



# BUILDING MATERIALS AND COMPOSITES

**PROF. SUMANA GUPTA**

Department of Architecture and Regional Planning  
IIT Kharagpur

**TYPE OF COURSE** : New | Core | UG**COURSE DURATION** : 8 weeks (20 Jul' 20 - 11 Sep' 20)**EXAM DATE** : 27 Sep 2020**PRE-REQUISITES** : Interested Learners**INTENDED AUDIENCE** : Architecture**COURSE OUTLINE :**

Students as a beginner in the trade of Architecture through this course will get exposed to the different materials used in building construction. Conventional materials would be discussed with an outline of its manufacturing or procuring process, properties, applications and simultaneously the alternative materials replacing them would be also covered. A number of engineered materials have come up in use in the building industry as a substitute of the original material like engineered wood replacing wood or AAC and flyash bricks replacing clay bricks. A coverage on such alternate materials would be included.

Large span and highrise structures use composite flooring system or steel for structural system, use of precast walling and flooring systems for fast delivery are other contents to expose students to other material applications in building industry.

Finishes as in floors and walls like tiles, stone and clay tile cladding, paints and their appropriateness on different surfaces would be discussed. Nanotechnologies used in this trade would also be mentioned for specific materials stating their use. Specific ways of assembling different materials would also be highlighted to give consolidated knowledge to the students.

**ABOUT INSTRUCTOR :**

Prior to teaching Prof. Sumana Gupta had professional experience for seven years both in private and government organisation. Also Prof had taught at Government Polytechnic college for a period of seven years. She also takes the offered course for two semesters at Undergraduate level for last seven years and she strongly believe that this comprehensive course would benefit students in the trade. Prof.Sumana take interest in studying materials,exploring new materials from their property point of view and their suitability of application in real life scenario.

**COURSE PLAN :****Week 1:** Clay products and alternatives like Fly-ash, CEB, CSEB**Week 2:** Stone, stone tiles and stone dust blocks Wood and engineered wood**Week 3:** Glass and glazing systems, ceramic tiles, vitrified tiles, insulation**Week 4:** Fine aggregate, Coarse aggregate, Cement, Concrete**Week 5:** Precast items – flooring, roofing, walling system, HBC, AAB**Week 6:** Ferrous and non-ferrous metals**Week 7:** Bitumen as damp proofing materials, Paints**Week 8:** Plastics, Composites, nanotechnology applications