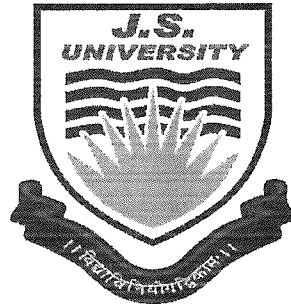


# **J.S. University, Shikohabad**

Established by UP Govt. Act No. 07 of 2015


Recognized by U.G.C. under section 2 (f) of Act-1956



**Value Added Course**

**(Modern Concrete Technology And  
Practice)**

**Faculty of CIVIL ENGINEERING**

	J.S. University, Shikohabad Faculty of Civil Engineering	Value Added Course
		AY: 2018-19

# Modern Concrete Technology And Practice

## Learning Objective:

This Course will provide knowledge of modern technology practice in concrete design

**Duration:** 30 Hours. (Theory and Practical)

## Course Outcomes: -

Maximum Exposure has to be given on Practical Oriented

On successful completion of the course students will be able to:

CO1:-Demonstrate test and analysis of cement, aggregate, sand, effect of water cement ratio.


CO2:-Prepare concrete, carry out simple formwork and reinforcement with the application of modern Power Tools.

CO3:-Prepare reinforcement of different R.C.C. members i,e, Foundation, beams, columns, slabs, Retaining Wall, etc.

CO4:-Erect scaffolding and make the intricate formwork at different locations.

CO5:-Prepare a bar bending schedule and demonstrate bar bending and calculate the estimated quantity of materials.

CO6:-Make different types of arches and lintels with chajja. Layout different types of vertical movement according to shape, location, materials by using stair, lift, ramp and escalator.

	<b>J.S. University, Shikohabad</b> <b>Faculty of Civil Engineering</b>	<b>Value Added Course</b>
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## Syllabus Outline

### 1. Module-1

#### **Strength of Concrete:**

Strength- porosity relationship, factors affecting compressive strength, behaviour of concrete under uniaxial, biaxial and triaxial stress states, Split Tensile strength and modulus of rupture -test methods and empirical formulae for their estimation. Mineral and Chemical admixtures in Concrete: types and their uses.

### 2. Module-2

#### **Concrete Production:**

Vibrator compacted concrete in buildings, pavements and infrastructure projects etc., pumpable concrete, roller compacted concrete and Ready Mixed Concrete- methods, specific features and uses etc. Rheology of Concrete: Flow ability, Segregation, Bleeding and Viscosity etc.

### 3. Module-3


#### **Elasticity, Creep and Shrinkage of Concrete:**

Elastic behaviour, Method of determination of Elastic modulus, factors affecting modulus of elasticity, early volume change in concrete due to plastic shrinkage, autogeneous shrinkage and drying shrinkage- factors affecting them, typical values and their methods of determination

### 4. Module-4

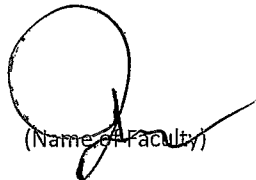
#### **Microstructure of Concrete:**

Interfacial transition zone, hydration kinetics, hydrated cement paste (hcp), calcium hydroxide, presence of micro-cracks in concrete mass - their characteristics and significance on performance of concrete Penetrability of Concrete: Permeability, sorptivity and diffusion in concrete- test methods and significance.

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**References:-**

- 1) "R.C. C Design(Reinforced Concrete Structures)" by BC Punmia
- 2) "Design of Reinforced Concrete Structures" by N.Krishna Raju
- 3) "Reinforced Concrete Design"(Third Edition) by Devdas Menon & S. Pillai



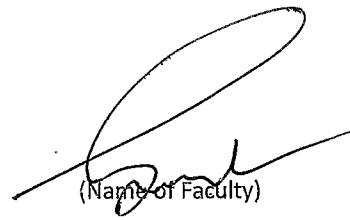
(Name of Faculty)

Course Coordinator




(Name of Faculty)

Dean Academics



(Name of Faculty)

Director/Principle/Dean of  
Faculty/Department

