THE UNIVERSITY OF DA NANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY

APPENDIX 1
COURSE SYLLABUS

DEGREE PROGRAM (Vietnamese):	**CÔNG NGHỆ KỸ THUẬT VẬT LIỆU XÂY DỰNG**
DEGREE PROGRAM (English):	**CONSTRUCTION MATERIALS ENGINEERING AND TECHNOLOGY**
CODE:	**7510105**
DEGREE:	**BACHELOR**

Da Nang 2022

Contents

1. Calculus 1

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Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Giải tích 1
English name: Calculus 1

1. Course code:	1011303
2. Course abbreviation:	Calculus 1
3. Credits: **ECTS credits (*):**	04 5,67
4. Study workload:	*Total workload: 180 hours*
- Lecture:	40 hours
- Exercise:	20 hours
- Self-study/Assignment:	120 hours
5. Responsible persons:	
- Faculty/Division in charge:	**Faculty of Mathematics**
- Course coordinator:	**Dr. Pham Quy Muoi**
- Other lecturers:	Dr. Hoang Nhat Quy, Dr. Chu Van Tiep, Dr. Luong Quoc Tuyen, Dr. Le Hai Trung, Dr. Nguyen Thi Thuy Duong, Dr. Le Hoang Tri
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	None
- Corequisite:	None
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

Topics include basics knowledge about functions of one variable, limits, continuity, derivatives and differentials, integrals and applications.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Explaining the meaning of concepts and theorems related to limits, continuity, discontinuity, differential and integral of functions.	Understanding	Understand	Responding	1.1.1.
2	Abilitying approximation or applying some computer software to calculate proplems related to calculus.	Applying	Apply	Valuing	1.1.1. 7.1.2
3	Applying the theory of culculus of functions to do related mathematics exercises and practical problems in different disciplines.	Applying	Apply	Valuing	1.1.1.
4	Improving some important competencies and qualities such as mathematical thinking and reasoning, problem – solving and creativity, self-study; honesty, hard work, perseverance and discipline.	Applying	Apply	Valuing	1.1.1. 5.1.1. 5.1.2. 5.2.3.

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT				I		I	
CLO 1	X							
CLO 2	X						X	
CLO 3	X							
CLO 4	X				X			

12. Student responsibilities:

Student must:

- Attend at least 80% of the total periods of the course. Below this number, student will be banned from taking the final exam**.**
- Participate in team-work activities following the course's regulations;
- Self-study outside class to solve problems provided by lecturers;
- Complete all types of the course assessment.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance	P1.1. Check attendance	Attend at least 80% of the total periods of the course	10	30	CLO4
	A1.2. Assignment/ Presentation	P1.2. Essay/ oral presentation	R1.2.	10		CLO 1,2,3
A2. Midterm exam	A2.1. Midterm exam work	P2.1. Written exam	R2.1.	10		CLO 2,3
A3. Final exam	A3.1 Final exam work	P3.1. Written exam	R3.1.	20	20	CLO 1,2,3,4

14. Course materials:

14.1. Main textbooks, course books:

[1] J. Stewart, *Calculus Early Transcendentals*, Brooks/Cole Publishing company (6th), 2003.

[2] Nguyễn Đình Trí, Tạ Văn Đĩnh, Nguyễn Hồ Quỳnh, *Toán cao cấp* (Tập 1,2), NXB Giáo Dục 2002.

[3] Nguyễn Đình Trí, Tạ Văn Đĩnh, Nguyễn Hồ Quỳnh, *Bài tập toán cao cấp* (Tập 1,2), NXB Giáo Dục 2002.

14.2. References:

[1] Rogawski and C. Adam, *Calculus Early Transcendentals*, 3rd Edi. , Freeman & Company, 2015.

[2] H. Anton, I. Bivens, S. Davis, *Culculus Early Transcendentals*, 9th Edi., John Wiley & Sons, INC, 2009.

[3] S. Tan, *Calculus*, Brooks/Cole, 2010.

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

2. General Chemistry

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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Hóa đại cương
English name: General Chemistry (2LT +1TN)

1. Course Code:	
2. Course abbreviation:	General Chemistry
3. Credits: **ECTS credits (*):**	3 credits 4,67
4. Study workload:	
- Lecture:	1.5 TC (22.5 Periods)
- Exercise:	0.5 TC (7.5 Periods)
- Practice/ Laboratory:	1,0 TC (30 Periods)
- Self-study/Assignment:	90 Periods
5. Responsible persons:	
- Faculty/Division in charge:	
- Course coordinator:	Associate Professor. Phạm Cẩm Nam
- Other lecturers:	PhD. Dương Thế Hy; PhD. Hồ Viết Thắng; PhD. Nguyễn Thị Thanh Xuân; PhD. Phạm Ngọc Tùng.
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Applied chemistry Engineering 1
- Corequisite:	None
7. Type of course:	☒ Compulsory □ Selected elective □ Free elective
8. Knowledge clusters:	☒ Math and natural science □ General knowledge □ Core engineering fundamental knowledge □ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description

This courrse belongs to the Math and Natural Science knowledge group of the training program. The course consists of 02 credits of theory and 01 credit of practice related to basic general knowledge of chemistry. Specifically: Concepts related to basic laws in chemistry; Atomic structure and the laws of changing properties of elements in the periodic table; Molecular structure and nature of chemical bonds; Basic concepts and knowledge of chemical thermodynamics, chemical kinetics, equilibrium, solutions, and concepts related to chemistry and electric current. With 1 practical credit, this course also helps learners to have basic laboratory skills related to laboratory safety rules when dealing with tools and chemicals; as well as master the basic operations related to the recognition of chemical environments, solution phase, titration, and electrochemistry.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Understand the knowledge of general chemistry related to the basic laws of chemistry; atomic structure, molecule, periodic table and the law of variation in the mathematical system; the principles of thermodynamics, stoichiometry and the principle of equilibrium displacement; reaction rate and rate constant; solution formation, electrode potential and Nesnst equation.	a2. Understand	b2. Manipulate	C1. Receive	1.1.5.
2	Apply knowledge of General Chemistry to explain the nature of atomic/molecular bonds; explain the meaning of specific thermodynamic quantities in chemistry, calculate thermodynamic and kinetic quantities in chemical reactions.	a3 Manipulate	b2 Manipulate	c2Q&A	1.1.5.
3	Implement some basic techniques in practical exercises related to General Chemistry knowledge; Processing and presenting experimental results.	a5 Evaluate	b3.Exactly		1.1.5. 2.1. 7.1.2.
4	Organize work in groups to make reports and discuss topics related to the knowledge of General Chemistry.		b3 Exactly	c2. Q&A	2.1. 5.1.1. 5.1.2.

11.The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8
Contribution of the course	IT	IT			I		I	
CLO 1	X							
CLO 2	X							
CLO3	X	X					X	
CLO4		X			X			

12. Student tasks

- Attend at least 80% of the lessons of the part class;
- Participating in group work activities according to the regulations of the class;
- Self-study the problems assigned by the lecturer to do outside of class time;
- Complete all course assessments;
- If you miss more than 20% of the theory classes, you will not be able to take the final theory exam;
- If you miss more than 20% of practical/experimental periods, you will be assessed as failing this part;
- Write and complete the test report. If the report is not available, it will be judged as unsatisfactory.

13. Course assessments

Type of assessement	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)	Course learning outcomes (CLOs)	Type of assessment
A1. Evaluation of the process	A1.1 Short class exercises Incorporate due diligence	P1.1. Class presentation/Question + attendance	R1.1 - Proactivity, active participation in activities during class time (50-40%); - Results of assessment exercises in class (50%); - Attendance: make sure to attend the prescribed class (0-10%).	50	20	CLO 1,2,4
	A1.2 Workbook	P1.2. Workbook	-Complete the required assignments 50%; -The result is correct according to the answer	50		CLO 1,2,4
A2. Midterm review	A2.1 Midterm test	P2.1 Essay	R2.1 According to the answer content of the test.	100	20	CLO 1,2

A3. Final Assessment (CK)	A3.1 Final exam	P3.1 P2.1 Essay	R3.1 According to the answer content of the test.	100	40	CLO 1,2
A4. Review of Experiments	A4.1. Diligence	P4.1. Diligence (consciousness, behavior ...)	R4.1 - 100% compulsory attendance - Comply with laboratory regulations and be rigorous during practice hours	20	20	CLO 3
	A4.2 Experimental manipulation	P4.2. Experimental manipulation	R4.2 Correct operation	20		CLO3 ,4
	A4.3. Test report	P4.2. Experimental report book	R4.3 Write a complete, clear, coherent, well-reasoned test report with correct test results	30		CLO 3,4
	A4.4 Questions and Answers	P4.2 Answer the question	R4.4. Answer the question correctly	30		CLO 3

Type of assessement	**Performance assessment**	**Assessment methods**	**Rubric**	**Weighting percentage (%)**		**Course learning outcomes (CLOs)**
A1. Ongoing assessment	A1.1 Assignments / homeworks	P1.1.Exercises/Homeworks	R1.1	50	20	CLO 1, 2
	A1.3 Special topic reports	P1.3. Oral presentation in class	R1.3	50		CLO 1, 2, 3
A2. Mid-term Assessment	A2. Mid-term exam	P2. Written exam	R2.1	100	20	CLO 1, 2
A3. Final Assessment	A3. Final exam	P3. Written exam	R3.1	100	60	CLO 1, 2, 3

14. Materials:

14.1. Books, lectures, main textbooks:

1] Vu Dang Do, Theoretical basis of chemical processes Education Publishing House, Hanoi 2006. (Theory)

[2] Vu Dang Do, Trinh Ngoc Chau, Nguyen Van Noi, Exercises Theoretical basis of chemical processes Education Publishing House, Hanoi 2007.

[3] Experimental lecture on General Chemistry (internal circulation document - HCMUT)

14.2. Reference materials:

[4] Nguyen Dinh Chi, Dai Cuong Chemistry, Vietnam Education Publishing House, 2013

[5] Nguyen Dinh Chi, General Chemistry Exercises, Vietnam Education Publishing House, 2009

[6] Nguyen Duc Chung, General Chemistry, Publishing House of Vietnam National University, Ho Chi Minh City, 2009

[7] Silberberg, Chemistry -The Molecular Nature of Matter and Change. The McGraw Hill Companies, 2007

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Phan Cam Nam**

3. Marxism Leninism's Philosophy

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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Triết học Mac-Lenin
English name: Marxism Leninism's Philosophy

1. Course code:	
2. Course abbreviation:	Marxism Leninism's Philosophy
3. Credits **ECTS credits (*):**	03 TC (45 periods) 4,25
4. Time distribution	
- Lecture:	03 TC (45 Periods)
- Exercise:	
- Self-study/Assignment:	90 Periods
5. Lecturers in charge	
- Faculty/Division in charge:	Faculty of Political Theory, University of Economics, University of Danang
- Course coordinator:	Associate Professor. Lê Hữu Ái
- Other lecturers:	1. PhD. Trịnh Sơn Hoan, 2. M.Sc. Lê Đức Tâm, 3. PhD. Trần Hồng Lưu, 4. M.Sc Lưu Thị Mai Thanh, 5. PhD. Lê Văn Thao, 6. PhD. Phạm Huy Thành
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	None
- Parallel courses	None
7. Type of course	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge

	□ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description

The course provides basic knowledge of Marxist-Leninist Philosophy: matter and consciousness; categories of dialectical materialism; the role of production and the nature of the production relations of a society explained by the level of development of its productive forces; infrastructure and superstructure; class and class struggle; humanism and the historical creative role of the masses.

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attiude	Performance indicators (belongs to PLOs)
1.	Present general knowledge about Marxist-Leninist philosophy	a2.Understa-nd	b2.Presen-tation		1.5.2.
2.	Identify the role of philosophy in social life	a2.Understa-nd			1.5.2.
3.	Analyze the basic contents of dialectical materialism	a4. Analyze			1.5.2.
4.	Appreciate the contributions of dialectical materialism in creating worldview for learn-ers	a4. Analyze			1.5.2.
5.	Explain the basic contents of the materialist dialectic		b2.Manipu-late		3.2.
6.	Describe the methodological significance of each content of the materialist dialectic			c1.Re-ception c2.Feedb-ack	4.1.
7.	Present the basic contents of historical materialism		b2. Vận dụng		3.2.
8.	Describe the value of histori-cal materialism to society			c1.Re-ception c2.Feed-back	4.1.

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8

Contribution of the course	I		IT	I				
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4	X							
CLO 5			X					
CLO 6				X				
CLO 7			X					
CLO 8				X				

12. Student tasks

Students must do the following tasks:

- Attend at least 80% of the lessons of the course;
- Do homework assigned in each chaper of the course;
- Self-study the problems assigned by the lecturer (outside of class time);
- Take the mid-term and final exams;
- Fully attend and complete the content of practices

13. Course assessments

The results of the course evaluation are based on the assessment of the student's activities during the course of study, the mid-term exam and the final exam expressed through the assessment; the course output standards are assessed; criteria, standards and weights of the assessments.

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)	CLOs
A1. Ongoing assessment	A1.1 Class Attendance	CLO1-8	Go to school fully. Do not miss more than 20% of the class.		20%
	A1.2 Exercises /homeworks	CLO1-8	Do the correct answer		
A2. Mid-term Assessment	A2.1 Mid-term exam	CLO3, CLO5	Meet the requirements of the answer	10	20%
A3. Final Assessment	A3.1 Final exam	CLO1,CLO3, CLO5, CLO7	Meet the requirements of the answer	10	60%

14. Materials

14.1. Books, lectures, main textbooks

[1]. Ministry of Education and Training, Basic principles of Marxism-Leninism, National Political Publishing House 2009.

14.2. Books and references:

[1]. Ministry of Education and Training, Marxist-Leninist Philosophy, National Political Publishing House 2006.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's Scientific code of ethics: policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

4. Descriptive Geometry - Engineering Drawing

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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Hình họa – Vẽ kỹ thuật

English name: Descriptive Geometry - Engineering Drawing

1. Course Code:	1032170
2. Course abbreviation:	Engineering Drawing
3. Credits: **ECTS credits (*):**	03 credits (45 Periods) 4,25
4. Study workload:	
- Theory	30 Periods
- Lecture:	15 Periods
- Exercise:	0
- Self-study/Assignment:	90 Periods
5. Responsible persons:	
- Faculty/Division in charge:	Division of Machine Design and Industrial Systems Engineering/Faculty of Transportation Mechanical Engineering,
- Course coordinator:	PhD. Nguyen Cong Hanh, PhD. Thai Ba Chien, Msc. Ton Nu Huyen Trang
- Other lecturers:	Division of Machine Design and Industrial Systems Engineering
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	None
- Corequisite:	None
7. Type of course:	☒ Compulsory ☐ Compulsive Electives ☐ Electives
8. Knowledge clusters:	☐ Math and natural science ☒ General knowledge ☐ Core engineering fundamental knowledge

	☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course aims to equip students with Vietnamese and international standards to form technical drawings. Draw and read types of representations of the internal and external structure of an object.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLO)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	**Applying** Vietnamese and international standards to create technical drawings	a3. Applying	b2. Applying		1.2.6. 1.2.7.
2	**Solving** intersection problems as well as quantity problems of points, lines and planes, curves and surfaces	a3. Applying	b2. Applying		1.2.6. 1.2.7.
3	**Applying** learned-knowledge to represent 6 basic orthogonal projections, sub-projections, partial projections; draw sections and sectional view.	a3. Applying	b2. Applying		1.2.6. 1.2.7. 7.1.2.
4	**Selecting** the appropriate type of isometric and oblique projection to represent a 3D objects.	a3. Evaluating	B3. Valuing		1.2.6. 1.2.7 3.1

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs)

PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8
Contribution of the course	IT		I				I	
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4	X		X				X	

12. Student tasks

Students must perform the following tasks:

- Attending at least 80% of the lessons of the course;
- Participating in teamwork activities according to the regulations of the class;
- Self-studying the problems assigned by the lecturer to do outside of class hours;
- Completing all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		Course learning outcomes (CLOs)
A1. Ongoing assessment	A1.1. Class Attendance	In-Class Exercise	Rubric 1	15	30	CLO 1, 2, 3
	A1.2. Group Assessment	Homework	Rubric 2	15		CLO 1, 2, 3
A2. Mid-term Assessment	A2.1. Mid-term exam	Written exam	Rubric 3	20	20	CLO 1, 2
A3. Final Assessment	A3.2. Final exam	Written exam	Rubric 4	50	50	CLO 1, 2, 3,4

14. Materials:

14.1. Books, lectures, main textbooks:

[1]. Nguyen Cong Hanh, *Enginerring Drawing*, Construction Publishing House, Ha Noi, 2022.

14.2. Reference materials:

[1]. Nguyen Duc Sy, Duong Tho, Ton Nu Huyen Trang, *Descriptive geometry*, Construction Publishing House, Ha Noi, 2018.

[2]. RENDOW YEE, Architectural drawing, John Wiley Inc, Newyork 1998

[3] Colin H. Simmons, Manual of Engineering Drawing,Butterworth-Heinemann 2001, 2002

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date: 01/3/2022

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Cong Hanh, PhD.**

5. English Elementary 2.1

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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Anh văn A2.1
English name: English Elementary A2.1

1. Course code:	
2. Course abbreviation:	English Elementary A2.1
3. Credits: **ECTS credits (*):**	03 4,25
4. Study workload:	*Total workload:* 112.5 *hours*
- Lecture:	45 periods (~ 37.5 hours)
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	90 periods (~ 75 hours)
- ….	
5. Responsible persons	
- Faculty/Division in charge:	Faculty of English for specific purposes
- Course coordinator:	M.A. Trương Thị Ánh Tuyết
- Other lecturers:	M.A. Phạm Thị Thu Hương, M.A. Trần Vũ Mai Yên
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	Students have achieved level 1 (A1)
- Recommended prerequisite:	A1.1 ; A1.2
- Corequisite:	
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

The course is designed to integrate four language skills of Listening, Speaking, Reading and Writing. The course includes 5 units with lessons, providing the students with knowledge of grammar, vocabulary, pronunciation to practice language skills at the first stage of the elementary level. After each lesson at school, students can practice intensively with references and online resources.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Understand and demonstrate basic knowledge related to English vocabulary, pronunciation, and grammar at the first stage of the elementary level.	a2 Understand			
2	Apply knowledge to comprehensively listen and read the main ideas of a description, a conversation on topics related to daily life and work.		b2 apply		
3	Communicate, describe issues, briefly express personal opinions on familiar topics related to personal interests, study, work or daily life.		b2 apply		
4	Write notes, simple instructions and short emails related to familiar topics.		b2 apply		
5	Develop a sense of self-study, self-training to complete learning goals, and a sense of responsibility for the assigned work.			C4 organize	

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT				I	I		
CLO 1	X					X		
CLO 2	X				X	X		
CLO 3	X				X	X		
CLO 4	X				X	X		
CLO 5	X				X			
CLO 6	X					X		

12. Student responsibilities:

Student must:

- Attend at least 80% of the total periods of the course, and finish at least 80% of the amount of online homework. Below this number, student will be banned from taking the final exam**.**
- Participate in team-work activities following the course's regulations.

- Self-study outside class to solve problems provided by lecturers;
- Complete all types of the course assessment.
- Show an honest and serious attitude; do not copy, cheat, or use documents during the test.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance/ Presentation	P1.1. Check attendance/ oral presentation	Attend at least 80% of the total periods of the course	W1.1. 50%	W1	CLO 1,2,3,4,5
	A1.2. Assignment	P1.2. Exercises	R1.2.	W1.2. 50%		CLO 1,2,3,4,5
A2. Mid-term exam	A2.1. Mid-term exam work	P2.1. Written exam/ Speaking test	R2.1.	W2. 100%	W2	CLO 1,2.3.4
A3. Final exam	A3.1 Final exam work	P3.1. Written exam and Speaking test	R3.1.	W3.1. 100%	W3	CLO 1,2,3,4

14. Course materials:

14.1. Main textbooks, course books

[1]. [HUGES J., STEPHESON H., & DUMMETT P., 2019] Life A1-A2 Student's Book, 2nd Edition, National Geographic Learning, Cengage Learning Inc.

14.2. References

[1]. [HUGES J., STEPHESON H., & DUMMETT P., 2014] Life A1-A2 Work Book, National Geographic Learning, Cengage Learning Inc.

[2]. [RAYMOND M., 2015] Essential Grammar in Use, 4th edition, Cambridge University Press.

[3]. [MICHAEL M., FELLICITY O'DELL, 2017], English Vocabulary in Use – Elementary, 3rd edition, Cambridge University Press.

15.3. Online learning resources

- Resources for learning and practicing English on MytimeEnglish online account of UD;
- Resources for learning and practicing English at Student Web App - Life Elementary
- Resources for learning and practicing English on Life Elementary's online account at MyELT - Cengage Learning

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge

Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

6. Introduction to Construction Materials Engineering and Technology

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Nhập môn ngành VLXD
English name: Introduction to Construction Materials Engineering and Technology

1. Course Code:	1091210
2. Course abbreviation:	Introduction to Construction Materials Engineering and Technology
3. Credits: **ECTS credits (*):**	2 credits 3,08
4. Study workload:	
- Theoretical hours	1 credit (15 periods)
- Assignments/Discussions	
- Practice/Experiment	
- PBL	1 credit (30 periods)
- Self-study	60 periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	Do Thi Phuong, Msc
- Other lecturers:	Lecturers of Construction Material Division Vo Duy Hung, Ph.D Business guests
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	None
- Corequisite:	None
7. Type of course:	☒ Compulsory ☐ Compulsive Electives ☐ Electives
8. Knowledge clusters:	☐Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge

	☒ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course introduces an overview of the profession and structure of education program of the construction materials engineering and technology (CMET); help students form personal skills, communication skills; familiarize the design thinking experiences on engineering projects to prepare them for learning in the following semesters.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	**Describe** profession in the field of CMET and discuss the education program of CMET, systematically approach the subjects of the education program	A1. Remember	B2. Perform	C1. Receive	3.1.1
2	**Explain** the benefits brought in applying the knowledge of CMET in the context of business and society	A2. Understand	A3. Accuracy	C3. Express attitude	3.2.2
3	**Recognize** the importance of morality and responsibilities of bachelors.	A2. Understand	A3. Accuracy	C3. Express attitude	4.1.1, 3.2.2
4	**Explain** the main components of project management; **apply** communication, teamwork, and presentation skills	A3. Apply	A3. Accuracy	C3. Express attitude	5.1 5.2

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8
Contribution of the course			I	IT	IT			
CLO 1			x					
CLO 2			x					
CLO 3			x	x				
CLO 4					x			

12. Student tasks

Students must peform the following tasks:

- Attend at least 80% of the lessons of the class time;
- Participating in group-work activities following the regulations of the class
- Self-study the problems assigned by the lecturer
- Complete all course assessments.

13. Course assessments

Type of assessement	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		Course learning outcomes (CLOs)
A1. Theory assessment (Midterm)	A1.1.Diligence	Attendance		10	40	
	A1.2. Assignments	Quiz	According to the answer	10		CLO 2, 4
	A1.3. Reports	Slides. Present. Question and answer	Rubric 1	10		CLO 1,2,3,4
A2. PBL Assessment (Final)	A2.1 Evaluate the project process, teamwork	Report progress	Rubric 2	20	60	CLO 2, 4
	A2.2. Project report	Demo product. Poster. Present. Question and answer	Rubric 3	40		CLO2, 3, 4

14. Materials:

14.1. Books, lectures, main textbooks:

[1] Pham et al, *Introduction to engineering*, Ho Chi Minh City National University Publishing House, 2014.

14.2. Reference materials:

[1] KOSKY et al, *Exploring Engineering: An Introduction to Engineering and Design*, 2010

[2] OAKES et al, *Engineering your Future – A Comprehensive Introduction to Engineering*, 2009

[3] Paul H. Wright, *Introduction to Engineering*

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Do Thi Phuong, MSc**

7. Calculus 2

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Giải tích 2
English name: Calculus 2

1. Course code:	7520114
2. Course abbreviation:	Calculus 2
3. Credits: **ECTS credits (*):**	04 5,67
4. Study workload:	*Total workload: 180 hours*
- Lecture:	40 hours
- Exercise:	20 hours
- Self-study/Assignment:	120 hours
5. Responsible persons	
- Faculty/Division in charge:	**Faculty of Mathematics**
- Course coordinator:	**Dr. Pham Quy Muoi**
- Other lecturers:	Dr. Hoang Nhat Quy, Dr. Chu Van Tiep, Dr. Luong Quoc Tuyen, Dr. Le Hai Trung, Dr. Nguyen Thi Thuy Duong, Dr. Le Hoang Tri
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Calculus 1
- Corequisite:	None
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge

	□ Project/ Internship/ Graduate thesis

9. Course description:

This course includes concepts, formulas and applications of multiple integrals (double and triple integrals) , line integrals (type 1 and 2), surface integrals (type 1 and type 2), series (number and functional series) and ordinary differential equations.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Explaining the meaning of concepts and theorems related to multiple integrals, line integrals, surface integrals, differential equations, and series.	Understanding	Understand	Responding	1.1
2	Applying some software to calculate problems related to multiple integrals, line integrals, surface integrals and differential equations.	Applying	Apply	Valuing	1.1, 7.1
3	Applying theory of multiple integrals, line integrals, surface integrals, differential equations, and series to solve problems and applied problems in other sciences and in the real life.	Applying	Apply	Valuing	1.1
4	Organizing groups to solve some learning projects and some big problems based on mathematical models.	Applying	Apply	Valuing	1.1, 3.1, 4.1

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT				I		I	
CLO 1	X							
CLO 2	X						X	
CLO 3	X							
CLO 4	X				X			

12. Student responsibilities:

Student must:

- Attend at least 80% of the total periods of the course. Below this number, student will be banned from taking the final exam**.**
- Participate in team-work activities following the course's regulations;
- Self-study outside class to solve problems provided by lecturers;

- Complete all types of the course assessment.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance	P1.1. Check attendance	Attend at least 80% of the total periods of the course	W1.1. 33%	W1. 30%	
	A1.2. Assignment/ Presentation	P1.2. Essay/ oral presentation	R1.2.	W1.2. 67%		CLO 1,2,3
A2. Mid-term exam	A2.1. Mid-term exam work	P2.1. Written exam	R2.1.	W2. 100%	W2. 20%	CLO 1,2,3,4
A3. Final exam	A3.1 Final exam work	P3.1. Written exam	R3.1.	W3.1. 100%	W3.1 50%	CLO 1,2,3,4

14. Course materials:

14.1. Main textbooks, course books:

[1] J. Stewart, *Calculus Early Transcendentals*, Brooks/Cole Publishing company (6th), 2003.

[2] Nguyễn Đình Trí, Tạ Văn Đĩnh, Nguyễn Hồ Quỳnh, *Toán cao cấp* (Tập 2), NXB Giáo Dục 2002.

[3] Nguyễn Đình Trí, Tạ Văn Đĩnh, Nguyễn Hồ Quỳnh, *Bài tập toán cao cấp* (Tập 2), NXB Giáo Dục 2002.

14.2. References:

[1] Rogawski and C. Adam, *Calculus Early Transcendentals*, 3rd Edi. , Freeman & Company, 2015.

[2] H. Anton, I. Bivens, S. Davis, *Culculus Early Transcendentals*, 9th Edi., John Wiley & Sons, INC, 2009.

[3] S. Tan, *Calculus*, Brooks/Cole, 2010.

