctures – Be	haviou	•			
	of Re	infor	ced (Ceme	ent Cor	ncre	ete, Stee	el.	and Pre s	tressec				
IV	Concre	ete S		ire ur	nder ear	the	quake loa	dii th	ng – Pinchin guaka forcos	g effec	9	CO1		
	- 5000 IS-189	лшіў 3 — 2	002 -	Res	– ⊑vaiu ponse S		on or ean ctra – I e∘	u 10 5.5	ons learnt fro	o as pei om nas				
	earthq	uake	s.		- 01 IOU U				ene iountin					
	•													

V	DESIGN METHODOLOGY Causes of damage – Planning considerations / Architectural concepts as per IS:4326 – 1993 – Guidelines for Earthquake resistant design – Earthquake resistant design for masonry and Reinforced Cement Concrete buildings – Later load analysis – Design and detailing as per IS:13920 – 1993.									
Guest Lectur	res (if any)									
Total Hours	8		40							
 Text Book- 1. Chopra, A.K., "Dynamics of Structures – Theory and Applications to Earthquake Engineering", 4th Edition, Pearson Education, 2011. 										
Reference Books- 1. Agarwal. P and Shrikhande. M., "Earthquake Resistant Design of Structures", Prentice Hall of India Pvt. Ltd. 2007										
Modes of E	valuation and Rubric									
Quiz, Assi	gnment, Mid-term exam and End	term exam.								
Rubric: Er	nd term exam.									
List/Links o	f e-learning resource									
https://nptel.	ac.in/courses/105/106/105106151/									
https://nptel.	ac.in/courses/105/101/105101209/									
Recommend	lation by Board of studies on	16.12.2022								
Approval by	Academic council on									
Compiled an	nd designed by									
Subject hand	lled by department	Civil Engineering								

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ATA:		(Engineering College), VIDISHA M.P.												
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VIDISHA M.P.	1			` 	С	IVI	I FNG	11;	NEERING					
Semester/V	'oar	VI	/111		Prog	ram				R To	ch			
				CE	-1864-		D I. ' (D.TE				
Subject	DE-III	Sub	oject do:	DE-	·III (C)		Subject		Precast and	st and modular construction				
Category	(0)	00					Name.							
	Theo	rv	viaxim	um ivia		Pract	tical			Cont	act H	ours	Total	
End Sem	Mid-S	em	Q	uiz	End Se	m	Lab-Wor	k	Total Marks	L	Т	Р	Credits	
70	20		1	0	-		-		100	3	-	-	3	
Prerequisi	ites:													
Pre stress	Concre	ete												
Course O	bjective													
At the end	l of this	cours	se the	stud	ent sha	ll be	e able to	ar	opreciate mo	dular d	const	truct	ion.	
industrializ	zed con	struc	tion a	nd sh	all be a	ble	to desig	n	some of the	prefab	ricate	ed el	ements	
and also h	nave the	knov	wledg	e of t	he cons	struc	ction me	the	ods using the	ese ele	men	ts.		
Course O	utcomes	S:												
The stude	nt shall	ho a	hla to	doci	an som	o of	the prof	fak	pricated elem	onte a	nd a		have the	
knowledge	a of the	nons	tructio	n me	ethods i		sing thes	a. 2	elements			150 1		
UNITS		00110		//////	Des	crip	tions		ciciliento		H	Irs.	CO's	
	INTRO		СТІО	N	200	-onp					-			
	Need for prefabrication – Principles – Materials – Modular													
I	coordi	natio	n Sta	ndard	lization ·	_						8	CO1	
	Systems – Production – Transportation – Erection.													
	PREF	ABR	ICAT	EDC	OMPON	IEN	ITS							
	Behav	iour d	of stru	ictura	I compo	oner	nts – Lar	ge	e panel			8	CO1	
	constr	uctio	ns – C	Const	ruction	of ro	oof and f	lo	or slabs – W	all		0	001	
	panels	<u> </u>	blumn	<u>s – S</u>	hear wa	alls								
		SN PI	RINC	PLE	S .									
111	Disuni	ting c	of stru	cture	s- Desig	gn o	of cross s	se	ction based (on 		8	CO1	
			r mate	eriai u	JSEC – F	roc	piems in	ae	esign becaus	eor				
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IV	detailir	ισι α 1α – Ι	Desia	n of e	expansion	on in	oints	_	Dimensions	and		8	CO1	
	DEDIA	.g .				<u> </u>								
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v	ioads i		nsiae	enng a		ar ei f ov	necis su	Cr	i as earthqua	ikes,		8	COT	
	collane	es, e	IC., -	mpor	lance o	av	oluance	O	progressive	;				
Guest Lectu	res (if any													
Total Hour	s	,)										40		
Text Book	-													
1.	CBF	RI,	Buil	ding	mate	erial	ls an	d	compone	ents,	In	dia,	1990	
2.	Gerosti	iza C	C.Z.,	Hend	rikson (C. a	and Rel	าล	t D.R., Kno	wledge	e ba	sed	process	
pla	anning fo	or coi	nstruc	tion a	and mar	nufa	acturing,	A	cademic Pre	ss Inc.	, 199	94		
Reference	Books	-			_	_	_	_			_			
1.	CBF	RI,	Buil	ding	mate	erial	ls an	d	compone	ents,	In	dia,	1990	
2.	Gerosti	za C	.Z., ∣	Hend	rikson (C.ja	and Rel	na	t D.R., Kno	wledge	e ba	sed	process	
pla	anning fo	or coi	nstruc	ction a	and mar	nufa	acturing,	A	cademic Pre	ss Inc.	, 199	94		

