

COURSE IDENTIFICATION FORM

Course Code and Name: IM5060 Use Of Industrial Wastes In Concrete

Department of : Civil Engineering / Department / Civil Engineering Master's Degree Program With Thesis

Semester	Theoretic Hour	Practice Hour	Total Hour	Credits	ECTS	Education Language	Type: Compulsory Elective
Fall	3	0	3	3	5	Turkish	Elective

Prerequisite (s)

Instructor

Assoc. Prof. Dr.Selim CEMALGİL

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Course Assistant

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Groups / Classes

Course Aim

To examine the microstructural properties of concrete and composites, the similarities and differences between the loading behaviors, environmental effects, physical and mechanical properties of these materials, and to have information about new material technologies.
 To gain advanced knowledge about building materials by expanding and detailing the basic knowledge of materials used in civil engineering.

Course Goals

- 1.To develop and deepen their knowledge at the level of expertise in a field of civil engineering, based on undergraduate qualifications
- 2.To understand the interaction between disciplines related to the field
3. To be able to use theoretical and practical knowledge at the level of expertise gained in the field
- 4.To be able to create new knowledge by integrating knowledge in the field with knowledge from different disciplines; To be able to solve problems that require expertise using scientific research methods,
5. Being able to independently construct a problem in the field, develop a solution method, solve it, evaluate the results and apply it when necessary.
6. To be able to develop new strategic approaches and produce solutions by taking responsibility in unforeseen complex situations that will be encountered in the applications in the field.
7. To be able to critically evaluate information related to the field, to direct learning and to carry out advanced studies independently.

8. To be able to systematically convey current developments in the field

	<p>and one's own work to groups within and outside the field, in written, verbal and visual formats.</p> <p>9. To be able to examine social relations and the norms that guide these relations from a critical perspective, and to take action to improve them and change them when necessary.</p> <p>10. Being able to communicate verbally and in writing in at least one foreign language</p> <p>11. To be able to use information and communication technologies at an advanced level along with computer software at the level required in the field.</p> <p>12. To be able to develop strategies, policies and implementation plans on issues related to the field and to evaluate the results obtained within the framework of quality processes.</p> <p>13. To be able to teach and supervise social, scientific and ethical values in the stages of collecting, interpreting and announcing data related to the field.</p> <p>14. To be able to apply the knowledge and problem-solving skills they have absorbed in their field in interdisciplinary studies.</p>
Course Learning Outcomes and Proficiencies	<ul style="list-style-type: none">• Definition and types of industrial waste materials• Use of waste materials in the construction industry• Physical - chemical and mechanical properties of waste materials
Course Basic and Auxiliary Contexts	<p>1. Siddique, R. Waste materials and by-products in concrete, India, 2008 2. Neville, A.M., Properties of concrete, Longman, 1993. 3. Mehta, P.K., Concrete, structure, properties and materials, Prentice-Hall, 1986. 4. Şimşek O., Advanced concrete technology, Seçkin publishing house, Ankara, 2010</p>
Methods of Give a Lecture	Face to Face Lecture, Question and answer, demonstration,

Assessment Criteria		If Available, to Sign (x)	General Average Percentage (%) Rate
	1. Quiz	X	50
	2. Quiz		
	3. Quiz		
	4. Quiz		
	5. Quiz		
	Oral Examination		
	Practice Examination (Laboratory, Project etc.)		
	Final Exam	X	50
Semester Course Plan			
Week	Subjects		
1	Environmental impacts of industrial waste		
2	Pozzolanic properties of industrial wastes		
3	Definition and types of fly ash from industrial wastes		
4	Types and technical characteristics of industrial waste materials (silica fume, blast furnace slag, waste plastics)		
5	Types and technical specifications of industrial waste materials (Waste glass, waste wheels, brick and tile flour, sawdust, rice husk ash, wood ash)		
6	Types and technical specifications of industrial waste materials (Waste glass, waste wheels, brick and tile flour, sawdust, rice husk ash, wood ash)		
7	Reserves, transportation, storage and evaluation of waste		
8	Usage areas and usage criteria as building materials		
9	Midterm exam		
10	Advantages and disadvantages of usability in concrete		
11	Concrete usage rates and concrete mix calculations		
12	Examining the effect of physical and chemical properties on fresh concrete		
13	The physical and chemical properties it will impart to hardened concrete		
14	Examining the effect of mechanical properties on hardened concrete		