Course Number and Name BCE051 - CONCRETE TECHNOLOGY
Credits and Contact Hours
3 & 45
Course Coordinator's Name
Dr. R. Venkata Krishnaiah
Text Books and References
REFERENCES:
1. Neville, A.M. Properties of Concrete, Pitman Publishing Limited, Lnclon.
2. Shetty M.S., Conrete Technology, S. Chand and Company Ltd. Delhi.
3. Rudhani G., Light Weight Concrete Academic Kiado, Publishing Home of Hungarian
Academy of Science, 1963.
Course Description
• To study the properties of concrete making materials, tests, mix design, special concretes and
various methods for making concrete.
Prerequisites Co-requisites
Building Construction NIL
required, elective, or selected elective (as per Table 5-1)
Course Outcomes (COs)         CO1       To learn about concrete making material IS specifications.
10 learn about concrete making material is specifications.
CO2 To know about properties of fresh concrete and hardened concrete.
CO3 To understand the principles and methods of concrete mix design
CO4 To know about the various types of special concrete.
CO5 To understand process of manufacturing of concrete.
Student Outcomes (SOs) from Criterion 3 covered by this Course
COs/SOs a b c d e f g h i j k
CO1 H H H
CO2 H M H H H
CO3 H M H H M
CO4 H H H
CO5 H M H H H
List of Topics Covered

# UNIT I CONCRETE MAKING MATERIALS

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Aggregates, IS Specifications, Properties, Grading, Methods of combining aggregates, specified grading. Cement, Grades of cement. Chemical composition, Hydration of cement, structure of hydrated cement, Special cements - Water Chemical admixtures. Mineral admixtures.

### UNIT II CONCRETE

Properties of fresh concrete, Hardened concrete, Strength, Elastic properties, Creep and shrinkage. Variability of concrete strength. Concrete testing Methods: Non destructive tests ultrasonic pulse velocity, Rebound Hammer test. Pullout tests.

## UNIT III MIX DESIGN

Principles of concrete mix design. Methods of concrete mix design. Indian standard Recommended Method. IS 10262-82

### UNIT IV SPECIAL CONCRETE

Light Weight concrete, Fly ash concrete, Fibre reinforced concrete, Polymer Concrete, Super plasticised concrete, Epoxy resins and screeds for rehabilitation - Properties and Applications-High performance concrete.

## UNIT V CONCRETING METHODS

Process of manufacturing of concrete, methods of transportation, placing and curing - Extreme weather concreting, special concreting methods. Vacuum dewatering underwatering concrete, Ready mix concentrate.

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