SCHOOL OF
ARCHITECTURE

Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Declared as Deemed-to-be University under section 3 of UGC Act 1956)

08.09.2018

CIRCULAR

The School of Architecture, Bharath Institute of Higher Education and Research is planned to conduct a certification value added course on ENVIRONMENTAL GEOTECHNICS for the benefit of II, III and IV year students. This course is scheduled from 01.10.2018 for 30hours which includes theory and practical. The timings are 4:00 PM to 5:30 PM from Monday to Friday and 9:00 AM to 10:30 AM on Saturday.

For registration, students can contact the following faculty members who are assigned to handle the course.

S.NO	Name of the Faculty	Designation
1	Hemalatha	Assistant Professor
2	Dhivya	Assistant Professor

All Registered Students must attend all the classes without fail

Students who are completed the course successfully can only get the course certificate.

Ar. M. Shamed Farook Ali, M.,
Head of the Department, School of Architecture,
Bharath Institute of Higher Education & Research
(Declared as Deemed to be University U/S 3 of UGC Act 1956)
173, Agaram Road, Selaiyur, Ch - 73, Ph: 044-22907423/22907425

Head of the Department

BARVAC 004 – COURSE ON ENVIRONMENTAL GEOTECHNICS

COURSE OBJECTIVES

- To understand Clay mineralogy and soil structure
- Select and compare inter sheet and inter layer bonding in the clay minerals.
- To perceive the use of electric charges on clay minerals
- To comprehend different Super Alloys with their strengthening mechanism, composition properties and applications.
- To understand the technique to pH and organic matter on properties of soils.
- To interpret properties and applications of Permeability of soils
- To grasp different smart material with their application.
- To perceive requirements Darcy's law and its validity.

SYLLABUS

Clay mineralogy and soil structure: Gravitational and surface forces-inter sheet and inter layer bonding in the clay minerals- Basic structural units of clay minerals- isomorphous substitution – kaolinite mineral- montmorillonite mineral- illite mineral- electric charges on clay minerals – base exchange capacity- diffused double layer- adsorbed water- soil structure-methods for the identification of minerals (introduction only).
Effect of environment on Geotechnical properties of soils: Effect of drying on Atterberg limits.-Volume change behaviour- factors controlling resistance to volume change- general relationship between soil type, pressure and void ratio.- importance of mineralogical composition in soil expansion. Activity- sensitivity-causes of sensitivity-influence of exchangeable cations, pH and organic matter on properties of soils. Permeability of soils-hydraulic conductivity of different types of soils – Darcy's law and its validity- factors affecting permeability
Wastes and Contaminants (introduction only): sources of wastes-types of wastes-composition of different wastes- characteristics and classification of hazardous wastes-generation rates- ground water contamination- sources of ground water contamination-transport mechanisms-potential problems in soils due to contaminants.
Disposal and containment technics: Criteria for selection of sites for waste disposal-hydrological aspects of selection of waste disposal sites- disposal facilities- subsurface disposal technics-disposal systems for typical wastes (sketches only)Containment control systems- liners and covers for waste disposal- rigid liners- flexible liners. Ground modification technics in waste management – waste modification- ground modification-mechanical modification-hydraulic modification- chemical modification.

