SUBJECT NO-AR10304, SUBJECT NAME- BUILDING MATERIALS

LTP- 3-0-0,CRD- 3

SYLLABUS :-

Course Overview: This course is one of the fundaments of architecture programme. The aim of this module is to study the nature and characteristics of various building materials used in the building construction industry. The classification of building materials and their respective applications are also introduced. The students are encouraged to select and use the appropriate materials for the real time structures. To get the physical feeling of the materials and structures, they are advised to visit as many as construction sites in the vicinity. The understanding of this course will act as a prerequisite for the next semester course Advanced Building Materials and Composites. General introduction to building materials; Natural materials- clay and clay materials, bricks, terracotta, stones, timber- their properties, forms of availability, defects, strength, limitation and utility as building materials, Elements of hybrid materials- Portland and special types of cements, cement-concrete, lime-concrete etc.- types, properties and uses; Processed materials- plywood, laminated wood, fibre-boards and light weight boards, panels, different types of tiles – roof tiles, floor tiles and wall tiles, adhesives and glue- different types, setting and bonding, methods of application and their properties, commercial names of various products , health hazards and precautions. Learning Objectives: 1. Arrange the different building material according to the strength characteristic 2. Identify the building material in construction sites and existing buildings 3. Classify the various classes of bricks according to the physical property and BIS norms 4. Describe the application of timber in building industry 5. State the application of industrial artificial timber in building interiors 6. Select the type of stone to be applied in different parts of buildings 7. Calculate the fineness modulus and bulking of sand from test data 8. Describe the procedure of testing of cement and concrete 9. Differentiate the various types of cement based on physical property: setting times and compressive strength 10. Explain the process of concreting with necessary precautions to be taken in each step 11. Differentiate the structural action and application of PCC, RCC and pre-stressed concrete Course Curriculum: Module 1 : General introduction to building materials Natural materials: clay and clay materials, bricks, terracotta, stones, timber – their properties, form of availability, defects, strength, limitation and utility as building materials Module 2 : Elements of hybrid material Portland and special type of cement, cement concrete, lime concrete etc – types properties and uses Module 3 : Processed materials Plywood, laminated wood, fibre board and lightweight board panels; different type of tiles: roof tiles, floor tiles, and wall tiles Module 4 : Adhesives and Glue Different types, setting and bonding, method of application and their properties, commercial names of various products, health hazard and precautions Reading List: 1. Cencil, C. H. (1950). Building materials. The Architectural Press 2. Kulkarni, C. J. (1944). A text book of engineering materials.

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