Loads
(Week 2)

- Structural members must be designed to support specific loads. Loads are those forces for which a structure should be proportioned. Loads that act on structure can be divided into three categories.
- Dead loads
- Live loads
- Wind loads

BS 8110 Code Safety Provisions (Week 3)

- Structural members must always be proportioned to resist loads greater than service or actual loads, in order to provide proper safety against failure. In the strength design method, the member is designed to resist the factored loads which are obtained by multiplying the factored loads with live loads.
- Ultimate design load= 1.4Gk + 1.6Qk
- Qk = Imposed load, Gk= dead load

Structural Concrete elements (Week 3)

- **Slab:** Slabs are horizontal elements in building floors and roof. They may carry gravity loads as well as lateral loads. The depth of the slab is usually very small relatively to its length and width.
- **Beams:** Long horizontal or inclined members with limited width and height are called beams. Their main function is to transfer loads from the slab to the columns.
- **Column:** Columns are vertical members that support loads from the beam or slabs. They may be subjected to axial loads or moments.
- **Frames:** Frames are structural members that consists of combination of slab, beams and columns
- **Footings:** Footings are pads or strips that support columns and spread their load directly to the soil.
- **Walls:** Walls are vertical plate elements resisting gravity as well as lateral loads e.g retaining walls, basement walls. etc