



# **SNS COLLEGE OF TECHNOLOGY**



**29-03-2021AN AUTONOMOUS INSTITUTION**

**Approved by AICTE New Delhi & Affiliated to Anna University Chennai  
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COIMBATORE**

## **DEPARTMENT OF CIVIL ENGINEERING**

**19GET102 – BASIC CIVIL AND MECHANICAL ENGINEERING**

**I YEAR / I SEMESTER**

**Unit 1 : Civil Engineering Materials and Surveying**

**Topic 4 : Concrete**



# Cement Concrete

**Cement Concrete means Building material.**

**Composition of Cement Concrete**

**1.Binding Material**

**2.Fine aggregate**

**3.Coarse aggregate**

**4.Water**

**Cement : Sand : Coarse aggregate**

**1:1:2      or      1:2:3**

**1:2:4      or      1:3:6**



# Ingredients of Concrete

The concrete consisting of cement, sand and coarse aggregates mixed in a suitable proportions in addition to water is called cement concrete. In this type of concrete cement is used as a binding material, sand as fine aggregates and gravel, crushed stones as coarse aggregates



# Preparation of Cement Concrete



## 1. Mixing Concrete

**(i) Hand Mixing**

**(ii) Machine Mixing**

**2.Placing & Compacting Concrete 3.Curing of Concrete**



# Concrete - Merits

- Concrete can handle the compression stresses 10 times more than the tension and the most of loads in our life is compression.
- Concrete is a brittle material which gives the advantage to make a rigid structure.
- Easy to handle over specially now there is plants that give you ready mix concrete.
- As compared to other materials, concrete is economical in long run
- Fire resistant and sound proof
- Little maintenance
- The green concrete can be easily handled and molded into any shape and size



# Concrete - Demerits

- Concrete is weak in tension.
- Because concrete is a brittle material the strength upon shear (specially at 45 degrees) must be checked.
- Needs another material to reinforce it against excessive shear and tension
- Concrete is liable to disintegrate by alkali and sulphate attack.



# Properties of cement concrete



- 1.Homogeneity**
- 2.Workability**
- 3.Segregation**
- 4.Bleeding**
- 5.Compressive Strength**
- 6.Tensile strength**
- 7.Reinforced Cement Concrete**
- 8.Density**
- 9. Durability**
- 10.Free from Corrosion**
- 11.Good finish**
- 11. 12.Porosity**



# Types of Cement Concrete



1. Cement Concrete
2. Lime Concrete
3. Plain Cement Concrete
4. Reinforced Cement Concrete
5. Pre-Stressed Concrete
6. Light Weight Concrete
7. Pre-Cast concrete
8. White Concrete
9. Coloured Concrete
10. No fines Concrete
11. Fiber Reinforced Concrete
12. Polymer Cement Concrete

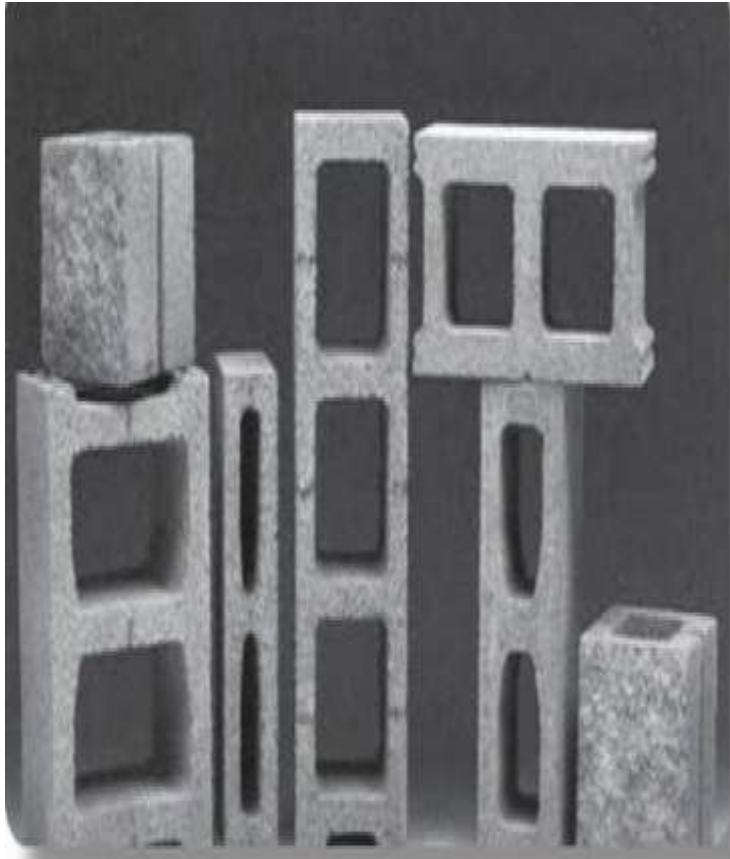




PCC



RCC



LIGHTWEIGHT  
CONCRETE



FIBRE REINFORCED  
CONCRETE



# Qualities of Good Concrete



- Strength
- Durability.
- Density
- Water Tightness.
- Workability
- Resistance To Wear And Tear

***Thank You!!***