Modes of Evaluation and Rubric	
Quiz, Assignment, Mid term exam and End Rubric: End term exam.	term exam.
List/Links of e-learning resource	
https://nptel.ac.in/courses/124/105/124105013/ https://nptel.ac.in/courses/105/106/105106117/	
Recommendation by Board of studies on	16.12.2022
Approval by Academic council on	
Compiled and designed by	
Subject handled by department	Civil Engineering



SAMRAT ASHOK TECHNOLOGICAL INSTITUTE

(Engineering College), VIDISHA M.P.

(An Autonomous Institute Affiliated to RGPV Bhopal)

-----CIVIL ENGINEERING------

Semester/Year VI/III Program								B.Tech					
Subject Category	OC-II (A)	Subj Coc	ect le:	CE- OC-	-1865- -II (A)	Subject Name:		Hydrology &Water Resource Engineering					
		N	laxim	um Ma	arks Allotte	ed			Contact Hours Total				
Theory					Pr	actical		Total Marka	Contact Hours Total				
End Sem	Mid-S	em	Qı	Jiz	End Sen	n Lab-Work	κ			Credits			
70	20		1	0	-	-		100	3	-	-	3	

Prerequisites:

Fluid mechanics and Engineering Mathematics.

Course Objective:

- Student will understand the Role of the Water resources in Development of human civilization and sustainability. Student will learn the concept, theory and principle related to Hydrological cycle and application of water for irrigation purpose.
 - Student will learn Data Collection techniques related to various parameter like precipitation, Runoff and losses.
- 2. Student will learn Analysis of Data, its interpretation and use for forecasting and related problems.
- 3. Student will learn Design of the Structures for Flood control, Canals, Wells etc

Course Outcomes:

After completion of the course, the student will be able to:

1. Understand the Role of the Water resources in human civilization and its development.

Demonstrate concept, theory and principle related to Hydrological cycle and application of water for irrigation purpose.

Understand the data Collection techniques related to various parameter like precipitation, Runoff and losses.

- 2. To acquire aptitude for Analysis of Data, its interpretation and use for forecasting related problems.
- 3. Design the Structures for Flood control, Canals, Wells.etc

