**Name of the Faculty :** Krishan Kumar

Discipline : Civil Engg.

Semester : 2nd Sem.

Subject : Construction Material

 Lesson Plan Duration : 15 weeks

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| **Week** | **Theory** | **Practical** |
| **Lecture****Day** | **Topic (including assignment / test)** | **Practical****Day** | **Topic** |
| 1. | 1. | Building StonesSources of StonesQuarrying ofstones by blasting and its effect on environment | 1. | To identify the stones used in building works by visual examination |
| 2. | Dressing ofstonesRequirements of good building stones |
| 2. | 1. | Various uses ofstones in constructionArtificial Stones: Procedure of making an artificial stone, forms of artificial stones, advantages of artificial stones | 2. | To determine the crushing strength of bricks |
| 2. | BricksIntroduction to bricks Raw materials for brick manufacturing and properties of good brick making earthManufacturing of bricksPreparation of clay (Manual and Mechanically)Moulding: Hand moulding and machine moulding brick table; drying of bricks |
| 3. | 1. | Burning of bricks: Bull's Trench Kiln, Hoffman's Kiln and Zig- Zag Kiln (only line diagram of kilns)Sun dried bricks, Traditional bricks, Refractory bricks, Fly ash bricks, Hollow bricks, | 3. | To determine the water absorption of bricks |
| 2. | Size and weight ofstandard brickClassification and specifications of bricks as per BIS: 1077Stacking of bricks and tiles at site |
| 4. | 1. | TilesBrick tiles and their usesCeramic tiles and their usesVitrified tiles and their uses |  |  |
| 2. |  PVC Tiles and usesPaver blocks, interlocking tiles |
| 5. | 1. | **Class Test/Quiz** |  |  |
| 2. | **Sessional Test-1** |
| 6. | 1. | CementIntroduction, raw materials, flow diagram of manufacturing of cementVarious types of cements, their uses and testing: Ordinary portland cement, rapid hardening cement, White cement, Portland pozzolana cement | 4. | To determine the efflorescence of bricks |
| 2. | Properties of cementStorage of Cement at site |
| 7. | 1. | UNIT IIITimber and Wood Based ProductsIdentification and uses of different types of timber: Teak, Deodar, Shisham, Sal, Mango, Kail, Chir, Fir, Hollock, ChampSeasoning of timber: Purpose, methods ofseasoning as per BIS Code | 5. | To conduct a practical for dimensional tolerances of a brick. |

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|  | 2. | Properties of timber and specifications ofstructural timberPreservation of timber and methods of treatment as per BIS |  |  |
| 8. | 1. | Other wood based products, their brief description of manufacture and uses: Laminated Board, Block Board, Fibre Board, Hard board, Sunmica, Plywood, and Veneers | 6. | To perform the following field tests on cement to judge the quality of cement. |
| 2. | Paints, Varnishes and Distempers:PaintsPurpose and use of paintsCharacteristics of an ideal paint |
| 9. | 1. | Types of paints: Oil paints, Water paints, Cement paints and Enamel paint\*\* Covering capacity of paintsVarnishesPurpose and use of varnishes |  |  |
| 2. | Characteristics of an ideal varnishTypes of varnishesDistemperProperties of distemper and process of distempering |
| 10. | 1. | **Assignment-2/Class Test** |  |  |
| 2. | **Sessional Test-2** |
| 11. | 1. | Metals and Non MetalsFerrous metals: Composition, properties and uses of cast iron, mild steel, HYSD steel, high tension steel as per BISCommercial forms of ferrous, metals | 7. | Date of Packing, Colour, Hand Insertion, Float Test, Smell Test, and Presence of lumps. |
| 2. | Properties and use of AluminiumProperties and use of Stainless Steel. |
| 12. | 1. | PlasticsFRP: Introduction, Properties of FRP and Applications of FRP in Building Industry | 8. | To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail&Hollock by visual examination only |
| 2. | PVC wall panelingACP and HPL Sheets |
| 13. | 1. | Miscellaneous MaterialsAsbestos: Introduction, properties and use of asbestos | 9. | The students should submit a report work on the construction materials (at least one per week) as mentioned below. They will also show the competitive study based upon the Cost, Brand Name and Sizes available in the local market |
| 2. | Types and uses of insulating materials for sound and thermal insulationConstruction chemicals like water proofing compound, epoxies, polymers |
| 14. | 1. | Water proofing and termite proofing materials – types and usesMaterials used in interior decoration works like POP, methods of doing POP |  | Plywwod, Veneers, Sunmica b) Paints, Varnishes and Distempers c) Aluminium and Stainless steels d) Water proofing material e) PVC Panels and FRPs f) POP and Asbestos sheets g) Termites, Polymers and Epoxies |
| 2. | Eco friendly materials for construction of buildings |
| 15. | 1. | **Assignment- 3/ Class Test** |  |  |
| 2. | **Sessional Test- 3** |