**MAHAMAYA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCE,**

**NUAPADA**

**DEPARTMENT OF CIVIL ENGINEERING**

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| **Discipline: CIVIL Engineering**  | **Semester: 3RD Semester**  |  **Name of the Teaching Faculty:** **ER. HIMANEE RATH**   |
| **Subject:** **BM & CT** | **No. of** **Days/week** **Class**  **Allotted:60**  |  **Semester from date: 15/09/2022 to date: 22 /12/2022** **No of weeks: 14**  |
| **Week**  | **Class Day**  | **Theory Topics**  |
|    1st  | 1st  | PART :A (BUILDING MATERIALS) |
| 1. Stone 1.1 Classification of rock, uses of stone, natural bed of stone |
| 2nd  |  1.2 Qualities of good building stone,  |
| 3rd  | 1.3 Dressing of stone  |
| 4th  | 1.4 Characteristics of different types of stone and their uses |
|      2nd  | 1st   | CONTD. |
| 2nd  | 2. Bricks2.1 Brick earth – its composition  |
| 3rd   | CONTD. |
| 4th  | 2.2 Brick making – Preparation of brick earth, Moulding, Drying, Burning in kilns (continuous Process)  |
|    3rd  | 1st  | CONTD. |
| 2nd  | 2.3 Classification of bricks, size of traditional and modular bricks, qualities of good building bricks |
| 3rd  | CONTD. |
| 4th  | 3. Cement, Mortar and Concrete3.1 Cement: Types of cements, Properties of cements, Manufacturing of cement  |
|     4th  | 1st  | 3.2 Importance and application of blended cement with fly ash and blast furnace slag.  |
| 2nd  | 3.3 Mortar: Definition and types of mortar  |
| 3rd  | 3.4 Sources and classification of sand, Bulking of sand  |
| 4th  | 3.5 Use of gravel, morrum and fly ash as different building material  |
|    5th  | 1st  | 3.6 Concrete: Definition and composition- Water cement ratio- Workability,  |
| 2nd  | mechanical properties and grading of aggregates, mixing, placing, compacting and curing of concrete. |
| 3rd  | 4. Other Construction Materials 4.1 Timber: Classification and Structure of timber.  |
| 4th  | 4.2 Seasoning of timber – Importance.  |
|    6th  | 1st  | 4.3 Characteristics of good timber.  |
| 2nd  | 4.4 Clay products and refractory materials – Definition and Classification.  |
| 3rd  | 4.5 Properties and uses of refractory materials- tiles, terracotta, porcelain glazing |
| 4th  |  4.6 Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel |
|     7th  |  1st  | CONTD. |
| 2nd  | 5. Surface Protective Materials 5.1Composition of Paints, enamels, varnishes.  |
|  3rd  | 5.2Types and uses of surface protective materials like Paints, Enamels, Varnishes, Distempers, Emulsion, French polish and Wax Polish. |
|  4th  | PART: B (CONSTRUCTIONS TECHNOLOGY)  |
| 1 Introduction 1.1Buildings and classification of buildings based on occupancy  |
|     8th  | 1st  | 1.2 Different components of a building. 1.3Site investigation – objectives, site reconnaissance and explorations. |
| 2nd  | 2 Foundations 2.1 Concept of foundation and its purpose  |
| 3rd  | 2.2 Types of foundations – shallow and deep  |
| 4th  | 2.3 Shallow foundation-constructional details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block  |
|     9th  | 1st  | 2.4 Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation. |
| 2nd  | 3 Walls & Masonry Works : 3.1 Purpose of walls 3.2 Classification of walls – load bearing, non-load bearing walls, retaining walls.  |
| 3rd  | 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).  |
| 4th  | 3.4 Partition Walls : Suitability and uses of brick and wooden partition walls 3.5 Brick masonry : Definition of different terms  |
|    10th  | 1st  | 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  |
| 2nd  | 3.7 Stone Masonry  |
| 3rd  |  3.8 Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress |
| 4th  | 4 Doors, Windows And Lintels 4.1Glossary of terms used in doors and windows  |
|     11th  | 1st  | 4.2 Doors – different types of doors  |
| 2nd  | 4.3Windows – different types of windows  |
| 3rd  | 4.4 Purpose of use of arches and lintels |
| 4th  | 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)  |
|    12th  | 1st  | 5.2 Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs  |
| 2nd  | 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.  |
| 3rd  | 5.4Various types of stair case – straight flight, dog legged, open well, quarter turn, half turn (newel and geometrical stairs), bifurcated stair, spiral stair, cantilever stair, tread riser stair. |
| 4th  | CONTD |
|     13th  | 1st  | 6 Protective, Decorative Finishes, Damp and Termite Proofing 6.1 Plastering – purpose – Types of plastering, Types of plaster finishes – Grit finish, rough cast, smooth cast, sand faced, pebble dash, acoustic plastering and plain plaster etc |
| 2nd  | . 6.2 Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing  |
|   3rd  | 6.3 Pointing – purpose –Types of pointing 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.  |
| 4th  | 6.5 White washing – Colour washing – Distempering – internal and external walls.  |
|    14th  | 1st  | 6.6 Damp and Termite proofing – Materials and Methods. |
| 2nd  | 7. Green Buildings, Energy Management and Energy Audit Of Buildings & Project 7.1 Concept of green building |
| 3rd  | 7.2 Introduction to Energy Management and Energy Audit of Buildings.7.3 Aims of energy management of buildings. |
| 4th  | 7.2 Introduction to Energy Management and Energy Audit of Buildings.7.3 Aims of energy management of buildings. |

 

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