

## GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN- 2023-24 (WINTER)

| Discipline :<br>CIVIL ENGG. |      | Semester: 3rd Sem   | Name of the Teaching Faculty : Padmabhusan Naik           |   |   |
|-----------------------------|------|---|---|---|---|
| Subject : BM&CT             |      | No. of Days /<br>per week class allotted : 05   | Semester From date : 01.08.2023      To Date : 30.11.2023 |   |   |
| MONTH                       | Week | Day   | Unit  | Topics  |   |
| AUGUST                      | 1st  |   |   | <b>PART :A (BUILDING MATERIALS)</b>   |   |
|                             |      | 2nd   | <b>UNIT-1</b>   | <b>1. Stone:</b>  |   |
|                             |      | 3rd   |   | Classification of rock, uses of stone, natural bed of stone,                      |   |
|                             |      | 4th   |   | Qualities of good building stone,   |   |
|                             |      | 5th   |   | Dressing of stone   |   |
|                             | 1st  | Characteristics of different types of stone and their uses  |   |   |   |
|                             | 2nd  | 1st   |   |   | Question Discussion   |
|                             |      | 2nd   | <b>UNIT-2</b>   | <b>2. Bricks:</b>   |   |
|                             |      | 3rd   |   | Brick earth – its composition   |   |
|                             |      | 4th   |   | Brick making – Preparation of brick earth, Moulding,                              |   |
|                             |      | 5th   |   | Drying, Burning in kilns (continuous Process)                                     |   |
|                             | 1st  | Classification of bricks, size of traditional and modular bricks, qualities of good building bricks |   |   |   |
|                             | 3rd  | 2nd   |   |   | Question Discussion   |
|                             |      | 3rd   |   |   | <b>Independence day</b>   |
|                             |      | 4th   | <b>UNIT-3</b>   | <b>3. Cement, Mortar and Concrete:</b>  |   |
|                             |      | 5th   |   | Cement: Types of cements, Properties of cements, Manufacturing of cement          |   |
|                             |      | 1st   |   | Importance and application of blended cement with fly ash and blast furnace slag. |   |
|                             | 2nd  | Mortar: Definition and types of mortar  |   |   |   |
|                             | 3rd  | Sources and classification of sand, Bulking of sand   |   |   |   |
|                             | 4th  | 4th   |   |   | Use of gravel, morrum and fly ash as different building material  |
|                             |      | 5th   |   |   | Concrete: Definition and composition- Water cement ratio- Workability, mechanical properties and grading of aggregates, mixing, placing, compacting and curing of concrete. |
|                             |      | 1st   |   |   | Question Discussion   |
|                             |      | 2nd   |   |   | <b>CLASS TEST-1</b>   |
|                             |      | 3rd   |   |   | <b>4. Other Construction Materials:</b>   |
|                             | 5th  | 4th   |   |   | Timber: Classification and Structure of timber.   |
| 1st                         |      |   |   | Seasoning of timber – Importance.   |   |
| 2nd                         |      |   |   | <b>Jhulana Purnima</b>  |   |
| 3rd                         |      |   |   | Characteristics of good timber.   |   |

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| SEPTEMBER | 1st | 5th                                     | <b>UNIT-4</b>   | Clay products and refractory materials – Definition and Classification.                                 |
|           | 2nd | 1st                                     |   | Properties and uses of refractory materials- tiles, terracotta, porcelain glazing.                      |
|           |     | 2nd                                     |   | Iron and Steel: Uses of cast iron, wrought iron, mild steel and tor steel                               |
|           |     | 3rd                                     |   | <b>Janmastami</b>   |
|           |     | 4th                                     |   | Question Discussion   |
|           | 5th |   | <b>5. Surface Protective Materials:</b>   |   |
|           | 3rd | 1st                                     | <b>UNIT-5</b>   | Composition of Paints, enamels, varnishes.  |
|           |     | 2nd                                     |   | Types and uses of surface protective materials like Paints, Enamels, Varnishes,                         |
|           |     | 3rd                                     |   | Types and uses of surface protective materials like Distempers, Emulsion, French polish and Wax Polish. |
|           |     | 4th                                     |   | Question Discussion   |
|           | 5th |   | <b>PART: B (CONSTRUCTIONS TECHNOLOGY)</b>   |   |
|           | 4th | 1st                                     | <b>UNIT-1</b>   | <b>1. Introduction:</b>   |
|           |     | 2nd                                     |   | Buildings and classification of buildings based on occupancy  |
|           |     | 3rd                                     |   | <b>Ganesh Puja</b>  |
|           |     | 4th                                     |   | <b>Nuakhai</b>  |
|           |     | 5th                                     |   | Different components of a building.   |
|           | 5th | 1st                                     | <b>UNIT-2</b>   | Site investigation – objectives, site reconnaissance and explorations.                                  |
|           |     | 2nd                                     |   | Question Discussion   |
|           |     | 3rd                                     |   | <b>2. Foundations:</b>  |
|           |     | 4th                                     |   | Concept of foundation and its purpose   |
| 5th       |     | Types of foundations – shallow and deep |   |   |
| 1st       | 1st | <b>UNIT-2</b>                           | Shallow foundation-constructional details of : Spread foundations for walls, thumb rules for depth and width of foundation and thickness of concrete block  |   |
|           | 2nd |   | <b>Birthday of Prophet Muhammad</b>   |   |
|           | 3rd |   | <b>Gandhi Jayanti</b>   |   |
|           | 4th |   | Deep foundations: Pile foundations-their suitability, classification of piles based on materials, function and method of installation.  |   |
|           | 5th |   | Question Discussion   |   |
| 2nd       | 1st | <b>UNIT-3</b>                           | <b>Internal Assessment</b>  |   |
|           | 2nd |   | <b>3. Walls &amp; Masonry Works :</b>   |   |
|           | 3rd |   | Purpose of walls  |   |
|           | 4th |   | Classification of walls – load bearing, non-load bearing walls, retaining walls.  |   |
| 2nd       | 1st | <b>UNIT-3</b>                           | 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). |   |
|           | 2nd |   | Partition Walls : Suitability and uses of brick and wooden partition walls  |   |
|           | 3rd |   | Brick masonry : Definition of different terms   |   |
|           | 4th |   |   |   |

