**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 Stones  Sources of Stones  Quarrying ofstones by blasting and its effect on environment | 1. | To identify the stones used in building works by visual examination |
| 2. | Dressing ofstones  Requirements of good building stones |
| 2. | 1. | Various uses ofstones in construction  Artificial Stones: Procedure of making an artificial stone, forms of artificial stones, advantages of artificial stones | 2. | To determine the crushing strength of bricks |
| 2. | Bricks  Introduction to bricks  Raw materials for brick manufacturing and properties of good brick making earth  Manufacturing of bricks  Preparation 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 brick  Classification and specifications of bricks as per BIS: 1077  Stacking of bricks and tiles at site |
| 4. | 1. | Tiles  Brick tiles and their uses  Ceramic tiles and their uses Vitrified tiles and their uses |  |  |
| 2. | PVC Tiles and uses  Paver blocks, interlocking tiles |
| 5. | 1. | **Class Test/Quiz** |  |  |
| 2. | **Sessional Test-1** |
| 6. | 1. | Cement  Introduction, raw materials, flow diagram of manufacturing of cement  Various 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 cement  Storage of Cement at site |
| 7. | 1. | UNIT III  Timber and Wood Based Products  Identification and uses of different types of timber: Teak, Deodar, Shisham, Sal, Mango, Kail, Chir, Fir, Hollock, Champ  Seasoning 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 timber  Preservation 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:  Paints  Purpose and use of paints  Characteristics of an ideal paint |
| 9. | 1. | Types of paints: Oil paints, Water paints, Cement paints and Enamel paint\*\*  Covering capacity of paints  Varnishes  Purpose and use of varnishes |  |  |
| 2. | Characteristics of an ideal varnish  Types of varnishes  Distemper  Properties of distemper and process of distempering |
| 10. | 1. | **Assignment-2/Class Test** |  |  |
| 2. | **Sessional Test-2** |
| 11. | 1. | Metals and Non Metals  Ferrous metals: Composition, properties and uses of cast iron, mild steel, HYSD steel, high tension steel as per BIS  Commercial forms of ferrous, metals | 7. | Date of Packing, Colour, Hand Insertion, Float Test, Smell Test, and Presence of lumps. |
| 2. | Properties and use of Aluminium  Properties and use of Stainless Steel. |
| 12. | 1. | Plastics  FRP: 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 paneling  ACP and HPL Sheets |
| 13. | 1. | Miscellaneous Materials  Asbestos: 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 insulation  Construction chemicals like water proofing compound, epoxies, polymers |
| 14. | 1. | Water proofing and termite proofing materials – types and uses  Materials 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** |