

FACULTY OF ENGINEERING
CIVIL ENGINEERING DEPARTMENT
COURSE OUTLINE

Course Unit Title	Materials of Construction	
Course Unit Code	CE244	
Type of Course Unit	Compulsory	
Level of Course Unit	2	
National Credits	4	
Number of ECTS Credits Allocated	6	
Theoretical (hour/week)	4	
Practice (hour/week)		
Laboratory (hour/week)	2	
Year of Study	2 nd	
Semester when the course unit is delivered	2 nd	
Course Coordinator	Assist Prof. Dr. Pinar Akpınar	
Name of Lecturer (s)	Assist Prof. Dr. Pinar Akpınar	
Name of Assistant(s)		
Mode of Delivery	Face to Face; Formal Lectures and Laboratory practice	
Language of Instruction	English	
Prerequisites and co-requisites		
Recommended Optional Programme Components	none	
<p>Objectives of the Course: This course is designed for providing the students a solid background on the history, raw materials, manufacture, types, properties and uses of: Gypsum, Lime, Cement. Aggregates: Classification, properties, uses, gradation, absorption capacity and moisture content, deleterious materials in aggregates, concrete durability problems related to aggregates. Properties and uses of admixtures. Manufacture of concrete, performance criteria for fresh and hardened concrete, strength and durability, concrete mix design calculations.</p>		
Learning Outcomes		
When this course has been completed the students should be able to		Assessment

1	Develop a thorough understanding on the manufacture, properties and the use of different construction materials.	1 & 2
2	Gain experience on the laboratory works while observing standard test methods on construction materials	5
3	Gain additional experience on site applications by attending various designed field trips.	3

Assessment Methods: 1. Written Exam 2. Assignment 3. Project/Report 4. Presentation 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to relate and apply fundamental sciences to learning the essential civil engineering concepts and theories of different branches.	1
2	Ability to understand the derivation of these concepts and theories by relating them to the real-life engineering cases within the related civil engineering branch.	5
3	Ability to define clearly and analyze the engineering problems by applying the introduced civil engineering concepts and theories of the related branch.	3
4	Ability to use decision-making skills and perform design calculations correctly for the solution of the defined problem/project by applying the introduced theories of the related civil engineering branch.	5
5	Ability to understand and carry out the practical applications of learned civil engineering concepts and theories on site and/or laboratory.	5
6	Ability to use software packages for the analysis and/or the design of the defined civil engineering problems/projects.	1
7	Ability to manage time and resources effectively and efficiently while carrying out civil engineering projects.	1
8	Ability to participate in team-works for the solution of the targeted problem.	2
9	Ability to write technical reports and/or to carry out presentations on the studied engineering project the modern techniques and facilities..	3
10	Ability to carry out and finalize a civil engineering study/project by showing professional ethics.	1

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents			
Week	Chapter		Exams
1.		Gypsum	
2.		Lime	

3.		Portland Cement Types	
4.		Other Cements Types	
5.		Properties of Cements	
6.		Aggregates	
7.		Aggregates	
8.			Mid-term Examination
9.		Admixtures	
10.		Concrete Manufacture	
11.		Fresh Concrete	
12.		Hardened Concrete	
13.		Hardened Concrete	
14.		Concrete Mix Design Calculations	
15.			Final Examination

Recommended Sources

1. **Textbook:** Concrete Technology, Neville A. M., & Brooks J. J., Prentice Hall, 2008.
2. Concrete- Microstructure, Properties and Materials, Mehta P. K., Monteiro P. J. M., McGraw- Hill, 2006.
3. Materials of Construction, Turhan Y. Erdoğan, METU Press, 2002.

Supplementary Material(s): CE244 LECTURE NOTES-NEU.

Assessment

Attendance & Assignment		
Midterm Exam (Written)	35	
Laboratory	15%	
Final Exam (Written)	50	
Total	100%	

ECTS Allocated Based on the Student Workload

Activities	Number	Duration (hour)	Total Work load (hour)
Course duration in class (including the Exam week)	15	4	60
Assignments	6	2	12
Laboratory Experiments	8	1	8
Laboratory- Report Writing	8	1	8

Midterm Examination	1	2	2
Final Examination	1	2	2
Self-Study	15	4	60
Total Workload			152
Total Workload/30 (h)			5.1
ECTS Credit of the Course			6