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

8. Probability and Statistics

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Xác suất thống kê
English name: Probability and Statistics

1. Course code:	3190041
2. Course abbreviation:	Probability and Statistics
3. Credits: **ECTS credits (*):**	03 4,25
4. Study workload:	*Total workload: 135 hours*
- Lecture:	35 hours
- Exercise:	15 hours
- Self-study/Assignment:	90 hours
5. Responsible persons	
- Faculty/Division in charge:	Faculty of Mathematics
- Course coordinator:	Dr. Ton That Tu
- Other lecturers:	Assoc.Prof.Dr. Le Van Dung, MSc. Nguyen Thi Hai Yen
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Calculus 2
- Corequisite:	None
7. Course type:	☐ Compulsory ☐ Selected elective ☒ Free elective
8. Knowledge clusters:	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

The course introduces probability theory and statistical methods. The learners åe introduced the basic contents of random events, probability; random variables and probability distribution rules; limit theorems; random vector, conditional expectation, covariance and correlation coefficient. Mathematical statistics includes the basic contents of sample theory, descriptive statistics, methods for estimating the parameters of random variables, testing statistical hypotheses and comparison problems.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Explaining the meaning of concepts, formulas and properties related to random events, probability, distribution laws, descriptive statistics, estimation and hypothesis testing problems.	Understanding	Understand	Responding	1.1.3
2	Applying statistical software to create statistical graphs and performance basic data analysis.	Applying	Apply	Valuing	1.1.3
3	Applying theory of probability and the distribution laws to solve the related problems.	Applying	Apply	Valuing	1.1.3
4	Applying theory of parameter estimation and hypothesis testing to make decisions for statistical problems	Applying	Apply	Valuing	1.1.3 3.1

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT		I					
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO4	X		X					

12. Student responsibilities:

Student must:

- Attend at least 80% of the total periods of the course. Below this number, student will be banned from taking the final exam**.**
- Participate in team-work activities following the course's regulations;
- Self-study outside class to solve problems provided by lecturers;
- Complete all types of the course assessment.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance	P1.1. Check attendance	Attend at least 80% of the total periods of the course	W1.1. 33%	W1. 30%	
	A1.2. Assignment/ Presentation	P1.2. Essay/ oral presentation	R1.2.	W1.2. 67%		CLO 1,2,3,4
A2. Midterm exam	A2.1. Midterm exam work	P2.1. Written exam	R2.1.	W2. 100%	W2. 20%	CLO 1,3
A3. Final exam	A3.1 Final exam work	P3.1. Written exam	R3.1.	W3.1. 100%	W3.1 50%	CLO 3,4

14. Course materials:

14.1. Main textbooks, course books:

[1] Lê Văn Dũng, *Giáo trình xác suất thống kê*, NXB Thông tin và Truyền thông, 2016.

[2] Jay L. Devore, Probability and Statistics for Engineering and the Sciences, 8th Edition, Brooks/Cole, Cengage Learning, 2012.

14.2. References:

[1] Đặng Hùng Thắng, Mở đầu về xác suất và ứng dụng, Nhà Xuất bản Giáo dục, 2008.

[2] Đặng Hùng Thắng, Thống kê ứng dụng, Nhà Xuất bản Giáo dục, 2008.

[3] Douglas C. Montgomery; George C. Runger, Applied Statistics and Probability for Engineers(4th Edition), John Wiley and Sons, Inc, 2007.

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

9. Physics 1

THE UNIVERSITY OF DANANG
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Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Vật lí 1
English name: Physics 1

1. Course code:	3050011
2. Course abbreviation:	Physics 1
3. Credits: **ECTS credits (*):**	3 4,25
4. Study workload:	*Total workload:* 45 *hours*
- Lecture:	29 periods (~ 29 hours)
- Exercise:	16 periods (~ 16 hours)
- Practice/ Laboratory:	0 periods (~ 0 hours)
- Self-study/Assignment:	90 periods (~ 90 hours)
5. Responsible persons	
- Faculty/Division in charge:	Faculty of Physics
- Course coordinator:	Đinh Thanh Khẩn
- Other lecturers:	1. PGS. TS. Nguyễn Văn Hiếu 2. TS. Nguyễn Quý Tuấn 3. TS. Nguyễn Thị Xuân Hoài 4. TS. Dụng Văn Lữ 5. TS. Mai Thị Kiều Liên 6. TS. Nguyễn Thị Mỹ Đức 7. ThS. Lê Văn Thanh Sơn 8. TS. Phùng Việt Hải 9. TS. Hoàng Đình Triển 10. TS. Trần Thị Hồng 11. TS. Nguyễn Bá Vũ Chính 12. TS. Trần Quỳnh
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	NA

- Recommended prerequisite:	Calculus 1
- Corequisite:	NA
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

Physics 1 provides learners with knowledge of Mechanics, Thermodynamics and Optics. The course helps learners to study important content such as:

- Properties and laws of motion of particles and rigid solids;
- The relationship between characteristic quantities of motion, the laws of change and conservation of momentum, angular momentum, energy;
- The relationship between work, heat and internal energy in thermodynamic processes and applications to study the operation of heat engines, refrigerator/heat pump;
- Properties and applications of light interference and diffraction.

In addition, the course also helps learners develop communication and teamwork skills.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Apply knowledge of dynamics and energy to solve problems in translational and rotational motion;	X			1.1.4
2	Apply knowledge of thermodynamics to solve problems related to energy conversion and efficiency of heat machines;	X			1.1.4
3	Apply knowledge of optics to solve problems related to interference and diffraction of light;	X			1.1.4
4	Explain common phenomena related to Mechanics, Thermaldynamics and Optics;		X		1.1.4 6.1.
5	Think critically and creatively;		X		1.1.4
6	Work in a team and communicate (written and oral);		X		1.1.4 5.1.1. 5.1.2. 5.2.3.
7	Demonstrate positive, proactive and responsible learning attitude.			X	

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT				I	I		
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4	X					X		
CLO 5	X							
CLO 6	X				X			

12. Student responsibilities:

Student must:

- Attend at least 80% of the total periods of the course. Below this number, student will be banned from taking the final exam**.**
- Participate in team-work activities following the course's regulations;
- Self-study outside class to solve problems provided by lecturers;
- Complete all types of the course assessment.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Quiz	P1.1. Ask and answer	R1.1. Based on the answer	W1.1. 17 %	W1. 30%	CLO 4, 5,7
	A1.2. Classroom assignment	P1.2. Exercises	R1.2. Based on the answer and scale	W1.2. 17%		CLO 1, 2, 3
	A1.3. Homework	P1.3. Collecting homework	R1.3. Based on the answer and scale	W1.3. 33%		CLO 1, 2, 3
	A1.4. Learning project	P1.4. Presentation	R1.4. Rubric for Learning project	W1.3. 33%		CLO 6, 7
A2. Mid-term exam	A2.1. Mid-term exam work	P2.1. Written exam	R2.1. Based on the answer and scale	W2.1. 100%	W2. 20%	CLO 1, 4
A3. Final exam	A3.1 Final exam work	P3.1. Written exam	R3.1. Based on the answer and scale	W3.1. 100%	W3. 50%	CLO 1, 2, 3, 4

14. Course materials:

14.1. Main textbooks, course books:

[1] Trần Ngọc Hợi, Phạm Văn Thiều, *Vật lý đại cương: Các nguyên lý và ứng dụng, Tập 1: Cơ học và Nhiệt học*, NXB Giáo dục 2006.
[2] Trần Ngọc Hợi, Phạm Văn Thiều, *Vật lý đại cương: Các nguyên lý và ứng dụng, Tập 3: Quang học và Vật lý lượng tử*, NXB Giáo dục 2006.

14.2. References:

[1] Raymond A. Serway and Jr. J. W. Jewett, *Physics for Scientists and Engineers with Modern Physics 9th Ed.*, Cengage Learning, USA, 2014.
[2] Hugh D. Young and Roger A. Freedman, *University Physics with Modern Physics 13th Ed.*, Pearson Education, USA, 2012.
[3] Paul A. Tipler and Gene Mosca, *Physics for Scientists and Engineers 6th Ed.*, W. H. Freeman and Company, USA, 2008.

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must stricy follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

10. Electricity - Magnetic - Optical Experiment

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Thí nghiệm Điện Từ – Quang
English name: Electricity - Magnetic - Optical Experiment

1. Course code:	
2. Course abbreviation:	Electricity - Magnetic - Optical Experiment
3. Credits: **ECTS credits (*):**	1 1,83
4. Study workload:	*Total workload:* 15 *hours*
- Lecture:	0 periods (~ 0 hours)
- Exercise:	0 periods (~ xx hours)
- Practice/ Laboratory:	15 periods (~ 15 hours)
- Self-study/Assignment:	30 periods (~ 30 hours)
- ….	
5. Responsible persons	
- Faculty/Division in charge:	**Faculty of Physics**
- Course coordinator:	**Đinh Thanh Khẩn**
- Other lecturers:	- Trịnh Ngọc Đạt - Phan Liễn - Lê Vũ Trường Sơn
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	No
- Recommended prerequisite:	No
- Corequisite:	No
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☒ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge

	□ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description:

This course includes 05 experiments in the Electricity - Magnetic - Optical modules:
Practice 1: Become familiar with basic measuring tools
Practice 2: Measuring resistance by Wheatstone's bridge method
Practice 3: Magnetic fields in straight conductors
Practice 4: Measuring the refractive index of the glass plate with a microscope
Practice 5: Light interference and diffraction

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	***Analyze*** the theoretical basis of Mechanics and Thermodynamics experiments	X			1.1.4
2	***Practice*** Mechanics and Thermodynamics experiments properly and safely		X		1.1.4
3	***Analyze*** and ***interpret*** experimental results	X			1.1.4
4	***Write reports*** and ***present*** experimental results		X		1.1.4 6.1.
5	***Develop*** communication and teamwork skills		X		1.1.4
6	Show a ***positive, responsible and honest*** learning attitude			X	1.1.4 5.1.1. 5.1.2. 5.2.3.

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT				I	I		
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4	X					X		
CLO 5	X							
CLO 6	X				X			

12. Student responsibilities:

Student must:
- Read the test manual carefully before coming to the laboratory.

- Must be able to design experimental procedures when entering the laboratory.
- Fully participate 100% of practice hours and report results.
- Attend the final exam.
- Actively organize self-study hours.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance	P1.1. Check attendance	Attend 100% of the total periods of the course	10%		CLO 6
	A1.2. Practice the experiments	P1.2. Check the results and attitude	R1.2 Rubric ER	10%		CLO 1,2, 3
A2. Final exam	A2.1 Presentation A2.2 Final Report	P2.1. Presentation P2.2. Report	R2.1 Rubric OPR R2.2. Rubric report	30% 50%		CLO 3,4,5 CLO 3,4

14. Course materials:

14.1. Main textbooks, course books:

[1] TS. Nguyễn Quý Tuấn (Chủ biên), TS. Đinh Thanh Khẩn,TS. Dụng Văn Lữ, TS. Mai Thị Kiều Liên, TS. Trần Thị Hồng,TS. Nguyễn Thị Xuân Hoài, PGS. TS. Đặng Ngọc Toàn, Giáo trình thí nghiệm Vật Lí Đại Cương (Cơ, Nhiệt, Điện và từ, Dao động, và Quang), 2021

15.2. References:

[1] Raymond A. Surway, John W. Jewett, Physics for scientists and engineers with modern physics , 2008

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

11. Basic Law

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Pháp luật đại cương
English name: Basic Law

1. Course code:	Law1001
2. Course abbreviation:	Basic Law
3. Credits: **ECTS credits (*):**	2 2,83
4. Study workload:	*Total workload:* xxx *hours*
- Lecture:	18 periods (~ xx hours)
- Exercise:	09 periods (~ xx hours)
- Practice/ Laboratory:	0 periods (~ xx hours)
- Self-study/Assignment:	09 periods (~ xx hours)
- ….	
5. Responsible persons	
- Faculty/Division in charge:	Faculty of Law, University of Economics
- Course coordinator:	
- Other lecturers:	
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	None
- Corequisite:	None
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☒ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

This course aims to equip learners with the most basic knowledge about the State and the Law.

The basic content of the course includes: General issues on the State and the Law such as the State apparatus, the legal norm and legal relations, law violations. In addition, this course also provides learners some basic knowledge about anti-corruption.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Analyse the basis issues about the State and the Law.	A2			1.5.3.
2	Compare state agencies in the State apparatus of Vietnam.	A5	B4		1.5.3.
3	Analyse legal issues, legal relations, legal violations, implement laws and legal responsibilities.		B2		1.5.3.
4	Present issues of legal system, legal awareness and legislation			C4	1.5.3. 4.1.
5	Evaluate corruption prevention issues				1.5.3. 3.2 4.1.

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT		T	T				
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4	X			X				
CLO 5	X		X	X				

12. Student responsibilities:

Student must:

- Attend at least 80% of the total periods of the course. Below this number, student will be banned from taking the final exam**.**
- Participate in team-work activities following the course's regulations;
- Self-study outside class to solve problems provided by lecturers;
- Complete all types of the course assessment.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs

A1. Formative assessment	A1.1. Attend-ance	P1.1. Check attendance	Attend at least 80% of the total pe-riods of the course	W1.1. 20%	W1. 20%	CLO 1,2,3
A2. Mid-term exam	A2.1. Mid-term exam work	P2.1. Written exam	R2.1.	W2. 20%	W2 20%	CLO 4,5
A3. Final exam	A3.1 Final exam work	P3.1. Written exam	R3.1.	W3.1. 60%	W3 60%	CLO 1,2,3,4,5

14. Course materials:

14.1. Main textbooks, course books:

Lê Thị Thu Hằng (2019), Giáo trình Pháp luật đại cương, NXB Giáo dục Việt Nam.

Hoàng Thị Kim Quế (2015), Giáo trình Lý luận nhà nước và pháp luật, NXB Đại học quốc gia Hà Nội.

Các văn bản quy phạm pháp luật có liên quan

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

12. English Elementary A2.2

THE UNIVERSITY OF DANANG
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SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Anh văn A2.2
English name: English Elementary A2.2

1. Course code:	
2. Course abbreviation:	English Elementary A2.2
3. Credits: **ECTS credits (*):**	04 5,67
4. Study workload:	*Total workload:* 150 *hours*
- Lecture:	60 periods (~ 50 hours)
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	120 periods (~ 100 hours)
- ….	
5. Responsible persons	
- Faculty/Division in charge:	Faculty of English for specific purposes
- Course coordinator:	M.A. Lê Thị Hải Yến
- Other lecturers:	M.A. Lê Thị Hải Yến, M.A. Hồ Lê Minh Nghi
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	Students have achieved level 1 (A1)
- Recommended prerequisite:	English Elementary 1
- Corequisite:	
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☒ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge

	□ Project/ Internship/ Graduate thesis

9. Course description:

The course integrates four language skills of Listening, Speaking, Reading and Writing, for learners to develop and perfect their English skills at elementary level. The course includes 5 units with lessons, providing the students with knowledge of grammar, vocabulary, pronunciation to practice language skills on familiar topics. After each lesson at school, students can practice intensively with references and online resources.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Understand and demonstrate basic knowledge related to English vocabulary, pronunciation, and grammar at the elementary level.	a2 Understand			1.6.2. 6.2.
2	Apply knowledge to comprehensively listen and read the main ideas of a description, a conversation on topics related to daily life or past events.		b2 apply		1.6.2. 6.2. 5.2.3. 5.2.6.
3	Communicate, describe issues, briefly express personal opinions on familiar topics related to study, job, tourism or past events.		b2 apply		1.6.2. 6.2. 5.2.3. 5.2.6.
4	Write messages, thank-you letters, and short emails related to familiar topics.		b2 apply		1.6.2. 6.2. 5.2.3.
5	Develop a sense of self-study, self-training to complete learning goals, and a sense of responsibility for the assigned work.			C4 organize	1.6.2. 5.1.1. 5.1.2

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT				I	I		
CLO 1	X					X		
CLO 2	X				X	X		
CLO 3	X				X	X		
CLO 4	X				X	X		
CLO 5	X				X			
CLO 6	X					X		

12. Student responsibilities:

Student must:

- Attend at least 80% of the total periods of the course, and finish at least 80% of the amount of online homework. Below this number, student will be banned from taking the final exam**.**
- Participate in team-work activities following the course's regulations;
- Self-study outside class to solve problems provided by lecturers;
- Complete all types of the course assessment.
- Show an honest and serious attitude; do not copy, cheat or use documents during the test.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance/ Presentation	P1.1. Check attendance/ oral presentation	Attend at least 80% of the total periods of the course	W1.1. 50%	W1	CLO 1,2,3,4,5
	A1.2. Assignment	P1.2. Exercises	R1.2.	W1.2. 50%		CLO 1,2,3,4,5
A2. Mid-term exam	A2.1. Mid-term exam work	P2.1. Written exam/ Speaking test	R2.1.	W2. 100%	W2	CLO 1,2.3.4
A3. Final exam	A3.1 Final exam work	P3.1. Written exam and Speaking test	R3.1.	W3.1. 100%	W3	CLO 1,2,3,4

14. Course materials:

14.1. Main textbooks, course books

[1]. [HUGES J., STEPHESON H., & DUMMETT P., 2019] Life A1-A2 Student's Book, 2nd Edition, National Geographic Learning, Cengage Learning Inc.

14.2. References

[1]. [HUGES J., STEPHESON H., & DUMMETT P., 2014] Life A1-A2 Work Book, National Geographic Learning, Cengage Learning Inc.

[2]. [RAYMOND M., 2015] Essential Grammar in Use, 4th edition, Cambridge University Press.

[3]. [MICHAEL M., FELLICITY O'DELL, 2017], English Vocabulary in Use – Elementary, 3rd edition, Cambridge University Press.

15.3. Online learning resources

- Resources for learning and practicing English on MytimeEnglish online account of UD;
- Resources for learning and practicing English at Student Web App - Life Elementary
- Resources for learning and practicing English on Life Elementary's online account at MyELT - Cengage Learning

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.

- Students must strictly follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

13. Physics 2

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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Vật lí 2
English name: Physics 2

1. Course code:	3050641
2. Course abbreviation:	Physics 2
3. Credits: **ECTS credits (*):**	3 4,25
4. Study workload:	*Total workload:* 45 *hours*
- Lecture:	27 periods (~ 27 hours)
- Exercise:	18 periods (~ 18 hours)
- Practice/ Laboratory:	0 periods (~ 0 hours)
- Self-study/Assignment:	90 periods (~ 90 hours)
5. Responsible persons	
- Faculty/Division in charge:	Facuy of Physics
- Course coordinator:	Đinh Thanh Khẩn
- Other lecturers:	1. PGS. TS. Nguyễn Văn Hiếu 2. TS. Nguyễn Quý Tuấn 3. TS. Nguyễn Thị Xuân Hoài 4. TS. Dụng Văn Lữ 5. TS. Mai Thị Kiều Liên 6. TS. Nguyễn Thị Mỹ Đức 7. ThS. Lê Văn Thanh Sơn 8. TS. Phùng Việt Hải 9. TS. Hoàng Đình Triển 10. TS. Trần Thị Hồng 11. TS. Nguyễn Bá Vũ Chính 12. TS. Trần Quỳnh
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	NA

- Recommended prerequisite:	Physics 1
- Corequisite:	NA
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

Physics 2 provides learners with knowledge of Electricity, Magnetism, and Modern physics. The course helps learners to study important content such as:

- Properties of electric field, electric potential energy and electric potential;
- Properties of magnetic field, sources of magnetic field;
- Laws of conduction;
- The basic concepts and laws in modern physics.

In addition, the course also helps learners develop communication and teamwork skills.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Determine the electric field, electric potential and electric potential energy of charged materials	X			1.1.4
2	Determine the magnetic field, magnetic force and magnetic energy caused by moving charges and curents	X			1.1.4
3	Apply knowledge of quantum physics to solve problems related to thermal radiation, photon, potential wells and atoms;	X			1.1.4
4	Explain common phenomena related to Electricity, Magnetism, and Modern physics;	X			1.1.4
5	Think critically and creatively;		X		1.1.4 6.1.
6	Work in a team and communicate (written and oral);		X		1.1.4
7	Demonstrate positive, proactive and responsible learning attitude.			X	5.1.1. 5.1.2. 5.2.3.

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8

Course distribution	I	IT			I			
CLO 1	X	X						
CLO 2		X						
CLO 3	X	X						
CLO 4		X						
CLO 5		X			X			
CLO 6					X			
CLO7	I	IT			I			

12. Student responsibilities:

Student must:

- Attend at least 80% of the total periods of the course. Below this number, student will be banned from taking the final exam**.**
- Participate in team-work activities following the course's regulations;
- Self-study outside class to solve problems provided by lecturers;
- Complete all types of the course assessment.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Quiz	P1.1. Ask and answer	R1.1. Based on the answer	W1.1. 17 %	W1. 30%	CLO 4, 5,7
	A1.2. Classroom assignment	P1.2. Exercises	R1.2. Based on the answer and scale	W1.2. 17%		CLO 1, 2, 3
	A1.3. Homework	*P1.3. Collecting homework*	R1.3. Based on the answer and scale	W1.3. 33%		CLO 1, 2, 3
	A1.4. Learning project	P1.4. Presentation	R1.4. Rubric for Learning project	W1.3. 33%		CLO 6, 7
A2. Mid-term exam	A2.1. Mid-term exam work	P2.1. Written exam	R2.1. Based on the answer and scale	W2.1. 100%	W2. 20%	CLO 1, 4
A3. Final exam	A3.1 Final exam work	P3.1. Written exam	R3.1. Based on the answer and scale	W3.1. 100%	W3. 50%	CLO 1, 2, 3, 4

14. Course materials:

14.1. Main textbooks, course books:

[1] Trần Ngọc Hợi, Phạm Văn Thiều, *Vật lý đại cương: Các nguyên lý và ứng dụng, Tập 2: Điện từ, dao động và sóng,* NXB Giáo dục 2006.

[2] Trần Ngọc Hợi, Phạm Văn Thiều, *Vật lý đại cương: Các nguyên lý và ứng dụng, Tập 3: Quang học và Vật lý lượng tử,* NXB Giáo dục 2006.

14.2. References:

[1] Raymond A. Serway and Jr. J. W. Jewett, *Physics for Scientists and Engineers with Modern Physics 9th Ed.*, Cengage Learning, USA, 2014.

[2] Hugh D. Young and Roger A. Freedman, *University Physics with Modern Physics 13th Ed.*, Pearson Education, USA, 2012.

[3] Paul A. Tipler and Gene Mosca, *Physics for Scientists and Engineers 6th Ed.*, W. H. Freeman and Company, USA, 2008.

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must stricy follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

14. Mechanics and Thermodynamics Experiment

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Faculty of Road and Bridge Engineering

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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Thí nghiệm Cơ – Nhiệt
English name: Mechanics and Thermodynamics Experiment

1. Course code:	
2. Course abbreviation:	Mechanics and Thermodynamics Experiment
3. Credits: **ECTS credits (*):**	1 1,83
4. Study workload:	*Total workload:* 15 *hours*
- Lecture:	0 periods (~ 0 hours)
- Exercise:	0 periods (~ xx hours)
- Practice/ Laboratory:	15 periods (~ 15 hours)
- Self-study/Assignment:	30 periods (~ 30 hours)
- ….	
5. Responsible persons	
- Faculty/Division in charge:	**Faculty of Physics**
- Course coordinator:	**Đinh Thanh Khẩn**
- Other lecturers:	- Trịnh Ngọc Đạt - Phan Liễn - Lê Vũ Trường Sơn
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	No
- Recommended prerequisite:	No
- Corequisite:	No
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge

	□ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description:

This course includes 05 experiments in the Mechanics and Thermodynamics modules:
Practice 1: Become familiar with basic measuring tools
Practice 2: Determining the coefficient of sliding friction using an inclined plane
Practice 3: Measuring the moment of inertia of a solid using the oscillation method
Practice 4: Measuring the viscosity coefficient of a liquid using the Stokes . method
Practice 5: Measuring the thermal expansion coefficient of a solid

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	***Analyze*** the theoretical basis of Mechanics and Thermodynamics experiments	X			1.1.4 2.1.
2	***Practice*** Mechanics and Thermodynamics experiments properly and safely		X		2.1.
3	***Analyze*** and ***interpret*** experimental results	X			1.1.4 2.1.
4	***Write reports*** and ***present*** experimental results		X		2.1.
5	***Develop*** communication and teamwork skills		X		2.1. 5.1.1. 5.1.2.
6	Show a ***positive, responsible and honest*** learning attitude			X	2.1. 5.2.3.

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	I	IT			I			
CLO 1	X	X						
CLO 2		X						
CLO 3	X	X						
CLO 4		X						
CLO 5		X			X			
CLO 6					X			

12. Student responsibilities:

Student must:
- Read the test manual carefully before coming to the laboratory.
- Must be able to design experimental procedures when entering the laboratory.
- Fully participate 100% of practice hours and report results.
- Attend the final exam.
- Actively organize self-study hours.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance	P1.1. Check attendance	Attend 100% of the total periods of the course	10%		CLO 6
	A1.2. Practice the experiments	P1.2. Check the results and attitude	R1.2 Rubric ER	10%		CLO 1,2, 3
A2. Final exam	A2.1 Presentation A2.2 Final Report	P2.1. Presentation P2.2. Report	R2.1 Rubric OPR R2.2. Rubric report	30% 50%		CLO 3,4,5 CLO 3,4

14. Course materials:

14.1. Main textbooks, course books:

[1] TS. Nguyễn Quý Tuấn (Chủ biên), TS. Đinh Thanh Khẩn,TS. Dụng Văn Lữ, TS. Mai Thị Kiều Liên, TS. Trần Thị Hồng,TS. Nguyễn Thị Xuân Hoài, PGS. TS. Đặng Ngọc Toàn, Giáo trình thí nghiệm Vật Lí Đại Cương (Cơ, Nhiệt, Điện và từ, Dao động, và Quang), 2021

15.2. References:

[1] Raymond A. Surway, John W. Jewett, Physics for scientists and engineers with modern physics , 2008

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

15. Linear Algebra

THE UNIVERSITY OF DANANG
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Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Đại số tuyến tính
English name: Linear Algebra

1. Course code:	
2. Course abbreviation:	Linear Algebra
3. Credits: **ECTS credits (*):**	04 4,25
4. Study workload:	*Total workload: 180 hours*
- Lecture:	40 hours
- Exercise:	20 hours
- Self-study/Assignment:	120 hours
5. Responsible persons	
- Faculty/Division in charge:	Faculty of Mathematics
- Course coordinator:	Assoc. Prof. Dr. Truong Cong Quynh
- Other lecturers:	Dr. Nguyen Ngoc Chau, Dr. Nguyen Dai Duong, Dr. Tran Nam Sinh, Phan Quang Nhu Anh
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	None
- Corequisite:	None
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

The Linear Algebra course is divided into 5 chapters. Chapter 1 introduces matrices and determinants. Chapter 2: introduces the system of linear equations students know in high school. Chapter 3: vector spaces. Chapter 4: linear maps and quadratic forms. Chapter 5: introduces Quadratic form. The knowledge presented in the module is fundamental to helping students, and it is easy to access when starting to familiarize yourself with advanced math.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Understand the meaning of operations on matrices, vector spaces, and linear maps	Understanding	Understand	Responding	1.1.2.
2	Apply matrix theory to physics, chemistry and other sciences.	Applying	Apply	Valuing	1.1.2. 7.1.2
3	Prove the basic results of matrix content, vector space and linear maps.	Applying	Apply	Valuing	1.1.2.
4	Improve a number of important competencies and qualities such as mathematical thinking and reasoning, problem-solving and creativity, and self-study; honesty, hard work, perseverance and discipline	Analysis	Work independently	Proactive, responsible	1.1.2. 3.1. 4.1

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT		I	I			I	
CLO 1	X							
CLO 2	X						X	
CLO 3	X							
CLO4	X		X	X				

12. Student responsibilities:

Student must:

- Attend at least 80% of the total periods of the course. Below this number, student will be banned from taking the final exam**.**
- Participate in team-work activities following the course's regulations;
- Self-study outside class to solve problems provided by lecturers;
- Complete all types of the course assessment.

