Course Syllabus

1. **Course Title:** Construction Materials
2. **Course Code:** COMA220717
3. **Credit Units:** 2 (2/0/4) (2 units of theory/ 0 unit of practice/ 4 units of self-study)
   Duration: 15 weeks (2 hours of theory+0*2 hours of practice, and 4 hours of self-study per week)
4. **Course Instructors:**
   1/ MSc. Nguyễn Thị Thuý Hằng
   2/ Dr. Phan Đức Hùng
   3/ MSc. Nguyễn Ngọc Dương
5. **Course Requirements**
   Prerequisite courses: None
   Previous courses: Strength of Materials (STMA240121)
   Parallel courses: None
6. **Course Description**

   Construction materials is a subject belong to group of fundamental courses that give students the basic knowledges about mechanic and physical properties of construction materials. And students know how to choose and use materials for different constructions to achieve economic and technical requirements

7. **Course Goals**

Goals	*Goal description*	Programme ELOs
G1	Basic knowledges of construction materials: mechanic and physical properties and its application scope. Know how to design concrete mix and mortar mix	1.2
G2	Experiment, analyze and evaluate quality of construction materials	2.4
G3	Teamwork and communication skills, reading comprehension professional documents.	3.1, 3.3

8. **Course Learning Outcomes (CLOs)**

CLOs		CLO Description	Programme ELOs
G1	**G1.1**	Understand vocabularies, concepts, origins of construction materials. Classify materials, describe its mechanic and physical properties	1.2
G2	**G2.1**	Self study and engage in long-life learning. Evaluate, analyze properties, advantages and disadvantages of construction materials	2.4

G3	**G3.1**	Ability to collaborate group-working to discuss and solve the problem in the area of construction materials.	3.1
	G3.3	Understanding basically English vocabularies in the area of construction materials	3.3

9. Learning Resources

- Textbooks:
  1. **ThS.Phan Thế Vinh (chủ biên)**, *Construction materials texbook,* Construction publishing House, 2010
  2. **Phùng Văn Lự and and others**, *Construction materials exercise*, Education publishing House, 2000
- References:
  1. **Phùng Văn Lự and and others**, *Construction materials texbook*, Education publishing House, 2000
  2. Construction standards - 8 & 10, Ministry of Construction, 2004

10. Student Assessment

- Grading scale: **10**
- Assessment plan:

Type	Content	Timeline	Assessment method	CLOs	Rate (%)
Assigments					**30**
Exam 01	The exam relates to calculate basic properties of construction materials	Week 3	Group-working exam	G3.1,	10
Exam 02	The exam relates to the content of chapter 1, 2, 3	Week 3	Multiple choice exam Duration: 45 minutes	G1.1, G2.1,	10
Exam 02	The exam relates to the content of chapter 5	Week 13	Group-working exam	G1.1,	10
Seminar					**20**
	Group-workings are require to read and research a topic relate to special cements, special concrete or addmixtures for concrete	Week 2-15	Group-working Presentation	G1.1, G3.1,	
Final exam					**50**
	The final exam covers some contents delivered in the course and CLOs		Multiple choice exam Duration: 75-90 minutes		

11. Course contents:

Week	Content	CLOs
1	***Chapter 1:The basic properties of construction materials***	
	***A/* Content and pedagogical methods in class** *(2)* **Content** 1.1. Introduction about construction materials 1.2. The physical properties of construction materials + Exercises **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion + Divide the class into groups (a group with 5 to 7 students)	G1.1, G2.1, G3.1
	B/ Self-study content: *(4)* + Do homeworks relates to calculate basic properties of construction materials	
2	***Chapter 1:The basic properties of construction materials*** *(continue)*	
	A/* Content and pedagogical methods in class: (2)* **Content** 1.2. The physical properties of construction materials (*continue*) + Exercises **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion	G1.1, G2.1, G3.1,
	B/ Self-study content: *(4)* + The thermal properties of construction materials. + Exercise	G2.1
3	***Chapter 1:The basic properties of construction materials*** *(continue)*	
	A/* Content and pedagogical methods in class: (2)* **Content** 1.3. The mechanic properties of construction materials + Exercise **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion	G1.1, G2.1, G3.1,
	B/ Self-study content: *(4)*	

