BUILDING CONSTRUCTION

BEG 155CI

Year: I **Semester: II**

Teaching Schedule Hours/ Week			Examination Scheme						Total Marks
			Final				Internal Assessments		
			Theory		Practical		Theory	Practical	
L	P	T	Duration	Marks	Duration	Marks			
3	-	1	3	80	-	-	20	-	100

Course Objectives:

Course Contents:

1.0 Building Sciences (7 hrs)

1.1 Moisture and its movement through building components
1.2 Condensation and its reasons
1.3 Effects if moisture and condensation on building components and materials
1.4 The use of vapour barriers and other damp proof courses in building
1.5 Thermal properties on building components and materials
1.6 Thermal insulation: thermal resistance and thermal capacity
1.7 Acoustical properties of building materials: absorptive and reflective materials
1.8 Noise control and constructional precaution to reduce noise
1.9 Lighting: natural and artificial
1.10 Energy conches design: renewable and non-renewable source of energy, active And passive methods of solar cooling and heating

2.0 Foundations and Basements (4 hrs)

2.1 Some common problems with existing foundations
2.2 Underpinning of foundation of existing building
2.3 Shoring of existing buildings during foundation strengthening
2.4 Retaining properties and waterproofing of basements
2.5 Sealing of cracks in basements

3.0 Roofs (3 hrs)

3.1 Single timber roofs: their types, comparative advantages and some construction Details
3.2 Double and triple roofs: situations for their use, their elements and construction Details
3.3 Roof coverings; tiles, slates, CCT sheets etc.

4.0 Staircases (2 hrs)

4.1 Elements of staircase
4.2 Types of staircases
4.3 Relationship between rise and tread of a stair

5.0 Doors and Windows (3 hrs)

5.1 Doors parts: frame, shutter and their details
5.2 Windows: types and details
5.3 Ventilators types and details

6.0 Joints (4 hrs)

6.1 Types of joints: construction and expansion joints
6.2 The need for provision of joints
6.3 Treatment and detailing of joints at the roof levels
6.4 Treatment and detailing of joints at the floor levels
6.5 Treatment of joints in external walls

7.0 Temporary Construction (3 hrs)

7.1 Scaffolding: single and double scaffolds
7.2 Formwork for excavations and trenches
7.3 Formworks for reinforced concrete construction
7.4 Shoring: horizontal, slant and vertical shores

8.0 Cladding and External Finishing (4 hrs)

8.1 Load bearing and non-load bearing cladding
8.2 Brick facing
8.3 Cladding in stone
8.4 Cladding in concrete panels and their construction details
8.5 Plastering
8.6 Painting and important properties of the paint

9.0 Internal Finishing (2 hrs)

9.1 Non-load bearing partitions: types, functions and methods of connection to the Surrounding structure
9.2 Suspended Ceilings: types, functions and methods of construction

10.0 Electrical Services (2 hrs)

10.1 Residential and commercial requirements
10.2 General principles
10.3 Wiring systems
10.4 Trunkings, busbars and ducts for electrical distribution
10.5 Safety precautions

11.0 Water Supply and Drainage Services (5 hrs)

11.1 Generals principles
11.2 Mains of water supply: storage and distribution system
11.3 Hot water supply
11.4 Drainage of sewage and waste
11.5 Rainwater pipes and gutters

11.6 Septic tanks

12.0 Other miscellaneous services in buildings (4 hrs)

12.1 Lifts and escalators: general principles and practices

Ventilation and heating systems: general principles and construction standards

12.2 Telecommunication

12.3 Air conditioning

References:

- "Understanding Buildings", Reid, E., MIT Press
- "Construction principles, Methods & Materials", Olin, H.B.
- "Building Construction Illustrated", Ching, F.D.k.

Tutorials: Six assignments and two quizzes