13. Course assessment:

Review composition	Assessment form	Evaluation methods	Rubric's Criterion	Review weight (%)	Component weights (%)	relevant course outcomes
A1. Evaluation of the process	A1.1. Diligence	P1.1. Attendance	R1	30	20	CLO 1, 2
	A 1.2. Short exercises in class	P1.2. Presentation in class	R2	30		
	A 1.3: Report	P 1.3 Write a report and present in class	R3	30		
A2. Midterm review	A2.1 Midterm Examination	P2.1. Essay	R9	100	30	CLO1, 2
A3. Endterm assessment	A3.1 Final Examination	P3.1. Essay	R9	100	50	CLO,2, 3

14. Course materials:

TT	The writer's name	Publishing year	Titles of books, textbooks, article title, text	Publisher, journal name, place of publication
	Books, lectures, main textbooks			
1	Trần Trọng Huệ	2007	Đại số tuyến tính và Hình học giải tích, tập 1	NXB Giáo Dục
	Books, reference textbooks			
2	Nguyễn Hữu Việt Hưng	2019	Đại số tuyến tính	NXB Đại học quốc gia Hà Nội
3	Trần Văn Minh – Phí Thị Vân Anh	2007	Đại số tuyến tính	NXB giao thông vân tải
4	Đặng Ngọc Dục, Nguyễn Viết Đức	2009	Toán cao cấp: Đại số tuyến tính	NXB Đà Nẵng,

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

16. Marxist – leninist political economy

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Kinh tế chính trị Mác - Lênin
English name: Marxist – leninist political economy

1. Course code:	
2. Course abbreviation:	Marxist – leninist political economy
3. Credits **ECTS credits (*):**	02 TC (30 tiết) 2,83
4. Time distribution	
- Lecture:	02 TC (30tiết)
- Exercise:	
- Self-study/Assignment:	60 tiết
5. Lecturers in charge	
- Faculty/Division in charge:	Khoa Lý luận chính trị, Trường Đại học Kinh tế, Đại học Đà Nẵng
- Course coordinator:	PGS.TS Lê Hữu Ái
- Other lecturers:	1. TS.GVC. Trịnh Sơn Hoan, 2. ThS. GVC. Lê Đức Tâm, 3. TS GVC Trần Hồng Lưu, 4. ThS. GVC Lưu Thị Mai Thanh, 5. TS. Lê Văn Thao, 6. TS. GVC. Phạm Huy Thành
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	None
- Corequisite:	None
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge

	□ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description

The course is comprised of two main parts:

- The first part studies the political-economic issues of the capitalist mode of production in both the free competition and the monopoly stage.
- The second studies the issues of the socialist-oriented market economy and the relations among economic interests in Vietnam; Vietnam's industrialization, modernization and international economic integration.

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attiude	Performance indicators (belongs to PLOs)
1.	**Analysis** of the characteristics, nature and laws of movement of the market economy; capitalist market economy	A3.Analyze	B2. Professionally	C2. Honest	1.5.2. 3.2. 4.1.
2.	**Analysis** of the characteristics and nature of the socialist-oriented market economy and economic benefit relations in Vietnam	A3.Analyze	B2. Professionally	C2. Honest	1.5.2. 3.2. 4.1.
3.	**Analyze** the process of industrialization, modernization and international economic integration of Vietnam.	A3Analyze	B2. Professionally	C2. Honest	1.5.2. 3.2. 4.1.

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	I		IT	I				
CLO 1	X		X	X				
CLO 2	X		X	X				
CLO 3	X		X	X				

12. Student tasks

Students must do the following tasks:

- Attend at least 80% of the lessons of the course;
- Do homework assigned in each chaper of the course;
- Self-study the problems assigned by the lecturer (outside of class time);
- Take the mid-term and final exams;
- Fully attend and complete the content of practices

13. Course assessments

The results of the course evaluation are based on the assessment of the student's activities during the course of study, the mid-term exam and the final exam expressed through the assessment; the course output standards are assessed; criteria, standards and weights of the assessments.

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)	CLOs
A1. Ongoing assessment	A1.1 Class Attendance	CLO1-3	Go to school fully. Do not miss more than 20% of the class.		20%
	A1.2 Exercises /homeworks	CLO2	Do the correct answer		
A2. Mid-term Assessment	A2.1 Mid-term exam	CLO1-3	Meet the requirements of the answer	10	20%
A3. Final Assessment	A3.1 Final exam	CLO1-3	Meet the requirements of the answer	10	60%

14. Materials

14.1. Books, lectures, main textbooks

[1]. Ministry of Education and Training, Textbook of Political Economy - Marxism for Non-Bachelor of Political Economy, Publishing House. National politics.

[2]. Ministry of Education and Training, Ho Chi Minh Thought Textbook, Publishing House. National politics, 2010 - 2015.

14.2. Books and references:

[1]. Textbook of Marxist-Leninist Political Economy, the Central Council directs the compilation of national textbooks on Marxist-Leninist sciences, Ho Chi Minh Thought, Publishing House. National politics.

[2]. Documents of the Party Congress and Central Conference related to the lecture.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16.Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

17. Thermal Engineering

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Kỹ thuật nhiệt
English name: Thermal Engineering

1. Course Code:	
2. Course Sign:	Thermal Engineering
3. Credits: **ECTS credits (*):**	2 credits (30 Periods) 2,83
4. Study workload:	
- Lecture:	22 Periods
- Exercise:	08 Periods
- Practice/ Laboratory:	
- Self-study/Assignment:	60 Periods
5. Responsible persons:	
- Faculty/Division in charge:	Thermal Engineering Division/ Faculty of Heat and Refrigeration Engineering
- Course coordinator:	PhD. Thai Ngoc Son
- Other lecturers:	Assoc. PhD. Hoang Ngoc Dong Assoc. PhD. Tran Van Vang Assoc. PhD. Vo Chi Chinh Assoc. PhD. Tran Thanh Son PhD. Huynh Ngoc Hung PhD. Pham Duy Vu Msc. Ma Phuoc Hoang Msc. Bui Thi Huong Lan Msc. Le Thi Chau Duyen Msc. Nguyen Quoc Huy
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Calculus 2
- Corequisite:	Physics 2
7. Type of course:	☒ Compulsory ☐ Selected elective

	□ Free elective
8. Knowledge clusters:	□ Math and natural science □ General knowledge ☒ Core engineering fundamental knowledge □ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description

The Thermal Engineering module consists of two parts: The Engineering Thermodynamics section provides students with basic knowledge about the conversion between heat and work, the actual thermodynamic cycles; The Heat Transfer section provides students with basic knowledge about the methods of heat exchange, the method of calculating the amount of heat exchanged between two media.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLO)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Present the laws of thermodynamics; Describe and differentiate the basic heat exchangers	a1. Remember			1.2.14
2	Explain common thermodynamics and heat transfer phenomena	a2. Understand	b2. Apply		1.2.14
3	Apply basic knowledge and laws of thermodynamics to investigate basic engineering thermodynamic processes and cycles; Apply heat and temperature field calculations to simple heat transfer problems.	a3. Apply	b3. Accurate		1.2.14

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT							
CLO 1	X							
CLO 2	X							
CLO 3	X							

12. Student tasks

Sinh viên phải thực hiện các nhiệm vụ sau đây:

- Tham gia ít nhất 80% số tiết học của lớp học phần;

- Tham gia các hoạt động làm việc nhóm theo qui định của lớp học phần;
- Tự tìm hiểu các vấn đề do giảng viên giao để thực hiện ngoài giờ học trên lớp;
- Hoàn thành tất cả Performance assessment của học phần.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		Course learning outcomes (CLOs)
A1. Ongoing assessment	A1.1 Diligence	P1.1. Attendance Sheet / Activity	R1.1	5	20	CLO 1
	A1.2 Short assignments	P1.2. Multiple choice exam	R1.2	5		CLO 1-3
	A1.3 Personal/ Group Assignments	P1.3. Report/ Writting	R1.3: Answer / score scale	10		CLO 2-3
A2. Mid-term Assessment	A2. Mid-term exam	P2. Multiple choice exam	R2.1: Answer / score scale	20	20	CLO 1-3
A3. Final Assessment	A3. Final exam	P3. Multiple choice exam	R3.1: Answer / score scale	60	60	CLO 1-3

14. Materials

14.1. Books, lectures, main textbooks

[1] Hoang Ngoc Dong, Thai Ngoc Son - *Thermal Engineering* – Construction Publisher, 2015.

14.2. Reference materials

[2] Vo Chi Chinh, Hoang Duong Hung, Le Quoc, Le Hoai Anh – *Thermal Engineering* – Science and Technology Publisher, 2006.

[3] Bui Hai, Hoang Ngoc Dong – *Thermal Engineering Workbook* – Science and Technology Publisher, 1999.

[4] Michael J. Moran et al - *Introduction to thermal systems engineering: thermodynamics, fluid mechanics, heat transfer* - New York: Wiley, 2003.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approval by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

18. Engineering Mechanics

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Cơ lý thuyết
English name: Engineering Mechanics

1. Course code:	
2. Course abbreviation:	Engineering Mechanics
3. Credits: **ECTS credits (*):**	02 credits (periods) 4,25
4. Study workload:	
- Lecture:	20 hours
- Exercise:	10 hours
- Practice/ Laboratory:	
- Self-study/Assignment:	60 hours
5. Responsible persons	
- Faculty/Division in charge:	
- Course coordinator:	Nguyễn Đình Sơn
- Other lecturers:	Nguyễn Văn Thiên Ân, Nguyễn Thị Kim Loan, Ngô Phan Thu Hương, Phạm Ngọc Quang, Võ Thanh Hoàng
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	
- Corequisite:	
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge

	□ Project/ Internship/ Graduate thesis

9. Course description

To develop an understanding of the fundamentals and principles engineering mechanics: statics and dynamics of particles, and rigid bodies in two and three dimensions including: kinematics and kinetics of particles and rigid bodies in 2D and 3D motion, Rotations, translations, oscillations.

Learn to solve equilibrium of rigid bodies including the calculations of moment of force, inertia moments of solid bodies, and basic structural analysis, and be able to determine the requirement for the equilibrium of particles and solid bodies.

To develop the ability to apply Newtonian mechanics to model and predict the responses of simple dynamical system (particle and rigid body) subjected to applied forces.

10. Course learning outcomes:

After completing this course, students will be able to:

STT	Chuẩn đầu ra học phần (CLO) (1)	Kiến thức (2)	Kỹ năng (3)	Thái độ (4)	Chỉ báo PI (thuộc PLO) (5)
1.	Model the real mechanical system into an equivalent model, determine the components of the bonding reaction	A4.Apply	Apply		1.2.1.
2.	Determine the characteristics of the reduced force system in the case of planar problem	A4.Apply	Apply		1.2.1.
3.	Apply the force system balance equation to find the binding reaction for the solid body.	A4.Apply	Apply		1.2.1.
4.	Modeling and determining the kinematic characteristics of solid bodies	A4.Apply	Apply		1.2.1.
5.	Modeling and applying the general theorems of dynamics to establish the equations of motion and associated reactions of the system	A4.Apply	Apply		1.2.1.

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT							
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4	X							
CLO 5	X							

12. Student responsibilities:

Student must perform the following tasks:

- Attend classes not less than 80% of the prescribed class hours of the course;
- Do and submit individual/group assignments according to the regulations of the course;

- Participate in class activities as prescribed;
- Self-study the problems assigned by the lecturer to do outside of class time;
- Complete all types of the course assessment.

13.Course assessment:

Components	Assessment form	CLO	Assessment Criterion	Scale	Percentage
A1. Evaluate the process	A1.1. Attendance	5	80% of course	10	20%
	A1.2. Homework assignments	1, 2, 3, 4,5,6,7	submitted on time	10	
	A1.3. Teamworks	1, 2, 3, 4, 5,6,7	task accomplishment	10	
A2. Mid-term evaluation	A2.1. Midterm exam	1, 2, 3, 4	correctly	10	20%
A3. Final evaluation	A3.1. Final exam	4, 5, 6, 7	correctly	10	60%

14.Course materials:

14.1.Main textbooks, course books:

[1] Bộ môn Cơ kỹ thuật, Cơ học lý thuyết, Mạng nội bộ trường Đại học Bách khoa 2006

[2] Đỗ Sanh, Nguyễn Văn Đình, Nguyễn Văn Khang, *Cơ học I và II*, Nhà xuất bản Giáo dục Hà Nội 1996.

14.2.References:

[1] Đỗ Sanh, Nguyễn Văn Đình, Nguyễn Nhật Lệ, Bài tập cơ học (Phần Tĩnh học và Động học), Nhà xuất bản Giáo dục Hà Nội 2001.

[2] Lê Doãn Hồng, Đỗ Sanh, *Bài tập cơ học (Phần Động lực học)*, Nhà xuất bản Giáo dục Hà Nội 2003.

[3] Nguyễn Văn Đạo, Nguyễn Trọng Chuyền, *Cơ học lý thuyết*, Nhà xuất bản Đại học và Trung học chuyên nghiệp Hà Nội 1969.

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approved date: /12/ 2020

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

19. Geodesy

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Trắc địa
English name: Geodesy

1. Course code:	
2. Course abbreviation:	Geodesy
3. Credits: **ECTS credits (*):**	03 credits (90 periods) 4,50
4. Time distribution	
- Lecture:	60 Periods
- Exercise:	30 Periods
- Practice/ Laboratory:	0 Periods
- Self-study/Assignment:	90 Periods
5. Lecturers in charge	
- Faculty/Division in charge:	Fundamental Technology division/ Faculty of Road and Bridge Engineering
- Course coordinator:	Le Van Dinh, MSc.
- Other lecturers:	Phan Duc Tam, MSc. PhD. Student
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Calculus 2
- Corequisite:	Linear Algebra
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course belongs to the fundamental knowledge, equipping learners with general knowledge about mapping and construction geodesy in service of surveying, design, exploitation, construction and management of works in the Construction Material Engineering. The course consists the general knowledge of geodesy , mapping knowledge and a knowledge of construction geodesy.

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attiude	Performance indicators (belongs to PLOs)
1	Present and explain: Structural principle, how to use some common geodetic equipment; methods of basic measurements and positioning; algorithm in calculation and processing of field measurements.	a2.Understand	a5.Evaluate	c.2. Feedback	
2	Use common geodetic equipment. Employ basic measurements and positioning for mapping and construction. Handling of measured data. Exploiting topographic data for planning and designing works.	a3.Manipulate	b2.Manipulate	c.2. Feedback	
3	Analyze and detect errors affecting the quality of cartographic surveying and the location of construction sites	a4. Analyze	b2.Manipulate	c.3. Attitude	
4	Evaluate and analyze the quality of topographic data, the accuracy of the location of construction sites	a3.Manipulate	b2.Manipulate	c.3. Attitude	

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	IT	IT			U			
CLO 1	X	X						
CLO 2	X	X			X			
CLO 3	X							
CLO 4	X							

12. Student tasks

Students must do the following tasks:

- Attend at least 80% of the lessons of the course;

- Do homework assigned in each chaper of the course;
- Self-study the problems assigned by the lecturer (outside of class time);
- Take the mid-term and final exams;
- Fully attend and complete the content of practices

According to the regulation of training program:

- If students absent over 20% from theoretical hours, students will not meet the requirements to take the final exam. If students absent over 20% from internship hours, students will fail at this course.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		CLOs
A1. Ongoing assessment	A1.1 Class Attendance	P1.1. Diligence	R1.1 Reported diligence	5	10	CLO2
	A1.2 Exercises /homeworks	P1.2. Do at class/Homeworks	R1.2 According to the answer and grading scale	5		CLO1,2,3,4
A2. Mid-term Assessment	A2.1 Mid-term exam	P2.1 Written exam	R2.1 According to the answer and grading scale	10	10	CLO 1, 2, 3
A3. Final Assessment	A3.1 Final exam	P3. Written exam	R3.1 According to the answer and grading scale	50	50	CLO 2, 3, 4
A4. Internship Assessment	A4.1. Class Attendance	P1.1 Diligence	R1.1 Reported diligence	10	10	CLO2
	A4.2. Present practical results	P2.1. Presenting and Defending	R1.2 According to the answer and grading scale	20	20	CLO1,2,3,4
*Students who do no meet the requirements of internship fail in all of the course.						

14. Materials

14.1. Books, lectures, main textbooks

[1] Le Van Dinh, Pham Van Mang, Geodetic Lectures, Da Nang, 1992.

14.2. Reference materials

[1] Le Van Dinh, Lectures, 2017.
[2] Le Van Dinh, , Geodetic exercises, 2017.
[3] Pham Van Chuyen, , Fundamental Geodesy, Construction Publisher 2010.
[4] Vu Thang, Geodetic construction in practice, Construction Publisher 2002.

14.3. Software: Nicknet, Topo.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Le Van Dinh, MSc**

20. Applied Mathematics 1

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Toán ứng dụng 1
English name: Applied Mathematics 1

1. Course Code:	
2. Course Abbreviation:	Applied Mathematics 1
3. Credits: **ECTS credits (*):**	02 credits (30 Periods) 2,83
4. Study workload:	
- Lecture:	30 Periods
- Exercise:	
- Practice/ Laboratory:	0
- Self-study/Assignment:	60 Periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	PhD.Tran Trung Viet
- Other lecturers:	Prof.PhD. Hoang Phuong Hoa; PhD. Nguyen Van Te Ron
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Probability and Statistics
- Corequisite:	None
7. Type of course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☒ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge

	□ Project/ Internship/ Graduate thesis

9. Course description

The course provides knowledge about the application of statistical probability in synthesis, experimental planning for the design, construction, experiment, and exploitation of construction. The course also provides students with knowledge about regression models using in the analysis of experimental results, analysis, and calculation of construction structures in general.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLO)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	**Application** statistical probability in synthesis, analyzing data, designing	a3. Applying	a3. Applying	c3. Reacting	1.1.4; 4.3.2
2	**Applying** regression models in the analysis and evaluation of experimental data, structural analysis	a3. Applying	a3. Applying	c3. Reacting	1.1.4; 3.1.3; 9.2.1

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	T		IT	IT				
CLO 1	X			X				
CLO 2	X		X					
CLO 3	X							

12. Student tasks

Students must perform the following tasks:

- Attending at least 80% of the lessons of the course;
- Participating in teamwork activities according to the regulations of the class;
- Self-studying the problems assigned by the lecturer to do outside of class hours;
- Completing all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		Course learning outcomes (CLOs)
A1. Ongoing assessment	A1.1. Class Attendance	Attendance check	Rubric 3	50	20	
	A1.2. Group Assessment	Group homework	Rubric 2	50		CLO 1, 2, 3
A2. Mid-term Assessment	A2.1. Mid-term exam	Written exam	According to the answer	100	20	CLO 1,2, 3

			and grading scale			
A3. Final Assessment					60	
	A3.2. Final exam	P3. Written exam	According to the answer and grading scale	100		CLO 1,2, 3

14. Course materials:

14.1. Books, lectures, main textbooks:

[1]. Kottegoda N T. and R Rosso (2008),*Applied Statistics for Civil and Environmental Engineers*, 2nd Edition, Wiley-Blackwell, United Kingdom

[2]. Papoulis,A, and S. U.Pillai (2002), *Probability, Random Variables and Stochastic Processes*, McGraw-Hill, USA

[3]. Lecture on Applied Mathematics 1 of the Construction materials Division.

14.2. Reference materials:

[1]. Ang A H-S. and W. H. Tang (1975),*Probability Concepts in Engineering Planning and Design:Volume IBasic principles*, John Wiley & Sons, Inc., USA

[2]. Jonson R A. and C.B. Gupta (2005), *Miller and Freund's Probability and Statistics for Engineers*,Pearson Education, Inc., USA.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Tran Trung Viet, PhD.**

21. History of Vietnamese Communist Party

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Lịch sử Đảng Cộng sản Việt Nam
English name: History of Vietnamese Communist Party

1. Course code:	
2. Course abbreviation:	History of Vietnamese Communist Party
3. Credits: **ECTS credits (*):**	02 TC (30 tiết) 2,83
4. Time distribution	
- Lecture:	02 TC (30tiết)
- Exercise:	
- Self-study/Assignment:	60 tiết
5. Lecturers in charge	
- Faculty/Division in charge:	Khoa Lý luận chính trị, Trường Đại học Kinh tế, Đại học Đà Nẵng
- Course coordinator:	PGS.TS. Ngô Văn Hà
- Other lecturers:	1. TS. Lê Thị Tuyết Ba, 2. ThS. Đỗ Thị Hằng Nga, 3. ThS Từ Ánh Nguyệt, 4. TS. Đinh Văn Trọng
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	Not required
- Recommended prerequisite:	Philosophy of Marxism and Leninism
- Corequisite:	Not required
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge

	□ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description

Besides to introduction and conclusion chapters, the course consists of 3 chapters related to scientific acknowledgement bout the subjects, purposes, tasks, research and learning methods of the History of the Communist Party of Vietnam; The Communist Party of Vietnam was established and led the revolution for founding nation (1930-1945); Leading two resistance wars, completing national liberation and reunification (1945-1975); Leading the country in the transition to socialism and conducting the innovation (1975-2018); Some great lessons under Party leadership. Thereby, it is possible to affirm the successes and advantages, highlighting the limitations and experiences in the revolutionary leadership process of the Party.

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attiude	Performance indicators (belongs to PLOs)
1	Get an understanding of the foundation process of the Communist Party of Vietnam, the way of revolution, national liberation, and national reunification.	A2.Understand	A2.Understand	A2.Understand	1.5.2. 3.2. 4.1.
2	Analyze some primary contents in the historical significance of the foundation of the Communist Party of Vietnam, the process of implementing the revoltionary policies, national liberation, and national reunification.	A3. Determined	A3. Determined	A3. Determined	1.5.2. 3.2. 4.1.
3	Be aware of the policies of industrialization, economics, politics, building political system and new culture, etc.	A4. Analysis	A4. Analysis	A4. Analysis	1.5.2. 3.2. 4.1.
4	Pratice some fundamental contents in the process of the Party's leadership in implementing the industrialization, economic, and foreign policy guidelines, building a new political system and culture, etc.	A3. Determined	A3. Determined	A3. Determined	1.5.2. 3.2. 4.1.
5	Train learners in a theoretical thinking way, research ability, lifelong learning, presentation, communication, group work, etc., to comply with the Party's policies, State laws and are aware of the	B4. Team work C3. Theoretical thinking	B4. Team work C3. Theoretical thinking	B4. Team work C3. Theoretical thinking	1.5.2. 3.2. 4.1. 5.1.

	responsibility of citizens for society.				

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8
Contribution of the course	I		I	T	I			
CLO 1	X		X	X				
CLO 2	X		X	X				
CLO 3	X		X	X				
CLO 4	X		X	X				
CLO 5	X		X	X	X			

12. Student tasks

Students must do the following tasks:

- Attend at least 80% of the lessons of the course;
- Do homework assigned in each chaper of the course;
- Self-study the problems assigned by the lecturer (outside of class time);
- Take the mid-term and final exams;
- Fully attend and complete the content of practices

13. Course assessments

The results of the course evaluation are based on the assessment of the student's activities during the course of study, the mid-term exam and the final exam expressed through the assessment; the course output standards are assessed; criteria, standards and weights of the assessments.

Type of assessment	**Performance assessment**	**Assessment methods**	**Rubric**	**Weighting percentage (%)**	**CLOs**
A1. Ongoing assessment	A1.1 Class Attendance	CLO1-4	Go to school fully. Do not miss more than 20% of the class.		10%
	A1.2 Exercises /homeworks	CLO3-5	Do the correct answer		10%
A2. Mid-term Assessment	A2.1 Mid-term exam	CLO1-2	Meet the requirements of the answer	10	20%
A3. Final Assessment	A3.1 Final exam	CLO1-5	Meet the requirements of the answer	10	60%

14. Course materials:

14.1. Books, lectures, main textbooks

[1]. Ministry of Education and Training, History of the Communist Party of Vietnam, National Political Publishing House 2019.

14.2. Books and references:

[1]. Research Committee on History of the Central Party, History of the Communist Party of Vietnam, volume I (1920-1954), Truth Publishing House, 1981. pp.1-105.
[2]. Communist Party of Vietnam, Complete Party Document, Volume 1, National Program Publishing House, Hanoi, 1998, p. 614.
[3]. Communist Party of Vietnam, Complete Party Document - Brief Constitution of the Party, Brief Strategy of the Party, Summary Program of the Party, Brief Statute of the Communist Party of Vietnam; Conference summary report; The appeal, National Program Publishing House, H, 1998, volume 2, pp. 2-19.
[4]. Communist Party of Vietnam, Complete Party Document, National Program Publishing House, H, 2000, T.7, p.118
[5]. Communist Party of Vietnam, Complete Party Document, National Program Publishing House, H, 2002, T. 21, pp. 904

15. Scientific code of ethics:

Students must respect a lecturer and other students.
Students must comply with the University's academic integrity policy.
Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

22. General Environment

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Môi trường
English name: General Environment

1. Course code:	
2. Course abbreviation:	General Environment
3. Credits: **ECTS credits (*):**	02 2,83
4. Study workload:	
- Lecture:	2 credits (30 hours)
- Exercise:	… credits (... hours)
- Practice/ Laboratory:	… credits (… hours)
- Self-study/Assignment:	60 hours
5. Responsible persons:	
- Faculty/Division in charge:	Faculty of Environment
- Course coordinator:	Le Phuoc Cuong, Ph.D.
- Other lecturers:	Le Thi Xuan Thuy, Ph.D., Pham Thi Kim Thoa, Ph.D.
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	N/A
- Recommended prerequisite:	N/A
- Corequisite:	N/A
7. Course type:	☒ Compulsory □ Selected elective □ Free elective
8. Knowledge clusters:	□ Math and natural science ☒ General knowledge □ Core engineering fundamental knowledge □ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description:

This course provides students with the basic knowledge of environment, resources and ecosystems, the knowledge of environmental pollution of air, water, soil, solid waste and some other types of pollution such as noise, heat, radiation; solutions to minimize environmental pollution to take appropriate actions in everyday life and the Concepts, principles and solutions for achieving environmental harmony and sustainable development, Vietnamese environmental law…

10. Course learning outcomes (CLOs):

At the end of this course, students should be able to:

No	(CLOs) (1)	Knowledge (2)	Skills (3)	Attitudes (4)	PLOs
1.	**Explain** the concepts of environment, resources, environmental pollution due to development activities, climate change, the importance of environmental protection and rational exploitation and use of resources	L2 - Understanding		L2- Responding	PLO1
2.	**Explain** the causes of environmental pollution and its impacts on people and resources due to development activities.	L2 - Understanding			PLO1
3.	**Assess** human impacts on the environment and solutions to minimize those negative impacts	L5 - Evaluation	L3- Precision		PLO1 PLO4
4.	**Apply** relevant knowledge to come up with suitable ideas and solutions to minimize negative impacts on the environment.	L3- Applying		L2- Responding	PLO4

11. Outcome Coverage: mapping to Program Learning Outcome (PLO)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course contribution	IT		IT	IT				
CLO 1	X		X	X				
CLO 2	X		X	X				
CLO 3	X		X	X				
CLO4	X		X	X				
CLO5	X		X	X				

12. Student Responsibilities:

Students must:

- Attend at least 80% of the course to be eligible for the final examination
- Engage in class discussion with respect and attention
- Self-study, direct their own studying—outside the classroom
- Complete all homework and assignments in a timely manner

13. Course assessment:

Assessment Components	Assessment types	Rubric	Percentages (%)	Percentages of assessment	CLOs

				components (%)	
A – On-going Assessment	A1.1 Quiz	R1.1 – rubric of PI 1.1	10	20	CLO1 CLO2 CLO3
	A1.2 Weekly homework	R1.2 – rubric of PI 1.2	10		
B – Midterm exam	B1. Written test	R2.1 – rubric of PI 2.1 R2.2 – rubric of PI 2.2	20	20	CLO1 CLO2 CLO3
C-Final exam	C1. Written test	R3.1 – rubric of PI 3.1 R3.2 – rubric of PI 3.2	60	60	CLO1 CLO2 CLO3 CLO4

14. References:

14.1 Textbooks, course books:

[1]. Environmental pollution course. Danang University of Science and Technology, 2021

[2]. Tang Van Doan, Tran Duc Ha, Environmental engineering textbook. Education Publishing House, 1995.

