

GOVERNMENT POLYTECHNIC JAIPUR

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DEPARTMENT OF CIVIL ENGINEERING LESSON PLAN

Discipline: Civil Engg.	Semester: 5th	Name of the Teaching faculty: ER.SHIBASIS PANDA
Subject: Advanced construction Technology Th- 4	No of Days/Week class allotted: 3	Semester from Date: 01.07.2026 Date: 05.11.2026 No of weeks: 16
Week	Class Day	Topics
1st	1st	Fibres: Use and properties of steel & polypropylene
	2nd	Use properties of carbon and glass fibre
	3rd	Plastics: Use and properties of PVC, RPVC
2nd	1st	Plastics: Use and properties of HDPE, FRP, GRP
	2nd	Miscellaneous Materials: Properties and uses of acoustics materials, wall claddings, plaster board
	3rd	Properties of micro-silica, waterproofing materials, adhesive
3rd	1st	Use of waste products and industrial by products in bricks, blocks, concrete and mortar
	2nd	Ready Mix Concrete: Necessity and use of ready mix concrete. Products and equipment for ready mix concrete plant
	3rd	Conveying of ready mix concrete, transit mixers
4th	1st	Vibrators for concrete consolidation: Internal needle
	2nd	surface, platform and form vibrators
	3rd	Underwater Concreting: Procedure and equipment required for Tremie method
5th	1st	equipment required for Tremie method
	2nd	Drop bucket method
	3rd	Drop bucket method & its Properties
6th	1st	workability and water cement ratio of the concrete
	2nd	Special concrete: procedure and uses of special concretes: Roller compacted concrete
	3rd	Self-compacting concrete (SCC), Steel fibre reinforced concrete
7th	1st	Foam concrete & shotcreting
	2nd	Construction of bridges and flyovers: Equipment and machineries required for foundation and super structure.
	3rd	Construction of multi-storeyed Building Construction of multi-storeyed Building

8th	1st	construction of multi-storeyed building such as use of lift.
	2nd	Belt conveyers, pumping of concrete
	3rd	Prefabricated construction: Methods of prefabrication
9th	1st	Plant fabrication and site fabrication.
	2nd	All prefabricated building elements such as wall panels, slab panels
	3rd	Prefabricated elements such beams& columns
10th	1st	Door and window frames Equipment and machineries used for placing and Jointing of prefabricated elements.
	2nd	Strengthening of embankments by soil reinforcing techniques using geo-synthetics
	3rd	Hoisting Equipment: Principles and working of Derrick-Pole
11th	1st	Hoisting Equipment Gin Pole, Crane, Power driven scotch derrick crane
	2nd	Hoisting Equipment Hand operated crane, Locomotive crane,
	3rd	Hoisting Equipment Truck mounted cranes, Gantry cranes, Mast cranes
12th	1st	Hoisting Equipment Winches, Elevators, ladders. Crawler cranes,
	2nd	Hoisting Equipment Truck mounted cranes, Gantry cranes, Mast cranes.
	3rd	Conveying Equipment: Working of belt conveyers, types of belts and conveying mechanism.
13th	1st	Capacity and use of dumpers, tractors and trucks.
	2nd	Excavation Equipment: Use, working and output of following machinery – bull dozers
	3rd	Excavation Equipment like scrapers, graders, Clam Shell
14th	1st	Excavation Equipment like Tunnel boring machine, Wheel mounted belt loaders
	2nd	Excavation Equipment like power shovels, JCB, and drag lines.
	3rd	Compacting Equipment: Output of different types of rollers such as plain rollers
15th	1st	Compacting Equipment vibratory, pneumatic rollers rammers & Miscellaneous Equipment: Working and selection of equipment: Pile driving equipment
	2nd	Pile hammers, Hot mix bitumen plant, bitumen paver
	3rd	Pile hammers, Hot mix bitumen plant, bitumen paver, grouting equipment guniting equipment, floor polishing and cutting machine
16th	1st	selection of drilling pattern for blasting, Bentonite/mud slurry in drilling
	2nd	Explosives for blasting, Dynamite, process of using explosives.
	3rd	Question paper discussion

Learning Resources:

Sl No.	Author Name	Name of the Book
1	R. L., Peurifoy,	Construction Planning Equipment and Methods
2	Satyanarayana, R Saxena, S. C.	Construction Planning and Equipment
3	Rangawala, S. C.	Construction of Structures and Management of works
4	Ghose, D. N.,	Materials of Construction,

ER.SHIBASIS PANDA

FACULTY SIGNATURE