

Program : Diploma in Civil Engineering	
Course Code : 3017	Course Title: Construction Materials Lab
Semester : 3	Credits: 1.5
Course Category: Program Core	
Periods per week: 3 (L:0, T:0, P:3)	Periods per semester: 45

Course Objectives:

- To provide hands-on experience for the students with the construction materials by performing masonry construction, plumbing, wiring and painting activities.
- To identify natural, artificial and processed materials available for various purposes of construction activities.

Course Prerequisites:

Topic	Course code	Course name	Semester
Concrete technology			3
Building construction and construction materials			3

Course Outcomes:

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

CO	Description	Duration (Hours)	Cognitive Level
CO1	Perform setting out of a building and demonstrate brick masonry	15	Applying
CO 2	Perform the plumbing works and bar bending	13	Applying
CO3	Carry out the painting works on different surfaces	6	Applying
CO4	Execute the electrical wiring works	7	Applying
	Lab Tests	4	

CO-PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1				3			2
CO2				3			2
CO3				3			2
CO4				3			2

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline:

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	Perform setting out of a building and demonstrate brick masonry		
M1.01	Measure dimensions of 10 bricks and find average dimension, weight & density. Perform field tests - dropping, striking and scratching by nail and correlate the results obtained.	3	Applying
M1.02	Setting out a small building in the field.	3	Applying
M1.03	Identify various layers and types of soil in foundation pit by visiting at least 3 construction sites in different locations of city and prepare report consisting photographs and samples.	3	Applying
M1.04	Construct one brick thick & one and a half brick thick wall corner in English Bond and Flemish bond	3	Applying
M1.05	Construct one brick thick wall T-junction, one brick thick pier in English bond and one and a half brick thick pier in English Bond and Flemish bond.	3	Applying
CO2	Perform the plumbing works and bar bending		
M2.01	Identify and sketching of tools and fittings in plumbing and sanitary wares	3	Understanding
M2.02	Perform thread cutting on G I pipe and PVC pipes 20mm &25mm	3	Applying

M2.03	Carryout fitting of pipes, specials, taps, shower Connect different types of water traps. Installation of closets, wash basins, flushing cisterns, flushing valves	3	Applying
M2.04	Identify different types of flooring tiles such as vitrified tiles, ceramic tiles, glazed tiles, mosaic tiles, anti- skid tiles, chequered tiles, paving blocks and prepare report about the specifications	2	Understanding
M2.05	Perform bar bending for Hooks, Stirrups, Ties and Crank bars	2	Applying
	Lab Test I	2	
CO3	Carryout the painting works on different surfaces		
M3.01	Perform white washing and Colour washing	3	Applying
M3.02	Perform painting with enamel and emulsion paints.	3	Applying
CO4	Execute the electrical wiring works		
M4.01	Perform Single phase wiring- one lamp controlled by one switch and one lamp controlled by two switches.	3	Applying
M4.02	Perform connections to Plug & Socket, DP & TP main switch, MCB & ELCB, Earthing, lightning arrester.	4	Applying
	Lab Test II	2	

Text / Reference:

T/R	Book Title/Author
T1	Construction Materials, Ghose, D. N, Tata McGraw Hill, New Delhi.
R1	Civil Engineering Construction Materials, S.K. Sharma, Khanna Publishing House, New Delhi
R2	Building Materials, Varghese, P.C, PHI learning, New Delhi.
R3	Engineering Materials, Rangwala, S.C, Charator publisher, Ahemdabad.
R4	Building Materials, Duggal, S. K, New International, New Delhi.

Online Resources:

Sl.No	Website Link
1	https://theconstructor.org/building/types-bonds-brick-masonry-flemish-english-wall/11616/
2	https://www.youtube.com/watch?v=a3fb938iebg
3	https://theconstructor.org/tips/setting-out-a-building-plan-on-ground/5897/
4	https://electricalnotes.wordpress.com/2011/03/20/mcbmccbelcbrcrb/
5	https://www.google.com/search?q=Identify+and+sketching+of+tools+and+fittings+in+plumbing+and+sanitary+wares+traps&sxsrf=ACYBGNQ54YjvwPMilerXV3QLtgH5Xd2qow:1576126341634&source=lnms&tbo=isch&sa=X&ved=2ahUKEwjehtuVqK_mAhWNyjgGHVXaChMQ_AUoAXoECA4QAw&biw=1536&bih=754