

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Admixtures and Special Concretes

Subject Co-ordinator - Prof. Manu Santhanam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Cement Chemistry and concrete performance: Cement history and production
- Lecture 2 - Overview of Cement Chemistry and concrete performance: Quality control and composition
- Lecture 3 - Overview of Cement Chemistry: Composition of Cement and Classification of Cement
- Lecture 4 - Overview of Cement Chemistry: Hydration of Cement
- Lecture 5 - Overview of Concrete Performance: Curing and Hardened Concrete
- Lecture 6 - Overview of Concrete Performance: Basics of Hardened Concrete
- Lecture 7 - Chemical Admixtures: Introduction
- Lecture 8 - Chemical Admixtures: Water reducers - Part 1
- Lecture 9 - Chemical Admixtures: Water reducers - Part 2
- Lecture 10 - Chemical Admixtures: Water reducers - Part 3
- Lecture 11 - Chemical Admixtures: Water reducers - Part 4
- Lecture 12 - Chemical Admixtures: Water reducers - Part 5
- Lecture 13 - Chemical Admixtures: Water reducers - Part 6
- Lecture 14 - Chemical Admixtures: Set controllers
- Lecture 15 - Chemical Admixtures: Set controllers - Accelerators
- Lecture 16 - Chemical Admixtures: Set controllers - Retarders
- Lecture 17 - Chemical Admixtures: Standards
- Lecture 18 - Chemical Admixtures: Air entrainers - Part 1
- Lecture 19 - Chemical Admixtures: Air entrainers - Part 2
- Lecture 20 - Chemical Admixtures: Understanding Concrete Rheology - Part 1
- Lecture 21 - Chemical Admixtures: Understanding Concrete Rheology - Part 2
- Lecture 22 - Chemical Admixtures: Viscosity Modifying Agents (VMA)
- Lecture 23 - Chemical Admixtures: Mechanism of corrosion
- Lecture 24 - Chemical Admixtures: Corrosion inhibitors, Shrinkage reducing admixtures
- Lecture 25 - Chemical Admixtures: Other specialty admixtures
- Lecture 26 - Chemical Admixtures: Curing compounds
- Lecture 27 - Mineral Admixtures: Introduction
- Lecture 28 - Mineral Admixtures: Types, Composition and Particle size distribution
- Lecture 29 - Mineral Admixtures: Microstructure of SCMs and Pozzolonic reactions

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- Lecture 30 - Mineral Admixtures: Pozzolonic activity
- Lecture 31 - Mineral Admixtures: Electrical Conductivity method, Frattini test and Lime saturation method
- Lecture 32 - Mineral Admixtures: Strength Activity test, Lime reactivity test, Mixture Proportioning and R3 t
- Lecture 33 - Mineral Admixtures: Flyash - Part 1: Introduction
- Lecture 34 - Mineral Admixtures: Flyash - Part 2: Classification and structure
- Lecture 35 - Mineral Admixtures: Flyash - Part 3: Effects on fresh concrete
- Lecture 36 - Mineral Admixtures: Flyash - Part 4: Effects on hardened concrete
- Lecture 37 - Mineral Admixtures: Silica fume - Part 1: Introduction
- Lecture 38 - Mineral Admixtures: Silica fume - Part 2: Effects on fresh and hardened concrete
- Lecture 39 - Mineral Admixtures: Silica fume - Part 3: Effects on Microstructure + GGBS - Part 1 : Introduction
- Lecture 40 - Mineral Admixtures: GGBS - Part 2 : Properties
- Lecture 41 - Mineral Admixtures: GGBS - Part 3 : Hydration of slag and Durability of slag cements
- Lecture 42 - Mineral Admixtures: Metakaolin
- Lecture 43 - Mineral Admixtures: LC3 - Part 1 : Introduction
- Lecture 44 - Mineral Admixtures: LC3 - Part 2 : Comparision with other SCMs
- Lecture 45 - Mineral Admixtures: LC3 - Part 3 : Durability Performance
- Lecture 46 - Mineral Admixtures: Agricultural ashes - Part 1 : Sugarcane bagasse ash
- Lecture 47 - Mineral Admixtures: Agricultural ashes - Part 2 : Rice husk ash
- Lecture 48 - Mineral Admixtures: Calorimeter
- Lecture 49 - Mineral Admixtures: Pore solution analysis
- Lecture 50 - Mineral Admixtures: CASH analysis in blended system and Life cycle assessment of concrete - Part
- Lecture 51 - Life cycle assessment of concrete - Part 2
- Lecture 52 - Life cycle assessment of concrete - Part 3
- Lecture 53 - Special concretes - High strength concrete - Definition, design and concept of particle packing
- Lecture 54 - Special concretes - High strength concrete - Particle packing models
- Lecture 55 - Special concretes - High strength concrete - Mix designs, strength and durability
- Lecture 56 - Special concretes - High strength concrete - Design attributes, fresh and hardened properties
- Lecture 57 - Special concretes - High strength concrete - Stress:strain relationships, applications
- Lecture 58 - Special concretes - Ultra high performance concrete - Design principles, strength, durability
- Lecture 59 - Special concretes: Self compacting concrete -Introduction, design requirements and plastic shrin
- Lecture 60 - Special concretes: Self compacting concrete - Segregation and laboratory tests
- Lecture 61 - Special concretes - Self Compacting Concrete - Workability test methods, classifications and iss
- Lecture 62 - Special concretes - Self Compacting Concrete - Design principles, mix designs, concrete properti
- Lecture 63 - Special concretes - Mass concrete - Introduction, materials, thermal cracking
- Lecture 64 - Special concretes - Mass concrete - Design guidelines, temperature differential measurement
- Lecture 65 - Special concretes - Mass concrete - Temperature differential measurement, Design
- Lecture 66 - Special concretes - Mass concrete - Temperature monitoring, nomogram, minimizing restraints
- Lecture 67 - Special concretes - Mass concrete - Heat modelling
- Lecture 68 - Special concretes - Lightweight concrete - Introduction, classifications

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- Lecture 69 - Special concretes - Lightweight concrete - Foamed concrete, lightweight aggregates
- Lecture 70 - Special concretes - Lightweight concrete - Light weigh aggregates, aerated concrete
- Lecture 71 - Special concretes - High density concrete - Heavy weight aggregates, design, case stud
- Lecture 72 - Special concretes - Concrete for 3D printing - Introduction, classification, printing process
- Lecture 73 - Special concretes - Concrete for 3D printing - Developments, advantages, case study
- Lecture 74 - Special concretes - Concrete for 3D printing - Critical parameters, yield stress
- Lecture 75 - Special concretes - Concrete for 3D printing - Mix design approach, admixtures
- Lecture 76 - Special concretes - Concrete for 3D printing - Failure modes, buildability, early-age beahaviour