

Construction & Building Engineering Courses (CB)

Construction Materials & Reinforced Concrete Structures Courses Group

CB 352 – Construction Materials

COURSE INFORMATION

Course Title: Construction Materials

Code: CB 352

Hours: Lecture – 2 Hrs. Tutorial – 2 Hrs. Laboratory – 2 Hrs.

Credit –3.

Prerequisite: CB 251

GRADING

Class Performance/Attendance: 10%

Midterm # 1/Assignments – (7th Week): 30%

Midterm # 2/Assignments – (12th Week): 20%

Final Exam: 40%

COURSE DESCRIPTION

Terminology and basic geology of construction materials Physical properties: Weight - Volume relationship, Sieve Analysis, Graduation curves, and Classification, Engineering properties: Strength and deformation characteristics, Aggregates in Construction, Hydraulic Cements, Properties of Cement Paste, Portland cement concrete: Basic ingredients, basic constituent, Proportioning of concrete mixtures. Concrete Strength and behavior, Concrete Durability, Admixtures in Concrete, Masonry, Asphalt concrete: proportions, Mix procedures and Engineering properties.

TEXT BOOK

Materials for Civil and Construction Engineers by M.S. Mamlouk, J. P. Zaniwski
Publisher: Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, NJ
USA, 2nd Edition, 2006.

REFERENCE BOOKS

Properties of Concrete by M.Neville Publisher: longman & Technical, England, 3rd
Edition, 1996.

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Concrete: Structure, properties, and Materials by P.K.Mehta and P.J.Monterio
Publisher: Prentice-Hall,Englewood Cliffs,USA, 2nd Edition, 1994.

The Science and Technology of Civil Engineering Materials by P.K.Mehta and
P.J.Monterio Publisher: Prentice-Hall,Englewood Cliffs,USA, 2nd Edition, 1994.

The Science and Technology of Civil Engineering Materials by J. F. Young, S.
Mindess, R. J. Gray and A. Bentur Publisher: Prentice Hall, Upper Saddle River, NJ
USA, 1998.

Civil Engineering Materials by Shan Somayaji Publisher: prentic-Hall,Englewood
Cliffs, USA,1995.

Construction Materials their nature and behavior by J.M.Illston Publisher: E.&FN
Spon,1994.

Manual for concrete partice "Parts 1- 5" by American Concrete institute Publisher:
Detroit, USA, 1995.

ESS Standards & ASTM Standards.

Materials for civil and Highway Engineers by Derucher,K.N.,Korfiatis, G.P.,and
Ezeldin,A.S. Publisher: Prentice-Hall, Englwood Cliffs, N.J.,USA, 3rd Edition ,1994.

C O U R S E A I M

The aim of the course is to familiarize the students with different construction materials
and their specifications.

S P E C I F I C O U T C O M E S O F I N S T R U C T I O N

The student should know component, design and performance of different construction
materials.

C O U R S E O U T L I N E

Week Number 1: Terminology and basic geology of construction materials,
Specifications and codes – Economy factor.

Week Number 2: Engineering properties: Strength and deformation
characteristics

Week Number 3: Non-mechanical properties: Weight - Volume relationship,
Sieve Analysis, Selection of materials for sustainable
constructions.

Week Number 4-5: Aggregates in Construction.

Week Number 6: Hydraulic Cements.

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- Week Number 7:* Properties of Cement Paste, Quiz.
- Week Number 8:* Portland cement concrete: Basic ingredients, basic constituent.
- Week Number 9:* Proportioning of concrete Mixtures.
- Week Number 10:* Concrete Strength and behavior.
- Week Number 11:* Concrete Durability.
- Week Number 12:* Admixtures in Concrete.
- Week Number 13:* Masonry.
- Week Number 14:* Wood in Construction
- Week Number 15:* Asphalt concrete: proportions, Mix procedures, Engineering properties, Quiz.
- Week Number 16:* Final Exam.

COURSE COORDINATOR AND DEMAND

Course Coordinator: Dr Adel M.Belal .

Course Demand: *Required*