

Civil Engineering - Building materials and Construction - Video course

Sl.No.	Topics	Lecture Hours
1	Functions of buildings and structure in general. Loads on buildings as per IS 875, IS 1893 and NBC. Functional requirements of buildings and necessity of byelaws.	2
2	Role of materials in construction	1 1/2
3	Concrete as a material, its ingredients and Concrete Production Process including prefabrication, modular coordination	3 1/2
4	Cement: Hydration of cement, Chemical reaction, Structure of cement paste, Consistency and setting. Lime and supplementary cementations materials.	2
5	Fresh Concrete: Role of aggregates and water in fresh concrete, workability Test for workability Role of admixtures, Segregation and bleeding.	4
6	Strength of concrete: Role of porosity, w/c ratio, Role of aggregate, aggregate –mortar interface, Tensile strength, Modulus of elasticity and their tests. NDT	6
7	Durability and long term performance of concrete, Role of mineral admixture, w/c ratio and cement content. Sulphate attack, corrosion of rebar etc, IS 456 requirements.	3
8	Cement, aggregate and water selection for concrete	2
9	Mix design of concrete	3
10	Bricks and mortar and their properties, brick and other masonry construction, Selection of bricks/masonry units and mortar for masonry. Requirements of walls and types of walls. Masonry design requirements as per IS 1905	6
11	Metals with reference to Structural Steel: Structure and its role in properties of steel. Strengthening mechanism in metals. Behaviour in service and corrosion. Uses of metals in civil engineering.	4
12	Plastics and Polymers in construction, admixture paints, sealants and adhesives. Water proofing materials	2
13	Timber and plywood and glasses	2
14	Typical roof construction and foundations, plastering pointing and damp proofing	2
	Total	42



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Civil Engineering

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