SYNERGY SCHOOL OF ENGINEERING, DHENKANAL
LESSON PLAN
SESSION 2026-2027
DEPARTMENT OF CIVIL ENGINEERING

Discipline: Civil Engineering	**Semester:** 5th/W 2026	**Name of the Faculty: Kiranbala Behera** **Email: kiranabalabehera5@gmail.com**
Subject: Advanced Construction Technology	**No. of Days/week:** 03	**Start Date:** 01/07/26 **End Date:** 05/11/26

Week	Class Day	Theory Topics
1st	1st	Fibres: Use and properties of steel, polypropylene, carbon and glass fibres.
	2nd	Plastics: Use and properties of PVC, RPVC, HDPE, FRP, GRP.
	3rd	Use of waste products and industrial by products in bricks, blocks, concrete and mortar
2nd	1st	Miscellaneous Materials: Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, waterproofing materials, adhesives.
	2nd	Necessity and use of ready mix concrete. Products and equipment
	3rd	Conveying of ready mix concrete, transit mixers
3rd	1st	Vibrators for concrete consolidation: Internal, needle, surface, platform and form vibrators.
	2nd	Underwater Concreting: Procedure and equipment required
	3rd	Tremie method, Drop bucket method. Properties, workability and water cement ratio of the concrete
4th	1st	procedure and uses of special concretes: Roller compacted concrete
	2nd	Self-compacting concrete (SCC)
	3rd	Steel fiber reinforced concrete, Foam concrete, shotcreting.
5th	1st	Construction of bridges and flyovers
	2nd	Equipment and machineries required for foundation and super structure.
	3rd	Construction of multi-storeyed Building
6th	1st	Equipment and machinery required for construction of multi-storeyed building
	2nd	use of lifts, belt conveyers, pumping of concrete
	3rd	Prefabricated construction, Methods of prefabrication
7th	1st	Plant fabrication and site fabrication & types
	2nd	prefabricated building elements such as wall panels, slab panels,
	3rd	prefabricated building elements: beams, columns, door and window frames
8th	1st	Equipment and machineries used for placing and Jointing of prefabricated elements
	2nd	Strengthening of embankments
	3rd	soil reinforcing techniques using geo-synthetics
9th	1st	Hoisting Equipment & its type
	2nd	Principles and working of Derrick-Pole, Gin Pole, Crane, Power driven scotch derrick crane, Hand operated crane

KBehera 1/7/26

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	3rd	Locomotive crane, Tower crane, Lattice Girder.
10th	1st	Crawler cranes, Truck mounted cranes, Gantry cranes, Mast cranes
	2nd	Winches, Elevators, ladders
	3rd	Conveying Equipment: Working of belt conveyers, types of belts and conveying mechanis
11th	1st	Capacity and use of dumpers, tractors and trucks.
	2nd	Miscellaneous Machineries and Equipment
	3rd	Excavation type & Equipment
12th	1st	Use, working and output of machinery – bull dozers, scrapers, graders, Clam Shell, trenching equipment
	2nd	Use, working and output of machinery Tunnel boring machine, Wheel mounted belt loaders,
	3rd	power shovels, JCB, and drag lines.
13th	1st	Compacting Equipment: Output of different types of rollers
	2nd	plain rollers, ship footed rollers, vibratory, pneumatic rollers rammers
	3rd	Miscellaneous Equipment : Working and selection of equipment
14th	1st	Pile driving equipment, Pile hammers
	2nd	Hot mix bitumen plant, bitumen paver, grouting equipment
	3rd	guniting equipment, floor polishing and cutting machine selection of drilling pattern for blasting
15th	1st	Bentonite/mud slurry in drilling
	2nd	Explosives for blasting
	3rd	Dynamite, process of using explosives

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