UNITs	Descriptions	Hrs.	CO's
I	Hydrology : Hydrological cycle, precipitation and its measurement, recording and non-recording rain gauges, estimating missing rainfall data, rain gauge networks, mean depth of precipitation over a drainage area, mass rainfall curves, intensity-duration curves, depth-area duration curves, Infiltration and infiltration indices, evaporation stream gauging, run off and its estimation, hydrograph analysis, unit hydrograph and its derivation from isolated and complex storms, S-curve hydrograph, synthetic unit hydrograph.	15	CO1/CO2
II	Floods and Ground water : Types of floods and their estimation by different methods, probability and frequency analysis, flood routing through reservoirs and channels, flood	5	CO1/CO2

	control measures, economics of flood control, confined and unconfined aquifers, aquifer properties, hydraulics of wells under steady flow conditions, infiltration galleries. Ground water recharge-necessity and methods of improving ground water storage. Water logging-causes, effects and its prevention. Salt efflorescence-causes and effects. reclamation of water logged and salt affected lands.								
111	Water resources planning and management: Planning of water resources projects, data requirements, economic analysis of water resources projects appraisal of multipurpose projects, optimal operation of projects introduction to linear programming and its application to water resources projects. Role of water in the environment, rain water harvesting, impact assessment of water resources development and managerial measures.	8	CO1/CO2						
IV	Canal irrigation: Types of canals, alignment, design of unlined and lined canals, Kennedy's and Lacey's silt theories, typical canal sections, canal losses, linings-objectives, materials used, economics. Canal falls & cross drainage works, - description and design, head and cross regulators. escapes and outlets, canal transitions.								
V	Well irrigation: Types of wells, well construction, yield tests, specific capacity level and specific yield, hydraulic design of open wells and tube wells, methods of raising well water, characteristics of pumps and their selection, interference of wells, well losses, advantages and disadvantages of well irrigation.	5	CO1/CO2 CO3						
Guest Lectu	res (if any)								
Total Hour	S	40							
Text Book 1. Hydr 2. Hydr 3. Enge 4. Hydr 5. Enge 6. A Te	 Text Book- HydrologyEngg. Hydrology - J.NEMEC - Prentice Hall Hydrology for Engineers Linsley, Kohler, Paulnus - Tata Mc.Graw Hill. Engg. Hydrology by K. Subhramanya - Tata McGraw Hills Publ. Co. Hydrology & Flood Control by Santosh Kumar - Khanna Publishers Engg. Hydrology by H.M. Raghunath A Text book of Hydrology-Dr P. Java Rami Reddy-University Science press 								
Reference	Books-	-1							
 Irrigation & Water Power Engg Dr. B.C. Punmia, Dr. Pande, B.B. Lal Irrigation, Water Resources & Water Power by Dr. P.N. Modi Irrigation Engineering by Varshney Irrigation Engineering by Santosh Kumar Garg Irrigation, Water Power & Water Resources Engg. by K.R. Arora 									
Modes of Evaluation and Rubric									
Rubric: Er	Rubric: End term exam.								

List/Links of e-learning resource	
https://nptel.ac.in/courses/105/104/105104103/	
https://pptel.ac.ip/courses/105/105/105105110/	
Recommendation by Board of studies on	16.12.2022
Approval by Academic council on	
Compiled and designed by	
Subject handled by department	Civil Engineering

