CE 577

Department of Civil Engineering
King Saud University

Course Description: CE 577:Advanced Concrete Technology 3(3,0)	Microstructure of cement paste; special cements; concrete-environment interactions; time-dependent effects: Creep and shrinkage; use of marginal and recycled aggregate; polymers and polymer concrete systems: properties and use. Fiber reinforced concretes: properties and use.
Class/ Tutorial Schedule	Class is held three times per week in 50-minute lecture sessions.
Computer Applications	MS Excel and Power point softwares are encouraged to be used during the course.
Term Project	Each student will work on a term project in the area of concrete technology after consulting with the instructor of the course and getting his approval.
Project Presentation	Each student is required to submit a technical report for his research project, and give 15 minutes power presentation in the class.
Contribution of Course to Meeting the Professional Component	Students completing this course will be able to ●Analyze the microstructure of cement paste and determine its effect on the strength of concrete. ●Understand the long term performance of concrete as affected by shrinkage and creep. ●Determine the effects of various environments on properties of concrete and steel reinforcement. ●Study different types and properties of special cements and concretes and understand their importance and applications in construction industry.
Textbook(s)	Mindess, S., and Young, F.J., Concrete, 2nd Edition, 2002.
Reference Books	1. Neville, A.M., Properties of Concrete, Fourth Edition, 1996. 2. Mehta, P.K., Concrete (Structure, Properties and Materials), 1986. 3. Design and control of concrete mixtures, by Steven Kosmatka, and MichelleWilson, Portland Cement Association, latest edition.
Outcome Assessment	Midterm Exam 35% Term project & Presentation 20% Homework 5% Final Exam. 40%
Midterm Exam **Term Project**	I. End of 7th Week II. End of 13th Week
Instructor	Prof. Mohammad Jamal M. Al-Shannag (Office: 2A 31); Tel 46-76928; Email: mjshanag@ksu.edu.sa Web: http://fac.ksu.edu.sa/mjshanag/