BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK

DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

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| SUBJECT: BUILDING MATERIAL & CONSTRUCTION TECHNOLOGY (TH 3) | ACCADEMIC SESSION: 2021-22 |
| FACULTY: MR M S KAR | SEMESTER: 3 RD |
|  | SEC: A |

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| H O D (Civil Engg.) |

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| **Discipline:**  **Civil Engineering** | **Semester: 3rd** | | **Name of Teaching Faculty:**  **MAHAMRUTYUNJAYA SIVAPRASAD KAR** |
| **Subject:**  **Building Material & Construction Technology** | **No. of Days / week class allotted: 05 period per week ( Mon,Tue,Wed,Fri&Sat -- 1 Period each )** | | **Semester From Date : 01-10-2021 To Date 08-01-2022**  **No. of Weeks: 14** |
| **Week** | **Date** | **No. of periods available** | **Topics to be covered** |
| 1st | 01/10/2021 | 1 | **1 Stone**  1.1 Classification of rock, uses of stone, natural bed of stone, |
| 2nd | 04/10/2021 | 1 | 1.2 Qualities of good building stone, |
| 05/10/2021 | 1 | 1.3 Dressing of stone |
| 06/10/2021 | 1 | 1.4 Characteristics of different types of stone and their uses |
| 08/10/2021 | 1 | **2 Bricks**  2.1 Brick earth -its composition |
| 09/10/21 | 1 | 2.2 Brick making – Preparation of brick earth, Moulding, |
| 3rd | 22/10/21 | 1 | Drying, Burning in kilns (continuous Process) |
| 23/10/2021 | 1 | 2.3 Classification of bricks, size of traditional and modular bricks, |
| 4th | 25/10/21 | 1 | Qualities of good building bricks |
| 26/10/21 | 1 | **3 Cement, Mortar and Concrete**  3.1 Cement: Types of cements, Properties of cements, Manufacturing of cement |
| 27/10/21 | 1 | 3.2 Importance and application of blended cement with fly ash and blast furnace slag. |
| 29/10/21 | 1 | Monthly Class Test |
| 30/10/21 | 1 | 3.3 Mortar: Definition and types of mortar  3.4 Sources and classification of sand, Bulking of sand |
| 5th | 01/11/2021 | 1 | 3.5 Use of gravel, morrum and fly ash as different building material |
| 02/11/2021 | 1 | 3.6 Concrete: Definition and composition- Water cement ratio,Workability |
| 03/11/2021 | 1 | mechanical properties and grading of aggregates, mixing, placing, compacting and curing of concrete |
| 05/11/2021 | 1 | **Part - B**  **1 Introduction**  1.1Buildings and classification of buildings based on occupancy |
| 06/11/2021 | 1 | 1.2 Different components of a building.  1.3Site investigation – objectives, site reconnaissance and explorations. |
| 6th | 08 /11/2021 | 1 | **2 Foundations**  2.1 Concept of foundation and its purpose  2.2 Types of foundations – shallow and deep |
| 09 /11/2021 | 1 | 2.3 Shallow foundation-constructional details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block |
| 10 /11/2021 | 1 | 2.4 Deep foundations: Pile foundations-their suitability, |
| 12 /11/2021 | 1 | Classification of piles based on materials, function and method of installation. |
| 13/11/2021 | 1 | **4 Other Construction Materials**  4.1 Timber: Classification and Structure of timber |
| 7TH | 15 /11/2021 | 1 | 4.2 Seasoning of timber – Importance |
| 16 /11/2021 | 1 | 4.3 Characteristics of good timber |
| 17/11/2021 | 1 | 4.4 Clay products and refractory materials – Definition and Classification |
| 20/11/2021 | 1 | 4.5 Properties and uses of refractory materials- tiles, terracotta, porcelain glazing |
| 8TH | 22 /11/2021 | 1 | 4.6 Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel |
| 23 /11/2021 | 1 | **5 Surface Protective Materials**  5.1Composition of Paints, enamels, varnishes |
