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| Image result for nit meghalaya logo | **National Institute of Technology Meghalaya**An Institute of National Importance | **CURRICULUM** |
| Programme | **Bachelor of Technology in Civil Engineering** | Year of Regulation | **2020-21** |
| Department | **Department of Civil Engineering** | Semester | **IV** |
| CourseCode | Course Name | **Pre requisite** | Credit Structure | Marks Distribution |
| L | T | P | C | INT | MID | END | Total |
| **CE 218** | **Building Material and Construction** | **Nil** | **3** | **0** | **0** | **3** | **50** | **50** | **100** | **200** |
| CourseObjectives | To provide basic knowledge of building materials for construction of various building components | Course Outcomes | CO1 | Classify and characterize various building materials |
| To illustrate the functional requirements of building components and its construction | CO2 | Recognize the proper application of building materials for different components of a building |
|  | CO3 | Understand the construction practices for various components of a building |
|  | CO4 | Utilize the basic knowledge of functional requirements to be considered in design and construction of building  |
|  | CO5 |  |
|  | CO6 |  |
|  |
| No. | COs | Mapping with Program Outcomes (POs) | Mapping with PSOs |
| PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
| 1 | CO1 | **2** | **1** | **1** | **0** | **0** | **1** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **1** |
| 2 | CO2 | **2** | **1** | **1** | **0** | **0** | **1** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **1** |
| 3 | CO3 | **2** | **1** | **1** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **1** |
| 4 | CO4 | **2** | **1** | **1** | **0** | **0** | **1** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **1** |
| 5 | CO5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | CO6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SYLLABUS |
| No. | Content | Hours | Cos |
| I | **Building Materials:** Classification of bricks, tiles, types of terra-cotta, Classification of stones, requirements of good structural stone, Classification of Limes, Cement and Mortars, manufacturing, artificial hydraulic lime, testing lime and storage of lime, cements composition, types of cement,special types of cement, cement mortars, mortars for masonry and plastering, fly ash, pozzolana,Basic constituents ofPaints and Varnishes, types, painting of wood, constituents, characteristics and types of varnishes. | **7** | **CO1, CO2** |
| II | **Masonry Construction:**Introduction, various terms used, stone masonry, classifications of stone masonry, safe permissible loads, brick masonry, bonds in bricks, laying of brick work, defects in brick masonry, reinforced brick work, composite stone and brick masonry, glass block masonry. | **5** | **CO2, CO3** |
| III | **Foundation:** Function, types of shallow foundation, types of deep foundations and its constructions**.** | **4** | **CO2, CO3, CO4** |
| IV | **Cavity and Partition Walls:** Position of cavity, constructional details and precautions, construction of cavity wall. Types of non-load bearing partitions. | **3** | **CO3** |
| V | **Damp and Water Proofing:** Defects and causes of dampness, prevention of dampness, materials used, damp-proofing treatment in buildings, water proofing of roofs including pitched roofs. | **5** | **CO3** |
| VI | **Staircases:** Functional requirements and terminology, Types of staircases & construction. | **3** | **CO2, CO3** |
| VII | **Doors & Windows:** Locations, types of doors & windows, fixtures and fasteners for doors and windows. | **4** | **CO3** |
| VIII | **Acoustics, Sound Insulation and Fire Protection:**Classification, measurement and transmission of sound, sound absorber, classification of absorbers, sound insulation of buildings, fire-resisting properties of materials, fire resistant construction and fire protection requirements for buildings. | **5** | **CO3, CO4** |
| Total Hours | **36** |  |
| **Essential Readings** |
| 1. Duggal, S.K, (2008), Building Materials, Third Revised Edition, New Age International (P) Limited Publishers.
 |
| 1. Varghese P. C. Building construction, PHI Learning Pvt. Ltd., 2008.
 |
| 1. Arora S. P., and Bindra S. P. The text book of building construction, Dhanpat Rai Publications, 2010.
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| **Supplementary Readings** |
| 1. Peter A. Claisse, (2016), Civil Engineering Materials, Butterworth-Heinemann (Imprint of Elsevier). Copyright © 2016 Elsevier Ltd.
 |
| 1. Haimei Zhang, (2011), Building Materials in Civil Engineering, Woodhead Publishing Limited and Science Press.
 |
| 1. Punmia B. C., Jain A. J. and Jain A. J. Building construction, Laxmi Publications, 2005.
 |
| 1. National Building Code of India, 2016.
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