

**MINISTRY OF EDUCATION AND TRAINING
HO CHI MINH CITY OPEN UNIVERSITY**

SYLLABUS

I. General information

1. Course title in Vietnamese: Vật Liệu Xây Dựng

Course code: CENG5202

2. Course title: Construction and Building Materials

3. Mode of delivery:

FTF Online Blended

4. Language(s) for instruction:

Vietnamese English Both

5. Thuộc khối kiến thức/kỹ năng/ Knowledge/Skills:

General Major

Foundation Additional

Discipline Graduation thesis

6. Number of Credits

Total	Theory	Practice	Self-study
2 (2,0,4)	2	0	70

7. Responsible of the course

a) Faculty/Division: Faculty of Civil Engineering

b) Lecturer: Nguyen Thi Bich Thuy

c) Email: thuy.ntbich@ou.edu.vn

d) Working Room: Room 705, Faculty of Civil Engineering, Ho Chi Minh City Open University, Address: 35-37 Ho Hao Hon St, Co Giang Ward, District. 1, Ho Chi Minh City

II. Course overview

1. Course description:

The subject of Construction and building materials is a subject in the basic knowledge of Civil Engineering and Technology. The course provides students with a foundation knowledge of basic building materials. On this foundation, students will learn the following subjects such as: Reinforced concrete structure 1, 2, 3; Construction engineering and many other disciplines and specialties.

2. Requirements:

No.	Requirements	Code
1.	Pre-requisites courses	
2.	Preceding courses	
3.	Co-courses	

3. Course objectives

At the conclusion of the course, students should be able to:

Course objectives	Description	Programme learning Outcomes (PLOs) compactible to the course
CO1	<i>Knowledge:</i> - Distinguish the mechanical and physical properties of construction and building materials.	PLO3 PLO4

	<ul style="list-style-type: none"> - Evaluate the basic properties of construction and building materials, including bricks, tiles, cement, sand, stone, concrete, mortar, admixtures. - Evaluate the technical requirements of construction and building materials, including bricks, tiles, cement, sand, stone, concrete, mortar, admixtures. 	
CO2	<i>Skill:</i> <ul style="list-style-type: none"> - Ability to calculate parameters related to building materials for design, calculate the materials of construction. - Ability to analyze and select the suitable construction materials for each construction. - Ability to monitor, evaluate and verify the quality of construction and building materials 	PLO5
CO3	<i>Attitude:</i> <ul style="list-style-type: none"> - Serious, careful, and hard – studying to solve problems in the course. 	PLO8

4. Course learning outcomes (CLOs)

At the conclusion of the course, students achieve:

Mục tiêu môn học/Course objectives	CĐR môn học (CLO)	Mô tả CĐR -Description
CO1	CLO1.1	Trình bày các tính chất cơ bản của vật liệu xây dựng. Explain the relationships between mechanical and physical properties in each building material.
	CLO1.2	Tính toán các thông số kỹ thuật của vật liệu xây dựng phục vụ cho thiết kế, tính toán khối lượng vật liệu thi công công trình. Distinguish the technical requirements of each type of building materials, according to current Vietnamese standards.
CO2	CLO2.1	Phân tích định tính chất lượng của vật liệu xây dựng. Apply current Vietnamese standards to monitor, evaluate and verify the quality of building materials in the laboratory and/or at the construction site
CO3	CLO3.1	Chăm chỉ học tập, cẩn thận và chính xác. Hard-studying the course, accurate and careful calculation

Integrated matrix between Course learning Outcomes (CLOs) and Programme Learning Outcomes (PLOs)

CLOs	PLO3	PLO4	PLO5	PLO8
CLO1.1	3			
CLO1.2		3		
CLO2.1			3	
CLO3.1				3

1: Không đáp ứng

2: Ít đáp ứng

3: Đáp ứng trung bình

4: Đáp ứng nhiều

5: Đáp ứng rất nhiều

5. Textbooks and materials

a) Textbooks

[1] Phan Thế Vinh, Trần Hữu Bằng, *Giáo trình vật liệu xây dựng*, NXB Xây Dựng, 2013, [38439].

b) *Other materials*

[2] Michael S. Mamlouk and John P. Zaniewski, *Materials for Civil and Construction Engineers*, 4th Edition, Prentice Hall, 2016, [55045].

[3] Phùng Văn Lự và các tác giả, *Bài tập vật liệu xây dựng*, NXB Giáo Dục, 2012, [48122].

[4] Bộ xây dựng, *Tuyển tập tiêu chuẩn xây dựng của Việt Nam. Tập 8, Vật liệu xây dựng và sản phẩm cơ khí xây dựng*, NXB Xây dựng, 2005, [15060].

c) *Software*

6. Student assessment

Type of assessment	Assessment methods	Assessment time	Course learning Outcome /CLOs	Weight %
(1)	(2)	(3)	(4)	
A1. Formative assessment	A.1.1. Individual assessment	End of chapter 1	CLO1.1	20%
	Total			20%
A2. Mid-term assessment	A.2.1. Mid-term exam	End of chapter 2	CLO1.1, CLO1.2, CLO2.1	30%
	Total			30%
A3. End-of-course assessment	A.2.1. Final exam	End of semester	CLO1.1, CLO1.2, CLO2.1, CLO2.2, CLO3.1	50%
	Total			50%
Total				100%

a) *Assessment format, content and time:*

- A1.1 Individual assessment
- Format: LMS system
- Assessment content: Chapter 1.
- A1.2 Mid-term exam
- Format: essay
- Content: Chapter 1, 2.
- Time: 60 min
- A2.1 Final exam
- Format: essay
- Content: Chapter 1, 2, 3, 4.
- Time: 60 phút

b) *Rubrics*

Rubric A.1.1 Individual assessment, 20%

Topic: Determine the physical properties of materials

Course learning Outcome /CLOs	RESULTS NEEDED TO ACHIEVE						Proportion
	Level	Excellent	Good	Fair	Average	Fail	
	Scores	9,0 - 10	8,0 - 8,9	6,0 - 7,9	5,0 - 5,9	<4,0	
CLO1.1 Explain the relationships between mechanical and physical properties in each building material.	Determine the main properties of materials.	Correct 100%	Correct upto 90%	Correct upto 70%	Correct upto 50%	Correct less than 50% Or late submission on LMS	100%

Rubric A.2.1. Mid-term exam, 30%

Topic: Evaluation of technical requirements, select cement types; calculate the volume of materials at the construction site.

Course learning Outcome /CLOs	RESULTS NEEDED TO ACHIEVE						Proportion
	Level Scores	Excellent 9,0 - 10	Good 8,0 – 8,9	Fair 6,0 – 7,9	Average 5,0 – 5,9	Fail <4,0	
CLO1.2 Distinguish the technical requirements of each type of building materials, according to current Vietnamese standards. CLO2.1 Apply the properties of materials to determine the design parameters.	Solve problems about properties of materials and cement, determine properties of materials and compressive strength of cement	Finish exam and correct 100%	Finish exam and correct upto 90%	Finish exam and correct upto 70%	Finish exam and correct upto 50%	Correct less than 50% Or do not join the examination	100%

Rubric A.3.1 Final exam, 50%

Topic: Apply the knowledge to analyze the correlation relationship between the main properties of building materials; assess the quality of major building materials; calculate the volume of construction materials, etc.

Course learning Outcome /CLOs	RESULTS NEEDED TO ACHIEVE						Proportion
	Level Scores	Excellent 9,0 - 10	Good 8,0 – 8,9	Fair 6,0 – 7,9	Average 5,0 – 5,9	Fail <4,0	
CLO1.1 Explain the relationships between mechanical and physical properties in each building material.	Analyze the interrelationships between the main properties of building materials	Correct 100%	Correct upto 90%	Correct upto 70%	Correct upto 50%	Correct less than 50%	25%

CLO1.2 Distinguish the technical requirements of each type of building materials, according to current Vietnamese standards.	Distinguish the technical requirements of building materials	Correct 100%	Correct upto 90%	Correct upto 70%	Correct upto 50%	Correct less than 50%	25%
CLO2.1 Apply the properties of materials to determine the design parameters.	Calculate technical parameters, calculate the volume of building materials	Correct 100%	Correct upto 90%	Correct upto 70%	Correct upto 50%	Correct less than 50%	25%
CLO2.2 Apply current Vietnamese standards to monitor, evaluate and verify the quality of building materials in the laboratory and/or at the construction site.	Evaluate the quality of building materials	Correct 100%	Correct upto 90%	Correct upto 70%	Correct upto 50%	Correct less than 50%	25%
CLO3.1 Hard-studying the course, accurate and careful calculation	Join the classes and solve the problems	100% full attendance and 100% correct calculation	90% attendance and upto 90% correct calculation	70% attendance and upto 70% correct calculation	50% attendance and upto 50% correct calculation	Less than 50% attendance and less than 50% correct calculation	

7. Teaching schedule for day classess (5/30 Online)

Week/ Section	Content	CLOs	Teaching and learning						Student assessment	Textbooks and materials
			Self-study		Face to face		Online (if any)			
					Theory		Theory Practice			
			Activity	Hou r	Activity	Periods	Activity	Periods		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
1	Chapter 1: Basic properties of construction and building materials 1.1 Physiscal properties 1.2 Thermal properties 1.3. Mechanical properties	CLO 1.1	At home: - Review, read the chapter 1 [1], [2] - Do A.1.1. Individual asessment	10	Lecturer: - Present the theoretical content - Provide and solve the examples - Provide assignment on LMS Students: +At class: listen; do exercises/example.	5				[1], [2], [3]
2	Chapter 2: Inorganic adhesives 2.1. General 2.2. Inorganic adhesives hardened in air 2.3. Cement	CLO 1.2 CLO 2.2	At home: - Review, read the chapter 4 [1], chapter 6 [2]	15	Lecturer: - Present the theoretical content - Provide the specific situations -Provide and solve the examples Students: +At class: listen; discuss the specific situations	5				[1], [2], [4]
3	Chapter 3: Concrete and concrete admixtures 3.1. General and classification 3.2. Main properties of fresh concrete and concrete	CLO 1.2 CLO 2.2	At home: - Review, read the chapter 5 [1], chapter 7 [2]	15	Lecturer: - Provide the mid-term exam - Present the theoretical content Students: +At class: - Do the mid-term exam - Listen	5			A.2.1	[1], [2], [4]
4	Chapter 3: Concrete and concrete admixtures (cont)	CLO 1.2	At home: - Review, read	10	Lecturer: - Present the theoretical	5				[1], [2], [4]

Week/ Section	Content	CLOs	Teaching and learning						Student assessment	Textbooks and materials
			Self-study		Face to face		Online (if any)			
					Theory		Theory Practice			
			Activity	Hou r	Activity	Periods	Activity	Periods		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	3.3. Roles and requirements of raw material of concrete 3.4. Design mix proportion	CLO 2.2	the chapter 5 [2]		content - Provide and solve the examples Students: +At class: listen; do exercises/example.					
5	Chapter 3: Concrete and concrete admixtures (cont) 3.5. Special types of concrete 3.6. General and classification of concrete admixtures 3.7. Concrete admixtures		Serach the infomation related to the chapter 3: types admixtues from internet, real site...	10			Read the content of 3.5, 3.6, 3.7 on LMS system	5		[1], [2], [4]
6	Chapter 4: Clay bricks and concrete bricks 4.1. Clay bricks 4.2. Concrete bricks	CLO 1.2 CLO 2.2	Serach the infomation related to concrete bricks from internet, real site...	10	Read the content of 4.1 and 4.2 on LMS system	5				[1], [4]
Total			X	70		25		5		

8. Ma trận tích hợp giữa chuẩn đầu ra của môn học và phương pháp giảng dạy – phương pháp đánh giá

Tuần/buổi học Week Section	Nội dung Content	CDR môn học CLOs	Hình thức dạy học Teaching and learning methods	Hình thức đánh giá Student assessment
(1)	(2)	(3)	(4)	(5)
1	Chapter 1: Basic properties of construction and building materials 1.3 Physical properties 1.4 Thermal properties 1.3. Mechanical properties	CLO1.1 CLO1.2 CLO2.1 CLO3.1	Lecturer: - Present the theoretical content - Provide and solve the examples - Provide assignment on LMS Students: +At class: listen; do exercises/example.	A1.1
2	Chapter 2: Inorganic adhesives 2.1. General 2.2. Inorganic adhesives hardened in air 2.3. Cement	CLO2.1 CLO2.2 CLO3.1	Lecturer: - Present the theoretical content - Provide the specific situations - Provide and solve the examples Students: +At class: listen; discuss the specific situations	A1.2
3	Chapter 3: Concrete and concrete admixtures 3.1. General and classification 3.2. Main properties of fresh concrete and concrete	CLO1.1 CLO1.2	Lecturer: - Provide the mid-term exam - Present the theoretical content Students: +At class: - Do the mid-term exam - Listen	A.2.1
4	Chapter 3: Concrete and concrete admixtures (cont) 3.3. Roles and requirements of raw material of concrete 3.4. Design mix proportion	CLO2.1 CLO2.2 CLO3.1	Lecturer: - Present the theoretical content - Provide and solve the examples Students: +At class: listen; do exercises/example.	
5	Chapter 3: Concrete and concrete admixtures (cont) 3.5. Special types of concrete 3.6. General and classification of concrete admixtures 3.7. Concrete admixtures	CLO1.1	Read the content of 3.5, 3.6, 3.7 on LMS system	
6	Chapter 4: Clay bricks and concrete bricks 4.1. Clay bricks 4.2. Concrete bricks	CLO3.1	Read the content of 4.1 and 4.2 on LMS system	

8. Course policy

- Regulations on submission of assignments and tests: Students who do not submit assignments on time on LMS will receive a score of 0. Students who do not participate in the mid-term exam according to the schedule announced by the lecturer will receive a score of 0.
- Regulations on attendance: according to the academic regulations of Ho Chi Minh City Open University.
- Regulations on the prohibition of exams: according to the academic regulations of Ho Chi Minh City Open University.
- Class rules: students need to follow all the rules of the of Ho Chi Minh City Open University.

DEAN OF THE FACULTY
(Signed with fullname)

LECTURER
(Signed with fullname)

Assoc.Prof. Nguyen Trong Phuoc

Dr. Nguyen Thi Bich Thuy