

CE 501
Concrete Materials

First Semester 2003-04 (031)

Instructor: Dr. Ahmad S. Al-Gahtani

Office : 16-312 , Tel. (03) 860-2220

Texts : * Concrete Structures, Properties & Materials, P.K. Mehta.

* Properties of Concrete, A.M. Neville.

* Selected handouts of research papers.

COURSE OUTLINE

<u>Date / Week No.</u>	<u>Subject</u>
Sept. 13 1, 2	<u>Introduction to Properties of Concrete Materials</u> : constituent components, manufacturing and formation of cement compounds, oxide composition, alkalies, gypsum compositional limits.
Sept. 27 3, 4	<u>Types of Portland Cement</u> : chemical admixtures, mineral admixtures, significance and classification, pozzolanic reactions, effect on fresh concrete properties, effect on hardened concrete.
Oct. 11 5, 6	<u>Hydration of Portland Cement</u> : hydration of individual compounds, control setting, factors affecting setting, hydrated cement paste structure, capillary pores, gel pores, strength of cement gel.

EXAM # 1

Oct. 25 7, 8	<u>Strength of Hardened Cement Paste</u> : factors affecting strength, dimensional stability-durability, creep, shrinkage, moisture movement, stress-strain relations, characteristics.
Nov. 8 9, 10	<u>Aggregates Characteristics and Classifications</u> : effect of shape & texture on workability and strength, grading, contaminations, influence on: abrasion resistance, on creep, durability, mix design, Mod. of elasticity, shrinkage, strength of concrete, thermal expansion, volume changes. Alkali-silica reaction. Alkali-carbonate reaction.

- Id Al-Fitr Vacation 12-30 Nov. 2003 -

Date / Week No.**Subject**

Dec. 7 11, 12 **Workability of Concrete**: Factors affecting workability, need for sufficient workability, measurement of workability, compaction factor test, flow test, other tests. Critical review of methods of measurement.

EXAM # 2

Dec. 20 13, 14 **Concrete Durability**: Hot weather concreting, characteristics of local environment, corrosion of reinforcement, sulfate attack, salt-weathering, chloride diffusion, carbonation.

Jan. 03 15 Repair materials, classification, testing and evaluation, applications.

FINAL EXAM 10-20 Jan. 2004

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- Notes:**
1. There will be some related site visits.
 2. Each student will be assigned term project.

Grade Distribution:

First Major Exam	25%
Second Major Exam	25%
Term Project	20%
Final Exam	<u>30%</u>
	100%

CE 201- SECTION5 TERM (021)

Instructor : Dr. A. S. Al-Ghatani.

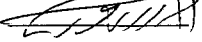
Text book : Engineering Mechanics; STATICS.

Serial#	Homework#	Problems #
1	1	2-5, 2-10, 2-23, 2-33, 2-44, 2-55.
2	2	2-95, 2-107, 2-113, 2-121.
3	3	2-135, 2-140, 3-15, 3-30, 3-45, 3-47.
4	4	4-9, 4-12, 4-38, 4-43, 4-45, 4-54.
5	5	4-60, 4-62, 4-67, 4-70, 4-82, 4-89.
6	6	4-99, 4-111, 4-129, 4-143, 4-149.
7	7	5-26, 5-34, 5-53, 5-66, 5-75, 5-83, 5-86
8	8	6-9, 6-18, 6-31, 6-43.
9	9	6-102, 6-110, 6-129, 6-83.
10	10	7- 6, 7-22, 7-41, 7-43, 7-49, 7-59.
11	11	9-3, 9-9, 9- 46, 9-79, 9-53.
12	12	10-33, 10- 35, 10- 46.

B. OTHER ACTIVATESPlease list any other activities you have undertaken during the Academic Year 2002 / 2003.

Dates	Activity
	I have supervised and participated on examining the following CE students:
	A-Senior Projects (CE 411):
	1- Al-Sharif, Abdullah, "Test of FBECR Reinforcements and Design of School Building" Jan. 2003, Advisor.
	B-Coop Training (CE 351):
	1- Adel Al-Ghamdi, "Construction of Emarat Al-Baha Building," November 2003, Advisor.
	2- Nasser Al-Qahtani, "Design and Construction of Concrete Facilities in Aramco," May 2003, Supervisor.
	3- Yasser Al-Hardi, "Production of Precast & Prestressed Concrete Members," May 2003, Member.
	4- Abdulrahman Al-Gahtani, "Concrete Practice in Saudi Electric Company," May 2003, Member.
	5- Mohammad Badughaish, "Construction of Private Clinic Building," Dec. 2002, Member.

The information given in this form is correct, accurate and complete.

Name: A.S. Al-GahtaniID#: 1781039Department: Civil EngineeringSignature/ Date:  Aug. 30, 2003