| 24/11/2021 | 1 | 5.2Types and uses of surface protective materials like Paints, Enamels, |
| 26 /11/2021 | 1 | Types and uses of surface protective materials Varnishes, Distempers, Emulsion, French polish and Wax Polish |
| 27/11/2021 | 1 | **3 Walls & Masonry Works** :  3.1 Purpose of walls  3.2 Classification of walls – load bearing, non-load bearing walls, retaining walls. |
| 9TH | 29/11/2021 | 1 | Monthly Class Test |
| 30/11/2021 | 1 | 3.3 Classification of walls as per materials of construction: brick, stone, reinforced brick, reinforced concrete, precast, hollow and solid concrete block and composite masonry walls (Concept Only). |
| 01 /12/2021 | 1 | Internal Assessment |
| 03 /12/2021 | 1 | Internal Assessment |
| 04/12/2021 | 1 | 3.4 Partition Walls : Suitability and uses of brick and wooden partition walls  3.5 Brick masonry : Definition of different terms. |
| 10TH | 06 /12/2021 | 1 | 3.6 Bond – meaning and necessity: English bond for 1and 1-1/2 Brick thick walls. T, X and right angled corner junctions. Thickness for 1and 1-1/2 brick square pillars in English bond |
| 07 /12/2021 | 1 | 3.7 Stone Masonry  3.8 Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress. |
| 08 /12/2021 | 1 | **4 Doors, Windows And Lintels**  4.1 Glossary of terms used in doors and windows |
| 10 /12/2021 | 1 | 4.2 Doors – different types of doors |
| 11/12/21 | 1 | 4.3 Windows – different types of windows |
| 11TH | 13/12/2021 | 1 | 4.4 Purpose of use of arches and lintels . |
| 14/12/2021 | 1 | **5 Floors, Roofs and Stairs**  5.1 Floors: Glossary of terms ,Types of floor finishes – cast-in-situ, concrete flooring(monolithic, bonded), terrazzo tile flooring, cast in situ Terrazzo flooring, timber flooring (Concept only) |
| 15/12/2021 | 1 | 5.2 Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs |
| 17/12/2021 | 1 | 5.3 Stairs: Glossary of terms; Stair case, winder, landing, stringer, newel, baluster, rise, tread, width of stair case, hand rail, nosing, head room, mumty room |
| 18/12/2021 | 1 | 5.4 Various types of stair case – straight flight, dog legged, open well, quarter turn, half turn (newel and geometrical stairs), |
| 12TH | 20/12/2021 | 1 | bifurcated stair, spiral stair, cantilever stair, tread riser stair. |
| 21/12/2021 | 1 | **6 Protective, Decorative Finishes, Damp and Termite Proofing**  6.1 Plastering – purpose – Types of plastering, Types of plaster |
| 22/12/2021 | 1 | finishes – Grit finish, rough cast, smooth cast, sand faced, pebble dash, acoustic plastering and plain plaster etc. |
| 24/12/2021 | 1 | 6.2 Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing. |
| 13TH | 27/12/2021 | 1 | Monthly Class Test |
| 28/12/2021 | 1 | 6.3 Pointing – purpose –Types of pointing |
| 29/12/2021 | 1 | 6.4 Painting – objectives – method of painting new and old wall surfaces, wood surface and metal surfaces – powder coating and spray painting on metal surfaces. |
| 31/12/2021 | 1 | 6.5 White washing – Colour washing – Distempering – internal and external walls |
| 14TH | 03 /01/2022 | 1 | 6.6 Damp and Termite proofing – Materials and Methods. |
| 04 /01/2022 | 1 | **7 Green Buildings, Energy Management and Energy Audit Of Buildings & Project**  7.1 Concept of green building  7.2 Introduction to Energy Management and Energy Audit of Buildings. 7.3 Aims of energy management of buildings |
| 05 /01/2022 | 1 | 7.4 Types of energy audit, Response energy audit questionnaire  7.5 Energy surveying and audit report. |
| 07 /01/2022 | 1 | Revision |
| 08/01/2022 | 1 | Previous Year Question |