

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	CE8391-CONSTRUCTION MATERIALS
Batch	2017-2021
Year/Semester/section	II/III
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
UNIT I STONES - BRICKS - CONCRETE BLOCKS							
1	K2	Stone as building material - Criteria for selection	T2 - 35-52	L+I	BB,LCD	1	1
2		Tests on stones - Deterioration and Preservation of stone work	T2 - 123-156	L+ AV, LW	BB,LCD	2	3
3		Bricks - Classification - Manufacturing of clay bricks	T2 - 163-175	L+I	BB,LCD	1	4
4		Tests on bricks-Compressive Strength - Water Absorption	T2 - 258-277	L+I	BB,LCD	2	6
5		Efflorescence - Bricks for special use - Refractory bricks	T2- 175-198	L+I, LW	BB	2	8
6		Cement, Concrete blocks - Light weight concrete blocks.	T2 - 305-345	L+D	BB	1	9
8		Unit Test-1	-	-	-	1	10

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](https://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](https://www.theconcreteportal.com)