GEOSYNTHETICS AND REINFORCED SOIL STRUCTURE

COL	Irse Cr	terory	1	Hopour	•c	Olfe	ang bi	anch: C	_ E		Credit	e.		4	
Course Category:				Honours							Lecture-Tutorial-				
Course Type:			,	Theory							Practical:			3-1-0	
				20CE3402- Geotechnical Engineering							Continuous Evaluation:			0	
Prerequisites:				20CE4703B - Ground improvement							Semester End				
			1	techniques							Evaluation:			0	
											Total Marks:			00	
Course															
Upon s		ful com													
CO1	Explain how the polymeric composite manufactured, and what factors were used to increase the tensile strength													K3	
CO2				lic and	mecha	nical ch	aracter	istics o	f polyr	neric con	nosites			K4	
CO2 CO3		•										ture inter	action	K2	
CO4											on-suue	ture inter	action	K6	
CO5	Expl	Explain the concepts of using Geosysthetics as filter, drainage and materials and design landfill													
	as per standard guidelines. Contribution of Course Outcomes towards achievement of Program Outcomes														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	2	2	2	2		2	2	2				2	2	2	
CO2	2	2	2	2		3	3	3				3	2	3	
CO3	3	3	3	3		2	2	2				2	3	2	
CO4	2	2	2	2		3	3	3				3	2	3	
CO5	2	2	2	2		3	3	3				3	2	3	
Avg.	2	2	2	2		3	3	3				3	2	3	
		1- Lo)W				2-Me	dium				3-High			
						Cou	rse (Cont	ent						
		itroduc	tion 1	Dofiniti									- 1		
UNIT-:	I For	polyr polyester	d earth on of ge ner, F , Polyv	Constr eosyntl Raw m rinyl ch	uction. netic co naterial: lloride,	o mposi t s–polyp Classif	te: Che propyle	mical s	ynthes olyolefi	is, Physic n), Poly	cal prope yethylene	sadvantag erties, visc e (Polyo allic and	cosity efin),	C01	
	I Former	ormatio polyr olyester etallic,	d earth on of ge ner, F , Polyv Natural	Constr eosyntl Raw m rinyl ch l and sy	uction. hetic con naterial loride, vnthetic	omposit s–polyp Classif materi	te: Che propyle fication als.	mical s ne (po based	synthes olyolefi on ma	is, Physic n), Poly terials ty	cal prope yethylene pe– Met	erties, viso e (Polyo	cosity efin), Non-		
UNIT-:	1 For of Port Port Port Port Port Port Port Port	ormatio polyr olyester etallic, ydraul nduranc	d earth on of go ner, R , Polyv <u>Natural</u> ic and ce and I	Constr eosyntl Raw m inyl ch l and sy Mech Degrada	uction. hetic co haterial loride, <u>nthetic</u> anical ation re	omposit s–polyp Classif materi Prope quirem	te: Che propyle fication als. rties: ents, Te	mical s ne (po based Physica	synthes olyolefi on ma al, Che	is, Physic n), Poly terials ty emical, M ation of	cal prope yethylene pe– Met Mechanic propertie	erties, viso e (Polyo allic and cal, Hydr	cosity efin), Non- aulic,		
	IF of PC2H E2H E3fa E	ormatic polyester etallic, ydraul nduranc esign o ilure of ilure su mbank	d earth on of g mer, R , Polyv <u>Natural</u> ic and <u>I</u> f reinf f reinf f found rface, t ments-	Constr eosyntl Raw m inyl ch l and sy Mech Degrada forced ation, l ension - Conce	uction. hetic con- haterials loride, <u>vnthetic</u> anical ation re- earth f Determ failure ept of	mposit s-polyp Classif materi Prope quirema founda ination and pul Reinfo	te: Che propyle fication als. rties: ents, To tions a of ford ll out re rced E	mical s ne (po based Physica esting & nd em ce indu esistanc mbanku	synthes olyolefi on ma al, Che & Evalu bankn ced in e ments,	is, Physic n), Poly terials ty emical, M <u>action of</u> rents : For reinforce	cal proper yethylene pe– Met Mechanic propertie oundation ement tie and ext	erties, visc e (Polyo allic and cal, Hydr es ns – Mod es–Locati ernal stal	cosity efin), Non- aulic, les of on of	CO2	
UNIT-	I Formation Pressure Pressure Pressure Press </td <td>ormatic polyester etallic, ydrauli ndurance esign o ilure of ilure su mbank election pil nail omparis</td> <td>d earth on of ge mer, R , Polyv <u>Natural</u> ic and <u>ic</u> and <u>if</u> f reinf f found rface, t ments- of mat ing tec on of s , Com</td> <td>Constr eosyntil Raw m rinyl ch l and sy Mech Degrada forced ation, l ension - Concerials, to hnique soil na ponents</td> <td>uction. netic co naterials loride, <u>nthetic</u> anical ation re earth Determ failure ept of typical es: Con iling w s of s</td> <td>omposit s-polyp Classif materi Prope quireme foundar ination and pul Reinfor design cept, A rith rein ystem,</td> <td>te: Che ropyle fication als. rties: ents, Te tions a of fore ll out re rced E probler advanta hforced Design</td> <td>mical s ne (po based Physica esting & nd em ce indu ssistanc mbanka ns, slop ges & soil, n</td> <td>synthes olyolefi on ma al, Che & Evalu bankn ced in e ments, oe stabi limitat method</td> <td>is, Physic n), Poly terials ty mical, M uation of reinforce Internal lity relate ions of s s of soil</td> <td>cal prope yethylene pe- Met Mechanic propertic undation ement tic and ext ed proble soil nailing</td> <td>erties, visc e (Polyo allic and cal, Hydr es ns – Mod es–Locati ernal stal</td> <td>cosity efin), Non- aulic, aulic, les of on of bility, ques, action</td> <td>CO2</td>	ormatic polyester etallic, ydrauli ndurance esign o ilure of ilure su mbank election pil nail omparis	d earth on of ge mer, R , Polyv <u>Natural</u> ic and <u>ic</u> and <u>if</u> f reinf f found rface, t ments- of mat ing tec on of s , Com	Constr eosyntil Raw m rinyl ch l and sy Mech Degrada forced ation, l ension - Concerials, to hnique soil na ponents	uction. netic co naterials loride, <u>nthetic</u> anical ation re earth Determ failure ept of typical es: Con iling w s of s	omposit s-polyp Classif materi Prope quireme foundar ination and pul Reinfor design cept, A rith rein ystem,	te: Che ropyle fication als. rties: ents, Te tions a of fore ll out re rced E probler advanta hforced Design	mical s ne (po based Physica esting & nd em ce indu ssistanc mbanka ns, slop ges & soil, n	synthes olyolefi on ma al, Che & Evalu bankn ced in e ments, oe stabi limitat method	is, Physic n), Poly terials ty mical, M uation of reinforce Internal lity relate ions of s s of soil	cal prope yethylene pe- Met Mechanic propertic undation ement tic and ext ed proble soil nailing	erties, visc e (Polyo allic and cal, Hydr es ns – Mod es–Locati ernal stal	cosity efin), Non- aulic, aulic, les of on of bility, ques, action	CO2	
UNIT-	I For f	ormatic polyester etallic, ydrauli nduranc esign o ilure of ilure of ilure su mbank election bil nail opplicatio ilter, du eosynth tention,	d earth on of ge ner, F , Polyv Natural ic and E e and E f reinf f found rface, t ments- of mat ing tec on of s , Com ons of s rain an etic fill , Geosy	Constr eosyntl aw m inyl ch l and sy Mech Degrada forced ation, 1 ension - Concerials, 1 hnique soil na ponents oil nail nd land ter desi nthetic	uction. netic co naterial: loride, mthetice anical ation re- earth for Determ failure ept of typical s: Con iling w s of s ing tech fills : F gn request	mposit s-polyp Classif materi Prope quireme foundat ination and pul Reinfor design cept, A rith rein ystem, miques filter & uiremer ability,	te: Che ropyle ication als. rties: ents, Tu tions a of form lout re rced E probler dvanta nforced Design Drain- nts, Dra anticlo	mical s ne (po based Physica esting & nd em ce induces istanc mbanka ns, slop ges & soil, n n aspect - Conv tin and gging, s	synthes blyolefi on ma al, Che <u>& Eval</u> bankn ced in e ments, <u>be</u> stabi limitat method cts, Pr entiona filter p surviva	is, Physic n), Poly terials ty emical, M <u>aation of</u> reinforce Internal lity relate ions of s is of soil ecautions	cal prope yethylena pe- Met Mechanic propertic pundation ement tic and extr ad proble soil naili I nailing s to be ar filter of s, Design I durabil	erties, visc erties, visc e (Polyo allic and eal, Hydr es ms – Mod es–Locati ernal stal m ng techni , Constru taken in taken in design cri a criteria	cosity efin), Non- aulic, les of on of bility, ques, action 1 the iteria,	CO1 CO2 CO3 CO4 CO5	
UNIT- UNIT- UNIT-	I For f	ormatic polyester etallic, ydrauli nduranc esign o ilure of ilure of ilure su mbank election bil nail opplicatio ilter, du eosynth tention,	d earth on of ge ner, F , Polyv Natural ic and E e and E f reinf f found rface, t ments- of mat ing tec on of s , Com ons of s rain an etic fill , Geosy	Constr eosyntl aw m inyl ch l and sy Mech Degrada forced ation, 1 ension - Concerials, 1 hnique soil na ponents oil nail nd land ter desi nthetic	uction. netic co naterial: loride, <u>minetic</u> anical anical anical anical anical f b b c b c c f f f f f f f f	mpositi s-polyp Classif materi Prope quirema foundar ination and pul Reinfor design ccept, A rith rein ystem, hniquess filter & uiremer ability, andfills	te: Che ropyle fication als. rties: ents, Tri tions a of forr ll out re rced E probler advanta nforced Design Drain- nts, Dra anticlo , Land	mical s ne (po based Physica esting & nd em ce indu esistanc mbanka ns, slop ges & . soil, n n aspec - Conv tin and gging, s fill line	synthes olyolefi on ma al, Che <u>& Evalu</u> <u>bankm</u> ced in e ments, <u>be stabi</u> limitat method cts, Pr entiona filter p surviva r & cov	is, Physic n), Poly terials ty mical, M aation of rents: For reinforce Internal lity relate ions of s is of soil ecautions il granula properties bility and /er, EPA	cal prope yethylena pe- Met Mechanic propertic pundation ement tic and extr ad proble soil naili I nailing s to be ar filter of s, Design I durabil	erties, visc erties, visc e (Polyo allic and eal, Hydr es ms – Mod es–Locati ernal stal m ng techni , Constru taken in taken in design cri a criteria	cosity efin), Non- aulic, les of on of bility, ques, action 1 the iteria,	CO2 CO3 CO4	
