ADVANCED CONCRETE TECHNOLOGY

PROF. MANU SANTHANAM
Department of Civil Engineering
IIT Madras

TYPE OF COURSE : Rerun | Elective | PG
COURSE DURATION : 12 weeks (20 Jul'20 - 9 Oct'20)
EXAM DATE : 18 Oct 2020

INTENDED AUDIENCE : M.E/M.Tech,M.S,PhD,
PRE-REQUISITES : Basic course on Construction Materials in UG level. Additional course on Concrete Technology (UG level) is optional.

INDUSTRIES APPLICABLE TO : Civil contracting firms, Ready mixed concrete companies, Cement companies, Construction chemicals companies, Materials research laboratories etc

COURSE OUTLINE :
This course explores the materials science of concrete, and attempts to bring about the understanding of concrete behavior from a fundamental perspective. The first part of the course discusses the structure and properties of concrete making materials. This is followed by mixture proportioning of high performance concrete, and a study of selected topics regarding fresh and hardened concrete behavior. The final part of the course deals with long term performance issues, related to creep, shrinkage and durability of concrete.

ABOUT INSTRUCTOR :
Dr. Manu Santhanam is a Professor in the Department of Civil Engineering at IIT Madras, where he has worked since October 2001. His primary research interests are in Cement Chemistry, Durability of Concrete and Non-Destructive Evaluation. He has published more than 75 refereed journal papers, and has guided 10 PhD theses, in addition to being lead investigator on several sponsored projects.

COURSE PLAN :
Week 01 : Cement production and composition
Week 02 : Cement chemistry
Week 03 : Aggregates for concrete
Week 04 : Chemical admixtures
Week 05 : Chemical and Mineral admixtures
Week 06 : Mineral admixtures
Week 07 : High performance concrete mixture proportioning
Week 08 : Topics in fresh concrete
Week 09 : Topics in hardened concrete
Week 10 : Creep and shrinkage
Week 11 : Durability of concrete
Week 12 : Durability of concrete