14.2 Reference books:

[1]. Le Van Khoa, Environment and pollution. Education Publishing House, 1995.

[2]. Nguyen Duc Khien, Nguyen Kim Hoang, Environmental Security, Information and Communication Publishing House

[3]. Larousse. Petit Atlas, Endangered Species, Young Publishing House, 2008.

[4]. WingsBooks, Species of Plastic - When Plastic Rises, Kim Dong Publishing House, 2019

[5]. Hazel Henderson, Ikeda Daisaku, Global Environment and the Future of Humanity, Political Publishing House

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approval date:

17. Approval by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**PGS.TS. Lê Phước Cường**

23. Structural Mechanics

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Cơ học Công trình
English name: Structural Mechanics

1. Course code:	
2. Course abbreviation:	Construction machine
3. Credits: **ECTS credits (*):**	03 4,25
4. Study workload:	*Total workload: 135 hours*
- Lecture:	36 hours
- Exercise:	9 hours
- Self-study/Assignment:	90 hours
5. Responsible persons	
- Faculty/Division in charge:	
- Course coordinator:	PhD. Phan Đình Hào
- Other lecturers:	M.Sc. Đỗ Minh Đức; M.Sc. Lê Cao Tuấn
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	Mechanical theory
- Recommended prerequisite:	Physics 1, Specialized math
- Corequisite:	None
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

The content of this course has 7 chapters. Chapter 1 introduces an overview of load-bearing structures in construction, helping students orient the tasks, roles and meaning of the module. Chapter 2 presents how to analyze the geometrical structure of a planar system. Chapter 3 shows how to determine the geometrical characteristics of the cross-section and the mechanical properties of the material. Chapter 4 introduces the basic concepts of stress, internal force, how to determine and quickly draw internal force diagrams. Chapter 5 presents the bearing forms of the member sections, helping learners to design or evaluate the bearing capacity of the section. Chapter 6 shows how to determine the displacement of a straight bar system. Chapter 7 introduces superstatic and super-dynamic systems and the principle of determining internal forces in this type of system.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

NO	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Understand the role and meaning of load-bearing structures in construction works and the concepts used to describe and calculate the bearing capacity of structures.	Understanding		Responding	1.2.3
2	Identify some basic types of load-bearing structures and their applicability as load-bearing structures.	Remembering		Responding	1.2.3
3	Analyze the geometrical structure of the structural system.	Analyzing		Reply	1.2.3
4	Apply theory to calculate quantities such as geometrical characteristics, internal forces, stresses, displacements used to evaluate the bearing capacity of the structure.	Applying	Imitation	Reply	1.2.3
5	Analyze the specific working forms of the bearing member cross section.	Applying	Imitation		1.2.3
6	Assess the bearing capacity of the structure.	Evaluating			1.2.3

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT							
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4	X							
CLO 5	X							
CLO 6	X							

12. Student responsibilities:

Student must perform the following tasks:

- Attend classes not less than 80% of the prescribed class hours of the course;

- Do and submit individual/group assignments according to the regulations of the course;
- Participate in class activities as prescribed;
- Self-study the problems assigned by the lecturer to do outside of class time;
- Complete all types of the course assessment.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance	P1.1. Check attendance	R1.1	W1.1. 50%	W1. 20%	
	A1.2. Assignment/ Presentation	P1.2. Report	R1.2	W1.2. 50%		CLO 1,2,3,4,5,6
A2. Mid-term exam	A2.1. Mid-term exam work	P2.1. Written exam	R2.1	W2. 100%	W2. 30%	CLO 3,4,5
A3. Final exam	A3.1 Final exam work	P3.1. Written exam	R3.1.	W3.1. 100%	W3.1 50%	CLO 3,4,5,6

14. Course materials:

14.1. Main textbooks, course books:

[1] *Giáo trình của Bộ môn Kết cấu Công trình.* (Tài liệu)

[2] Lê Văn Hồ, *Cơ học công trình*, Nhà xuất bản Giáo Dục – 1993. (Giáo trình).

[3] Trần Minh Tú, Nguyễn Thị Bích Phượng và Trần Thùy Dường, *Cơ học công trình*, Nhà xuất bản Xây Dựng – 2019. (Giáo trình).

14.2. References:

[1] Vũ Mạnh Hùng, *Cơ học và kết cấu công trình*, Nhà xuất bản Giáo dục- 2003. (Sách tham khảo)

[2] *Cơ học xây dựng*, NXB Khoa học Kỹ thuật – 1991. (Giáo trình tham khảo).

15. Scientific code of ethics:

- Students must respect faculty and other students;
- Laptops, tablets, and phones are only used for the purpose of taking lecture notes, calculating for lectures and exercises, absolutely not for other purposes;
- Students must comply with the University's academic integrity regulations;
- Students must abide by the rules and regulations of the School.

16. Approved date: / 07 /2021

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Do Minh Duc, M.Sc.**

24. Construction machine

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Máy xây dựng
English name: Construction machine

1. Course code:	
2. Course abbreviation:	Construction machine
3. Credits: **ECTS credits (*):**	02 2,83
4. Study workload:	*Total workload: 90 hours*
- Lecture:	25 hours
- Exercise:	5 hours
- Self-study/Assignment:	60 hours
5. Responsible persons	
- Faculty/Division in charge:	
- Course coordinator:	M.Sc. Nguyễn Khánh Linh
- Other lecturers:	
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Graphical drawing - Engineering drawing, Mechanical theory
- Corequisite:	None
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

The course belongs to the compulsory knowledge block. The course teaches students to study construction machinery groups such as transport machines, lifting machines, earthmoving machines, foundation reinforcement machines, and building materials production machines. Train students in thinking ability when using machines and equipment in the production of building materials and construction works; calculating machine use, selecting and coordinating machines reasonably, using machines effectively.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Describe the structure and working principle of the machine	Understanding	Copy	Responding	1.2.9
2	Classify, name and list construction machines	Remember	Competently	Valuing	1.2.9
3	Compare machines with the same construction function, compare machines in the same machine group	Assessment Manipulate		Incorporate	1.2.9
4	Calculate the basic parameters of the machine	Analysis Manipulate	Exactly	Valuing	1.2.9
5	Explain some phenomena when the machine interacts with the object under construction	Assessment	Manipulate	Incorporate	1.2.9

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT							U
CLO 1	X							
CLO 2	X							
CLO 3	X							X
CLO 4	X							X
CLO 5	X							X

12. Student responsibilities:

Student must perform the following tasks:

- Attend classes not less than 80% of the prescribed class hours of the course;
- Do and submit individual assignments according to the regulations of the course;
- Self-study the problems assigned by the lecturer at home or in the library;
- Group discussion by topic;
- Complete all types of the course assessment.

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance	P1.1. Check attendance	Attend at least 80% of the total periods of the course	W1.1. 50%	W1. 20%	
	A1.2. Assignment/ Presentation	P1.2. Essay/ oral presentation	R1.2. Do it right, draw it right, fully	W1.2. 50%		CLO 1,2,3
A2. Mid-term exam	A2.1. Mid-term exam work	P2.1. Written exam	R2.1. Meet the requirements	W2. 100%	W2. 20%	CLO 1,2,3,4
A3. Final exam	A3.1 Final exam work	P3.1. Written exam	R3.1. Meet the requirements	W3.1. 100%	W3.1 60%	CLO 1,2,3,4

14. Course materials:

14.1. Main textbooks, course books:

[1]. Lưu Bá Thuận, *Giáo trình Máy xây dựng*, Nxb Xây dựng, Hà Nội, 2008.

14.2. References:

[1]. Nguyễn Văn Hùng, Phạm Quang Dũng, Nguyễn Thị Mai, *Máy xây dựng,* Nxb Khoa học kỹ thuật, Hà Nội, 1998.

[2]. Trương Quốc Thành, *Máy và thiết bị nâng*, Khoa học và Kỹ thuật, Hà Nội, 1999.

[3]. Phạm Hữu Đỗng, *Máy làm đất*, Nxb Xây dựng Hà Nội, 2004.

[4]. Trần Quang Quý, *Máy sản xuất vật liệu xây dựng*, Nxb Giao thông Vận tải, Hà Nội, 2001.

15. Scientific code of ethics:

- Students must respect lecturers and other students, students have a spirit of healthy competition in learning.
- Students must come to school on time, fully attend the required activities of the lecturer; have high self-study spirit.
- Be honest with the data, must comply with the academic integrity regulations of the University.
- Students must abide by the rules and regulations of the School.

16. Approved date: / 07 /2021

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Khanh Linh, MSC**

25. Engineering Geology

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Địa chất công trình
English name: Engineering Geology

1. Course code:	
2. Course abbreviation:	Engineering Geology
3. Credits: **ECTS credits (*):**	2 credits (30 periods) 3,67
4. Time distribution	
- Lecture:	30 Periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 Periods
5. Responsible persons	
- Faculty/Division in charge:	
- Course coordinator:	
- Other lecturers:	
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction materials
- Parallel courses:	None
7. Type of course	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The Engineering Geology module provides learners with knowledge about engineering geology such as: rock-forming minerals, construction soils and rocks in the earth's crust, classification of construction soils and properties of construction soils. construction; Hydrogeological basis of works, calculating the infiltration flow of underground water in different cases, lowering the groundwater level and draining the foundation pit; The processes and phenomena geology dynamics works; Methods and technology of engineering geological survey, construction geological survey records.

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (PLOs)
1	Present basic knowledge of engineering geology, hydrogeology recognize engineering geological phenomena	a2.Understand	Perform		1.2.5 5.1
2	Calculate physico-mechanical properties in ground & foundation works. Caculate the seepage of underground water in certain ground	b2.Manipulate	Perform		1.2.5
3	Evaluation of elements of engineering geological conditions, methods and technologies in engineering geological survey	b2.Manipulate	Perform		1.2.5
4	Analysis of engineering geological survey reports, borehole cylinders, engineering geological cross-sections, table of physical and mechanical indicators of soil and rock	a5.Evaluate	Perform	Perform	1.2.5
5	Ability to work in groups: students can cooperate, divide work, listen to the opinions of others, participate actively...	a3.Manipulate	Competently	Organization	5.1

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	IT				TU			
CLO 1	**X**				**X**			
CLO 2	**X**							
CLO 3	**X**							
CLO 4	**X**							
CLO 5					**X**			

12. Student tasks

Students must do the following tasks:
- Attend at least 80% of the lessons of the course;
- Join group in work activities according to the regulations of the class;
- Self-study the problems assigned by the lecturer (outside of class time);
- Complete all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		CLOs
A1. Ongoing assessment	A1.1 Exercises /homeworks	P1.1. Diligence	R1.2	W1.15%	W1. 15%	CLO5
	A1.2 Exercises /homeworks	P1.2. Do at class/Homeworks	R1.1	W1.210%		
A2. Mid-term Assessment	A2. Mid-term exam	P2. Written exam	R2.1	W2.120%	W2. 20%	CLO1 CLO2 CLO3
A3. Final Assessment	A3. Final exam	P3. Written exam	R3.1	W3.150%	W3. 50%	CLO1 CLO2 CLO3
A4. Đánh giá cuối kỳ thực tập	A4.1. Class Attendance	P1.1. Diligence	R4.1	W4.15%	W4. 15%	CLO2 CLO3 CLO4
	A4.2. Internship report	P2.1 The degree of completion of the Internship report	R4.2	W4.210%	W1. 15%	CLO5

14. Materials:

14.1. Books, lectures, main textbooks

[1] Nguyen Thi Ngoc Yen, Tran Khac Vy, *Engineering Geology*, Construction Publishing House, Ha Noi, 2020

[2] Nguyen Thi Ngoc Yen, Nguyen Hoang Giang, Nguyen Thu Ha, *Engineering geology exercises*, Scientific and technical publishing house, Ha Noi, 2021.

14.2. Reference materials

[1] Tran Thanh Giam, *Geotechnique*, Scientific and technical publishing house, Ha Noi, 2020.

[2] Nguyen Uyen, *Engineering geology exercises*, Construction Publishing House, Ha Noi, 2007

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge

Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Thi Ngoc Yen, PhD.**

26. Soil Mechanics

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Cơ học Đất
English name: Soil Mechanics

1. Course code:	1090062
2. Course abbreviation:	Soil Mechanics
3. Credits: **ECTS credits (*):**	2,5 3,75
4. Study workload:	
- Lecture:	1,6 Credits
- Exercise:	0,4 Credits
- Practice/ Laboratory:	0,5 Credits
- Self-study/Assignment:	60 hours
5. Lecturers:	
- Faculty/Division in charge:	Geotechnical Engineering Division/Faculty of Road & Bridge Engineering
- Course coordinator:	Assoc. Prof. Do Huu Dao
- Other lecturers:	MsC. Nguyen Thu Ha Dr. Pham Van Ngoc Dr. Nguyen Thi Ngoc Yen Dr. Bach Quoc Tien MsC. Nguyen Thi Phuong Khue
- Faculty/Division in charge:	
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	No
- Recommended prerequisite:	Chemistry, Theorical mechanic
- Parallel courses:	No
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science

	□ General knowledge ☒ Core engineering fundamental knowledge □ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description:

This unit provides students witi theorectical knowledge of soil physical and mechanical properties, determine the stress and strain in soils under loading and seft-weigth of soils, estimate the foundation settlement over time, predict the soil bearing capacity, slope stability and earth pressure for retaining walls.

10. Course learning outcomes:

On satisfactory completion of the unit, students have ability to:

STT	Course Learning Outcomes (CLO) (1)	Bloom Taxanomy (2)	Skill (3)	Attitude (4)	CDIO Syllabus (PLO) (5)
1	Present and explain the composition and structure of soil; calculate the normal physical and mechanical properties of the soil; soil status assessment and classification.	Understand and classify			1.2.4
2	Calculate the stress in the ground, calculate the settlement for the building foundation and settlement over time; Calculation to determine the bearing capacity for the ground, the stability of the slope and calculate the earth pressure acting on the retaining wall.	Present and apply			1.2.4
3	Analyze the factors affecting the properties of construction soil and evaluate the properties of soil.	Analyze and evaluate			1.2.4
4	Understand the experimental procedures and operating laboratory instruments and equipment to determine the normal physical and mechanical parameters of soil in the laboratory.	Understand, present, practice	Operational accuracy		2.1
5	Follow the principles and support teamwork	Argue, compare, combine	Organized, Proficient	present ideas, respect, discuss, cooperate	5.1.1 5.1.2 5.2.3

11. CLOs and PLOs mapping:

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the Course	IT	IT			TU			
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4		X						
CLO 5					X			

12. Students' task:

Students must perform the following tasks:

- Attend classes at least 80% class hours of the module;
- Make and submite individual / group assignments in accordance with the module;
- Listen to the use of laboratory equipment;
- Group exercises are assigned
- Submit individual reports as required by the module;
- Discuss and answer some problems raised by the lecturer;
- Complete a final examination.

13. Assessment:

The unit assessment results are based on assessments of student activities throughout the course of the study, midterm and final examinations expressed through the assessment; output standards of the unit are evaluated; criteria, standards and weightings of the assessments.

Component	Assessment style	Assessment methods	Criteria	Weight	Weight	CLOs
A1. Progress assessment	A1.1 Short assignments	P1.1. Presentation in class / Quiz	R1.1	W1.1 5%	W1. 10%	CLO1,2, 3,5
	A1.2 Personal/ Group homeworks/	P1.2. Workbook report and class presentation	R1.2	W1.2 5%		CLO 5
A2. Mid-term assessment	A2.1. Mid-term test	P2. Essay test	Meet the requirements of the answers	W2.1 20%	W2. 20%	CLO 1,2
A3. Final assessment	A3.1. Final test	P3. Essay test	Meet the requirements of the answers	W3.1 50%	W3. 50%	CLO 1,2,3
A4. Final assessment for Lab testing	A4.1. Practice in class	P4.1. Result of the experiment tests	Practice on schedule and record full data collection.	W4.1 5%	W4. 20%	CLO4, CLO5
	A4.2. Report assessment	P4.2. Result of the experiment report	Review and analyze the results of the experiment.	W4.2 5%		

	A4.3. Final assessment	P4.3. Essay (30 mins)	Meet the requirements of the answers	W4.3 10%		

14. Study materials:

14.1 Books, lectures, main curriculum:

[1]. **Le Xuan Mai, Do Huu Dao**. *Soil Mechanics.* Construction Publisher, Ha Noi, 2005.

[2]. **Nguyen Thi Phuong Khue, Nguyen Thu Ha, Pham Van Ngoc**. *Soil Mechnics Testing.* Construction Publisher, Ha Noi, 2022.

14.2 References:

[1]. **Vu Cong Ngu, Nguyen Van Dung**. *Soil Mechanics.* Science and Technique Publisher, Ha Noi, 2002.

[2]. **Vu Cong Ngu, Nguyen Van Thong**. *Soil Mechnics exercise.* Education Publisher, Ha Noi, 2006.

[3]. **Bui Anh Dinh**. *Soil Mechnics.* Education Publisher, Ha Noi, 2004.

[4]. **Cao Van Chi, Trinh Van Cuong**. *Soil Mechnics.* Education Publisher, Ha Noi, 2003.

[5]. **R.Whitlow**. *Soil Mechanics set 1 and 2.* Education Publisher 1997.

Software

[1] Software used: Microsoft Word, Exel, Autocad

[2] Calculating software: Geo Slope, Plaxis

15. Scientific code of ethics:

Honesty, responsibility, respect and cooperation in science.

16. Approved date: / /2022

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Dr. Pham Van Ngoc.**

27. Construction Materials (Theory and Experiment)

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Vật liệu xây dựng
English name: Construction Materials (Theory and Experiment)

1. Code:	7510105
2. Course abbreviation:	Construction Materials
3. Credits: **ECTS credits (*):**	2,5 (45 hours) 3,75
4. Time distribution (Hours):	
- Theory:	30
- Exercise and group discussion:	0
- Experiment	15
- Self studying:	75
5. Lecturers:	
- Faculty/Division in charge:	Construction materials division
- Course coordinator:	M.Sc. Nguyen Thi Tuyet An
- Other lecturers:	Lecturers in Construction materials division
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	General Chemical
- Corequisite:	Geotechnics, Soil Mechanics
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. COURSE DESCRIP-TION

Course of construction material introduces basic knowledge about the main materials used in construction: Natural stone Material, construction ceramic, Inorganic binder, Concrete using inorganic binder, Wooden, etc. This course equip students with knowledge of composition, structure, production principles, mechanical properties, applications, experimental methods to determine the mechanical and physical properties of materials; the basis of quality assessment and how to choose the appropriate type of construction materials for each project.

This is the basis for subjects in the basic group of industries such as Foundations, Reinforced Concrete Structures, Introduction of materials in construction, Applied chemistry, Worker Internship; Mathematics majoring in construction materials; specialized subjects such as Architectural Engineering, Construction Ceramic Technology, Concrete Technology, Construction materials Inspection and Testing, Light weight Concrete Technology...

10. COURSE LEARNING OUTCOMES (CLOs)

After completing the course, students have ability to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Present and explain the composition, structure, production principles, mechanical and mechanical properties, applications, testing methods of Construction materials.	a2. Understand		c1. Receiving c2. Responding	1.2.8 8.1.1
2	Calculating the mechanical and physical parameters of Construction materials from experimental data	a3. Apply	b2. Manipulation		1.2.8 2.2.1
3	Analyze the factors affecting the quality of Construction materials	a4. Analyze		c1. Receiving c2. Responding	1.2.8 8.5.1,8.5.4
4	Evaluation of the quality of Construction materials	a5. Evaluate		c1. Receiving c2. Responding	1.2.8
5	Demonstrate experimental procedures and operate basic laboratory instruments and equipment		b1. Imitation	c1. Receiving c2. Responding	2.1.1 2.2.1
6	Adhere to principles and support teamwork			c2. Responding c3. Valuing	5.1.2 5.2.3,5.2.6

11. CLOs AND PLOs MAPPING

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	IT	IT			U			I
CLO1	X							X
CLO2	X	X						

CLO3	X							X
CLO4	X							
CLO5		X						
CLO6					X			

12. STUDENTS' TASK:

Students must do the following tasks:

- Attend at least 80% class hours;
- Attend 100% of the experimental periods of the course, if there is one or more absences of the experiment (without the teacher's consent) or the evaluation result of the experimental section A4 < 5 points (scale of 10). are not allowed to take the final test.
- Participating in group work activities according to the regulations of the course;
- Self-study at home or at library;
- Do mid-term and final exams.

13. ASSESSMENT

The results of the course evaluation are based on the assessment of the student's activities during the course of study, the mid-term exam and the final exam; the course output standards are assessed; criteria, standards and weights of the assessments.

Students must participate in the experiment at all experimental hours, without 1 session, the final evaluation score of the experiment (A4) is zero. Students who do not achieve the experimental score (less than 4.0 points on a scale of 10), then not allowed to take the final theory exam and the final score is taken as 0

Type of assessment	**Performance assessment**	**Assessment methods**	**Rubric**	**Weighting percentage (%)**		CLOs
A1. Ongoing assessment	A1.1 Exercises /homeworks	P1.1. Do at class/Homeworks	Rubric R1.1	W1.150%	W1. 20%	CLO1,CLO2
	A1.2 Class Attendance	P1.3. Diligence	Rubric R1.2	W1.250%		CLO2, CLO4
A2. Mid-term Assessment	A2. Mid-term exam	P2. Written exam	Answers of test	W2.1100 %	W2. 20%	CLO1, CLO2
A3. Final Assessment	A3. Final exam	P3. Written exam	Answers of test	W3.1100 %	W3. 40%	CLO1,CLO2, CLO3, CLO4
A4. Final assessment for Lab testing	A4.1 Diligence	Diligence	Diligence	W4.10%	W4. 20%	
	A4.2 Group report on the experimental results	report	Rubric R4.2	W4.230%		CLO6
	A4.3 Personal report on the experimental results	Report	Rubric R4.3	W4.370%		CLO1, CLO2, CLO4, CLO5

14. STUDY RESOURCES:

14.1 Textbooks:

[1] Phung Van Lu, Pham Duy Huu, Phan Khac Tri, *Construction Materials*, Education Publisher, Hanoi, 2001 (in Vietnamese).

[2] Huynh Phuong Nam, Nguyen Thi Tuyet An, Do Thi Phuong, *General Construction Materials*, Construction Publisher, Hanoi, 2016 (in Vietnamese).

14.2 References:

[1] Pham Duy Huu, Ngo Xuan Quang, *Construction Materials*, Transportation Publisher, Hanoi, 2004 (in Vietnamese).

[2] Ministry of Construction, *Instructions of concrete mix proportions design*, Construction Publisher, Hanoi, 2000 (in Vietnamese).

[3] Vietnamese Standards and Other Standards.

15. Scientific code of ethics:

- Plagiarism is prohibited
- References including textbooks, notes are prohibited in the mid-term examination
- Electronic devices are prohibited during mid-term and final examinations

16. Approved date: / 07 /2021

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	Vo Duy Hung, PhD.	Nguyen Thi Tuyet An, M.Sc.

28. Scientific socialism

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Chủ nghĩa xã hội khoa học
English name: Scientific socialism

1. Course code:	
2. Course abbreviation:	Scientific socialism
3. Credits: **ECTS credits (*):**	02 TC (30 tiết) 2,83
4. Time distribution	
- Lecture:	02 TC (30tiết)
- Exercise:	
- Self-study/Assignment:	60 tiết
5. Lecturers in charge	
- Faculty/Division in charge:	Khoa Lý luận chính trị, Trường Đại học Kinh tế, Đại học Đà Nẵng
- Course coordinator:	PGS.TS Lê Hữu Ái
- Other lecturers:	1. TS.GVC. Trịnh Sơn Hoan, 2. ThS. GVC. Lê Đức Tâm, 3. TS GVC Trần Hồng Lưu, 4. ThS. GVC Lưu Thị Mai Thanh, 5. TS. Lê Văn Thao, 6. TS. GVC. Phạm Huy Thành
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	Not required
- Recommended prerequisite:	Marxist-Leninist political economy
- Corequisite:	Not required
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☒ General knowledge

	□ Core engineering fundamental knowledge □ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description

The course is comprised of two main parts:

- The first part studies the core issues of Scientific Socialism, one of the three components of Marxism-Leninism.
- The second part studies Vietnam's socio-political issues related to socialism and the path to socialism in Vietnam.

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attiude	Performance indicators (belongs to PLOs)
1	Understand the birth process of the Party, the way of struggle for power, national liberation, and national reunification	A2. Understand	A2. Understand	A2. Understand	1.5.2. 3.2. 4.1.
2	Clarifying the meaning of the birth of the Party, the process of implementing the line of struggle for power and the line of national liberation and unification of the mangroves.	A3. Determined	A3. Determined	A3. Determined	1.5.2. 3.2. 4.1.
3	Analyze the guidelines on industrialization, building a socialist-oriented market economy and international economic integration; build a new political system and culture.	A4. Analysis	A4. Analysis	A4. Analysis	1.5.2. 3.2. 4.1.
4	Clarifying the results, meanings and causes of the process of implementing the renovation policy on industrialization, building a market economy, and integrating into the international economy; build a new political system and culture.	A3. Determined	A3. Determined	A3. Determined	1.5.2. 3.2. 4.1.
5	Train learners in theoretical thinking style, research ability, lifelong learning, presentation, communication, teamwork; abide by the Party's guidelines, the State's laws and the sense	B4. Team work C3. Theoretical thinking	B4. Team work C3. Theoretical thinking	B4. Team work C3. Theoretical thinking	1.5.2. 3.2. 4.1. 5.1.

	of civic responsibility before society.				

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	I		I	T	I			
CLO 1	X		X	X				
CLO 2	X		X	X				
CLO 3	X		X	X				
CLO 4	X		X	X				
CLO 5	X		X	X	X			

12. Student tasks

Students must do the following tasks:
- Attend at least 80% of the lessons of the course;
- Do homework assigned in each chaper of the course;
- Self-study the problems assigned by the lecturer (outside of class time);
- Take the mid-term and final exams;
- Fully attend and complete the content of practices

13. Course assessments

The results of the course evaluation are based on the assessment of the student's activities during the course of study, the mid-term exam and the final exam expressed through the assessment; the course output standards are assessed; criteria, standards and weights of the assessments.

Type of assessment	**Performance assessment**	**Assessment methods**	**Rubric**	**Weighting percentage (%)**	**CLOs**
A1. Ongoing assessment	A1.1 Class Attendance	CLO1-4	Go to school fully. Do not miss more than 20% of the class.		10%
	A1.2 Exercises /homeworks	CLO3-5	Do the correct answer		10%
A2. Mid-term Assessment	A2.1 Mid-term exam	CLO1-2	Meet the requirements of the answer	10	20%
A3. Final Assessment	A3.1 Final exam	CLO1-5	Meet the requirements of the answer	10	60%

14. Materials

14.1. Books, lectures, main textbooks

[1].Ministry of Education and Training, History of the Communist Party of Vietnam, National Political Publishing House 2019.