SAMRAT ASHOK TECHNOLOGICAL INSTITUTE													
	(Engineering College), VIDISHA M.P.												
A CHE	(An Autonomous Institute Affiliated to RGPV Bhopal)												
VIDISHA M.P.	1			C	VIL ENG	INEERING		-					
Semester/Y	ear	VI/III		Prog	ram		B.Tech						
Subject	t OC-II Subject CE-1865- Subject Building Ser							vices					
Category	(B)	(B) Code: OC-II (B) Name:											
		Maximum Marks Allotted Contact											
End Sem	I heol Mid-S	Theory Practical Total Marks							Credits				
70	20		0	-	-	100	3		3				
Prerequisi	tes:		10.01.1	*•									
Course Of	ianning piective:	and Archi	leciu	re									
	Jeenve.							1					
I he cours	e conte	nt should l	be tai	ught and	I implemente	ed with the aim	to deve	lop rec	uired				
	e studer an vario	us types o	f serv	/ices rec	uired for diff	ferent types of	huildina	s					
2. Su	pervise	installatio	n and	testing	of services	such as lift, fire	e protect	ion, ele	vators,				
eso	calators	, acoustic	and s	sound in	sulations, lig	htings, air cor	ditioning	and a	llied				
Ser	vices.												
Course Ot	licomes	5.					-						
The theory	/ should	l be taugh	t and	exercise	es should be	carried out in	such a r	nanne	r that				
students a	ire able	to acquire	e diffe trate	following	ning outcom	ies in cognitive	e, psycho	omotor	and				
anective u	omaint		liale	IOIIOWIIIų	y course our	comes.							
1. Mana	ge build	ling servic	es pr	ovisions	in big const	ruction sites.							
2. Synch	nronize	the constr	uctior	n activitie	es with insta	llation of buildi	ng servi	ces					
3. Select	t the sui	itable elec	trical	as well	mechanical	services for pa	rticular r	equire	ments				
4. Ensur	iaings. 'e areen	building a	applic	ations to	the new co	nstructions							
UNITs	<u>o groon</u>	i bunung t	<u> </u>	Des	criptions			Hrs.	CO's				
	Introd	uction to	Build	ding Ser	vices								
	Definit	ions, Obj	ective	e and u	ses of serv	vices, Applicat	tions of						
	service	es for diffe	erent	types b	uilding cons	idering, Class	ification						
I	service	es. Natura	vices Il and	, rypes 1 artificia	al liahtina- r	es and select	factors	9	CO1				
•	Arrang	jement c	of lu	minaries	s, Distribut	ion of illum	ination,	Ũ	001				
	Utilizat	tion factor	s. Ne	cessity o	of Ventilation	n Types – Nati	ural and						
	Mecha	inical Fa	ctors	to be	considered	d in the de	sign of						
	Ventila	ation. rical Sorv	icos	andlay									
	Flectri	cal service	es in	the build	dina technic	al terms and s	symbols						
	for ele	ctrical inst	allatio	ons and	Accessories	of wiring, Sys	stems of	_	<u> </u>				
11	wiring	like woo	den d	casing,	cleat wiring	, CTS wiring	conduit	9	002				
	wiring.	Types of	insul	ation, ele	ectrical layou	ut for residenc	e, small						
	WOIK S	nop, show	/ roor	n, schoo	dinge	IC.							
	Introd	uction of	mecl	hanical	services.								
111	Lift: D	efinition, 1	ypes	of Lifts,	Design Cor	nsiderations, L	ocation,	6	CO3				
	Sizes,	Compon	ent p	oarts- Li	ft Well, Tra	avel, Pit, Hois	st Way,						
	Machir	ne, Buffe	r, Do	or Loc	ks, Suspen	ded Rope, L	ift Car,						

