ADVANCED CONCRETE TECHNOLOGY

Offering Branches	CE		
Course Category:	HONORS	**Credits:**	4
Course Type:	Theory	**Lecture-Tutorial-Practical:**	3-1-0
Prerequisites:	20ES1301-Construction Materials & Concrete Technology	**Continuous Evaluation:**	30
		Semester End Evaluation:	70
		Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to:

CO1	**Discuss** the concrete ingredients and its influence at gaining strength.	K2
CO2	**Design** of concrete mix and grade as per IS codes.	K4
CO3	**Summarise** the concepts of conventional concrete and its differences with other concretes like no fines, light weight etc.	K2
CO4	**Describe** the application and use of fiber reinforced concrete.	K2
CO5	**Design** and develop the self-compacting and high performance concrete.	K4

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2			2	2						2	2
CO2	2	2	2			3	3						2	3
CO3	3	3	3			2	2						3	2
CO4	2	2	2			2	2						2	2
CO5	2	2	2			3	3						2	3
Avg.	**2**	**2**	**2**			**2**	**2**						**2**	**2**

1- Low **2-Medium** **3-High**

Course Content

I	Properties of cement, fine aggregate and coarse aggregates, Additives and Admixtures in Concrete, Rheology of Concrete.	**CO1**
II	Manufacturing and methods of concreting, Properties of fresh and hardened concrete, mix design by I.S. method	**CO2**
III	Design and manufacture of normal concrete, Light weight concrete – Cellular concrete – No fines concrete – Aerated & foamed concrete	**CO3**
IV	Design and manufacture of fiber reinforced concrete – Polymer concrete – Fly ash concrete	**CO4**
V	Design and manufacture of Self compacting concrete – High performance concrete – Very high strength concrete – High density concrete	**CO5**

Learning Resources

Text Books	1. Neville, A.M. and Brookes, J.J., "Concrete Technology", 2nd Edition, Pearson Education, 2010. 2. Gambhir, M.L., "Concrete Technology", 2nd Edition, Tata McGraw Hill Publishers, New Delhi, 2009.
Reference Books	1. Shanta Kumar A.R., "Concrete Technology", 2nd Edition, Oxford University Press, New Delhi, 2000. 2. Krishna Raju. N, "Design of Concrete Mixes", 2nd Edition, CBS Publishers and Distributors, 2009.
e- Resources & other digital material	1. https://archive.nptel.ac.in/courses/105/106/105106176/