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| AR 232 Appropriate Building Technology  | **L-T-P** **3-0-0** **3 credit**  |
| Basic shelter issues in India. National Building Organization-Recommendation of housing & Urban development Corporation. Traditional materials and techniques-pressed soil blocks, soil cement blocks and other alternate building materials-fly ash brick, by product gypsum, bamboo, jute stalk etc. Building process-different types of walling, roofing, foundation. Pre-cast blocks. Laurie Baker’s experiments in low-cost housing. Modular construction. Experiments conducted by CBRI Roorkee. CE 804 A/B (b) COST EFFECTIVE BUILDING TECHNIQUES Module I Cost Reduction Techniques – Planning aspects Innovative techniques for foundation- ground improvement by rope drains-bamboo reinforcement-sand piles- Brick arch foundation- stub foundation Foundations in weak soil deposits Module II Locally available building materials and their usability, Corrugated roofing sheets from coir, Applications of bamboo in building construction-flooring-roofing-ceiling-Trusses. Innovative techniques for walls- Lato blocks-cellular concrete blocks-hollow concrete blocks-hollow clay blocks- Stabilized Soil blocks-Stone masonry blocks- Sand lime bricks. Straw-bale technology. Innovative technique for super structure- Rat trap bond masonry (Practical assignment) Module III Innovative techniques for roofing- Funicular shells-Precast reinforced concrete channel units- Precast reinforced concrete cored units- Prestressed concrete hollow cored units- Precast RCC joists flooring/roofing systems- roofing system with cellular units- Reinforced brick panel roofing system-Two-way spanning flooring system using precast units- Cellular light weight concrete roofing units- Ferro cement ribbed slabs and folded plates- Filler slabs . Innovative roofing technology- Filler slabs (Practical assignment) Module IV Mud Construction – Mud as building and building material – Field tests for identification of suitable soil for mud construction- Techniques for mud stabilization.- Techniques of mud construction- finishes and protective treatments Mud Construction- Production of mud blocks (Practical assignment) Module IV Prefabricated building components – advantages of prefabrication. Ferro-cement products. Applications of industrial wastes in building process – Fly ash-Lime sludge Prefabrication- Ferro-cement slab (Practical assignment)  |
| Reference Books: 1. A.G MadhavaRao and D.S Ramachandra Murthy : Appropriate Technologies for Low cost housing 2. Mohan Rai and M.P Jaisingh: Advances in building materials and construction, CBRI Roorkee Publications 3. F.S. Merrit: Building Construction Hand book. 4. D.J.Perry&P.S.Brandew: Cost planning of buildings.  |