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ENVIRONMENTAL GEOTECHNICS

LESSON PLAN

TOTAL HOURS-36

FACULTY NAME - DHIVYA

DATE	DAY	HOURS	T/P	COURSE TITLE
01.10.2018	MONDAY	1.5	THEORY	Clay mineralogy and soil structure: Gravitational and surface forces-inter sheet and inter layer bonding in the clay minerals- Basic structural units of clay minerals
02.10.2018	TUESDAY	1.5	THEORY	isomorphous substitution – kaolinite mineral- montmorillonite mineral- illite mineral- electric charges on clay minerals – base exchange capacity
03.10.2018	WEDNESDAY	1.5	THEORY	diffused double layer- adsorbed water- soil structure- methods for the identification of minerals (introduction only).
04.10.2018	THURSDAY	1.5	THEORY	Effect of environment on Geotechnical properties of soils: Effect of drying on Atterberg limits.-Volume change behaviour- factors controlling resistance to volume change- general relationship between soil type, pressure and void ratio
05.10.2018	FRIDAY	1.5	THEORY	importance of mineralogical composition in soil expansion. Activity- sensitivity- causes of sensitivity-influence of exchangeable cations,
06.10.2018	SATURDAY	1.5	THEORY	pH and organic matter on properties of soils. Permeability of soils- hydraulic conductivity of different types of soils
08.10.2018	MONDAY	1.5	THEORY	Darcy's law and its validity- factors affecting permeability
09.10.2018	TUESDAY	1.5	THEORY	Wastes and Contaminants (introduction only): sources of wastes-types of wastes-composition of different wastes
10.10.2018	WEDNESDAY	1.5	THEORY	characteristics and classification of hazardous wastes- generation rates- ground water contamination- sources of ground water contamination
11.10.2018	THURSDAY	1.5	THEORY	transport mechanisms-potential problems in soils due to contaminants
12.10.2018	FRIDAY	1.5	THEORY	Wastes and Contaminants (introduction only): sources of wastes-types of wastes-composition of different wastes
13.10.2018	SATURDAY	1.5	THEORY	characteristics and classification of hazardous wastes- generation rates- ground water contamination
15.10.2018	MONDAY	1.5	THEORY	sources of ground water contamination- transport mechanisms-potential problems in soils due to contaminants.
16.10.2018	TUESDAY	1.5	THEORY	Disposal and containment technics: Criteria for selection of sites for waste disposal
17.10.2018	WEDNESDAY	1.5	THEORY	hydrological aspects of selection of waste disposal sites
18.10.2018	THURSDAY	1.5	THEORY	disposal facilities
19.10.2018	FRIDAY	1.5	THEORY	subsurface disposal technics
20.10.2018	SATURDAY	1.5	THEORY	disposal systems for typical wastes
22.10.2018	MONDAY	1.5	THEORY	Containment control systems
22.10.2018	TUESDAY	1.5	THEORY	liners and covers for waste disposal
23.10.2018	WEDNESDAY	1.5	THEORY	rigid liners
24.10.2018	THURSDAY	1.5	THEORY	flexible liners
25.10.2018	FRIDAY	1.5	THEORY	Ground modification technics in waste management
26.10.2018	SATURDAY	1.5	THEORY	waste modification

PRACTICAL-0/THEORY-36

Total hours-36

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LIST OF STUDENTS - VALUE ADDED COURSE - ENVIRONMENTAL GEOTECHNICS

S.NO	REGISTER NUMBER	NAME OF THE STUDENT
1	U13AR001	ARJUN C
2	U13AR002	ASHISH KIRAN B V
3	U13AR003	BALAJI S
4	U13AR004	BASHEER AHMED S A
5	U13AR005	BASIL BASHEER
6	U13AR006	CIBIN KURIKESU BOBAN
7	U13AR007	DEEPIKA V
8	U13AR008	DINESH KUMAR M
9	U13AR009	GODWIN E
10	U13AR010	GOWTHAMRAJ R
11	U13AR011	INDHU M
12	U13AR012	JEROME MARIA RAJ A
13	U13AR013	KANTHI VISWANATHAN
14	U13AR014	KARANAM VENKATA MANOJ KUMAR
15	U13AR015	KARTHICK P
16	U13AR016	KAVITHA P
17	U13AR017	KAVYA SRI K
18	U13AR018	KUMARESAN A
19	U13AR020	NAME OF THE STUDENT
20	U13AR021	MATHURA SRIKANTH
21	U13AR022	MOHAMED HUSSAIN N
22	U13AR023	MUTHU LAKSHMANAN
23	U13AR024	NAWAZ SHARIEF
24	U13AR025	NISHANTHI K
25	U13AR026	PARTHIBAN P
26	U13AR027	PRAGYA TRIPATHI
27	U13AR028	PRASANTH N
28	U13AR029	RADHIKA HARIKUMAR MENON
29	U13AR030	RAJASEKAR K
30	U13AR031	RASMIHA B
31	U13AR032	SIVA GURU BARAN G
32	U13AR033	SUPRIYA YADAV
33	U13AR034	SURYA E
34	U13AR501	TARA WILLIAMS
35	U13AR502	ZUHAIB.J