14.2. Books and references:

[1]. Research Committee on History of the Central Party, History of the Communist Party of Vietnam, volume I (1920-1954), Truth Publishing House, 1981. pp.1-105.
[2]. Communist Party of Vietnam, Complete Party Document, Volume 1, National Program Publishing House, Hanoi, 1998, p. 614.
[3]. Communist Party of Vietnam, Complete Party Document - Brief Constitution of the Party, Brief Strategy of the Party, Summary Program of the Party, Brief Statute of the Communist Party of Vietnam; Conference summary report; The appeal, National Program Publishing House, H, 1998, volume 2, pp. 2-19.
[4]. Communist Party of Vietnam, Complete Party Document, National Program Publishing House, H, 2000, T.7, p.118
[5]. Communist Party of Vietnam, Complete Party Document, National Program Publishing House, H, 2002, T. 21, pp. 904

15. Scientific code of ethics:

Students must respect a lecturer and other students.
Students must comply with the University's academic integrity policy.
Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	

29. Background and Foundation

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Nền và Móng
English name: Background and Foundation

1. Code:	1090990
2. Course abbreviation:	Background and Foundation
3. Credits: **ECTS credits (*):**	02 2,83
4. Study workload:	
- Lecture:	24 teaching hours.
- Exercise:	06 teaching hours
- Self-study/Assignment:	60 study hours
5. Lecturers:	
- Faculty/Division in charge:	
- Course coordinator:	Dr. Do Huu Dao
- Other lecturers:	MsC. Nguyen Thu Ha MsC. Pham Van Ngoc
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction Materials, Soil Mechanics
- Corequisite:	Concrete structure
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. COURSE DESCRIPTION

Foundations is one of the important specialized subjects for all civil engineering students. This course provides the concepts, background and principle in designing and building the foundations of the constructions. Therefore, it helps students to be able to recognize, distinguish, select, analyze and evaluate the foundation solutions (shallow foundation and deep foundation) as well as soil improvement methods when building the construction on soft soil ground. This module equippes an important knowledge about foundations so that students can apply and connect their knowledge with other subjects in the civil engineering program.

10. COURSE OBJECTIVES

After completing the course, students have ability to:

No.	Course Learning Outcomes (CLOs) (1)	Knowledge (2)	Skill (3)	Attitude (4)	PLOs Syllabus (5)
1	Differentiate and compare the advantages and disadvantages, the scope of application of deep foundation and foundation.	Understand			1.2.13
2	Calculate and design shallow foundation on the natural ground, low embedment pile foundation and high embedment pile foundation		Apply		8.2.2
3	Analyze of the factors influencing and forecast-ing the bearing capacity of reinforced concrete piles and bored piles according to the updatest standards	Analyze			1.2.13
4	Analyze and propose solutions when building construction on soft ground; Apply specialized software in design pile foundation and soft soil improvement.	Analyze	Apply		1.2.13 8.2.2
5	Plan and complete tasks on schedule, Team work skills: cooperate, share work, listen to other people's ideas, participate actively ...		Fluent	Seri-ously	8.1.4 5.1.2

11. CLOs AND PLOs MAPPING:

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the Course (6)	TU				T			I
CLO 1	X							
CLO 2								X
CLO 3	X							
CLO 4	X							X
CLO 5					X			X

12. STUDENTS' TASK:

Students must perform the following tasks:

- Attend classes at least 80% class hours of the module;
- Make and submite individual / group assignments in accordance with the module;
- Self-study at home or library;
- Focus group discussions;

- Do the midterm and final examinations.

13. COURSE LEARNING OUTCOMES (CLOs)

Course assessment is conducted due to student's activities, mid-term exam and final exam, as follows:

Component	Assessment style	Assessment methods	Criteria	Weight		CLOs
A1. Progress assessment	A1.1. Diligence	P1.1. Take attendance	Rubric 1.1	W1.1. 5%	W1 20%	CLO 5
	A1.2. Short assignments	P1.2. Presentation in class / Quiz	Rubric 1.2	W1.2. 5%		CLO 1,2, 3,4
	A1.3. Personal/ Group homeworks/	P1.3. Workbook report and class presentation	Rubric 1.2	W1.3. 10%		CLO 1,2, 3,4,5
A2. Mid-term assessment	A2. Mid-term test	P2. Essay test	Rubric 2	W2. 20%	W2 20%	CLO 1,2
A3. Final assessment	A3. Final test	P3. Essay test	Rubric 3	W3. 60%	W3 60%	CLO 1,2,3,4

Study materials:

14.1. Textbooks:

[1]. **Le Xuan Mai, et.al**, *Foundations,* Construction Publisher, Ha Noi, 2010 (Vietnamese)

14.2 References:

[1]. **Vu Cong Ngu**, *Design and calculate shadow foundations*, Construction Publisher, Ha Noi, 1998.

[2]. **Le Duc Thang**, *Design and calculate deep foundations*, Construction Publisher, Ha Noi, 1998.

[3]. **Le Duc Thang, et.al**, *Foundations,* Education Publisher, Hanoi, 1998.

[4]. **Vu Cong Ngu, Nguyen Thai,** *Deep Foundations: Analysis and design.* Construction Publisher, Ha Noi, 1998.

15.3. Software

[1]. Plaxis

[2]. Geoslope

15. Scientific code of ethics:

- Plagiarism is prohibited
- References including textbooks, notes are prohibited in the mid-term examination
- Electronic devices are prohibited during mid-term and final examinations

16. Approved date: / /

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Thu Ha, M.Sc.**

30. PBL1 - Foundations Project

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): PBL1 – Nền và Móng
English name: PBL1 - Foundations Project

1. Course code:	
2. Course abbreviation:	Foundations Project
3. Credits: **ECTS credits (*):**	01 TC (30 tiết) 1,67
4. Study workload:	
- Lecture:	
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 hours
5. Responsible persons:	
- Faculty/Division in charge:	Geotechnical Engineering Division/Faculty of Road & Bridge Engineering
- Course coordinator:	Assoc. Prof. Do Huu Dao
- Other lecturers:	MSc. Nguyen Thu Ha Dr. Pham Van Ngoc
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	Soil Mechanics**,** Foundations
- Recommended prerequisite:	Construction Materials, Engineering Geology, Reinforced Concrete Structure
- Corequisite:	No
7. Course type:	☒ Compulsory □ Selected elective □ Free elective
8. Knowledge clusters:	□ Math and natural science □ General knowledge ☒ Core engineering fundamental knowledge □ Disciplinary knowledge

	□ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Brief description of the course:

Module PBL1 - Foundations Project will system input data on Engineering Geology, load to design foundation for a construction project. Students collect data from the problem or from the actual work, evaluate the geotechnical conditions of the project and propose the design of the foundations. Calculation and design for shallow foundation and pile foundation options are required. The product is a description of design calculations and a set of drawings showing the results of PBL1 foundations in accordance with current standards and actual works. This is part of the core content for students to do Graduation Project related to calculation of foundation structure.

10. Output standards of the course:

After completing the course, students will be able to:

No	Course Learning Outcomes (CLO) (1)	Bloom Taxanomy (2)	Skill (3)	Attitude (4)	CDIO Syllabus (PLO) (5)
1	Gather geological survey data, construction load, read and understand input data for foundations design.	a2 Understand			1
2	Analyze and evaluate geological data, load to select and propose foundation and foundation options for the project.	a5 Evaluate	b4 Competently		1
3	Calculate and design foundation and foundation plans for construction works according to current standards and presenting the results by product descriptions and drawings.		b2 Manipulate		1 3
4	Organize work in groups to implement projects and present project results with a full range of products as required.			c4 Organization	3 5

11. CLOs and PLOs mapping:

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the Course	TU		T		U		U	
CLO 1	X							
CLO 2			X		X			
CLO 3			X				X	
CLO 4	X							

12. Students' task:

- Students must perform the following tasks:
- Attend classes at least 80% class hours of the module;
- Make and submite individual / group assignments in accordance with the module;
- Listen to the use of laboratory equipment;
- Group exercises are assigned

- Submit individual reports as required by the module;
- Discuss and answer some problems raised by the lecturer;
- Complete a final examination.

13. Đánh giá học phần:

Component	Assessment style	Assessment methods	Criteria	Weight	Weight	CLOs
A1. Evaluation of the process (QT)	A1.1 Short exercises in class	P1.1. Class exercises/ Essay	R1.1	W1.1. 10%	W1 40%	CLO 1,2,3
	A1.2 Descriptive report of group exercise	P1.2. Class report and presentation	R1.2	W1.2. 20%		CLO 1, 2,3
	A1.3 Thematic reports	P1.3. Class report and presentation	R1.3	W1.3. 10%		CLO 3, 4
A2. End of term assessment (CK)	A2. Kiểm tra cuối kỳ	P2. Questions and Answers	R2.	W2. 60%	W2 60%	CLO 2,3,4

14. Study materials:

14.1. Books, lectures, main textbooks

[1]. Department of Civil Engineering Foundations – Lecture PBL1 – Foundations, University of Science and Technology, University of Danang.

[2]. Le Xuan Mai (editor) - Do Huu Dao - Nguyen Tin - Doan Viet Le, Foundations, Construction Publishing House, Hanoi, 2010.3

14.2. References:

[1]. Vu Cong Ngu, *Design and calculate shadow foundations*, Construction Publisher, Ha Noi, 1998.

[2]. Le Duc Thang, *Design and calculate deep foundations*, Construction Publisher, Ha Noi, 1998.

[3]. Le Duc Thang, et.al, *Foundations*, Education Publisher, Hanoi, 1998.

[4]. Vu Cong Ngu, Nguyen Thai, *Deep Foundations: Analysis and design.* Construction Publisher, Ha Noi, 1998.

15. Scientific code of ethics:

Honesty, responsibility, respect and cooperation in science.

16. Approval date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Do Huu Dao, PhD.**

31. Basic Reinforced Concrete Elements

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Kết cấu bê tông cốt thép – Phần cơ bản
English name: Basic Reinforced Concrete Elements

1. Course code:	
2. Course abbreviation:	Basic Reinforced Concrete Elements
3. Credits: **ECTS credits (*):**	03 4,25
4. Lecture plan:	
- Lecture:	45 hours
- Exercise:	
- Self-study/Assignment:	90 hours
5. Lecturers:	
- Faculty/Division in charge:	Divison of Structural Engineering/ Faculty of Civil Engineering
- Course coordinator:	Dr Nguyen Van Chinh
- Other lecturers:	Dr Tran Anh Thien, Trinh Quang Thinh, Vuong Le Thang, Dr Nguyen Quang Tung, Pham Ngoc Vinh
6. Conditions for attendance:	
- Required prerequisite:	None
- Recommended prerequisite:	Strength of materials, Mechanical structures, Construction materials
- Corequisite:	Project based learning in Basic Reinforced concrete elements
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge

	□ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description

This subject consists of 7 chapters. Chapter 1 helps students to understand an overview of reinforced concrete materials. Chapter 2 presents the physical and mechanical properties of concrete steel and properties of reinforced concrete elements. Chapter 3 introduces the principles of calculation, design and perform the draws of reinforced concrete structure. Chapters 4, 5, 6, 7 analyze, calculation and design of basic reinforced concrete elements.

10. Course learning outcomes (CLOs)

After finish the course, the students will be able to:

No	Course learning outcomes (CLO)	Awareness	Skill	The level of autonomy and responsibility	Programme learning outcomes (PLO)
1	Have good character, professional ethics, and social responsibility	Understand			1,8
2	Remember the pros and cons, application of reinforced concrete structures		Remenber	Receive	4
3	Remember the mechanical, physical properties of concrete, steel, and reinforced concrete		Remenber	Receive	2
4	Analyse, design, calculation of the basic reinforced concrete elements		Analyse	Meet the requirements	4
5	Analyse the damage of reinforced concrete structures		Analyse	Meet the requirements	6
6	Ability to work in a team efficiently		Apply	Receive	8

11. Mapping CLOs onto PLOs

PLOs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CLO1	H							H
CLO2				M				
CLO3		M						
CLO4				H				
CLO5						M		
CLO6								

12. Student's responsibilities

Students need to perform the following tasks:

- Attending at least 80% of classes;
- Complete assignments and homework as required by the instructor;
- Attending midterm and final examinations
- Policies of class behaviours according to current regulations of the University.

13. Course assessment

Assessment component	Assessment form (Ax.x)	Assessment methods	Assessment criteria (Rubric)	Grading	Percentage (%)	Course ELO
A1. Process	A1.1. Attendance	Attendance	R1.1 Attend classes not lower than 80% of the class hours	10	20	1
	A1.2. Exercises	Essay	R1.2 Submit full assignments	10		1,2,4
A2. Midterm examination	A2.1. Midterm test	Essay	R2.1 Meet the requirements of the answer	10	20	1,2,4
A3. Final examination	A3.1. Final exam test	Essay	R3.1 Meet the requirements of the answer	10	60	3,4,5

Within one week of receiving the results of the assessment, the students have rights to ask for reviewing their test results.

14. Material sources

14.1. Text book

[1] Trần Anh Thiện, Bùi Thiên Lam, Trịnh Quang Thịnh, Vương Lê Thắng, Nguyễn Quang Tùng- Reinforced Concrete Structures- Principles of design of the basic reinforced concrete elements. DaNang Publisher, 2017

[2] Devision of Structural Engineering, Faculty of Civil Engineering, DUT. Design of the basic reinforced concrete elements.

14.2. References

[1] Ngo The Phong, Nguyen Dinh Cong, Trinh Kim Dam, Nguyen Xuan Lien, Nguyen Phan Tan. Reinforced Concrete Structures- the basic reinforced concrete elements. Science and Technics Publishing House, Hanoi, 2005

[2] Phan Quang Minh, Ngo The Phong, Nguyen Dinh Cong. Reinforced Concrete Structures- the basic reinforced concrete elements. Science and Technics Publishing House, Hanoi, 2008

[3] Vietnamese Standards TCVN 5574-2012

15. Scientific code of ethics:

- Comply with the copyright laws.
- The course is conducted on the principle of respect for learners and lecturers. All acts that interfere with the teaching and learning are strictly prohibited.
- Students must attend the lecture on time. Students are late of more than 5 minutes after the start of the lecture will not be able to attend the class.
- Students are not allowed to eat, drink, or use phones, music players during class.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Van Chinh, PhD.**

32. PBL2: Reinforced Concrete Structural Elements

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): PBL2: Kết cấu bê tông cốt thép
English name: PBL2: Reinforced Concrete Structural Elements

1. Course code:	
2. Course abbreviation:	PBL2: Reinforced Concrete Structural Elements
3. Credits: **ECTS credits (*):**	02 3,33
4. Lecture plan	
- Lecture:	0 hours
- Exercise:	90 hours
- Practice/ Laboratory:	0 hours
- Self-study/Assignment:	180 hours
5. Lecturers	
- Faculty/Division in charge:	Dr Tran Anh Thien
- Course coordinator:	Dr Nguyen Van Chinh, MSc Trinh Quang Thinh, MSc Vuong Le Thang, Dr Nguyen Quang Tung, Dr Pham Ngoc Vinh
- Other lecturers:	Division of Structural Engineering, Faculty of Civil Engineering
6. Conditions for attendance:	
- Required prerequisite:	None
- Recommended prerequisite:	Structural Analysis 2
- Corequisite:	Basic Reinforced Concrete Elements, Building Materials
7. Course type:	☒ Compulsory □ Selected elective □ Free elective
8. Knowledge clusters:	□ Math and natural science □ General knowledge ☒ Core engineering fundamental knowledge □ Disciplinary knowledge □ Supportive knowledge

	□ Project/ Internship/ Graduate thesis

9. Course description

In this course, students will work in groups to perform analysis and design of reinforced concrete slabs and beams. Project tasks include selecting appropriate structural plan for the reinforced concrete slab system, calculating dead and live loads, determining internal forces using both hand calculations and structural analysis softwares, calculating main and other reinforcement for slabs and beams. All design results are presented in the project report and technical drawings. Students defend their project at the end of the course.

10. Course learning outcomes (CLOs)

After finishing the course, students will be able to:

No	Course learning outcomes (CLO)	Awareness	Skills	Level of autonomy and responsibility	Programme learning outcomes (PLO)
1	Select appropriate structural plan for the reinforced concrete slab system	Analyze		H	1,5
2	Analyze and design appropriately basic cast-in-place reinforced concrete slabs and beams.	Apply		H	1,7
3	Apply structural analysis softwares into analyzing and design of structural elements	Apply		M	3
4	Coopperate to complete assigned team workload efficiently		Cooperate	M	9
5	Have good writing and presentation skills		Cooperate	H	8,9

11. Mapping CLOs onto PLOs

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CLO 1	H				M			
CLO 2	H						H	
CLO 3			M					
CLO 4								M
CLO 5								

(L) Low response; (M) Medium response; (H) High response

12. Student's responsibilities

Students need to perform the following tasks:

- Attending at least 80% of classes;
- Completing assigned team workload according to the schedule;

- Completing all required course assessment;
- Following policies of class behaviors according to current regulations of the University.

13. Course assessment

Final Grade = A3*(A1+A2)

Assessment component	Assessment form (Ax.x)	Assessment methods	Assessment criteria (Rubric)	Grading	Percentage (%)	CLOs
A1. Process assessment	A1.1 Project report No.1	Report and presentation	R1.1	10	50	1,2,4,5
	A1.2 Project report No.2	Report and presentation	R1.1	10		2,4,5
	A1.3. Project report No.3	Report and presentation	R1.1	10		2,4,5
	A1.4. Project report No.4	Report and presentation	R1.1	10		1,2,3,4,5
	A1.7. Attendance	Attendance	R1.2	10		
A2. Final assessment	A2.1. Project Defense	Presentation	R2.1	30	50	1,2,3,4,5
	A2.2 Report	Report in A_4 form	R2.2	10		2,3,4,5
	A2.3 Drawings	Drawings in A_2 form	R2.3	10		2,4,5
A3. Cross-assessment in each group	A3.1 Cross-assessment	Level of contribution of each member to the group project, decided by the whole group	R3: Level 0: 0.0 Level 1: 0.3 Level 2: 0.6 Level 3: 0.8 Level 4: 0.9 Level 5: 1.0			

Within one week of receiving the results of the assessment, the students have rights to ask for reviewing their test results

14. Material sources

14.1. Textbook

[1] Tran Anh Thien, Bui Thien Lam, Trinh Quang Thinh, Vuong Le Thang, Nguyen Quang Tung, "Reinforced Concrete Structures – Design Principles of Basic Elements," Danang Publishing House, 2016.

[2] Nguyen Dinh Cong, "Cast-in-place Concrete Slabs," Construction Publishing House, 2008.

[3] Nguyen Dinh Cong, Nguyen Duy Ban, Nguyen Thi Thu Huong, "Cast-in-place Reinforced Concrete Slabs," Science and Technics Publishing House, 2013.

14.2. References

[4] Vietnamese Standards TCVN 2737-1995 "Loads and Actions"

[5] Vietnamese Standards TCVN 5574-2012 “Concrete and Reinforced Concrete Structures”
[6] Phan Quang Minh, Ngo The Phong, Nguyen Dinh Cong, “Reinforced Concrete Structures – Basic Elements,” Science and Technics Publishing House, 2008.
[7] Nguyen Dinh Cong, “Practical Design of Reinforced Concrete Elements,” Construction Publishing House, 2009.

15. Scientific code of ethics:

- Complying with copyright laws.
- The course is conducted on the principle of respect for learners and lecturers. All acts that interfere with the teaching and learning are strictly prohibited.
- Students must attend the lecture on time. Students are late of more than 5 minutes after the start of the lecture will not be able to attend the class.
- Students are not allowed to eat, drink, or use phones, music players during class.

16. Approved date: Aug 01, 2020

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Tran Anh Thien, PhD.**

33. Industrial Architecture

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Kiến trúc công nghiệp
English name: Industrial Architecture

1. Course code:	
2. Course abbreviation:	Industrial Architecture
3. Credits: **ECTS credits (*):**	02 2,83
4. Study workload:	*Total workload: 90 hours*
- Lecture:	20 hours
- Exercise:	10 hours
- Self-study/Assignment:	60 hours
5. Responsible persons	
- Faculty/Division in charge:	
- Course coordinator:	Assoc. Prof. PhD. Trương Hoài Chính
- Other lecturers:	MSc. Đoàn Trần Hiệp
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Graphical drawing - Engineering drawing, Mechanical theory
- Corequisite:	None
7. Course type:	☒ Compulsory □ Selected elective □ Free elective
8. Knowledge clusters:	□ Math and natural science □ General knowledge ☒ Core engineering fundamental knowledge □ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description:

This is a technical foundation subject of architecture to provide students with content related to the introduction of industrial architectural design principles, serving the technical design of industrial works later. . The learning contents include: industrial zone planning, design and architectural structure of industrial houses.

10. Course learning outcomes (CLOs):

At the end of this course, students will be able to:

No	CLOs (1)	Knowledge (2)	Skills (3)	Attitudes (4)	Performance Indicators (PI)
1	Explain the principles of planning design, design and structure of various types of industrial architectural works.	Understanding	Copy	Responding	1.2.8
2	Synthesize and propose design solutions for an industrial project in practical conditions	Understanding	Competently	Valuing	1.2.8
3	Self-selecting and drawing solutions and architectural forms for industrial works.	Remember		Incorporate	1.2.8
4	Form in learners a spirit of cooperation and a market-oriented approach to solving design problems in industry through solution-oriented design.		Exactly	Valuing	8.2.1 8.2.2

11. Mapping of CLOs and Program learning outcomes (PLOs):

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	T	T						TU
CLO 1	X							
CLO 2	X							
CLO 3		X						
CLO 4								X

12. Student responsibilities:

Student must perform the following tasks:

- Attend classes not less than 80% of the prescribed class hours of the course;
- Participating in group work activities according to the regulations of the class;
- Self-study the problems assigned by the lecturer to do outside of class time;
- Complete all course assessments..

13. Course assessment:

Assessment components	Assessment types	Assessment methods	Rubric	Weights of assessment types (%)	Weights of assessment components (%)	CLOs
A1. Formative assessment	A1.1. Attendance	P1.1. Check attendance	R1.1	W1.1. 25%	W1. 20%	CLO 1
	A1.2. Short exercise/ answer questions	P1.2. According to the answer/ dot scale	R1.2.	W1.2. 25%		CLO 1, 2

	A1.3. Individual/ group homework	P1.3. According to rubric	R1.3.	W1.3. 50%		CLO 2, 3
A2. Mid-term exam	A2.1. Mid-term exam work	P2.1. Written exam	R2.1.	W2. 100%	W2. 20%	CLO 1,2
A3. Final exam	A3.1 Final exam work	P3.1. Written exam	R3.1.	W3.1. 100%	W3.1 60%	CLO 1,2,3,4

14. Course materials:

14.1. Main textbooks, course books:

[1] Bộ môn Kiến trúc, Kiến trúc công nghiệp, Giáo trình nội bộ, 2015 (có tại thư viện – GVHD cung cấp cho 100% người học). **(có tại thư viện – GVHD cung cấp cho 100% người học)**.

[2] Trương Hoài Chính, Cơ sở thiết kế nhà xưởng công nghiệp, Nhà xuất bản Đà Nẵng, Đà Nẵng, 2013.

14.2. References:

[1]. Hoàng Huy Thắng, Nguyên lý thiết kế kiến trúc nhà công nghiệp, NXB Giáo dục 1995.

[2] Trịnh Kim Đạm – Ngô Thế Phong, Thiết kế nhà công nghiệp một tầng, NXB Khoa học kỹ thuật 1993.

[3] Những dữ liệu của người làm kiến trúc, Dịch theo bản tiếng Anh- New York, Emst Neufert, NXB Khoa học kỹ thuật 1993..NXB giáo dục, 1999 **(GVHD cung cấp)**.

15. Scientific code of ethics:

- Students must respect faculty and other students.
- Students must comply with the University's academic integrity policy.
- Students must abide by the rules and regulations of the School.

16. Approved date: / 07 /2021

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Doan Tran Hiep, MSC**

34. Applied chemistry Engineering 1

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Hóa ứng dụng kỹ thuật 1
English name: Applied chemistry Engineering 1

1. Course code:	1092720
2. Course abbreviation:	Applied chemistry Engineering 1
3. Credits: **ECTS credits (*):**	2 credits 2,83
4. Time distribution	
- Lecture:	30 Periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 Periods
5. Lecturers in charge	
- Faculty/Division in charge:	Construction materials division/ Faculty of Road and Bridge Engineering
- Course coordinator:	Do Thi Phuong, Ph.D.
- Other lecturers:	Nguyen Van Quang, Ph.D.
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction materials
- Corequisite:	None
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course introduces basic knowledge about the crystalline structure of materials in general and the structure of silicates, polymers; characteristic parameters of thermodynamics; phase diagram of the system of one, two and three components; colloidal state of silicates, physicochemical processes occurring in the manufacture and application of building materials. Knowledge is the basis to explain production technology, to propose solutions in production, application and research of materials. The course provides basic knowledge for next subjects such as Applied Chemistry 2, Production Techniques for inorganic binder, Technology of Concrete, Technology of building ceramics, and Smart Building Materials.

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (PLOs)
1	Explain the physico-chemical nature that occurs during the production and application of materials.	a2.Understand			1.3.1
2	Distinguish among silicate crystal structures and minerals related to their respective crystal structures.	a2.Understand			1.3.1
3	Compare three basic colloidal systems in the field of building materials.	a2.Understand			1.3.1
4	Use phase diagrams and calculate phase components of a given system.	a3. Apply	b2.Manipulate		1.3.1, 8.5.1

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs)

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	IT							IT
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4	X							X

12. Student tasks

Students must do the following tasks:

- Attend at least 80% of the lessons of the course;
- Join group in work activities according to the regulations of the class;
- Self-study the problems assigned by the lecturer (outside of class time);
- Complete all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		CLOs
A1. Ongoing assessment	A1.1 Exercises /homeworks (Assignments)	P1.1. Do at class/Homeworks	R1.2	10	20	CLO 1, 2, 4, 5

	A1.2 Class Attendance	P1.3. Diligence	R1.1	10		
A2. Mid-term Assessment	A2. Mid-term exam	P2. Written exam	R2.1	20	20	CLO 1, 2, 3
A3. Final Assessment	A3. Final exam	P3. Written exam	R3.1	60	60	CLO 1, 2, 3, 4, 5

Rubric 1.1: Diligence (Individual)

Assessment Criteria	Levels of achievement					Weighting percentage
	F level (0-3.9)	D level (4.0-5.4)	C level (5.5-6.9)	B level (7.0-8.4)	A level (8.5-10)	
Diligence	< 30%	<50%	<70%	<90%	100%	**100%**

Rubric 1.2: Work Assignment (Individual)

Assessment Criteria	Levels of achievement					Weighting percentage
	F level (0-3.9)	D level (4.0-5.4)	C level (5.5-6.9)	B level (7.0-8.4)	A level (8.5-10)	
Submit assignments	Do not submit assignments	Submit 70% assignment. Incorrect time.	Submit full assignment (100% of the assignment). Some assignments are not in time.	Submit full assignment (100% of the assignment). Most assignments are submitted on time.	Submission of full assignments (100% of the assignment). At regulation time.	**20%**
Presentation of assignments	Do not do assignments	Messy display, not in accordance with presentation requirements	The assignments meet the requirements. Some mistakes in calculation	The presentation is beautiful, and meets the requirements. Assignments are clear and appropriate, full explanation, reasonable.	The presentation is beautiful and meets the requirements. The calculation is logical, detailed, clear and appropriate; full explanation, reasonable.	**30%**
Content of assignment	Do not do assignments	Inadequate content, some incorrect according to task requirements.	The content of the assignments is adequate, meets the requirements of the task but not reasonable. There are some errors in the calculation.	The content of the assignments is adequate, reasonable, and meets the requirements of the task. Correct calculation.	The content of the assignments is adequate, reasonable, and meets the requirements of the task. perfectly calculation.	**50%**

14. Materials:

14.1. Books, lectures, main textbooks

[1] Nguyen Huu Phu, Physical Chemistry & Colloidal Chemistry, Science and Technology Publisher, 2006.
[2] Nguyen Sinh Hoa, colloidal chemistry, Construction Publisher, 1998.
[3] Bui Van Boi, Bui Danh Dai, Hoang Thuy Si, Silicate Physical Chemistry, University of Civil Engineering, 1991.
[4] Bui Van Chen, Silicate Physical Chemistry, Hanoi University of Science and Technology, 1979.
[5] Hoang Ngoc Cuong, General Polymer, Ho Chi Minh City National University Publisher, 2010.
[6] Lesley E. Smart, Elaine A. Moore, Solid state Chemistry- An Introduction, Fourth edition, Taylor & Francis Group, 2012.

