

SE652: Advances in Concrete Technology and Sustainable Construction Practices

Teaching Scheme			Credits	Marks Distribution				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE	CE	ESE	CE	
3	0	2	5	70	30	30	20	150

Course Content:

Sr. No	Topics	Teaching Hrs.
1	<p><u>Introduction:</u></p> <p>Sustainable Development concept, Introduction of Recent advances in Concrete Technology, Sustainable Construction Practices: world scenario.</p>	03
2	<p><u>Supplementing Cement Materials (SCMs):</u></p> <p>Review of types covering pulverized fuel ash, ground granulated blast furnaces slag and silica fume, Rice husk Ash, manufacture, physical characteristics, effects on properties of concretes. Admixtures: - Plasticizers, Super plasticizers, retarder, accelerators, Curing compounds and their effects on properties of concrete. Epoxy resins and screeds for rehabilitation – Properties and Applications.</p>	08
3	<p><u>Special Concretes:</u></p> <p>High performance concrete, High Strength concrete, fiber reinforced concrete, Light weight concrete, High density and radiation shielding concrete, High volume fly ash concrete and Self compacting concrete.</p>	08
4	<p><u>Sustainable Construction Practices:</u></p> <p>Green Concrete, Geo Polymer Concrete, Reactor Powder Concrete, Recycled concrete, Slag Cement and Health assessment of Concrete.</p>	08
5	<p><u>Special Processes & Technology for Particular Types of Structures:</u></p> <p>Mass concrete, Sprayed concrete, Ferro-cement concrete, pumped concrete, Roller compacted concrete, Sustainability of concrete industry.</p>	07

6 **Repair & Rehabilitation Techniques:**

08

Visual inspection of concrete structure distress in concrete, Non-destructive test, crack repair techniques, damage assessment procedure, deterioration-causes & prevention, strengthening techniques.

Total Hrs.

42

Reference Books:

1. Neville A. M, "*Properties of Concrete*", Pitman Pub., Technology & Engineering.
2. Shetty M. S, "*Concrete Technology*", S. Chand Publishing,
3. Gambhir M. L, "*Concrete Technology*", Tata McGraw-Hill Education.
4. Santhakumar A. R., "*Concrete Technology*", Oxford University Press India.