	+ The abrasive, depreciation and anti-collision properties + Do homeworks relates to calculate basic properties of construction materials	
4	***Chapter 2: Natural stone materials***	
	A/* Content and pedagogical methods in class: (2)* **Content** 2.1 Introduction 2.2 Natural stones 2.3 Classify and application of natural stones **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion	G1.1, G3.1
	B/ Self-study content: *(4)* + Minerals of natural stones + The natural stones in construction + Group-working exercise	
5	***Chapter 3: Ceramics***	
	A/* Content and pedagogical methods in class: (2)* **Content:** 3.1 Introduction and classify 3.2 Raw material and production process 3.3 Ceramic products in construction **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion	G1.1
	***B/* Self-study content**: *(4)* + Advantages and disadvantages of ceramics + Adobe bricks	
6	***Chapter 4: Inorganic Binders***	
	A/* Content and pedagogical methods in class: (2)* **Content:** 4.1. Introduction 4.2. Lime 4.3. Gypsum	G1.1

	+ Multiple choice exam **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion	
	***B/* Self-study content**: *(4)* + Quality estimation index of lime + The properties and application of Gypsum	
7	***Chapter 4: Inorganic Binders (Cont)***	
	A/* Content and pedagogical methods in class: (2)* **Content:** 4.4 Portland cement **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion	G1.1
	***B/* Self-study content**: *(4)* + The minerals of cement + Cement manufacturing process	
8	***Chapter 4: Inorganic Binders (Cont)***	
	A/* Content and pedagogical methods in class: (2)* **Content:** 4.4 Portland cement (Cont) **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion	G2.3, G3.1,
	***B/* Self-study content**: *(4)* Research on special cements	
9	***Chapter 5: Inorganic binder concrete***	
	A/* Content and pedagogical methods in class: (2)* **Content:** 5.1 Introduction 5.2 Constituent materials of heavy concrete **Pedagogical methods**: + Presentation of lecture	G2.3

	+ Use powerpoint to show the content + Discussion (The topic of spectial concretes)	
	***B/* Self-study content**: *(4)* + Classify of concrete + Research and select the name of the topic for seminar of groups	
10	***Chapter 5: Inorganic binder concrete (Cont)***	
	A/* Content and pedagogical methods in class: (2)* **Content:** 5.2 Constituent materials of heavy concrete (Cont) **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion	G2.3
	***B/* Self-study content**: *(4)* + TCVN 7570-2-2006 + Homework	
11	***Chapter 5: Inorganic binder concrete (Cont)***	
	A/* Content and pedagogical methods in class: (2)* **Content:** 5.3. The properties of concrete mix and concrete **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion	G2.3
	***B/* Self-study content**: *(4)* + TCVN 3107-93 + Homework	G2.1
12	***Chapter 5: Inorganic binder concrete (Cont)***	
	A/* Content and pedagogical methods in class: (2)* **Content:** 5.3. Tính chất của hỗn hợp bê tông và bê tông (tiếp theo) **Pedagogical methods**: + Presentation of lecture	G2.3

	+ Use powerpoint to show the content + Discussion	
	***B/* Self-study content**: *(4)* + TCVN 3105-93, TCVN 3118-93 + Homework	G2.1
13	***Chapter 5: Inorganic binder concrete (Cont)***	
	A/* Content and pedagogical methods in class: (2)* **Content:** 5.3. Concrete mix design **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion (Bài tập nhóm)	G1.1
	***B/* Self-study content**: *(4)* + The method of concrete mix design + Homework	
14	***Chapter 5: Inorganic binder concrete (Cont)***	
	A/* Content and pedagogical methods in class:* **Content:** 5.3. Concrete mix design (Cont) **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion (Bài tập nhóm)	G1.1
	***B/* Self-study content**: *(4)* + The method of concrete mix design + Homework	
15	***Chapter 6:* Mortar**	
	A/* Content and pedagogical methods in class: (2)* **Content:** 6.1 Introduction 6.2. Constituent materials of mortar 6.3. The properties of motar mix	G1.1

	6.4. Motar mix design 6.5. Plaster mortar **Pedagogical methods**: + Presentation of lecture + Use powerpoint to show the content + Discussion nhóm	
	***B/* Self-study content**: *(4)* 6.4. Motar mix design 6.5. Plaster mortar	

12. Learning Ethics

Students must do homework by themselves. If plagiarism is found students will get zero point.

13. Date of first approval: August 1st, 2012

14. Approved by

Dean	Head of Department	Instructor
A/Prof. Dr. Nguyễn Trung Kiên	**MSc. Nguyễn Văn Hậu**	**ThS. Nguyễn T. Thúy Hằng**

15. Date and Up-to-date content

1st time: Date:	Instructor: Head of Department: