

CONSTRUCTION MATERIALS

Credits	3 (2.2.5)			Course code	CI2037
Periods	Total: 60	LT: 30	TH: 15	TN: 15	BTL/TL:
Evaluation	BT:	TN: 30%	KT: 20%	BTL/TL/ĐA:	Thi: 50%
Evaluation type	<ul style="list-style-type: none"> - <i>Midterm exam: quiz, 45 minutes</i> - <i>Final exam: quiz, 90 minutes</i> - <i>Experiment: report</i> 				
Prerequisite course					
Previous course	Strength of Materials				CI2007
Co-requisite course					
Training field	Technology of Construction Materials				
Standard	Undergraduate				
Course grade	2				
Other notes	<i>Study theory for 15 weeks with 3 teaching periods per week, organize experimental teaching for 5 weeks with 3 teaching periods per week, experimental teaching starts from the 3rd week. Practice and exercise is for 15 weeks together with theory class.</i>				

Aims of course

The subject aims to equip the student with wide knowledge about essential physical-chemical-mechanical characteristics of construction materials of inorganic, organic, and mixed types.

On the basic, the students know calculating basic criteria for characteristics and raw material components; having methods for evaluating raw materials quality; catching a certain of essential technological processes for creating products. In addition, they know the method of choosing and using materials for the construction to guarantee requirements for technical quality and economical effect.

Study documents

Books:

- [1] Giáo trình vật liệu xây dựng, Lê Đỗ Chương - Bùi Sĩ Thanh - Phan Xuân Hoàng, NXB Đại học và THCN, Hà Nội, 1977;
- [2] Giáo trình vật liệu xây dựng, Phùng Văn Lự và các tác giả, Nhà xuất bản Giáo dục, 2000;
- [3] Bài tập vật liệu xây dựng, Phùng Văn Lự và các tác giả, Nhà xuất bản Giáo dục, 2000;
- [4] Tuyển tập tiêu chuẩn xây dựng - tập 8 & 10, Bộ xây dựng, 2004;
- [5] Civil engineering materials, Neil Jackson, Ravindra K.Dhir, London, 1994, fourth edition.

Learning outcomes

STT	Course learning outcomes	CDIO
L.O.1	Apply basically science and basically specialist knowledge	1.2
	L.O.1.1 – Apply basic knowledge to determine physical properties of construction materials L.O.1.2 – Apply basic knowledge to determine mechanical properties of construction materials	1.2.1, 1.2.2 1.2.3, 1.2.4
L.O.2	Analyze basic properties of construction materials	1.3, 2.1
	L.O.2.1 – Modelization of problem during analysis of materials	2.1.3
	L.O.2.2 – Get knowledge and skill to analyze properties of materials	1.3.12
L.O.3	Specify and classify construction materials	2.3, 2.4
	L.O.3.1 – Application classification of construction materials	2.3.1, 2.3.2
	L.O.3.2 – The order of material arrangement in a layout of a structure	2.3.4, 2.4.2
L.O.4	Mix design and manufacturing technology of construction materials	4.4, 4.5
	L.O.4.1 – Know principles of mix design of construction materials	4.4.2, 4.4.3
	L.O.4.2 – Know manufacturing process of construction materials	4.5.1, 4.5.2
L.O.5	Apply software to design mix proportion and analyze properties of construction materials.	4.4, 4.5
	L.O.5.1 – Use popular software to design mix proportions of materials	4.4.3, 4.4.4
	L.O.5.2 – Analyze behavior of construction materials using software such as Ansys, Etab và Sap	4.5.3, 4.5.4

L.O.6	Know application and determine properties of construction materials	3.1, 4.1, 4.5
	L.O.6.1 – Apply suitable construction materials with relevant properties for sustainable construction	3.1.2, 4.1.3, 4.1.6
	L.O.6.2 – Know how to determine properties of construction materials in use	4.5.4, 4.5.5

Learning strategies & Assessment scheme

Total score of course includes:

- Experiment: 30%
- Midterm exam: 20%
- Final exam: 50%

Instructors

- Assoc.Prof. Nguyen Van Chanh
- Assoc.Prof. Tran Van Mien
- Dr. Le Anh Tuan
- Dr. Nguyen Ninh Thuy
- Dr. Vu Quoc Hoang