# LESSON PLAN

Name of Faculty: Preeti Dhami/Suman Yadav Discipline: Civil Engg.

Sub: Advanced Construction Techniques Semester: Fifth

Teaching Load: 2lectures/week Duration: 14 weeks

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| **WEEK** | **LECT.** | **TOPIC** | **Covered on Date** |
| **1** | **1** | * 1. **Advanced Construction Materials**Fibres: Use and properties of steel, polypropylene, carbon and glass fibres. |  |
| **2** | Plastics: Use and properties of PVC, RPVC, HDPE, FRP, GRP. |  |
| 2  **2** | **1** | Miscellaneous Materials: Properties and uses of acoustics materials, wall claddings, plaster boards, micro-silica, waterproofing materials, adhesives. |  |
| **2** | Use of waste products and industrial by-products in bricks, blocks, concrete and mortar. |  |
| **3** | **1** | **Advanced Concreting Methods and Equipments**Ready Mix Concrete: Necessity and use of ready mix concrete. |  |
| **2** | Products and equipments for ready mix concrete plant. Conveying of ready mix concrete, transit mixers. |  |
| **4** | **1** | Vibrators for concrete consolidation: Internal, needle, surface, platform and form vibrators. Underwater Concreting: Procedure and equipments required for Tremie method, Drop bucket method. Properties, workability and water cement ratio of the concrete. |  |
| **2** |
| **5** | **1** | **REVISION/ASSIGNMENT 1** |  |
| **2** | **SESSIONAL TESTS 1** |  |
| 6 | **1** | Special concrete: procedure and uses of special concretes, Roller compacted concrete, Self compacting concrete (SCC), Steel fibre reinforced concrete, Foam concrete, shotcreting. |  |
| **2** | Construction of multi-storeyed Building: Equipments and machinery required for construction of multi-storeyed building |  |
| 7 | **1** | Methods of prefabrication, Plant fabrication and site fabrication, |  |
| **2** | Strengthening of embankments by soil reinforcing techniques using geo-synthetics |  |
| 8 | **1** | **Hoisting and Conveying Equipments**Hoisting Equipments: Principles and working of Derrick-Pole, Gin Pole, Crane, Power driven scotch derrick crane, Hand operated crane, Locomotive crane, Tower crane, Lattice Girder, Winches, Elevators, ladders. Crawler cranesTruck mounted cranes, Gantry cranes, Mast cranes. |  |
| **2** | Conveying Equipments: Working of belt conveyers, types of belts and conveying mechanism. Capacity and use of dumpers, tractors and trucks. |  |
| 9 | **1** | **REVISION/ASSIGNMENT 2** |  |
| **2** | **SESSIONAL TESTS 2** |  |
| 10 | **1** | **Miscellaneous Machineries and Equipments**Excavation Equipments: Use, working and output of following machinerybull dozers, scrapers, graders, Clam Shell, trenching equipment, Tunnel boring machine, |  |
| 2 | Wheel mounted belt loaders, power shovels, JCB, and drag lines. |  |
| 11 | 1 | Compacting Equipments: Output of different types of rollers |  |
| 2 | ship footed rollers, vibratory, pneumatic rollers rammers |  |
| 12 | 1 | Miscellaneous Equipments: Working and selection of equipments, Pile driving equipments, Pile hammers, Hot mix bitumen plant, |  |
| 2 | bitumen paver, grouting equipment, guniting equipments, |  |
| 13 | 1 | floor polishing and cutting machine selection of drilling pattern for blasting, |  |
| 2 | Bentonite / mud slurry in drilling, Explosives for blasting, Dynamite, process of using explosives. |  |
| 14 | 1 | **REVISION/ASSIGNMENT 1** |  |
| 2 | **SESSIONAL TESTS 3** |  |