



LESSON PLAN OF 3RD SEMESTER(2026-27) CIVIL ENGINEERING

SEMESTER-3 RD		NAME OF THE TEACHING FACULTY- JAYALAXMI BEHERA (LECTURER)
SUBJECT- BM&CT (CEPC207)	NO.OFDAYS PER WEEK CLASS ALLOTTED-04	SEMESTER FROM -01/07/2026 TO- 05/11/2026 NO. OF WEEKS-19
WEEK	CLASS DAY	THEORY TOPICS
1 ST	1 st	Overview of Construction Materials: Introduction ,Scope of construction materials in Building Construction.
	2 nd	Transportation Engineering (applications only).
	3 rd	Environmental Engineering, and Irrigation Engineering (applicationsonly)
	4 th	Selection of materials for different civil engineering structures on the basis of strength, durability.
2 ND	1 st	Selection of materials for different civil engineering structures on the basis of Eco friendly and economy
	2 nd	Broad classification of materials—,Natural,Artificial,special, Finishing and recycled.
	3 rd	Natural Construction Materials -Requirements of good building stone; general characteristics of stone.
	4 th	Quarrying and dressing methods and tools for stone.
3 RD	1 st	Structure of timber,general properties and uses of good timber.
	2 nd	Different methods of seasoning for preservation of timber.
	3 rd	Defects in timber,use of bamboo in construction.
	4 th	Asphalt, bitumen and tar used in construction,properties and uses.
4 TH	1 st	Properties of lime,its types and uses.
	2 nd	Types of soil and its suitability in construction.
	3 rd	Properties of sand and uses.
	4 th	Classification of coarse aggregate according to size.
5 TH	1 st	Artificial Construction Materials Constituents of brick earth, Conventional/Traditional bricks.
	2 nd	Modular and Standard bricks,Special bricks –fly ash bricks, Characteristics of good brick.
	3 rd	Field tests on Bricks,Classification of burnt clay bricks and their suitability
	4 th	Manufacturing process of burnt clay brick,fly ash bricks, Aerated concrete blocks.

6 TH	1 st	Flooring tiles–Types,uses
	2 nd	Pre-cast concrete blocks-hollow,solid ,pavement blocks, and their uses.
	3 rd	Plywood,particle board,Veneers,laminated board and their uses.
	4 th	Types of glass:soda lime glass,leadglassand boro silicate glass and their uses.
7 TH	1 st	Ferrous and non- ferrous metals and their uses
	2 nd	Cement,Aggregates,Water and Admixture Composition of Cement Manufacturing process of Cement – dry and wet (only flowchart),types of cement and its uses .Field tests on cement.
	3 rd	Physical properties of OPC and PPC: fineness, standard consistency, setting time, soundness, compressive strength.
	4 th	DifferentgradesofOPCandrelevantBIScodes.
8 TH	1 st	Testing of cement:Laboratory tests-fineness,standard consistency
	2 nd	Setting time,soundness,compressive strength.Storage of cement and effect of storage on properties of cement
	3 rd	BIS Specifications and field applications of different typesof cements: Rapid hardening, Lowheat,
	4 th	Portlandpozzolana,Sulphate resisting,Blastfurnaceslag, HighAluminaandWhitecement.
9 TH	1 st	Aggregates: Requirements of good aggregate,Classification according to size and shape.
	2 nd	Fineaggregates:Properties,size,specificgravity,bulkdensity.
	3 rd	Water absorption and bulking ,fineness modulus and grading zone of sand, silt content and their specification as per IS 383.Concept of crushed Sand.
	4 th	Coarse aggregates: Properties, size, shape, surface texture, water absorption,soundness,specific gravity and bulk density.
10 TH	1 st	Fineness modulus of coarse aggregate, grading of coarse aggregates,crushing value,impact value and abrasion value Of coarse aggregates with specifications.
	2 nd	Water :Quality of water ,impurities in mixing water and Permissible limits for solids as perIS:456.
	3 rd	Admixtures in concrete:Purpose,properties and application for Different types of admixture such as accelerating admixtures
	4 th	Retarding admixtures,water reducing admixtures,air entraining Admixtures and superplasticizers.(conceptsonly)

11 TH	1 st	Concrete Concrete: Different grades of concrete, provisions of IS 456 (Latest).
	2 nd	Duff Abraham water cement (w/c) ratio law, significance of w/c ratio, selection of w/c ratio for different grades, maximum w/c Ratio for different grades of concrete for different exposure conditions as per IS 456
	3 rd	Properties of fresh concrete: Workability: Factors affecting Workability of concrete.
	4 th	Determination of workability of concrete by slump cone, compaction factor, Vee-Bee Consistometer
12 TH	1 st	Value of workability requirement for different types of concrete works. Segregation, bleeding and preventive measures.
	2 nd	Properties of Hardened concrete: Strength, Durability, Impermeability.
	3 rd	Concrete Mix Design and Testing of Concrete Concrete mix design: Objectives, methods of mix design
	4 th	study of mix design as per IS 10262 (only procedural steps).
13 TH	1 st	Non-destructive testing of concrete: Rebound hammer test
	2 nd	Working principle of rebound hammer and factors affecting the rebound index,
	3 rd	Ultrasonic pulse velocity test as per IS 13311 (part 1 and 2), Importance of NDT tests.
	4 th	Quality Control of Concrete Concreting Operations: Batching, Mixing, Transportation, Placing, Compaction, Curing and Finishing of concrete.
14 TH	1 st	
	2 nd	Forms for concreting: Different types of form works for beams, slabs, columns, materials used for form work.
	3 rd	Requirement of good formwork. Stripping time for removal of Formworks per IS 456.
	4 th	Waterproofing: Importance and need of waterproofing
15 th	1 st	Methods of waterproofing
	2 nd	materials used for waterproofing.
	3 rd	Joints in concrete construction: Types of joints
	4 th	Methods for joining old and new concrete, materials used for filling joints.
16 th	1 st	Special Concrete and Extreme Weather concreting Special Concrete: Properties, advantages.
	2 nd	limitation of following types of Special concrete: Ready mix Concrete
	3 rd	Fiber Reinforced Concrete
	4 th	High performance Concrete,

17th	1st	Self- compacting concrete
	2nd	light weight concrete.
	3rd	Cold weather concreting
	4th	effect of cold weather on concrete,
18th	1st	Precautions to be taken while concreting in cold weather condition. (only concepts)
	2nd	Hot weather concreting:
	3rd	effect of hot weather on concrete
	4th	precautions to be taken while concreting in hot weather condition. (only concepts)
19th	1st	Discussion
	2nd	Discussion
	3rd	Discussion
	4th	Discussion

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25.06.26
Lecturer

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Principal
25.06.26

Principal
GIET (Polytechnic)
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25-06-2026
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