|         |          |  |  |  |  |
|---------|----------|--|--|--|--|
| OCTOBER |          | 5th  |  | Bond – meaning and necessity: English bond for 1 and 1-1/2 Brick thick walls. T, X and right angled corner junctions. Thickness for 1 and 1-1/2 brick square pillars in English bond               |  |
|         | 3rd      | 1st  |  | Stone Masonry :<br>Glossary of terms –String course, corbel, cornice, block-in-course, grouting, mouldings, templates, throating, through stones, parapet, coping, pilaster and buttress           |  |
|         |          | 2nd  |  | Question Discussion  |  |
|         |          | 3rd  | UNIT-4   |  | <b>4. Doors, Windows And Lintels :</b>   |
|         |          | 4th  |  | Glossary of terms used in doors and windows  |  |
|         |          | 5th  |  | Doors – different types of doors   |  |
|         | 4th      | 1st  |  |  | <b>Puja Holidays</b>   |
|         |          | 2nd  |  |  | <b>Puja Holidays</b>   |
|         |          | 3rd  |  | <b>Puja Holidays</b>   |  |
|         |          | 4th  |  | <b>Puja Holidays</b>   |  |
|         | 5th      | 5th  |  | <b>Puja Holidays</b>   |  |
|         |          | 1st  |  | Windows – different types of windows   |  |
|         | NOVEMBER | 1st  | 2nd  |  | Purpose of use of arches and lintels   |
| 3rd     |          |  |  | Question Discussion  |  |
| 4th     |          |  | UNIT-5   | <b>5. Floors, Roofs and Stairs :</b>   |  |
| 5th     |          | flooring, cast in situ Terrazzo flooring, timber flooring (Concept only) |  |  |  |
| 2nd     |          | 1st  |  | Roofs: Glossary of terms, Types of roofs, concept and function of flat, pitched, hipped and Sloped roofs   |  |
|         |          | 2nd  |  | 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  |  | Various 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  | Question Discussion  |  |  |
| 3rd     |          | 5th  |  | <b>CLASS TEST-2</b>  |  |
|         |          | 3rd  | 1st  | UNIT-6   | <b>6. Protective, Decorative Finishes, Damp and Termite Proofing :</b>   |
|         |          |  | 2nd  |  | 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 |
|         |          |  | 3rd  |  | Proportion of mortars used for different plasters, preparation of mortars, techniques of plastering and curing   |
|         |          |  | 4th  |  | Pointing – purpose –Types of pointing  |
|         | 5th      |  | Painting – objectives – method of painting new and old wall surfaces, wood surface and metal surfaces – powder coating and spray painting on metal surfaces. |  |  |
|         | 4th      | 1st  |  | White washing – Colour washing – Distempering – internal and external walls.   |  |
| 2nd     |          |  | Damp and Termite proofing – Materials and Methods.   |  |  |
|         | 1st      |  | Question Discussion  |  |  |
|         | 2nd      |  | <b>7. Green Buildings, Energy Management and Energy Audit Of Buildings &amp; Project :</b>   |  |  |
|         | 4th      |  | Concept of green building  |  |  |

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|     | 7th | 3rd                                | UNIT-7 | Introduction to Energy Management and Energy Audit of Buildings. |
|     |     | 4th                                |        | Aims of energy management of buildings.                          |
|     |     | 5th                                |        | Types of energy audit, Response energy audit questionnaire       |
| 5th | 1st | <b>Rasa Purnima</b>                |        |  |
|     | 2nd | Energy surveying and audit report. |        |  |
|     | 3rd | Question Discussion                |        |  |
|     | 4th | Semester Questions Discussion      |        |  |