UNIT- UNIT- UNIT-	I For f	ormatic polyester etallic, ydrauli nduranc esign o ilure of ilure of ilure su mbank election bil nail opplicatio ilter, du eosynth tention,	d earth on of goner, Fr , Polyv Natural ic and I f reinf f reinf f cound rface, t ments- of mat ing tec on of s , Compons of s rain an ettic fill Geosy -Typic	Constr eosyntl Raw m inyl ch l and sy Mech Degrada forced ation, 1 ension - Conc erials, 1 hnique soil nail do land ter desi nthetic al desig	uction. hetic contact and attended to the second definition of the sec	mposit s-polyp Classif materi Prope quireme foundation and pul Reinfoo design cept, A rith reir ystem, aniques filter & uiremer ability, andfills	te: Che ropyle fication als. rties: tions a of forr ll out refered E probler dvanta forceed D besign Drain- nts, Dra , Land ing]	mical s ne (po based Physica esting & nd em ce indu esistanc mbanka mbanka mbanka ns, slop ges & soil, n a aspec - Conv uin and gging, s fill line Reso	synthess on ma all, Chet & Evalu bankn ced in e ments, pe stabi limitat method ctts, Pr entiona filter p surviva r & coo	is, Physic n), Poly terials ty mical, M <u>iation of</u> reinforce Internal lity relate ions of s is of soil ecautions il granula properties bility and <i>cer</i> , EPA	cal prope yethylenc pe- Met Mechanic propertic pundation ement tic and exte d proble soil nailing s to be ar filter of s, Design d durabil Guidelin	erties, visc e (Polyo allic and cal, Hydr es ns – Mod es–Locati ernal stal m ng techni , Constru taken in design cri a criteria ity, tes,	cosity efin), Non- aulic, aulic, les of on of bility, collity, collity, aques, action a the iteria, – soil	CO2 CO3 CO4 CO5	
UNIT- UNIT- UNIT-	I For f	ormatic polyester etallic, ydraulin nduranc esign o ilure of ilure su mbank election bil nail omparis quence oplicatio ilter, d eosynth tention, andfills	d earth on of gener, R , Polyv Natural ic and I f reinf f found rface, t ments- of mat ing tec of mat ing tec of sof s, Compons of s rain an etic fill Geosy -Typic	Constri eosynth laam yn hing chi Degrada orced ation, 1 ension - Conce erials, 1 hnique soil nail d land soil nail d land soil nail d land Swami Antape Swami Pert, Lta Shiva F	uction. the section of the section o	mposit s-polyp Classif materi Prope quireme foundat ination and pul Reinfo design design cept, A with rein ystem, hniques filter & uiremer ability, andfills Reinfo 5. Editio	te: Che ropyle rication als. rtis: rtis: rtis: rtis: rtis: rtis: tions a of ford l out re rced E probler dvanta hforced Design Drain- nts, Dra anticlo anticlo anticlo n 2nd L, And	mical s ne (pc based Physicc esting & nd em bank mbankk ms, slop gegs & soil, 1 n asper - Conv in and aggis, s fill line Resoo bil and 2010.	synthess slyoleff on ma al, Chek k Evalu bankm ced in e ments, e estabi limitat methoc cts, Pr entiona r & cov urce its Eng	is, Physic n), Poly terials ty mical, M hation of nents: For reinforce Internal lity relate ions of s ls of soil ecautions al granula properties bility and repeat S gineering	cal prope yethylena pe– Met Mechanic propertic oundation ement tic and extr ed proble soil naili I nailing s to be ar filter of s, Design d durabil Guidelin Applica	erties, visc erties, visc e (Polyo allic and eal, Hydr es ms – Mod es–Locati ernal stal m ng techni , Constru taken in taken in design cri a criteria	cosity efin), Non- aulic, les of on of bility, iques, iction n the iteria, – soil	CO2 CO3 CO4 CO5	

Page **244** of **278**

Books	 1996 Hidetoshi Octial, Shigenori Hayshi & Jen Otani, Earth Reinforcement Practices, Vol. I, A.A. Balkema, Rotterdam, 1992. Ingold, T.S., Reinforced Earth, Thomas, Telford, London. Koerner. R.M., Design with geosynthetics, 4th Edition, Prince Hall Publication, 1994, Edition 6th 2012. 					
e-Resources& other digital material	https://nptel.ac.in/courses/105106055/					

Page 245 of 278