

**VELAMMAL COLLEGE OF ENGINEERING & TECHNOLOGY, MADURAI-625 009**

**DEPARTMENT OF CIVIL ENGINEERING**

**2018-2019 ODD SEMESTER**

**COURSE PLAN**

Degree	B.E-Civil
Course Code-Title	CE6502-FOUNDATION ENGINEERING
Batch	2016-2020
Year/Semester/section	III/V
Course Component	Professional core
Name of the Instructor	Mrs.S.Venkada priya AP-III/Civil

Ses sion No.	Know ledge Level	Topic to be covered	Text/Refere nce Book Page No.	Mode of Delivery	Teachin g Aid	No. of Hours	Cumulati ve No. of Hours
<b>UNIT I STONES - BRICKS - CONCRETE BLOCKS</b>							
1	K2	Scopes and objectives of subsurface explorations	T2 - 415,416	L+D	LCD	2	1
2		Methods of exploration-average and boring -Water boring and rotary drilling	T2 - 420-422	L+ AV	BB,LCD	2	4
3		Sampling-Representative and undisturbed sampling, factors affecting sample disturbance	T2 - 423	L+V	BB,LCD	2	6
4		Sampling techniques- Split spoon sampler, Thin tube sampler, Stationary piston sampler	T2 - 423-426	L+I	BB,LCD	1	7
5		Penetration tests (SPT and SCPT)	T2- 427-430	L+D	BB,LCD	2	9
6		Bore log report, Data interpretation Selection of foundation based on soil condition	T2 - 437,T4 - 614-617	L+I	BB,LCD	1	10
7		Unit Test-1	-	-	-	1	11

**UNIT II LIME - CEMENT - AGGREGATES - MORTAR**

9	K2	Lime -Preparation of lime mortar-Cement - Ingredients	T4 - 5-14	L+I	BB,LCD	2	12
10		Manufacturing process - Types and Grades	T4 - 15-18	L+I; L+AV	BB,LCD	1	13
11		Properties of cement and Cement mortar - Hydration	T4 - 28-68	L+I	BB,LCD	2	15
12		Compressive strength - Tensile strength - Fineness- Soundness and consistency - Setting time - Industrial byproducts - Fly ash	T4 - 455-491	L+I	BB,LCD	1	16
13		Aggregates - Natural stone aggregates - Crushing strength - Impact strength	T4 - 69-122	L+AV, LW	BB,LCD	1	17
14		Elongation Index - Abrasion Resistance - Grading - Sand Bulking	T4 - 69-122	L+AV	BB	2	19
15		Animated Videos - Manufacturing process of cement and modern methods of additives		L+AV	LCD	1	20

**UNIT III CONCRETE**

16	K2	Concrete - Ingredients - Manufacturing Process	T4 - 233-235	L+D	BB	1	21
17		Batching plants - RMC - Properties of fresh concrete	T4- 312-314	L+I	BB	2	23
18		Slump - Flow and compaction Factor - Properties of hardened concrete	T4 - 237-247	L+I, LW	BB,LCD	1	24
19		Compressive, Tensile and shear strength - Modulus of rupture - Tests - Mix specification	T4 - 220 -226	L+I L+AV	BB,LCD	2	26
20		Mix proportioning - BIS method - High Strength Concrete and HPC - Self compacting Concrete - Other types of Concrete - Durability of Concrete.	T4 - 226	L+I	BB	3	29
21		Unit Test-II				1	30

UNIT IV TIMBER AND OTHER MATERIALS							
22	K2	Timber - Market forms	T1-258	L+D	LCD	2	32
23		Industrial timber- Plywood - Veneer	T1 - 258-278	L+ D, LW	BB	2	34
24		Thermacole - Panels of laminates -Steel - Aluminum and Other Metallic Materials - Composition	T1 - 306-315	L+ D	BB	2	36
25		Aluminium composite panel - Uses - Market forms - Mechanical treatment - Paints - Varnishes - Distempers - Bitumens	T1 - 310-325	L+AV	BB	3	39
26		Animated Videos - Latest materials and market forms of composites		L+AV	LCD	1	40
UNIT V- MODERN MATERIALS							
27	K2	Glass - Ceramics - Sealants for joints	T1 - 58-79	L+ I; L+AV	LCD	2	42
28		Fibre glass reinforced plastic	T1 - 95-109	L+ I, LW	BB,LCD	2	44
29		Clay products - Refractories - Composite material	T1 - 95-195	L+ I	BB,LCD	2	46
30		Types - Applications of laminar composites	T1 - 154-167	L+ I, LW	BB,LCD	2	48
31		Fibre textiles - Geomembranes and Geotextiles for earth reinforcement.	T1- 354-369	L+I	LCD	1	49
32		Unit Test-V				1	50

**TEXT BOOK(S):**

- T1. Varghese, P.C. "Building construction", Prentice Hall of India Pvt. Ltd, New Delhi, 2007.  
T2. Rajput. R.K., "Engineering Materials", S. Chand and Company Ltd., 2008.  
T3. Gambhir.M.L., "Concrete Technology", 3rd Edition, Tata McGraw Hill Education, 2004.  
T4. Shetty, M.S, "Concrete Technology, Theory and Practice", S. Chand and Company Ltd, New Delhi, 2008.  
T5. Duggal.S.K., "Building Materials", 4th Edition, New Age International , 2008.

**REFERENCES:**

- R1. Jagadish.K.S, "Alternative Building Materials Technology", New Age International,2007.

R2. Gambhir. M.L., & Neha Jamwal., "Building Materials, products, properties and systems", Tata McGraw Hill Educations Pvt. Ltd, New Delhi, 2012.

R3. IS456 – 2000: Indian Standard specification for plain and reinforced concrete, 2011.

R4. IS4926–2003 : Indian Standard specification for ready-mixed concrete, 2012.

R5. IS383–1970: Indian Standard specification for coarse and fine aggregate from natural Sources for concrete.

**WEB MATERIALS (Open Source e-learning):**

W1:https:// [www.concretetech.com](http://www.concretetech.com)

W2:https://www.cement.org/for-concrete-books-learning/**concrete-technology**

W3:https://www.google.co.in/theconstructor.org/**concrete/**

W4:https:// [www.theconcreteportal.com](http://www.theconcreteportal.com)

W5: <https://nptel.ac.in/courses/105101083/download/lec7.pdf>

W6:https://www.youtube.com/watch?v=WFJ7CnYbpgg