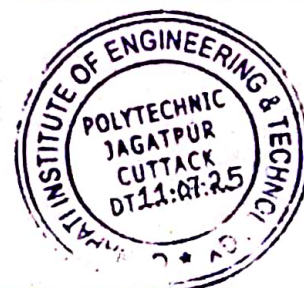


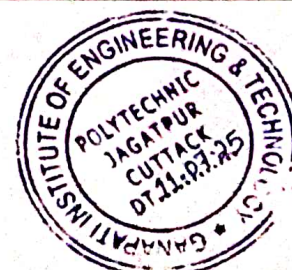
## LESSON PLAN OF 3RD SEMESTER(2025-26) CIVIL ENGINEERING

DISCIPLINE- CIVIL ENGG.	SEMESTER-3RD	NAME OF THE TEACHING FACULTY- JAYALAXMI BEHERA (LECTURER)
SUBJECT- BM&CT (CEPC209)	NO. OF DAYS PER WEEK CLASS ALLOTTED- 04	SEMESTER FROM -14/07/2025 TO -15/11/2025  NO. OF WEEKS-18
WEEK	CLASS DAY	THEORY TOPICS
1st	1st	Overview of Construction Materials: Introduction, Scope of construction materials in Building Construction.
	2nd	Transportation Engineering (applications only).
	3rd	Environmental Engineering, and Irrigation Engineering (applications only)
	4th	Selection of materials for different civil engineering structures on the basis of strength, durability.
2nd	1st	Selection of materials for different civil engineering structures on the basis of Eco friendly and economy
	2nd	Broad classification of materials –, Natural, Artificial, special, finishing and recycled.
	3rd	Natural Construction Materials-Requirements of good building stone; general characteristics of stone.
	4th	Quarrying and dressing methods and tools for stone.
3rd	1st	Structure of timber, general properties and uses of good timber.
	2nd	Different methods of seasoning for preservation of timber.
	3rd	Defects in timber, use of bamboo in construction.
	4th	Asphalt, bitumen and tar used in construction, properties and uses.
4th	1st	Properties of lime, its types and uses.
	2nd	Types of soil and its suitability in construction.
	3rd	Properties of sand and uses.
	4th	Classification of coarse aggregate according to size.
5th	1st	Artificial Construction Materials Constituents of brick earth, Conventional / Traditional bricks.
	2nd	Modular and Standard bricks, Special bricks –fly ash bricks, Characteristics of good brick.
	3rd	Field tests on Bricks, Classification of burnt clay bricks and their suitability
	4th	Manufacturing process of burnt clay brick, fly ash bricks, Aerated concrete blocks.
6th	1st	Flooring tiles – Types, uses
	2nd	Pre-cast concrete blocks- hollow, solid, pavement blocks, and their uses.
	3rd	Plywood, particle board, Veneers, laminated board and their uses.
	4th	Types of glass: soda lime glass, lead glass and borosilicate glass and their uses.
7th	1st	Ferrous and non-ferrous metals and their uses
	2nd	Cement, Aggregates, Water and Admixture Composition of Cement Manufacturing process of Cement – dry and wet (only flow chart),
	3rd	Physical properties of OPC and PPC: fineness, standard consistency, setting time, soundness, compressive strength.





8th	4th	Different grades of OPC and relevant BIS codes.
	1st	Testing of cement: Laboratory tests fineness, standard consistency
	2nd	Setting time, soundness, compressive strength. Storage of cement and effect of storage on properties of cement.
	3rd	BIS Specifications and field applications of different types of cements: Rapid hardening, Lowheat,
	4th	Portland pozzolana, Sulphate resisting, Blast furnace slag, High Alumina and White cement.
9th	1st	Aggregates: Requirements of good aggregate, Classification according to size and shape.
	2nd	Fine aggregates: Properties, size, specific gravity, bulk density.
	3rd	Water absorption and bulking, fineness modulus and grading zone of sand, silt content and their specification as per IS 383. Concept of crushed Sand.
	4th	Coarse aggregates: Properties, size, shape, surface texture, water absorption, soundness, specific gravity and bulk density.
10th	1st	Fineness modulus of coarse aggregate, grading of coarse aggregates, crushing value, impact value and abrasion value of coarse aggregates with specifications.
	2nd	Water: Quality of water, Impurities in mixing water and permissible limits for solids as per IS: 456.
	3rd	Admixtures in concrete: Purpose, properties and application for different types of admixtures such as accelerating admixtures
	4th	Retarding admixtures, water reducing admixtures, air entraining admixtures and super plasticizers. (concepts only)
11th	1st	Concrete Concrete: Different grades of concrete, provisions of IS 456 (Latest).
	2nd	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
	3rd	Properties of fresh concrete: Workability: Factors affecting workability of concrete.
	4th	Determination of workability of concrete by slump cone, compaction factor, Vee-Bee Consistometer
12th	1st	Value of workability requirement for different types of concrete works. Segregation, bleeding and preventive measures.
	2nd	Properties of Hardened concrete: Strength, Durability, Impermeability.
	3rd	Concrete Mix Design and Testing of Concrete Concrete mix design: Objectives, methods of mix design
	4th	study of mix design as per IS 10262 (only procedural steps).
13th	1st	Non- destructive testing of concrete: Rebound hammer test
	2nd	working principle of rebound hammer and factor affecting the rebound index
	3rd	Ultrasonic pulse velocity test as per IS13311 (part 1 and 2), Importance of NDT tests.





	4th	Quality Control of Concrete
	1st	Concreting Operations: Batching, Mixing, Transportation, Placing, Compaction, Curing and Finishing of concrete.
14th	2nd	Forms for concreting: Different types of form works for beams, slabs, columns, materials used for form work.
	3rd	Requirement of good form work. Stripping time for removal of form works per IS 456.
	4th	Waterproofing: Importance and need of waterproofing
15th	1st	Methods of waterproofing
	2nd	materials used for waterproofing.
	3rd	Joints in concrete construction: Types of joints
	4th	Methods for joining old and new concrete, materials used for filling joints.
16th	1st	Special Concrete and Extreme Weather concreting Special Concrete: Properties, advantages.
	2nd	limitation of following types of Special concrete: Ready mix Concrete
	3rd	Fiber Reinforced Concrete, High performance Concrete,
	4th	Self- compacting concrete and light weight concrete.
17th	1st	Cold weather concreting: effect of cold weather on concrete,
	2nd	precautions to be taken while concreting in cold weather condition. (only concepts)
	3rd	Hot weather concreting: effect of hot weather on concrete
	4th	effect of hot weather on concrete
18th	1st	precautions to be taken
	2nd	concreting in hot weather condition
	3rd	Discussion
	4th	Discussion

*Mm*  
11.07.25  
LECTURER

*Principal*  
PRINCIPAL  
*Principal*  
JNET (Polytechnic)  
Jagatpur, Cuttack

*Sr. Lecturer*  
11.07.25  
SR. LECTURER  
Sr. Lecturer  
Civil Engg. Dept.  
G.I.E.T(Poly), Jagatpur, Ctr