



SYLLABUS II SEM CIVIL ENGINEERING

Course Title	Advanced Concrete Technology	
Course Code	CT201	
Course Credit	Lecture	: 04
	Practical	: 02
	Tutorial	: 00
	Total	: 05
Detailed Syllabus		
SECTION –I		
Sr. No.	Name of chapter & Details	Hours Allotted
	UNIT -1 Materials And Their Properties	08
	Review of properties of cement, their physical and chemical properties, special purpose cements, Classification and properties of aggregates, soundness of aggregates, alkali aggregate reaction, thermal properties of aggregates, Importance of shape and Surface area and grading, gap graded and aggregates. Admixtures & construction chemicals, Use of Fly Ash, Silica Fumes, Metakaolin & GGBS in concrete	
	UNIT -2 Properties of Concrete	08
	Rheological behavior of concrete, requirements of workability of concrete, Durability & Effect of environmental conditions, Strength & maturity of hardened concrete, Impact, Dynamic and fatigue behaviour of concrete, shrinkage and creep of concrete, behaviour of concrete under fire.	
	SECTION –II	
	UNIT -3	08
	Permeability and Durability of concrete, Parameters of durability of concrete, chemical attack on concrete, Production of concrete; batching mixing, transportation, placing, compaction of concrete. Special methods of concreting and curing, Hot weather and cold weather concreting, Guniting (Shotcreting)	

	UNIT -4	08
	Concrete mix design, Basic considerations and choice a mix proportions, various methods of mix designs including IS Code method. Quality control and quality assurance of concrete, Acceptance criteria, Quality management in concrete construction, Inspection and testing of concrete. Non-destructive testing of concrete, core test and load test.	
	UNIT -5	
	Special concrete such as high strength, Lightweight, heavy weight, vacuum processed concrete, Mass concrete, high performance concrete, Pumpable concrete, Self Compacting concrete, Air entrained concrete, Ferro cement, fiber reinforced concrete, Polymer impregnated concrete. Jet concrete. Recycling & re-use of industrial waste material. Deterioration and repair technology of concrete, Distress and type of repairs, crack sealing techniques	08
	TOTAL HOURS	40

Term Work :

Term work shall be based on the above mentioned course content.

Text book:

1. Neville, A.M., Properties of Concrete, Pearson Education Asia (P) Ltd, England, 2000.
- 2.. Concrete Technology, Gambhir M.L, Tata McGraw Hill
3. Concrete Technology, M.S.Shetty, S.Chand & Company New Delhi
4. Jackson, N., Civil Engineering Materials, ELBS, 1983.

Reference Books:

Concrete Technology, Gambhir M.L, Tata McGraw Hill
Concrete Technology, M.S.Shetty, S.Chand & Company New Delhi
Concrete microstructure, properties & materials, P.Kumar Mehata, Paulo & J.M. Monteiro,
Light Weight Concrete, Short & Kenniburg, Asia Publishing House, Bombay
Concrete Technology -Vol I. & II ,Orchard D.F.; Applied Science Publishers
Properties of Concrete, Neville A.M., J.J.Brook, Addison Wesley