14.2. Reference materials

[1] O.V. Roussak, H.D Gesser, Applied chemistry- A textbook for Engineers and Technologist, Second ediditon, Springer, 2012.
[2] C. Barry Caster, M. Grant Norton, Ceramic materials, Science and Engineering, Springer 2007.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Van Quang, PhD.**

35. Occupational safety in construction materials production

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS

Course name (Vietnamese): An toàn lao động

English name: Occupational safety in construction materials production

1. Course Code:	
2. Course symbols	Occupational safety in construction materials production
3. Credits: **ECTS credits (*):**	02 credits (30 Periods) 2,83
4. Study workload:	
- Theory	30 Periods
- Assignments/Discussions	
- Practice/Experiment	
- Self-study	60 Periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	PhD. Vo Duy Hung
- Other lecturers:	PhD. Nguyen Van My, Ms. PhD student Nguyen Hoang Vinh
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction Materials
- Corequisite:	None
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge

	□ Project/ Internship/ Graduate thesis

9. Course description

The module introduces scientific and technical measures, economic and social organization to limit and eliminate dangerous and toxic factors, create favorable working conditions for employees, to prevent occupational accidents protect health, contribute to the protection and development of the production force, and increase labor productivity. At the end of the course, students gain an overview of occupational safety, principles and methods of calculating safety in the process of designing, constructing and manufacturing building materials.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLO)	Knowledge	Skills	Attiude	Performance indicators (belongs to PLOs)
1	Present the general issues of occupational safety in the design, construction and production of building materials	a2. Understand			1.3.10
2	Calculating the problem of ensuring safety in design and construction, production of building materials	a2. Understand	b2. Application		1.3.10 8.2.1
3	Apply safe techniques when using construction machinery, construction soil and working on scaffolding in the production of building materials.	a4. Analysis			1.3.10
4	Remember electrical safety techniques, fire prevention in the production of building materials			c4. Organization	3.1.1 4.1.1

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU		T					IT
CLO 1	X							
CLO 2	X							
CLO 3	X							
CLO 4			X					X

12. Student tasks

Students must perform the following tasks:

- Attend at least 80% of the lessons of the part class;
- Participating in group work activities according to the regulations of the class;
- Self-study the problems assigned by the lecturer to do outside of class time;
- Complete all Performance assessment of the module.

13. Course assessments

Type of assessement	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)	Course learning

						outcomes (CLOs)
A1. Ongoing assessment	A1.1. Diligence	P1.1. Take attendance to monitor learning attitude	R1	50	20	CLO 1,2,3,4
	A1.2. Small exercise	P1.2. Class test	R3	50		CLO 1,2,3,4
A2. Mid-term Assessment	A2. Mid-term test	P2. Written exam	R2.1	100	20	CLO 1,2
A3. Final Assessment	A3. Final exam	P3. Written exam	R3.1	100	60	CLO 2,3,4

14. Materials:

14.1. Books, lectures, main textbooks

[1] Department of Bridges and Underground Works. Lecture: Occupational safety in the production of building materials. Documents for internal circulation, (provided by the teacher).

14.2. Reference materials

[1]. Nguyen Ba Dung, Nguyen Dinh Tham, Le Van Tin. Occupational safety and hygiene techniques in construction. Science and Technology Publishing House. Hanoi 2002.

[2]. Nguyen Ba Dung. Technical solutions for safety in construction. Publishing House Construction. Hanoi 2002.

[3]. Nguyen Ba Dung. Occupational safety manual for construction workers. Science and Technology Publishing House. Hanoi 2000.

[4]. Mai Tay Lo. Safety techniques in construction. Technical Workers Publishing House. Hanoi 1978.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Vo Duy Hung, PhD.**

36. Worker Practice

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Thực tập công nhân
English name: Worker Practice

1. Course code:	7510105
2. Course abbreviation:	Worker Practice
3. Credits: **ECTS credits (*):**	1 1,67
4. Study workload:	
- Lecture:	0
- Exercise:	0
- Practice/ Laboratory:	30
- Self-study/Assignment:	60
5. Lecturers:	
- Faculty/Division in charge:	Construction materials division
- Course coordinator:	Lecturers in Construction materials division
- Other lecturers:	Staff in internship agency or company
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction materials
- Corequisite:	Reinforced concrete structures, Construction materials
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. COURSE DESCRITION

This course purposes are helping students involve construction work on the site, understand structure and order of construction items, and important points during construction processes to achieve the highest quality. Students will have an opportunity to combine between theorical issues and practical works, as well as having professional training for ethics and responsibilities on the construction site.

10. COURSE LEARNING OUTCOMES (CLOs)

After completing the course, students have ability to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (PLOs)
1	Present structures of construction items, construction technologies (methods, orders, materials) at the practical sites.	a2. Understand			8.1.2
2	Capable of using a number of equipment for surveying and constructing in construction sites, and performable some works on the site such as steelwork, concrete work, etc.	a3. Apply	b4 Articulation		1.4.9;8.4.2
3	Combine between theorical learning and political issues	a4. Analyze		Organization	3.1.3
4	Working group and team communication skills		b4 Articulation		5.1.2
5	Working with reports and drawings		b4 Articulation		5.2.3
6	Presentation skills and defend skills		b4 Articulation		5.2.6
7	Ethical and professional responsibility.			Valuing	3.2.2;4.1.1

11. CLOs AND PLOs MAPPING:

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	T		T	T	T			TU
CLO 1								x
CLO 2	x							x
CLO 3			x					
CLO 4					x			
CLO 5					x			
CLO 6					x			
CLO 7			x	x				

12. STUDENTS' TASK:

Students must do the following tasks:

- Student must have permission papers from office of Academic affair, office of Finance and planning of The University of Science and Technology
- Strictly follow the rules and regulations of the company where students work.
- Report daily working diary
- The practical report is written in A4 size paper in groups, including a decision and a syllabus for internships and an evaluation report by the instructor of the company

13. ASSESSMENT

Assessment results are based on student activities during the internship and final exam. How to assess according to the instructions in the following rubric:

13.1. General assessment table:

Component	Assessment style	CLOs	Assessment Methods (AM)	Criteria	Weight
A1. Evaluation of firm instructor	A1.1 **Written Report**	CLO1,3,4,5,6,7	PPĐG 7 (Written Report)	Rubric 6 (Application)	30%
	A1.2 **Teamwork**	CLO2, 8	PPĐG 9	Rubric 7	20%
A2. Final evaluation of lecturers	A2.1 **Oral Presentation**	CLO1,2,3,4,5,6,7,9	PPĐG 3	Rubric 4	20%
	A2.2 **Oral Exam**	CLO1,2,3,4,6,7,9	PPĐG 6	Rubric 5	30%

13.2. **Assessment report by firm instructor base on working period of students and their report:**

A1.1 – Rubric 6 – Written Report

Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Contents	No content of the irrelevant content	The report is fully represented as requirement. Still, the calculation is wrong or not specific as the requirement	The report is fully represented as requirement. Still, the calculation is not reasonable.	The report is fully represented as requirement. The calculation is correct and exact. Still there is not specific and reasonable explanation for the results	An exemplary report with complete, accurate and relevant content. Discussion and recommendations are outstanding, creative and realistic.	**60%**
Organization, format, language	A poorly edited report with grammatical and spelling errors.	Report format lacks consistency. Weak command of the language	The order of the report follows the requirement. There are several mistakes in grammar and spelling. There is not adequate note	Format and contents flow smoothly building on one idea to another. Uses language and conventions appropriate for report writing.	A well-organized report that displays an excellent command of the language. The overall appearance is neat and professional	**20%**
Drawings	No drawing or irrelevant drawings	The quantity of drawings is adequate. The dimension and note are not clear. The drawings are	The quantity of drawings is adequate. The dimension and note are clear. There are some mistakes in drawings	The quantity of drawings is adequate. The dimension and note are clear. There are no	Same as level B. Students can use the computer fluently as a drawing tool. The	**20%**

		lack of some important parts		mistakes in drawings. The arrangement of the drawings is reasonable	drawings can be used in practical cases.	

A1.2 – Rubric 7 - Peer Assessment

Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Group organization	There is no teamwork	The responsibilities and tasks of the team members are not specifically assigned.	Each member has his or her own job duties but is unclear and does not fit the abilities of the team members.	Job assignments are clear and relevant to the abilities of each team member.	The task of each member is clear, specific, and appropriate. Promote the strength of the team members. Interaction, good coordination between members.	**30%**
Diligence	< 30%	<50%	<70%	<90%	100% (Participate in full meetings, groups discussion)	**30%**
Discussion	Never participate in group discussions.	Rarely participated in group discussions and comments.	Occasionally participate in group discussions and comments.	Have a good group discussion and good comments.	Always participate in group discussions and contribute good ideas for group activities.	**20%**
Group Co-ordination	Never coordinate, cooperate with groups.	Rarely collaborated, teamwork.	Collaborate, collaborate with the team. Occasionally respect and share experiences from other members of the group.	Collaborate, collaborate with the team. Respect and share experiences from other members of the group.	Collaborate with the team. Always respect and share experiences for other members of the group.	**20%**

13.3. **Assessment final exam by lecturers**

A2.1. Rubric 4: Oral Presentation

Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	

Content of presentation	No content or content is inappropriate for the request.	Content matching requirements, images and explanations are not clear	Content meets requirements. Use simple and easy to understand terminology. The picture is clear and beautiful	Content meets requirements. Use simple and easy to understand terminology. Pictures are clear, and beautiful. Used video	Content meets requirements. Use simple and easy to understand terminology. Pictures are clear and beautiful. Use video and explain specific insights on video.	**50%**
Slide presentation	Slide presentation is too sketchy, not enough quantity as prescribed	Slides are presented in appropriate quantities, using the word and picture clearly	Slides are presented with a clear, layout (introduction, body and conclusion)	Slides are presented with clear, logical layout, consists of 3 parts, demonstrating proficiency in presentation.	Slides are presented with clear, logical layout, consists of 3 parts. The term is simple to understand, demonstrating proficiency in presentation and language.	**25%**
Presentation	The presentation is not logical, beyond the specified time, uses of incorrect terminology, unclear pronunciation, and low voice. Listeners do not understand.	The presentation is full, but the voice is low, pronouns some words unclear, uses complex terminology, do not contact with the listener when presented.	The presentation has a clear three-part layout. The voice is reasonable, clear, easy to listen, time is properly presented, sometimes interact with the listener. Listeners can understand and keep track of the content presented.	The presentation is brief, easy to understand, uses simple and easy-to-understand terms. Clear layout. The voice is clear and fluent. Time to present correctly. Good interaction with the listener. Listeners can understand the content.	The presentation is brief with clear layout. The voice is clear and fluent. Attract the attention of the listener, interact well with the listener. Listeners can understand and keep up with all the content presented. Time to present correctly.	**25%**

A2.2 – Rubric 5 - Oral Exam

Assessment Criteria	**Levels of achievement**					**Weight**
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Answering Attitude	Communicating and answering attitude is rude, not cooperated, lack of respect in communication. Use inappropriate terms. Voice is hard to listen.	Attitude is quite polite. Use complex terms, confusing answers, hard to understand. Small voice, lack of confidence.	Communicative attitude is, gentle. The voice is clear, easy to hear. The term used in the answer is appropriated, easy to understand.	Attitude in the answer is confident, calm, and gentle. Use simple terms, easy to understand. Clear voice fluently speak.	Attitude is very confident. Voice is clear, fluent and attractive, well interact with the listener.	**30%**

Answer questions	The answers are completely unrelated to questions.	Answers are not clear, almost unconnected, not focus on the question.	Answers focus on questions. The lack of confidence in the answers.	The answers are concise, clear, completed, and relevant to the question asked. Attitude in answering is confident, calm, gentle, and calm.	Answer shortly, clearly, completely, directly related to the question asked, explain convincely. Attitude in answering is confident, calm, and persuasive.	**70%**

14. STUDY MATERIALS:

14.1 Textbooks:

[1] Huynh Phuong Nam, Nguyen Thi Tuyet An, Do Thi Phuong, General Construction Materials, Construction Publisher, Hanoi, 2016 (in Vietnamese).

14.2 References:

[1] Pham Duy Huu, Ngo Xuan Quang. Construction materials. Transportation Publisher, Hanoi, 2004 (in Vietnamese).

[2] Le Xuan Mai - Do Huu Dao. Soil mechanics. Construction Publisher, Hanoi, 2005 (in Vietnamese).

[3] Phan Quang Minh, Ngo The Phong, Nguyen Đinh Cong. Reinforced concrete structure - Basic components, Publisher Science and Technology, Hanoi, 2010.

[4] Le Van Dinh, Pham Van Mang. Geodetics. The University of Danang - University of Science and Technology, 1992.

15. Scientific code of ethics:

- Students are responsible for attending the practice sessions, project guides. In case of absentee due to unavoidable reasons, there must be sufficient and reasonable proof.
- Strictly follow the rules and regulations of the company where students work.
- Other issues follow the current training regulations of the University.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Tien Dung, M.Sc.**

37. Ho Chi Minh's ideology

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Tư tưởng Hồ Chí Minh
English name: Ho Chi Minh's ideology

1. Course code:	
2. Course abbreviation:	Ho Chi Minh's ideology
3. Credits: **ECTS credits (*):**	02 TC (30 tiết) 2,83
4. Time distribution:	
- Lecture:	02 TC (30tiết)
- Exercise:	
- Self-study/Assignment:	60 tiết
5. Lecturers in charge:	
- Faculty/Division in charge:	Khoa Lý luận chính trị, Trường Đại học Kinh tế, Đại học Đà Nẵng
- Course coordinator:	ThS.GVC. Lê Minh Thọ
- Other lecturers:	1. PGS. Trần Ngọc Ánh, 2. TS. GVC Dương Anh Hoàng; 3. ThS GVC Nguyễn Phi Lê, 4. ThS. GV Lê Thị Ngọc Hoa, 5. ThS. GV Lê Sơn
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	Not required
- Recommended prerequisite:	Philosophy of Marxism and Leninism
- Corequisite:	Not required
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

Ho Chi Minh ideology is a science that provides basic knowledge of President Ho Chi Minh's ideology with the meaning of creative application of Marxist-Leninist theory to specific conditions in Vietnam. It has also been the direct theoretical basis in planning the direction of the Vietnamese revolutionary from 1930 to the present. This course helps students understand in a relatively complete and systematic way the historical - social context, the basis of formation and development of Ho Chi Minh ideology; The primary contents of Ho Chi Minh ideology on National issues and national liberation revolution; on socialism; …. On that basis, it contributes to helping students establish a scientific and revolutionary viewpoint, steadfastly following the path chosen by President Ho Chi Minh and our Party.

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attiude	Performance indicators (belongs to PLOs)
1	Be aware of the basic knowledge of Ho Chi Minh's ideology and morality as well as identify wrong views on Ho Chi Minh's ideology	A2.Understand	A2.Understand	A2.Understand	1.5.2. 3.2. 4.1.
2	Present some primary contents about Ho Chi Minh's ideology and morality.	A3. Determined	A3. Determined	A3. Determined	1.5.2. 5.2.
3	Apply some primary contents of Ho Chi Minh's ideology and morality in studying, working and self-training.	A2.Understand	A2.Understand	A2.Understand	1.5.2. 3.2. 4.1.
4	Analyze some primary contents about Ho Chi Minh's ideology and morality, especially his creations in theory and practical direction of the Vietnamese revolution.	A3. Determined	A3. Determined	A3. Determined	1.5.2. 3.2. 4.1.

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	I		IT	I	I			
CLO 1	X		X	X				
CLO 2	X				X			
CLO 3	X		X	X				
CLO 4	X		X	X				

12. Student tasks

Students must do the following tasks:

- Attend at least 80% of the lessons of the course;
- Do homework assigned in each chaper of the course;
- Self-study the problems assigned by the lecturer (outside of class time);
- Take the mid-term and final exams;

- Fully attend and complete the content of practices

13. Course assessments

The results of the course evaluation are based on the assessment of the student's activities during the course of study, the mid-term exam and the final exam expressed through the assessment; the course output standards are assessed; criteria, standards and weights of the assessments.

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)	CLOs
A1. Ongoing assessment	A1.1 Class Attendance	CLO1-4	Go to school fully. Do not miss more than 20% of the class.		10%
	A1.2 Exercises /homeworks	CLO2, CLO4	Do the correct answer		10%
A2. Mid-term Assessment	A2.1 Mid-term exam	CLO2, CLO4	Meet the requirements of the answer	10	20%
A3. Final Assessment	A3.1 Final exam	CLO1, CLO4	Meet the requirements of the answer	10	60%

14. Materials

14.1. Books, lectures, main textbooks

[1]. Ministry of Education and Training, Ho Chi Minh Thought Textbook, Publishing House. National politics, 2010 - 2015.

[2]. Central Theoretical Council, Ho Chi Minh Thought Textbook, Publishing House. National politics 2004.

14.2. Books and references:

[1]. Ho Chi Minh, Complete Volume, 15 volumes, National Political Publishing House, Hanoi, 2010;

[2]. CDROM HCM;

[3]. Vo Nguyen Giap, Ho Chi Minh Thought and Vietnam's revolutionary path, National Political Publishing House, Hanoi, 1997.

[4]. Tran Van Giau, The Basic Formation of Ho Chi Minh Thought, National Political Publishing House, Hanoi, 1991.

[5]. Documents of the Communist Party of Vietnam, vol.

15. Scientific code of ethics:

Students must respect a lecturer and other students.

Students must comply with the University's academic integrity policy.

Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Huynh Phuong Nam, PhD.**

38. Thermal equipment in the production of construction materials

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Thiết bị nhiệt sản xuất VLXD
English name: Thermal equipment in the production of construction materials

1. Course Code:	1092740
2. Course abbreviation:	Thermal equipment in the production of construction materials
3. Credits: **ECTS credits (*):**	2 Credits 2,83
4. Study workload:	
- Lecture:	2,0 Credits – 30 periods
- Exercise:	
- Self-study/Assignment:	
- Lecture:	60 periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	Ms. Nguyen Thi Tuyet An
- Other lecturers:	PhD. Nguyen Van Quang
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Thermal Engineering; Construction materials
- Corequisite:	None
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Corse description

The course introduces basic knowledge about the types of thermal equipment mainly used in the industry of manufacturing the building materials. The course provides students knowledge about technological processes using heat energy such as drying, heating, curing, melting processes; Principle of heat calculation for thermal equipments; feature of equipment, operating principles, purposes of using thermal equipment with different types of products; Calculation method to design the thermal equipment, selection of thermal equipments and supporting equipment.

This is the basis for courses belonging to specialized module such as production technique for inorganic binder, Technology of building ceramics, Technology of Concrete...

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes (CLOs)	Knowledge (Bloom Taxonomy)	Skills	Attitude	Performance indicators (belongs to PLOs)
1	**Present and explain**: - Theoretical basis of drying, calcinating and curing processes - The principle of motion of the heat carriers in the thermal equipment - The principle of heat calculation in thermal equipment	a2. Understand		c1.Reception c2.Feedback	1.3.3 8.2.3
2	**Present and explain** the feature of equipment, operating principles, their installation in process line, select suitable equipment for each technology of building materials production.	a2. Understand		c1.Reception c2.Feedback c3. Attitude	1.2.1 8.2.1 8.4.1 4.1.1
3	**Analyze** the factors affecting the efficiency of the use of thermal equipment	a4. Analyze		c3.Attitude	1.3.1
4	**Calculate** problems about: - Fuel combustion, mixing of heat carriers - Material balance and heat balance - Furnace shell design	a3.Apply	b2.Apply	c2.Feedback c3. Attitude	1.3.2 4.1.2

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU			I				T
CLO1	X							X
CLO2	X			X				X
CLO3								X
CLO4	X							X

12. Student tasks

Students must perform the following tasks:

- Attend at least 80% of the lessons of the theory class,
- Attend 100% of guide sessions; Prepare assignments as assigned

- Participating in group work activities following the regulations of the class
- Self-study the problems assigned by the lecturer (do out of the class time)
- Complete all course assessments

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		CLOs
A1. Ongoing assessment - Theory	A1.1. Diligence	Attendance checking	R1.1	W1.1100%	W1. 10%	CLO1,CLO2,CLO3,CLO4
A2. Mid-term Assessment - Theory	A2.1. Mid-term exam	Multiple-choice exam	Following the answers and grading scale	W2.1100%	W2. 20%	CLO1, CLO3
A3. Final Assessments-Theory	A3.1. Final exam	Written exam	Following the answers and grading scale	W3.1100%	W3. 50%	CLO1, CLO2, CLO3
A4. Final Assessment - assignments	A4.1 Diligence	Attendance checking	Full attendance	W4.110%	W4. 20%	CLO4
	A4.2 Submit assignments	Assignments	R1.2	W4.290%		CLO4

Rubric 1.1: Diligence (Individual)

Assessment Criteria	Levels of achievement					Weighting percentage
	F level (0-3.9)	D level (4.0-5.4)	C level (5.5-6.9)	B level (7.0-8.4)	A level (8.5-10)	
Diligence	< 30%	<50%	<70%	<90%	100%	**100%**

Rubric 1.2: Work Assignment (Individual)

Assessment Criteria	Levels of achievement					Weighting percentage
	F level (0-3.9)	D level (4.0-5.4)	C level (5.5-6.9)	B level (7.0-8.4)	A level (8.5-10)	
Submit assignments	Do not submit assignments	Submit 70% assignment. Incorrect time.	Submit full assignment (100% of the assignment). Some assignments are not in time.	Submit full assignment (100% of the assignment). Most assignments are submitted on time.	Submission of full assignments (100% of the assignment). At regulation time.	**30%**
Presentation of assignments	Do not do assignments	Messy display, not in accordance with presentation requirements	The assignments meet the requirements. Some mistakes in calculation	The presentation is beautiful, and meets the requirements. Assignments are clear and appropriate, full explanation, reasonable.	The presentation is beautiful and meets the requirements. The calculation is logical, detailed, clear and appropriate, full explanation, reasonable.	**70%**

14. Reference materials

14.1. Books, lectures, main textbooks

[1]. Bach Dinh Thien, Nguyen Kim Huan,"Thermal equipment in the production of construction materials, Bach Dinh Thien, Science and Technology Publisher, Ha Noi, 1996.

[2]A Lecture: Nguyen Van Quang, Thermal equipment in the production of construction materials

14.2. Reference materials

[1]. Vu Dinh Dau, Technology and equipment for manufacturing Portland cement, construction publisher, HaNoi, 2009

[2]. .IU.M Bazenov, Bach Dinh Thien, Tran Ngoc Tinh, "Technology of the Concrete". construction Publisher, 2004.

[3] Vo Dinh Luong, Chemistry and Technology of cement production, Science and Technology Publisher, 2008.

[7] TCVN, standards for refractory materials, heat-resistant materials, insulation materials

15. Scientific code of ethics:

- Students are not allowed to copy each other's assignments
- Students are not allowed to use the materials during the midterm exam
- Students are not allowed to use audio-visual equipment in the exam room

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Van Quang, PhD.**

39. Machinery for Production of Building Materials

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Máy và thiết bị sản xuất Vật liệu Xây dựng

English name: Machinery for Production of Building Materials

1. Course Code:	
2. Course abbreviation:	Machinery for Production of Building Materials
3. Credits: **ECTS credits (*):**	02 Credits (30 Periods) 2,83
4. Study workload:	
- Lecture:	30 Periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 Periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	PhD Student. Nguyen Tien Dung
- Other lecturers:	PhD Nguyen Van Dong
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction Materials,Construction Machines
- Corequisite:	None
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course Machinery for Production of Building Materials provides students with fundamental knowledge (application, kinematic diagrams, structure and operating principles, advantages and disadvantages, scope of use) of machines and equipment. The equipment is used to carry out the main processes in the production of building materials (threshing, crushing, sieving, sorting, cleaning, dosing, feeding, mixing, shaping, ...). The general formulas about the working basis features of equipment, calculating the main parameters to choose the right equipment in the line.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLO)	Knowledge	Skills	Attiude	Performance indicators (PLOs)
1	Present the structure, operating principle of the machine and equipment	a2 Understand			8.1.2;
2	Classify, name and list types of construction machines and equipment	a1 Remember			8.2.1
3	Compare machines with the same construction function, compare machines in the same machine group	a4 Analysis		c3 Attitude	3.1.1;8.2.2;
4	Calculate and evaluate the basic parameters of the machine and equipment	a3 Application	b2 Application		1.3.2;8.2.3;8.2.4

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU		T					T
CLO 1								x
CLO 2								x
CLO 3			x					x
CLO 4	x							x

12. Student tasks

Students must perform the following tasks:

- Attend at least 80% of the lessons of the part class.
- Participating in group work activities according to the regulations of the class.
- Self-study the problems assigned by the lecturer to do outside of class time.
- Complete all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Review percentage (%)	Weighting percentage (%)	Course learning outcomes (CLOs)
A1. Ongoing assessment	A1.1 Diligence	P1.1. Attendance	R1.1	50	20	
	A1.2 Short Exercises	P1.2. Exercise	R1.2	50		CLO 1, 2,

A2. Mid-term Assessment	A2. Mid-term examination	P2. Essay	R2.	100	20	CLO 1,2,3
A3. Final Assessment	A3. Final examination	P3. Essay	R3.	100	60	CLO 1,2,3,4

14. Materials

14.1. Books, lectures, main textbooks

[1]. Machines for producing construction materials and components - Doan Tai Ngo, Nguyen Thieu Xuan - Construction Publisher, Ha Noi - 2000;

[2]. Machines and equipment for the production of building materials - Tran Quang Quy, Nguyen Van Vinh, Nguyen Binh - Transportation Publisher, Ha Noi - 2001;

[3]. Machines for producing construction materials and components - Nguyen Hong Ngan - National University Publisher, Ho Chi Minh City – 2001

14.2. Reference materials

[1] Technology and equipment for Portland cement production - Vu Dinh Dau - Construction Publisher, 2009

[2]. http://www.joyalcrusher.com

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Tien Dung, M.Sc.**

40. Production Technique for Inorganic Binders 1

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Kỹ thuật sản xuất Chất kết dính vô cơ 1

English name: Production Technique for Inorganic Binders 1

1. Course code:	
2. Course abbreviation:	Production Technique for Inorganic Binders 1
3. Credits: **ECTS credits (*):**	02 credits (30 periods) 2,83
4. Study workload:	
- Lecture:	30 periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 periods
5. Responsible persons	
- Faculty/Division in charge:	Construction Materials Division/Faculty of Road and Bridge Engineering
- Course coordinator:	Nguyen Thi Tuyet An, M.Eng.
- Other lecturers:	Lecturers of Construction Materials Division
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Applied Chemistry Engineering 1
- Corequisite:	None
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The Production Technique for Inorganic Binders 1 Course introduces in-depth knowledge on the fundamental types of inorganic binders used in construction, the most important of which is cement. This course provides knowledge on the composition, structures, physico-mechanical properties, technical requirements and scope of use of various types of inorganic binders; raw materials and production techniques of gypsum binders, lime binders; as well as raw materials and production techniques of several types of cement from clinker.