	Landing Door, Call Indicators, Call Pu			
	Elevators & Escalators: (a) Differe			
	Escalators, Freight elevators, Pass	enger elevators, Hospital		
	elevators,			
	(b) Uses of different types of elevator			
	Dumbwaiters: (a) Different types of			
	different types of Dumbwalters.			
	different types of Conveyors			
	Air Conditioning (a) Definition			
	Temperature Control Air Velocity Co			
	Distribution system Cleaners Filter			
	precentors (b) Types of Air Cou	ditioners (Central type		
	Window Type Split Unit)			
	Fire Protection, Acoustic and Sour	nd Insulations		
	Introduction, causes of fire and F	Effect s of fire. General		
	Requirements of Fire Resisting built	ding as per IS and NBC		
	2005. Characteristics of Fire resis	ting materials. Maximum		
IV	Travel Distance, Fire Fighting Instal	ations for Horizontal Exit.	9	CO3
	Roof Exit / Fire Lifts, External Sta	irs, Requirement of good		
	Acoustic, Various sound absolvent,	Factors to be followed for		
	noise control in residential building.			
	Miscellaneous Services and Green	Buildings Provisions		
	Rain water harvesting for building			
17	buildings, Components of GREEN	building, Introduction and	7	CO4
V				
V	Significance to Grey water, Compone	ents of Grey water system,		
V	Significance to Grey water, Compone Management of Grey water system.	ents of Grey water system,		
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	2	SAMRAT ASHOK TECHNOLOGICAL INSTITUTE												
	(Engineering College), VIDISHA M.P.													
Ja Cel	(An Autonomous Institute Affiliated to RGPV Bhopal)													
VIDISHA M.P.	1				С	IVIL ENG	SIN	IEERIN	IG-					
Semester/Y	ear	VI/III			Prog	ram				B.T	ech	۱		
Subject		Subi	oct	CF.	1865-	Subject		(Oper	ation	n Re	esear	ch	
Category	(C)	Cod	le:		-II (C)	Name:		oper	ation		boui	•		
	Maximum Marks Allotted											Ι		
	Maximum Marks Allotted Contact H										t Hou	urs	Total	
End Sem	Mid-Sem Quiz End Sem Lab-Work Total Marks								Т	Ρ	Credits			
70 20 10 - 100 3 - -										-	3			
Prerequisi	tes:													
life proble industrial solving bu such as p game prob	ns Rese ms. Ma problem t also a roductic olem.	arch r nager ns. Th pply s on mix	now a rs an ney r scien c, trai	a day d deo not o tific to nspoi	r widely cision m nly striv echniqu rtation,	used in the nakers get i ve to devis es to monite queuing, as	e al dea e a or f ssig	rea of de a for opti appropria the orgar jnment, c	imiz ate i nizat dyna	ing a meas tions imic,	nak anc sur s or , In	ing f app es f ngoir tege	for t prox for p ng a er, g	ne real- kimating problem activities loal and
Course Ot	ojective:	:												
life problems. Managers and decision makers get idea for optimizing and approximating industrial problems. They not only strive to devise appropriate measures for problem solving but also apply scientific techniques to monitor the organizations ongoing activities such as production mix, transportation, queuing, assignment, dynamic, Integer, goal and game problem.														
game prot	plem.	n mix	k, tra	nspoi	rtation,	queuing, as	sig	ine organ inment, c	dyna	imic,	, In	tege	er, g	oal and
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game prot	olem. utcomes	S: of the	cour:	nspoi	tation,	queuing, as	sig	to:	dyna	imic,	, In	tege	er, g	ioal and
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	method, least cost method, Vogel's approximation method. Degeneracy in transportation, Modified Distribution method, Unbalanced problems and profit maximization problems. Transhipment Problems. Assignment Problems and Travelling sales man Problem.								
	Queuing Theory: Basis of Queuing theory, elements of queuing theory, Kendall's Notation, Operating characteristics of a queuing system, Classification of Queuing models, Preliminary examples of M/M/1: ∞/FCFA.								
	Inventory Control: Inventory classification, Different cost associated to Inventory, Economic order quantity, Inventory models with deterministic demands, ABC analysis.								
	Replacement theory: Introduction, Replacement of capital equipment which depreciated with time, replacement by alternative equipment, Group and individual replacement policy.	7	CO3						
11/	Game Theory: Introduction, Characteristics of Game Theory, Two Person, zero sum games, Pure strategy. Dominance theory, Mixed strategies (2x2, mx2), Algebraic and graphical methods.								
IV	Decision Theory: Introduction, Decision under certainty, Decision under risk, Decision under uncertainty: Laplace criterion, Maxi Min criterion, Mini Max criterion, savage Mini Max regret criterion, hurwicz criterion, Decision tree.								
V	V Project Management: Introduction to PERT and CPM, critical Path calculation, float calculation and its importance. Cost reduction by Crashing of activity.								
Guest Lectu	res (if any)								
Total Hour	s 	40							
1 Oporati	and Research: An Introduction by Hamdy Taba, Rearson								
2. Operati Education	ions Research by A M Natarajan, P Balasubramani, A Tamila Inc	arasi,	Pearson						
3. Operati	ons Research by P Mariappan. Pearson								
4. Operati	ons Research by H N wagner, Prentice Hall.								
Reference	Books-								
 Optimization in Operations Research by Ronald Rardin, Pearson Education Inc. Operations Research by R. Paneerselvam, Prentice Hall of India Pvt. Ltd. Quantitative Techniques in Management by N D Vohra, Tata McGraw-Hill 									
Modes of E	valuation and Rubric								
Quiz, Assi Rubric: Er	ignment, Mid-term exam and End term exam. nd term exam.								

List/Links of e-learning resource	
https://nptel.ac.in/courses/110/106/110106062/	
https://pptol.eg.ip/courses/111/107/111107128/	
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Recommendation by Board of studies on	16.12.2022
Approval by Academic council on	
Compiled and designed by	
Subject handled by department	Civil Engineering

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