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LIST OF STUDENTS - VALUE ADDED COURSE - ENVIRONMENTAL GEOTECHNICS

S.NO	REGISTER NUMBER	NAME OF THE STUDENT
36	U13AR503	RAVEENA D
37	U13AR504	SARAVANAN MURTHI M
38	U13AR505	THAMIZHINIAN
39	U13AR506	SYED JALALUDDIN AHMED
40	U13AR507	VIVEK S
41	U13AR508	SOWMIYA P
42	U13AR509	RASHMIKA S
43	U13AR510	NARESH V
44	U13AR511	PRASAD
45	U13AR512	GANESH ARUNMANI
46	U13AR513	ROSHINI
47	U13AR514	JANISHA SWEETLIN
48	U13AR515	INIYAN M S
49	U13AR516	ASHWIN J CHANDRAN
50	U13AR517	KAMESH M
51	U13AR518	KUSHAL D JAIN
52	U13AR519	LOKESH KARTHIKEYAN
53	U13AR520	MADHAN KUMAR S
54	U13AR521	MOHAN BABU
55	U13AR522	MOHANATH E
56	U13AR523	POORNIMA K
57	U13AR524	PRASANNA P
58	U13AR525	PRIYADHARSHINI S
59	U13AR526	RAHUL B
60	U13AR527	RISHI KUMAR
61	U13AR528	SAKTHIVEL S
62	U13AR529	SALIM MALIK
63	U13AR530	SAROJINI PRIYA S

COURSE COORDINATORS

HEAD OF THE DEPARTMENT

COURSE FEEDBACK FORM

Academic Year	2018
Course Code	BARVAC 004
Course Title	Environmental Geotechniques
Number of Credits	3

I. Information on the Respondent: (Tick (√) Appropriately)

1. **Percentage of classes attended**

0-20		20-40		40-60		60-80	✓	80-100	

2. **Number of hours per week spent on the course (Other than lecture hours)**

0-2		2-4		4-6	✓	6-8		8-10	

3. **Preparation for the course by the student:**

(i)	Have done part of this course earlier
(ii) ✓	Has adequate prior exposure to the prerequisites
(iii)	Had to pickup relevant additional topics through concurrent study
(iv)	Have no exposure to the background material

4. **The expectations for taking the course by the student are:**

(a)	Enhance by skill base in the area of specializations
(b)	Get exposed to a relevant subject
(c)	Curiosity
(d) ✓	Better Employment Opportunity
(e)	Complete Course requirements
(f)	To Improve CGPA

II.	About the Course Information on the Respondent: (Tick (√) Appropriately)

Depth of Coverage

UG level ✓		Graduate level		Advance level	

Standard of test and assignments

High		Normal	✓	Easy	

	A	B	C	D	E
Coverage of the syllabus	✓				
Organization of the Course		✓			
Emphasis on fundamentals		✓			
Emphasis of fundamentals	✓				
Coverage of modern/advanced topics		✓			
Availability of text books/study materials		✓			
Usefulness of tests and assignments	✓				
Overall rating of the Course	✓				
What benefit you derived from the course?		✓			

About the Instructor: Information on the Respondent: (Tick (√) Appropriately)

		A	B	C	D	E
1.	Pace of the Teaching/lecture		✓			
2.	Comment of the Subject	✓				
3.	Clarity of expression	✓				
4.	Level of preparation		✓			
5.	Level of interaction		✓			
6.	Accessibility outside the class	✓				
7.	Others (please specify		✓			

A: Excellent		B: Very Good		C: Good		D: Satisfactory		E: Poor	

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ATTENDANCE % - VALUE ADDED COURSE - ENVIRONMENTAL GEOTECHNICS

S.NO	NAME OF THE STUDENT	01.10.2018	02.10.2018	03.10.2018	04.10.2018	05.10.2018	06.10.2018	08.10.2018	09.10.2018	10.10.2018	11.10.2018	12.10.2018	13.10.2018	15.10.2018	16.10.2018	17.10.2018	18.10.2018	19.10.2018	20.10.2018	22.10.2018	23.10.2018	24.10.2018	ATT %
1	ARJUN C	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	86
2	ASHISH KIRAN B V	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	90
3	BALAJI S	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	0	86
4	BASHEER AHMED S A	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	90
5	BASIL BASHEER	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	95
6	CIBIN KURIKESU BOBAN	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	95
7	DEEPIKA V	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	95
8	DINESH KUMAR M	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	90
9	GODWIN E	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	86
10	GOWTHAMRAJ R	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	86
11	INDHU M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	95
12	JEROME MARIA RAJ A	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	90
13	KANTHI VISWANATHAN	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	0	1	0	1	81
14	KARANAM VENKATA MANOJ	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	95
15	KARTHICK P	1	0	1	1	1	1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	76
16	KAVITHA P	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
17	KAVYA SRI K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	95
18	KUMARESAN A	0	1	1	1	1	0	1	1	1	1	0	1	1	0	1	1	0	1	1	1	1	76
19	NAME OF THE STUDENT	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	90
20	MATHURA SRIKANTH	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	90
21	MOHAMED HUSSAIN N	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	90
22	MUTHU LAKSHMANAN	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	86
23	NAWAZ SHARIEF	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	95
24	NISHANTHI K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	90
25	PARTHIBAN P	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	90
26	PRAGYA TRIPATHI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	90
27	PRASANTH N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	86
28	RADHIKA HARIKUMAR MENON	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	95
29	RAJASEKAR K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	95
30	RASMIHA B	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	95
31	SIVA GURU BARAN G	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	95
32	SUPRIYA YADAV	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	95
33	SURYA E	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	90
34	TARA WILLIAMS	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	90
35	ZUHAIB.J	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	95
36	RAVEENA D	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	86
37	SARAVANAN MURTHI M	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	81
38	THAMIZHINIAN	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	81
39	SYED JALALUDDIN AHMED	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	90
40	VIVEK S	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	95
41	SOWMIYA P	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	0	1	86
42	RASHMIKA S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	95
43	NARESH V	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	95
44	PRASAD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	95
45	GANESH ARUNMANI	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	95
46	ROSHINI	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	90
47	JANISHA SWEETLIN	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	90
48	INIYAN M S	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	95
49	ASHWIN J CHANDRAN	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	86
50	KAMESH M	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	81
51	KUSHAL D JAIN	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	81
52	LOKESH KARTHIKEYAN	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	90
53	MADHAN KUMAR S	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	95
54	MOHAN BABU	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	0	1	86
55	MOHANATH E	1	0	1	1	1	1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	76
56	POORNIMA K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
57	PRASANNA P	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	95
58	PRIYADHARSHINI S	0	1	1	1	1	0	1	1	1	1	0	1	1	0	1	1	0	1	1	1	1	76
59	RAHUL B	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	90
60	RISHI KUMAR	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	90
61	SAKTHIVEL S	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	90
62	SALIM MALIK	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	86
63	SAROJINI PRIYA S	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	95

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CERTIFICATE OF PARTICIPATION

This certificate is presented to

BALAJI. S

For actively participating in the value added course **"ENVIRONMENTAL GEOTECHNICS** Conducted by School of Architecture, BIHER from 01.10.2018 to 26.010.2018.

COURSE COORDINATORS

HEAD OF THE DEPARTMENT

SCHOOL OF
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ENVIRONMENTAL GEOTECHNIQUES

VALUE ADDED COURSE ON ENVIRONMENTAL GEOTECHNIQUES ON 15.102018