This course sets the foundation for subjects in the Professional Engineering Module such as PBL3, Production Technique for Inorganic Binders 2, Concrete Technology, Reinforcement Materials for Inorganic Binders,…

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No.	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators PI (PLOs)
1	**Present** and **explain**: - The composition, structures, physico-mechanical properties, technical requirements and scope of use of various types of inorganic binders (gypsum binders, lime binders, cement)	a2. Understand		c1. Receive c2. Reply	1.2.8;8.1.1
2	**Present** and **explain**: - The quality assessment method of different types of inorganic binders, the selection methods of inorganic binders in accordance with the requirements of the construction works	a2. Understand		c1. Receive c2. Reply	1.2.8;8.1.1
3	**Present** and **explain**: - The composition and production techniques of gypsum binders and lime binders - The composition and production techniques of cement from cement clinker	a2. Understand		c1. Receive c2. Reply	1.3.4;
4	**Analyze** the technological factors affecting the quality of inorganic binders	a4. Analyze		c3. Attitude	1.2.9
5	**Establish** the production lines for gypsum binders, lime binders, and cement grinding plants	a3. Manipulate	b2.Manipulate	c3. Attitude c4. Organize	8.2.1;1.3.4

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs)

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU							T
CLO 1	X							X
CLO 2	X							X
CLO 3	X							
CLO 4	X							
CLO 5	X							X

12. Student tasks

Students must perform the following tasks:
- Attend at least 80% of the lessons of the theoretical course;
- Participate in group work activities according to the regulations of the course;
- Prepare and participate in thematic reports on assigned topics;
- Self-study the problems assigned by the lecturer to solve outside of class time;
- Complete all performance assessment of the module.

13. Course assessments

The results of course assessments are based on the assessment of students' activities during the course of study, the mid-term exams and final exams as shown via the Performance Assessment; the evaluated Course Learning Outcomes; the rubrics, standards and weights of the assessments.

Students must participate in all lab sessions, one session of absence equals a 0 in the Lab Final Assessment (A4). Students who fail to achieve the lab score (less than 4.0 on a scale of 10) are not allowed to take the final theoretical exam and their final grade is entered as 0.

Type of Assessment	Performance Assessment (Ax.x)	Assessment Methods	Rubric	Assessment Weighting Percentage (%)	Component Weighting Percentage (%)	CLOs
A1. Ongoing Assessment	A1.1 Class Attendance	Diligence	Rubric 1.1	W1.1 50%	W1. 20%	CLO 1, 2, 3, 4, 5
	A1.2 Individual thematic report	Presentation	Rubric R1.2	W1.2 50%		CLO3
A2. Mid-term Assessment	A2.1 Mid-term exam	Multiple choice exam	According to the answer key and grading scale	W2.1 100%	W2. 20%	CLO 1, 2, 3
A3. Final Assessment	A3.1 Final exam	Written exam	According to the answer key and grading scale	W3.1 100%	W3. 60%	CLO 3, 4, 5

Rubric 1.1: Theoretical class attendance (Individual)

Rubric	Specified levels of standard					Weight
	F (0-3.9)	D (4.0-5.4)	C (5.5-6.9)	B (7.0-8.4)	A (8.5-10)	
Class Attendence	Student doesn’t attend classes (< 30%).	Student rarely attends classes (<50%).	Student occasionally attends classes (<70%).	Student frequently attends classes (<90%).	Student always attends classes (100%).	**100%**

Rubric 1.2: Short Thematic Report (Individual)

Rubric	Specified levels of standard					Weight
	F (0-3.9)	D (4.0-5.4)	C (5.5-6.9)	B (7.0-8.4)	A (8.5-10)	

Content of Report	Student doesn't turn in the report	Content of report is incomplete or does not meet requirements	Content of report is complete, meets requirements, lacks problem assessment	Content of report is complete, meets requirements, includes problem assessment	Content of report is complete, meets requirements, includes problem assessment, includes new proposals	**50%**
Presentation of Report	Student presents content which does not meet requirements, speaks too quietly or too ambiguously	Student presents content which meets requirements, speaks too quietly, has no interaction with the audience	Student presents content which meets requirements, speaks clearly, has no interaction with the audience	Student presents content which meets requirements, speaks clearly, has occasional interaction with the audience	Student presents content which meets requirements, speaks clearly, has good interaction with the audience	**50%**

14. Learning Materials:

14.1. Books, lectures, main textbooks:

[1] Vu Dinh Dau, Bui Danh Dai, *Inorganic Binders*, Construction Publishing House, Hanoi, 2006

[2] Vu Dinh Dau, *Technology and Equipment in Cement Production*, Construction Publishing House, Hanoi, 2009

14.2. Reference materials:

[3] Bui Van Boi, Bui Danh Dai, Hoang Thuy Sy, *Silicate Physical Chemistry*, University of Civil Engineering, 1991

[4] Bui Van Chen, *Binder Technology*, Construction Publishing House, 1987

[5] Nguyen Kim Huan, Bach Dinh Thien, *Thermal Equipment in Construction Material Production*, Science and Technics Publishing House, Hanoi, 1996

[6] Doan Tai Ngo, Nguyen Thieu Xuan, Tran Van Tuan, Nguyen Thi Thanh Mai, Nguyen Kiem Anh, *Equipment in Construction Materials & Components Production*, Construction Publishing House, 2000

[7] Hoang Van Phong, *20 Types of Cement and Production Technology*

[8] *http://*www.tcxdvn.xaydung.gov.vn

[9] TCVN, Construction Materials Standards

15. Scientific code of ethics::

- Students are not allowed to copy each other's assignments verbatim.
- Students must not use reference materials in mid-term exams.
- Students must not use audio-visual equipment in the examination room.

16. Approved date: xx/xxx/2022

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Thi Tuyet An, M.Sc.**

41. PBL3 - Production Technique for Inorganic Binders 1

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): PBL3 - Kỹ thuật sản xuất Chất kết dính vô cơ 1
English name: PBL3 - Production Technique for Inorganic Binders 1

1. Course code:	
2. Course abbreviation:	PBL3 - Production Technique for Inorganic Binders 1
3. Credits: **ECTS credits (*):**	1.,5 credits (45 periods) 2,50
4. Study workload:	
- Lecture:	30 periods
- Exercise:	
- Practice/ Laboratory:	15 periods
- Self-study/Assignment:	45 periods
5. Lecturers in charge	
- Faculty/Division in charge:	Construction Materials Division/Faculty of Road and Bridge Engineering
- Course coordinator:	Nguyen Thi Tuyet An, M.Eng.
- Other lecturers:	Lecturers of Construction Materials Division
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction Materials; Industrial Architecture
- Corequisite:	Production Technique for Inorganic Binders 1
7. Type of course	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge

	□ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description:

Project of Production Technique for Inorganic Binders 1, which is an interdisciplinary course combining 03 modules: Production Technique for Inorganic Binders 1, Construction Materials, and Industrial Architecture, is organizationally placed in the 6th semester.

The content of this course is to synthesize the fundamental engineering knowledge and professional engineering knowledge students have acquired in order for them to create an engineering design of a production plant/workshop for gypsum binders, lime binders, or cement from cement clinker, which shall include 02 parts:

Part 1: Production Plant/Workshop Design

- Select raw materials & production methods
- Establishing a production line
- Calculate mass balance
- Calculate and select equipment for the production line
- Create production plant/workshop layout

Part 2: Choose 01 of the following experimental directions

- Experiment with product manufacturing and product quality control for gypsum binders and lime binders
- Experiment to determine the mixing ratio of admixtures and perform cement quality control according to that ratio
- Experiment to determine the type of admixtures and perform cement quality control according to that ratio
- Experiment with assessment of the effect of the fineness of grinding on cement quality

The module provides the students with analytical reasoning and problem solving skills, communication skills, and teamwork skills, as well as an improvement in critical thinking, self-awareness, and knowledge integration skills.

10. Course Learning Outcomes (CLOs):

After completing the course, students will be able to:

No.	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators PI (PLOs)
1	**Apply** fundamental engineering knowledge and professional engineering knowledge to design production plant/workshop for gypsum binders, lime binders, or cement from cement clinker (Part 1)	a3.Manipulate		c4. Organize	1.4.3; 3.1.1; 4.1.1; 7.1.2; 8.1.2
2	**Analyze, select and propose** an effective production plan	a4.Analyze		c5. Personalize	1.4.3; 3.1.2; 4.2.1; 8.1.1
3	**Perform** binder quality control according to the chosen experimental direction (Part 2)	a3.Manipulate	b2.Manipulate	c4. Organize	2.1.1; 5.1.3
4	**Present** the results of the group's PBL implementation: project description, drawings, reports		b4. Competency	c3. Attitude	1.4.3; 8.1.1

5	**Organize** effective small group work		b4. Compe-tency	c4. Organ-ize	5.1.2

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs):

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	U	T	T	T	U		U	TU
CLO 1	X		X	X			X	X
CLO 2	X		X	X				X
CLO 3		X			X			
CLO 4	X							X
CLO 5					X			

12. Student tasks:

Students must perform the following tasks:

- Attend at least 80% of the lessons of the theorical course,
- Attend 100% of the lab sessions of the course, more than 01 lab session of absence (without the lecturer's permission) or a Lab Final Assessment (A2) result of < 5 points (on scale of 10) equals denial from sitting the final theoretical exam.
- Participate in group work activities according to the regulations of the course;
- Self-study the problems assigned by the lecturer to solve outside of class time;
- Comply with the rules and regulations of lecturers and instructors;
- Implement and present the contents of the project in accordance with the assigned tasks
- Engage in topic/content group discussion in the tutorial sessions;
- Attend the periodic project quality inspection and evaluation organized by lecturers and instructors.
- Attend the project defense in accordance with the regulations of the Division and the Faculty.

13. Course assessments

The results of course assessments are based on the assessment of students' activities during the course of study, the mid-term exams and final exams as shown via the Performance Assessment; the evaluated Course Learning Outcomes; the rubric, standards and weights of the assessments.

Type of Assessment	**Performance Assessment (Ax.x)**	**Assessment Methods**	**Rubric**	**Assessment Weighting Percentage (%)**	**Component Weighting Percentage (%)**	**CLOs**
A1. Ongoing Assessment	A1.1 Project guide participation	Diligence, discussion	Rubric 1.1	W1.1 50%	W1. 30%	CLO1
	A1.2 Group lab work participation	Diligence, lab experiment data report	Rubric R1.2	W1.2 50%		CLO3 CLO5
A2. Project Implementation	A2.1 Project description	Project description	Rubric R2.1	W2.1 70%	W2. 20%	CLO1 CLO3 CLO4

Type of Assessment	Performance Assessment (Ax.x)	Assessment Methods	Rubric	Assessment Weighting Percentage (%)	Component Weighting Percentage (%)	CLOs
Results Assessment	A2.2 Drawings	Drawings	Rubric R2.2	W2.2 30%		CLO5
A3. Final Assessment	A3.1 Presentation of project contents	Oral report, presentation	Rubric R3.1	W3.1 30%	W3. 50%	CLO1 CLO3 CLO4
	A3.2 Answer questions related to the project	Presentation on Defense Day	Rubric R3.2	W3.2 70%		CLO1 CLO2 CLO3 CLO4

Rubric 1.1: Project guide participation

Rubric	Specified levels of standard					Weight
	F (0-3.9)	D (4.0-5.4)	C (5.5-6.9)	B (7.0-8.4)	A (8.5-10)	
Attendence	< 30%	<50%	<70%	<90%	100%	**50%**
Discussion	Student never engages in class discussions	Student rarely engages in class discussions by offering ideas	Student occasionally engages in class discussions by offering ideas during class hour	Student frequently engages in class discussions by offering ideas during class hour	Student always engages in class discussions by offering ideas effective for class activities	**50%**

Rubric 1.2: Group lab work participation

Rubric	Specified levels of standard					Weight
	F (0-3.9)	D (4.0-5.4)	C (5.5-6.9)	B (7.0-8.4)	A (8.5-10)	
Attendance	< 30%	<50%	<70%	<90%	100%	**50%**
Lab experiment	Student attends lab session but doesn't participate in any experiments	Student attends lab session & participates in a few experiments	Student attends lab session & participates in most experiments	Student attends lab session & participates in all experiments. Student engages in discussions to offer ideas for the group	Student attends lab session & participates in all experiments. Student frequently engages in discussions to offer effective ideas for the group	**50%**

Rubric 2.1: Project implementation result assessment via project description

Rubric	Specified levels of standard					Weight
	F (0-3.9)	**D (4.0-5.4)**	**C (5.5-6.9)**	**B (7.0-8.4)**	**A (8.5-10)**	
Content of Report/ Project	Content is incomplete or doesn't meet requirements.	Content is complete and meet requirements. Several calculation errors remain, some sections are illogical.	Content is complete and meet requirements. A few calculation errors remain, some sections are illogical.	Content is complete and meet requirements, calculation is logical in sequence and accurate in results. Content is not convincing due to lack of specific analysis & explanation.	Content is complete and meet requirements, calculation is specific, unambiguous, logical in sequence and accurate in results. Content is convincing thanks to specific analysis & explanation.	**80%**
Presentation of Report/ Project Description	Description is incomplete or doesn't meet requirements.	Order of description is incorrect. Content meets requirements. Figures and tables still contradict the content.	Content & order of description meet requirements. Some spelling errors remain, dimensions & notes are incomplete.	Content meets requirements, sequence & structure are logical. Figures & tables are unambigious & logical with applicable notes. Description presentation shows limited editorial skills.	Content meets requirements, sequence & structure are logical. Figures & tables are unambigious & logical with applicable notes. Description presentation shows good editorial & calculation skills.	**20%**

Rubric 2.2: Drawings

Rubric	Specified levels of standard					Weight
	F (0-3.9)	**D (4.0-5.4)**	**C (5.5-6.9)**	**B (7.0-8.4)**	**A (8.5-10)**	
Technical Drawings & Figures	There are no drawings or an insufficient number of drawings or content of drawings does not meet requirements.	There is a sufficient number of drawings/figures with content meeting requirements. Dimensions & notes are not shown or are not	There is a sufficient number of drawings with content meeting requirements. Dimensions & notes are clearly	There is a sufficient number of drawings (03 drawings) with content meeting requirements. Components are properly	There is a sufficient number of drawings (03 drawings) with content meeting requirements. Components are properly	**100%**

Rubric	Specified levels of standard					Weight
	F (0-3.9)	**D (4.0-5.4)**	**C (5.5-6.9)**	**B (7.0-8.4)**	**A (8.5-10)**	
		clearly shown or missing some parts on the drawings	shown. Some presentation errors remain (spelling, lines)	organized. Dimensions & notes are complete & clearly shown.	organized. Dimensions & notes are complete & clearly shown. Drawings show proficiency with drawing tools on computers, which can be applied in practical construction works	

Rubric 3.1: Presentation

Rubric	Specified levels of standard					Weight
	F (0-3.9)	**D (4.0-5.4)**	**C (5.5-6.9)**	**B (7.0-8.4)**	**A (8.5-10)**	
Content	Content does not meet requirements.	Content meets requirements but contains multiple errors.	Content meets requirements. The terms in use are obscure & ambiguous.	Content meets requirements. The terms in use are simple & easy to understand.	Content meets requirements. The terms in use are simple & easy to understand. Content order is logical.	**70%**
Presentation	Presentation lacks logic or exceeds beyond allotted time, terms in use are incorrect, pronuciation is unclear, speaking voice is low, audience doesn't understand.	Presentation is complete, speaking voice is low, pronunciation of certain words is unclear, terms in use are overly complicated, no interactions with audience.	Presentation has a clear 3-part outline (introduction, body & conclusion), speaking voice is clear & easy to listen to, presentation doesn't exceed allotted time, occasional interaction with audience, audience can understand &	Presentaion is concise & easy to understand, terms in use are simple & unambiguous, has a clear 3-part outline (introduction, body & conclusion), speaking voice is clear with a fluent delivery, presentation doesn't exceed allotted time,	Presentaion is brief & has a clear 3-part outline (introduction, body & conclusion), speaking voice is clear & engaging with a fluent delivery, presentation doesn't exceed allotted time, effective interaction with audience,	**30%**

Rubric	Specified levels of standard					Weight
	F (0-3.9)	D (4.0-5.4)	C (5.5-6.9)	B (7.0-8.4)	A (8.5-10)	
			follow the presentation.	effective interaction with audience, audience can understand & follow the presentation.	audience can understand & follow the entire presentation.	

Rubric 3.2: Answering questions

Rubric	Specified levels of standard					Weight
	F (0-3.9)	D (4.0-5.4)	C (5.5-6.9)	B (7.0-8.4)	A (8.5-10)	
Attitude when answering	Student displays rude, uncooperative, disrespectful attitude when communicating & answering questions, uses inappropriate terms, slurred voice.	Student displays civil attitude when communicating & answering questions, uses overly complicated & obscure terms, speaking voice is low, shows lack of confidence.	Student displays gentle & pleasant attitude when communicating & answering questions, speaking voice is clear & easy to listen to, uses appropriate & simple terms.	Student displays confident, gentle & calm attitude when communicating & answering questions, speaking voice is clear with fluent delivery, uses appropriate & simple terms.	Student displays highly confident attitude when communicating & answering questions, speaking voice is clear with fluent & engaging delivery, effective interaction with audience.	**20%**
Content of answer	The answers are completely unrelated to the questions.	The answers are unclear, almost unrelated to the question, do not focus on the point of the question.	The answers are focus on the point of the question & related to the question but student lacks confidence.	The answers are concise, clear, complete & related to the question, student shows confidence & knowledge in their answers, arguments & explanations are not convincing.	The answers are concise, clear, complete & related to the question, student shows confidence in their answers, arguments & explanations are completely convincing.	**80%**

14. Learning Materials:

14.1. Books, lectures, main textbooks:

[1] Huynh Phuong Nam, Nguyen Thi Tuyet An, Do Thi Phuong, *Construction Materials*, Construction Publishing House, Hanoi, 2016.

[2] Construction Materials Division, *Construction Materials Laboratory Manual* (for internal use only)

14.2. Reference materials:

[1] Phung Van Lu, Pham Duy Huu, Phan Khac Tri, *Construction Materials*, Vietnam Education Publishing House, Hanoi, 2001.

[2] Pham Duy Huu, Ngo Xuan Quang, *Construction Materials*, Transport Publishing House, Hanoi, 2004.

[3] Ministry of Construction, *Technical Manual for Concrete Composition Selection*, Construction Publishing House, Hanoi, 2000.

[4] TCVN, Construction Materials Standards

15. Scientific code of ethics:

- Students are not allowed to copy each other's assignments verbatim.
- Students must not use reference materials in mid-term exams.
- Students must not use audio-visual equipment in the examination room.

16. Approved date: xx/xxx/2022

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Thi Tuyet An, M.Sc.**

42. Experimental Planning

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Quy hoạch thực nghiệm
English name: Experimental Planning

1. Course Code:	
2. Course Abbreviation	Experimental Planning
3. Credits: **ECTS credits (*):**	03 credits (45 Periods) 4,25
4. Study workload:	
- Lecture:	30 Periods
- Exercise:	15 Periods
- Practice/ Laboratory:	0
- Self-study/Assignment:	90 Periods
5. Responsible persons	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	PhD. Huynh Phuong Nam
- Other lecturers:	PhD. Nguyen Van Quang
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Probability and Statistics, Linear Algebra, Construction Materials
- Corequisite:	None
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course equips students with the ability to apply mathematical methods to find out the relationship rules between factors affecting the research process and optimize experimental processes. The course introduces some parameters of random quantities, methods of building regression models, experimental planning methods of level 1, level 2, and some optimization methods. Besides, the module introduces some application software for calculation and describes the process of experimental planning.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	**Presenting** and **explaining** the meaning of statistical terms	a2. Understanding			1.1.3
2	**Calculating** the model representing the relationship between the dependent variable according to the independent variables from the experimental data table	a3. Applying	b2. Applying		2.2.4 7.1.4
3	**Analyzing** the influence of the independent variable on the dependent variable	a4. Analyzing			1.1.8
4	**Designing** an orthogonal first-order experimental design, and quadratic rotation-orthogonal composite experimental design.	a3. Applying		c3. Reacting	1.1.1 1.1.3
5	**Designing** an experimental plan to find extremes	a3. Applying			1.1.1 1.1.3

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	T	T					T	
CLO 1	X							
CLO 2		X					X	
CLO 3	X							
CLO 4	X							
CLO5	X							

12. Student tasks

Students must perform the following tasks:

- Attending at least 80% of the lessons of the course;
- Participating in teamwork activities according to the regulations of the class;
- Self-studying the problems assigned by the lecturer to do outside of class hours;
- Completing all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)	Course learning outcomes (CLOs)

A1. Ongoing assessment	A1.1. Class Attendance	Attendance check	Rubric 1	50	20	
	A1.2. Group Assessment	Group homework	Rubric 2	50		CLO2, CLO3, CLO4
A2. Mid-term Assessment	A2.1. Mid-term exam	Multiple-choice	According to the answer and grading scale	100	20	CLO1
A3. Final Assessment	A3.1. Group presentation	Oral presentation in class	Rubric 3	30	60	CLO1, CLO2 CLO3, CLO4
	A3.2. Final exam	P3. Written exam	According to the answer and grading scale	70		CLO1, CLO2,

14. Materials

14.1. Books, lectures, main textbooks

[1]. Nguyen Minh Tuyen, *Experimental Planning*, Construction Publishing House, Ha Noi, 2012.

[2]. Bui Minh Tri, *Statistical Probability and Experimental Planning*, Natural Sciences Publishing House, Ha Noi, 2010.

[3]. Lecture on Experimental Planning of the Construction materials Division.

14.2. Reference materials

[1]. Douglass C. Montgomery, *Design and Analysis of Experiments*, Pearson, 2001.

[2]. Nguyen Van Tuan, *Data Analysis with R Programming*, Labor and Social Publishing House, Ho Chi Minh City, 2016.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approval by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Huynh Phuong Nam, PhD.**

43. English for Construction Materials Engineering

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Anh văn chuyên ngành
English name: English for Construction Materials Engineering

1. Course code:	
2. Course abbreviation:	English for Construction Materials Engineering
3. Credits: **ECTS credits (*):**	02 credits (30 Periods) 2,83
4. Study workload:	
- Lecture:	20 Periods
- Exercise:	10 Periods
- Practice/ Laboratory:	0
- Self-study/Assignment:	60 Periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	PhD. Huynh Phuong Nam
- Other lecturers:	PhD. Nguyen Van Quang PhD. Nguyen Minh Hai
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	English A2.2, Construction Materials
- Corequisite:	None
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course provides students with basic knowledge of English in the field of Construction Materials Engineering and Technology. Therefore, students can become familiar with specialized terms in English, and find and read specialized documents in English by themselves. In addition, the course also provides students with practical specialized knowledge through documents and videos that teachers provide during the learning process.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLO)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Read and understand specialized documents in English	a2. Understanding			6.1.1
2	Apply technical terms in English to present simple reports.	a3. Applying			6.1.1 7.1.5
3	Presenting a simple specialized report in English		b2 Applying		5.2.6 6.1.1
4	Adhere to the principles of teamwork and support group work			c4. Organizing	5.1.1, 5.1.2, 5.1.5

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course					U	T	U	
CLO 1						X		
CLO 2						X	X	
CLO 3					X	X		
CLO 4					X			

12. Student tasks

Students must perform the following tasks:

- Attending at least 80% of the lessons of the course;
- Participating in teamwork activities according to the regulations of the class;
- Self-studying the problems assigned by the lecturer to do outside of class hours;
- Completing all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		Course learning outcomes (CLOs)
A1. Ongoing assessment	A1.1. Class Attendance	Attendance check	Rubric 1	50	20	
	A1.2. Group Assessment	Group homework	Rubric 2	50		CLO2, CLO3, CLO4
A2. Mid-term Assessment	A2.1. Mid-term exam	Multiple-choice	According to the answer and grading scale	100	20	CLO 1, 2
A3. Final Assessment	A3.1. Group presentation	Oral presentation in class	Rubric 3	30	60	CLO 1, 2, 3

	A3.2. Final exam	P3. Written exam	According to the answer and grading scale	70		CLO 1, 2, 3

Rubric 1: Class Attendance

Evaluation Criteria	The level of meeting the specified standards					Weight
	LEVEL F (0-3.9)	**LEVEL D (4.0-5.4)**	**LEVEL C (5.5-6.9)**	**LEVEL B (7.0-8.4)**	**LEVEL A (8.5-10)**	
Class Attendance	Attendance <30%	30% ≤ Attendance < 50%	50% ≤ Attendance < 70%	70% ≤ Attendance < 90%	90% ≤ Attendance < 100%	**100%**

Rubric 2: Group Assignment

Evaluation Criteria	The level of meeting the specified standards					Weight
	LEVEL F (0-3.9)	**LEVEL D (4.0-5.4)**	**LEVEL C (5.5-6.9)**	**LEVEL B (7.0-8.4)**	**LEVEL A (8.5-10)**	
Submit assignment	Do not submit assignments	Submit incomplete assignments and not on time.	Submit the full assignment (100% of the assigned amount) but not on time.	Submit assignments in full (100% of the assigned amount), on time, but with modification later.	Submit assignments in full (100% of the assigned amount), on time and without modification.	**20%**
Assignment content	No assignment	The content of the assignment is not complete, some are not according to the required tasks.	The content of the assignment is complete, and follows the required task, but not reasonable. There are still some errors.	The content of the assignment is complete, reasonable, and follows the required task.	The content of the assignment is complete, reasonable, and follows the required task.	**50%**
Presentation of assignment	No assignment	The presentation of the assignment is messy and does not follow the requirements for the presentation. Do not use support tools.	The assignments are presented correctly (font, font size, contrast), using supporting tools. The presenter spoke quite clearly and fluently.	The assignments are presented correctly (font, font size, contrast), using supporting tools. The presenter spoke quite clearly, fluently, use partial English during the presentation	The assignments are presented correctly (font, font size, contrast), using supporting tools. The presenter spoke quite clearly and fluently, fully use English during the presentation	**30%**

Rubric 3: Presentation

Evaluation Criteria	The level of meeting the specified standards					Weight
	LEVEL F (0-3.9)	**LEVEL D (4.0-5.4)**	**LEVEL C (5.5-6.9)**	**LEVEL B (7.0-8.4)**	**LEVEL A (8.5-10)**	

Presentation structure	Unstructured, completely illogical and overtime. The audience cannot follow the presentation	The structure is not good, unclear and overtime. It is difficult for the audience to follow the presentation	The presentation is structured (3 parts but not clear) and on time. It was difficult for the audience to follow the presentation	Well structured (introduction, body, conclusion) and on time. The presentation is logical, smooth and easy to follow	Very well structured (introduction, body, conclusion) and on time. The presentation is very logical, smooth and attractive to the audience	**30%**
Smoothness and clarity	The voice is very low, the pronunciation is not clear. The presenter used the wrong terminology and did not use the aids. The audience cannot understand the content of the presentation	The voice is very low, the pronunciation is not clear. Presenters use complex, confusing terminology. Using ineffective support tools.	Moderate voice, pretty clear pronunciation, use support tools	Clear loud voice, clear pronunciation, good use of body language and support tools. The presenter is confident but lacks interaction with the audience. There is more than 1 presenter.	Very clear voice, very clear pronunciation, good use of body language and support tools. The speaker speaks fluently and attractively, making it easy for listeners to follow; use body language and aids effectively; confidently and regularly interact with the audience. All members of the group participated in the presentation.	**30%**
Form	Do not use any support tools	Use support tools (like PowerPoint) but very simple	Using support tools, images or videos to illustrate the content of the presentation.	Effectively use support tools, images or videos to illustrate presentation content.	Very effective use of support tools, beautiful images or videos to clearly illustrate presentation content, use effects in slides.	**30%**
Answer the question	The answer is not related to the question or does not answer	The answer is unknown and unrelated to the question	- Answer the question correctly - Unconfident	- Answer short and clear, correct content of the question. - Calm.	- Answer short and very clearly, focusing directly on the content of the question. - Confident and persuasive.	**10%**

14. Materials

14.1. Books, lectures, main textbooks

[1] Specialized English lectures compiled by English for Construction Materials Engineering lecturers in the Construction Materials Division.

14.2. Reference materials

[1]. Ministry of Construction, *English textbook for construction technical workers*. Construction Publisher, 2012.

[2]. Raymond Murphy, *English Grammar in Use*. Cambridge, 2004.
[3]. General English dictionaries and construction English.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Huynh Phuong Nam, PhD.**

44. Technology business Start-up

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Khởi tạo doanh nghiệp công nghệ
English name: Technology business Start-up

1. Course code:	
2. Course abbreviation:	Technology business Start-up
3. Credits: **ECTS credits (*):**	2 credits (30 periods) 2,83
4. Time distribution	
- Lecture:	30 Periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 Periods
5. Responsible persons:	
- Faculty/Division in charge:	
- Course coordinator:	Nguyen Hong Nguyen
- Other lecturers:	
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	
- Corequisite:	None
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☒ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course introduces the basic contents of the process of starting a modern business or a creative and innovative startup, including the following sections:

- Thinking in creative and innovative start-ups
- Tools and actions in entrepreneurship and innovation
- Meet potential investors and partners
- Introduction to the startup ecosystem

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Understanding the essence of innovative start-ups in the context of Industry 4.0	Understand	Self learning	Self learning	7.2.1
2	Understand the Design Thinking process to deploy products and services that meet the needs of target customers	Understand	Working group	Working group	4.2.1 6.2.1 7.2.1
3	Analyze the next direction of products and services using the business model tool Canvas	Model can be built	Working group,	Working group,	7.2.1 4.2.1
4	Understand the tools to call for investment capital, analyze the market, and start-up ecosystem of Vietnam	Understand	Develop effective presentation and communication skills	Develop effective presentation and communication skills	7.2.1 7.2.2

11.The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8
Contribution of the course (6)				U		U	IT	
CLO 1							X	
CLO 2				X		X	X	
CLO 3				X			X	
CLO 4							X	

12. Student tasks

Students must do the following tasks:

- Attend at least 80% of the lessons of the course;
- Join group in work activities according to the regulations of the class;
- Self-study the problems assigned by the lecturer (outside of class time);
- Complete all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)	CLOs	Type of assessment
A1. Ongoing assessment	A1.1 Exercises /homeworks	Attend class not less than 80% of the prescribed class time		5%	20%	CLO 1
	A1.2 Exercises /homeworks	Homework	Answer	15%		CLO 1, 2
A2. Mid-term Assessment	A2. Mid-term exam	P2. Report	Answer	20%	20%	CLO 1, 2, 3
A3. Final Assessment	A3. Final exam	P3. Report	Answer	60%	60%	CLO 1, 2, 3, 4

14.Materials

14.1. Books, lectures, main textbooks

[1] Nguyen Dang Tuan Minh, Innovation Startup: Thinking and Tools, Women Publishing House, 2017.

14.2 Books and references:

[1] Eric Ries, The Lean Startup: How today's entrepreuneurs use contiuous innovation to create radically successful businesses, Penguin Books Ltd, 2011.

[2] Alexander Osterwalder, Yves Pigneur, Greg Bernarda, Alan Smith, Value Proposition Design, Wiley, 2014.

[3] Alexander Osterwalder, Yves Pigneur, Business Model Generation, John Wiley & Sons, Inc., 2010.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Hong Nguyen**

45. Economics and Management for Industrial Enterprise

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Kinh tế và quản lý doanh nghiệp
English name: Economics and Management for Industrial Enterprise

1. Course code:	
2. Course abbreviation:	Economics and Management for Industrial Enterprise
3. Credits: **ECTS credits (*):**	2 2,83
4. Study workload:	
- Lecture:	30 periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 periods
5. Responsible persons:	
- Faculty/Division in charge:	Industrial Management Division
- Course coordinator:	**Assoc.Prof. Le Thi Kim Oanh** MSc. Nguyen Thi Thu Thuy Dr. Huynh Nhat To
- Other lecturers:	Assoc.Prof. Le Thi Kim Oanh MSc. Nguyen Thi Thu Thuy Dr. Huynh Nhat To MSc. Hồ Dương Đông, MSc.Nguyen Hông Nguyên
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	
- Recommended prerequisite:	
- Corequisite:	

7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description:

The course provides engineering students with basic knowledge related to economic and management in industrial enterprises, including basic knowledge of business organization, production management, financial management, efficient assessment and investment projects management, and develop plans to meet market demands. Through this course, students are able to identify, analyze, and solve relevant problems in production, operation, and production management as well as business activities in industrial fields effectively.

10. Course learning outcomes:

At the end of this course, students are able to:

No	Course learning outcomes (CLO) (6)	Bloom scale	Skills	Level of autonomy & responsibility	PI
1	Understanding the basic issues of the form of establishment and organizational structure of the enterprise.	*Understand*		*Analyze*	1.3.8
2	Applying knowledge to plan and organize the production process for enterprises	*Apply*	*Apply*		8.1.1
3	Applying knowledge of financial management in business	*Apply*	*Apply*		8.2.1
4	Evaluating the effectiveness of investment projects and use tools in project management	*Apply*	*Apply*		3.2.1

11. Mapping of course learning outcomes (CLOs) and program learning outcomes

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Level	IT		I					T
CLO 1	x							
CLO 2								x
CLO 3								x
CLO 4			x					

12. Students responsiblities:

Students must:

- Attend at least 80% of the course to be eligible for the final examination
- Engage in class discussion with respect and attention
- Self-study, direct their own studying—outside the classroom
- Complete all homework and assignments in a timely manner

13. Course Assessment:

Student's results are assessed by the following components: process assessment, mid-term assessment, final assessment, and other evaluation activities.

Component of assessmnt	Assessment forms	Assessment method	Assessment criteria rubric	Weighting (%)	Weighting of component (%)	Course learning outcomes
A1. Process	A1.1 Attendance	P1.1 Check attendance		10	20	CLO 1,2,3,4
	A1.2 Presentation	P1.2 Presentation		10		
A2. Mid-term	A2.1 Mid-term exam	P2.1 Written test	R2.1 According to the answer and the grading Scale	20	20	CLO 1, 2
A3. Final Assessment	A3.1 Final exam	P3.1 Written test	R3.1 According to the answer and the grading Scale	60	60	CLO 1,2,3,4

14. Course materials:

14.1. Main Textbooks:

[1]. PGS.TS. Lê Thị Kim Oanh, ThS. Nguyễn Thị Thu Thủy, ThS. Hồ Dương Đông (2019); *Giáo trình Kinh tế doanh nghiệp*, NXB Đà Nẵng, 2019.

14.2. References:

[2]. Ngô Trần Ánh, *Kinh tế và Quản lý doanh nghiệp*, NXB Thống kê, 2003.

[3]. Đặng Minh Trang, *Quản trị sản xuất và tác nghiệp*, NXB Giáo dục, 2002.

[4]. PGS.TS. Nguyễn Bạch Nguyệt, PGS. TS. Từ Quang Phương, *Kinh tế đầu tư,* NXB Đại học Kinh tế Quốc dân, 2002.

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approval date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Assoc. Prof. Le Thi Kim Oanh**

46. Construction materials fieldtrip

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Kiến tập vật liệu xây dựng
English name: Construction materials fieldtrip

1. Code:	7510105
2. Course abbreviation:	Construction materials fieldtrip
3. Credits: **ECTS credits (*):**	1 1,67
4. Study workload:	
- Lecture:	0
- Exercise:	0
- - Practice/ Laboratory:	30
- Self-study/Assignment:	60
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials division
- Course coordinator:	Lecturers in Construction materials division
- Other lecturers:	Lecturers in Construction materials division
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction materials
- Corequisite:	Thermal equipment for production of construction materials; Machines and equipment for the production of construction materials
7. Type course	☒ Compulsory □ Selected elective □ Free elective
8. Knowledge clusterss:	□ Math and natural science □ General knowledge ☒ Core engineering fundamental knowledge □ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. COURSE DESCRIPTION

The course provides students with the awareness and the development orientation of the training major. Visiting production facilities, construction sites, making students understand the process of production and use of materials at the agency receiving the internship. The course also adds practical knowledge to the content already in university.

10. COURSE LEARNING OUTCOMES (CLOs)

After completing the course, students have ability to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (PLOs)
1	Describe the basic technological line, production scale of a factory or production facility of construction materials.	a2. Understand			8.1.2
2	Compare the production and use of materials in practice with theoretical knowledge learned.	a3. Apply			1.4.9;8.4.2
3	Realize reality for career orientation.	A1. Remember			3.1.3
4	Organize group activities and increase communication skills.			C4. Organization	5.1.2
5	Show discipline and professional ethics.			C1. Receiving	3.2.2;4.1.1

11. CLOs AND PLOs MAPPING:

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course			T	T	U		U	T
CLO 1				x			x	x
CLO 2			x	x			x	x
CLO 3			x	x				
CLO 4					x			
CLO 5			x	x				

12. STUDENTS' TASK:

Students must do the following tasks:

- Student must have permission papers from office of Academic affair, office of Finance and planning of The University of Science and Technology
- Strictly follow the rules and regulations of the company where students work.
- Report daily working diary
- The practical report is written in A4 size paper in groups, including a decision and a syllabus for internships and an evaluation report by the instructor of the company

13. ASSESSMENT

Assessment results are based on student activities during the internship and final exam. How to assess according to the instructions in the following rubric:

13.1. General assessment table:

Component	Assessment style	CLOs	Assessment Methods (AM)	Criteria	Weight
A1. Evaluation of firm instructor	A1.1 **Written Report**	CLO1,3,4,5,6,7	PPĐG 7 (Written Report)	Rubric 6 (Application)	30%
	A1.2 **Teamwork**	CLO2, 8	PPĐG 9	Rubric 7	20%
A2. Final evaluation of lecturers	A2.1 **Oral Presentation**	CLO1,2,3,4,5,6,7,9	PPĐG 3	Rubric 4	20%
	A2.2 **Oral Exam**	CLO1,2,3,4,6,7,9	PPĐG 6	Rubric 5	30%

13.2. Assessment report by firm instructor base on working period of students and their report:

A1.1 – Rubric 6 – Written Report

Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Contents	No content of the irrelevant content	The report is fully represented as requirement. Still, the calculation is wrong or not specific as the requirement	The report is fully represented as requirement. Still, the calculation is not reasonable.	The report is fully represented as requirement. The calculation is correct and exact. Still there is not specific and reasonable explanation for the results	An exemplary report with complete, accurate and relevant content. Discussion and recommendations are outstanding, creative and realistic.	**60%**
Organization, format, language	A poorly edited report with grammatical and spelling errors.	Report format lacks consistency. Weak command of the language	The order of the report follows the requirement. There are several mistakes in grammar and spelling. There is not adequate note	Format and contents flow smoothly building on one idea to another. Uses language and conventions appropriate for report writing.	A well-organized report that displays an excellent command of the language. The overall appearance is neat and professional	**20%**

Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Drawings	No drawing or irrelevant drawings	The quantity of drawings is adequate. The dimension and note are not clear. The drawings are lack of some important parts	The quantity of drawings is adequate. The dimension and note are clear. There are some mistakes in drawings	The quantity of drawings is adequate. The dimension and note are clear. There are no mistakes in drawings. The arrangement of the drawings is reasonable	Same as level B. Students can use the computer fluently as a drawing tool. The drawings can be used in practical cases.	**20%**

13.3. **Assessment final exam by lecturers**

A2.1. Rubric 4: Oral Presentation

Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Content of presentation	No content or content is inappropriate for the request.	Content matching requirements, images and explanations are not clear	Content meets requirements. Use simple and easy to understand terminology. The picture is clear and beautiful	Content meets requirements. Use simple and easy to understand terminology. Pictures are clear, and beautiful. Used video	Content meets requirements. Use simple and easy to understand terminology. Pictures are clear and beautiful. Use video and explain specific insights on video.	**50%**
Slide presentation	Slide presentation is too sketchy, not enough quantity as prescribed	Slides are presented in appropriate quantities, using the word and picture clearly	Slides are presented with a clear, layout (introduction, body and conclusion)	Slides are presented with clear, logical layout, consists of 3 parts, demonstrating proficiency in presentation.	Slides are presented with clear, logical layout, consists of 3 parts. The term is simple to understand, demonstrating proficiency in presentation and language.	**25%**

Presentation	The presentation is not logical, beyond the specified time, uses of incorrect terminology, unclear pronunciation, and low voice. Listeners do not understand.	The presentation is full, but the voice is low, pronouns some words unclear, uses complex terminology, do not contact with the listener when presented.	The presentation has a clear three-part layout. The voice is reasonable, clear, easy to listen, time is properly presented, sometimes interact with the listener. Listeners can understand and keep track of the content presented.	The presentation is brief, easy to understand, uses simple and easy-to-understand terms. Clear layout. The voice is clear and fluent. Time to present correctly. Good interaction with the listener. Listeners can understand the content.	The presentation is brief with clear layout. The voice is clear and fluent. Attract the attention of the listener, interact well with the listener. Listeners can understand and keep up with all the content presented. Time to present correctly.	**25%**

A2.2 – Rubric 5 - Oral Exam

Assessment Criteria	**Levels of achievement**					**Weight**
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Answering Attitude	Communicating and answering attitude is rude, not cooperated, lack of respect in communication. Use inappropriate terms. Voice is hard to listen.	Attitude is quite polite. Use complex terms, confusing answers, hard to understand. Small voice, lack of confidence.	Communicative attitude is, gentle. The voice is clear, easy to hear. The term used in the answer is appropriated, easy to understand.	Attitude in the answer is confident, calm, and gentle. Use simple terms, easy to understand. Clear voice fluently speak.	Attitude is very confident. Voice is clear, fluent and attractive, well interact with the listener.	**30%**
Answer questions	The answers are completely unrelated to questions.	Answers are not clear, almost unconnected, not focus on the question.	Answers focus on questions. The lack of confidence in the answers.	The answers are concise, clear, completed, and relevant to the question asked. Attitude in answering is confident,	Answer shortly, clearly, completely, directly related to the question asked, explain convincely. At-	**70%**

				calm, gentle, and calm.	titude in answering is confident, calm, and persuasive.	

14. STUDY MATERIALS:

14.1 Textbooks:

[1] Huynh Phuong Nam, Nguyen Thi Tuyet An, Do Thi Phuong, General Construction Materials, Construction Publisher, Hanoi, 2016 (in Vietnamese).

14.2 References:

[1] Pham Duy Huu, Ngo Xuan Quang. Construction materials. Transportation Publisher, Hanoi, 2004 (in Vietnamese).

[2] Le Xuan Mai - Do Huu Dao. Soil mechanics. Construction Publisher, Hanoi, 2005 (in Vietnamese).

[3] Phan Quang Minh, Ngo The Phong, Nguyen Đinh Cong. Reinforced concrete structure - Basic components, Publisher Science and Technology, Hanoi, 2010.

[4] Le Van Dinh, Pham Van Mang. Geodetics. The University of Danang - University of Science and Technology, 1992.

15. Scientific code of ethics:

- Students are responsible for attending the practice sessions, project guides. In case of absentee due to unavoidable reasons, there must be sufficient and reasonable proof.
- Strictly follow the rules and regulations of the company where students work.
- Other issues follow the current training regulations of the University.

16. Approved date: / 07 /2021

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Tien Dung, MSC**

47. Technology of building ceramics 1

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Công nghệ sản xuất gốm xây dựng 1
English name: Technology of building ceramics 1

1. Code:	
2. Course abbreviation:	Technology of building ceramics 1
3. Credits: **ECTS credits (*):**	2 2,83
4. Study workload:	
- Lecture:	30
- Exercise:	0
- - Practice/ Laboratory:	00
- Self-study/Assignment:	60
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	Do Thi Phuong, Msc
- Other lecturers:	Nguyen Van Quang, Ph.D
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Applied chemistry Engineering 1; Machinery for the production of construction materials; Thermal equipments in the production of construction materials
- Corequisite:	None
7. Type course	☒ Compulsory □ Selected elective □ Free elective
8. Knowledge clusterss:	□ Math and natural science □ General knowledge ☒ Core engineering fundamental knowledge □ Disciplinary knowledge □ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description

The course introduces the knowledge about ceramic materials used mainly in construction such as: properties, structure, raw materials, distribution and production methods. The module will provide knowledge for the PBL4, Graduation Project and server sections for bachelors working in field studies, design, production and testing.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	**Present** the properties, structure and application of building ceramics, products, stages of building ceramics production.	A2. Understand	B2. Manipulate	C1. Receive	1.3.5. 8.1.1
2	**Analyze** and evaluate the quality of raw materials and ingredients	A4. Evaluate	B4. Complete	C3. Express attitude	1.3.5. 8.1.1 2.2.1
3	**Calculation** and selection of ingredients for materials	A3. Apply	A3. Accuracy	C3. Express attitude	1.3.5. 3.1.2 8.2.1
4	**Evaluation** and selection of production methods	A4. Evaluate	B4. Complete	C4. Opinion	1.3.5. 3.1.4 8.2.1
5	**Design** a technology line diagram	A5. Creation	A5. Creation	C4. Opinion	1.3.5 3.1.3 8.2.2

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU	TU	T					TU
CLO 1	X							X
CLO 2	X	X						X
CLO 3	X		X					
CLO 4	X		X					X
CLO5	X		X					X

12. Student tasks

Students must peform the following tasks:

- Attend at least 80% of the lessons of the class time;
- Self-study the problems assigned by the lecturer
- Complete all course assessments.

13. Course assessments

Type of assessement	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		Course learning outcomes (CLOs)
A1. Ongoing assessment	A1.1 Diligence	P1.1. Attendance		50	20	
	A1.2 Assignments / homeworks	P1.2. Exercises/Homeworks	Rubric 1	50		CLO 3
A2. Mid-term Assessment	A2. Mid-term exam	P2. Written exam	3-4 questions / 10 points correct according to the answer	100	20	CLO 1, 2, 3, 4
A3. Final Assessment	A3. Final exam	P3. Written exam	3-4 questions / 10 points correct according to the answer	100	60	CLO 1, 2, 3, 4, 5

14. Materials

14.1. Books, lectures, main textbooks

[1] Vu Minh Duc, *Technology of Building Ceramics*, Construction Publisher, 1999.

14.2. Reference materials

[1] Nguyen Van Dung, *Technology of Ceramics, Da nang university, 2005*

[2] Do Minh Dao, *Technical manual for the production of ceramic tiles,* Vietnam Ceramics Association

[3] Vietnam standards- Ministry of science and technology and Other Standards.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Do Thi Phong, M.Sc.**

48. PBL4 – Technology of building ceramics 1

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): PBL4_Công nghệ gốm xây dựng 1
English name: PBL4 – Technology of building ceramics 1

1. Course code:	109290
2. Course abbreviation:	PBL4 – Technology of building ceramics 1
3. Credits **ECTS credits (*):**	2 credits (….ECTS) 3,33
4. Study workload:	
- Lecture:	45 periods
- Exercise:	
- Practice/ Laboratory:	15 periods
- Self-study/Assignment:	60 periods
5. Responsible persons	
- Faculty/Division in charge:	Construction Materials Division/Faculty of Road and Bridge Engineering
- Course coordinator:	Do Thi Phuong, MSc
- Other lecturers:	Nguyen Van Quang, PhD Nguyen Tien Dung, Student PhD Vu Hoang Tri, MSc
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction Materials; Industrial Architecture; Machinery for the production of construction materials.
- Corequisite:	Technology of building ceramics 1
7. Type course	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge

	□ Supportive knowledge □ Project/ Internship/ Graduate thesis

9. Course description

Project of Technology of building ceramics 1, which is an interdisciplinary course combining 03 modules: Technology of building ceramics 1, Construction Materials, and Machinery for the production of construction materials. The module helps students design the production line of basic building ceramic materials as well as the production workshop. With content from raw material selection, mix calculation and experiment; analysis and selection of production methods; technology design and calculation; selection of machines and production equipment. The course will provide knowledge for the Graduation Project and server sections for bachelors working in field studies, design, production and testing.

10. Course Learning Outcomes (CLOs):

After completing the course, students will be able to:

No.	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators PI (belongs to PLOs)
1	**Apply** the method of calculation and selection of components for ceramic materials. Testing the properties of raw materials and mixtures.	a3.Manipu-late	b2.Manip-ulate	c4. Or-ganize	1.4.4.
2	**Analyze, select and propose** an effec-tive production plan	a4.Analyze	b4. Com-petency	c3. Atti-tude	2.2. 8.1.
3	**Select** suitable production equipment and machinery	a3.Manipu-late	b4. Com-petently	c4. Or-ganize	3.1. 8.2.
4	**Present** the results of the group's PBL implementation: project description, drawings, reports	A2. Under-stand	b4. Com-petently	c3. Atti-tude	5.2. 7.1. 7.2.1. 8.3.
5	**Organize** effective small group work			c4. Or-ganize	4.1. 5.2.

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs):

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	U	T	T	T	U		U	TU
CLO 1	X							
CLO 2		X						X
CLO 3			X					X
CLO 4					X		X	X
CLO 5				X	X			

12. Student tasks:

Students must perform the following tasks:

- Attend at least 80% of the lessons of the theorical course,
- Attend 100% of the lab sessions of the course, more than 01 lab session of absence (without the lecturer’s permission) or a Lab Final Assessment (A2) result of < 5 points (on scale of 10) equals denial from sitting the final theoretical exam.

- Participate in group work activities according to the regulations of the course;
- Self-study the problems assigned by the lecturer to solve outside of class time;
- Comply with the rules and regulations of lecturers and instructors;
- Implement and present the contents of the project in accordance with the assigned tasks
- Engage in topic/content group discussion in the tutorial sessions;
- Attend the periodic project quality inspection and evaluation organized by lecturers and instructors.
- Attend the project defense in accordance with the regulations of the Division and the Faculty.

13. Course assessments

The results of course assessments are based on the assessment of students' activities during the course of study, the mid-term exams and final exams as shown via the Performance Assessment; the evaluated Course Learning Outcomes; the rubric, standards and weights of the assessments.

Type of Assessment	Performance Assessment (Ax.x)	Assessment Methods	Rubric	Assessment Weighting Percentage (%)	Component Weighting Percentage (%)	CLOs
A1. Ongoing Assessment	A1.1 Project guide participation	Diligence, discussion	Rubric 1.1	W1.1 50%	W1. 30%	CLO1, 2,3,4,5
	A1.2 Group lab work participation	Diligence, lab experiment data report	Rubric R1.2	W1.2 50%		CLO1, 5
A2. Project Implementation Results Assessment	A2.1 Project description	Project description	Rubric R2.1	W2.1 70%	W2. 20%	CLO1, 2,3,4
	A2.2 Drawings	Drawings	Rubric R2.2	W2.2 30%		CLO1, 2,3,4
A3. Final Assessment	A3.1 Presentation of project contents	Oral report, presentation	Rubric R3.1	W3.1 30%	W3. 50%	CLO4
	A3.2 Answer questions related to the project	Presentation on Defense Day	Rubric R3.2	W3.2 70%		CLO1, 2, 3

Rubric 1.1: Project guide participation

Rubric	Specified levels of standard					Weight
	F (0-3.9)	D (4.0-5.4)	C (5.5-6.9)	B (7.0-8.4)	A (8.5-10)	
Attendence	< 30%	<50%	<70%	<90%	100%	**50%**
Discussion	Student never engages in class discussions	Student rarely engages in class discussions by offering ideas	Student occasionally engages in class discussions by offering ideas during class hour	Student frequently engages in class discussions by offering ideas during class hour	Student always engages in class discussions by offering ideas effective for class activities	**50%**

Rubric 1.2: Group lab work participation

Rubric	Specified levels of standard					Weight
	F (0-3.9)	D (4.0-5.4)	C (5.5-6.9)	B (7.0-8.4)	A (8.5-10)	

Attend-ance	< 30%	<50%	<70%	<90%	100%	**50%**
Lab ex-peri-ment	Student at-tends lab session but doesn't par-ticipate in any experi-ments	Student at-tends lab ses-sion & par-ticipates in a few experi-ments	Student at-tends lab ses-sion & par-ticipates in most experi-ments	Student attends lab session & par-ticipates in all ex-periments. Stu-dent engages in discussions to of-fer ideas for the group	Student attends lab session & partici-pates in all experi-ments. Student fre-quently engages in discussions to offer effective ideas for the group	**50%**

Rubric 2.1: Project implementation result assessment via project description

Rubric	**Specified levels of standard**					**Weight**
	F (0-3.9)	**D (4.0-5.4)**	**C (5.5-6.9)**	**B (7.0-8.4)**	**A (8.5-10)**	
Content of Re-port/ Project	Content is incom-plete or doesn't meet re-quire-ments.	Content is complete and meet require-ments. Sev-eral calcula-tion errors re-main, some sections are illogical.	Content is complete and meet require-ments. A few calculation er-rors remain, some sections are illogical.	Content is com-plete and meet re-quirements, calcu-lation is logical in sequence and ac-curate in results. Content is not convincing due to lack of specific analysis & expla-nation.	Content is com-plete and meet re-quirements, calcu-lation is specific, unambiguous, log-ical in sequence and accurate in re-sults. Content is convincing thanks to specific analy-sis & explanation.	**80%**
Presenta-tion of Report/ Project Descrip-tion	Descrip-tion is in-complete or doesn't meet re-quire-ments.	Order of de-scription is incorrect. Content meets requirements. Figures and tables still contradict the content.	Content & or-der of descrip-tion meet re-quirements. Some spelling errors remain, dimensions & notes are in-complete.	Content meets re-quirements, se-quence & struc-ture are logical. Figures & tables are unambigious & logical with ap-plicable notes. De-scription presenta-tion shows limited editorial skills.	Content meets re-quirements, se-quence & struc-ture are logical. Figures & tables are unambigious & logical with ap-plicable notes. De-scription presenta-tion shows good editorial & calcu-lation skills.	**20%**

Rubric 2.2: Drawings

Rubric	**Specified levels of standard**					**Weight**
	F (0-3.9)	**D (4.0-5.4)**	**C (5.5-6.9)**	**B (7.0-8.4)**	**A (8.5-10)**	
Tech-nical Draw-ings & Figures	There are no draw-ings or an insuffi-cient number of drawings or content of draw-ings does	There is a suf-ficient number of draw-ings/figures with content meeting re-quirements. Di-mensions & notes are not shown or are	There is a suf-ficient number of drawings with content meeting re-quirements. Dimensions & notes are clearly shown.	There is a suf-ficient number of drawings (03 drawings) with content meeting re-quirements. Components are properly	There is a sufficient number of draw-ings (03 drawings) with content meet-ing requirements. Components are properly organized. Dimensions & notes are complete & clearly shown.	**100%**

	not meet requirements.	not clearly shown or missing some parts on the drawings	Some presentation errors remain (spelling, lines)	organized. Dimensions & notes are complete & clearly shown.	Drawings show proficiency with drawing tools on computers, which can be applied in practical construction works	

Rubric 3.1: Presentation

Rubric	Specified levels of standard					Weight
	F (0-3.9)	**D (4.0-5.4)**	**C (5.5-6.9)**	**B (7.0-8.4)**	**A (8.5-10)**	
Content	Content does not meet requirements.	Content meets requirements but contains multiple errors.	Content meets requirements. The terms in use are obscure & ambiguous.	Content meets requirements. The terms in use are simple & easy to understand.	Content meets requirements. The terms in use are simple & easy to understand. Content order is logical.	**70%**
Presentation	Presentation lacks logic or exceeds beyond allotted time, terms in use are incorrect, pronunciation is unclear, speaking voice is low, audience doesn't understand.	Presentation is complete, speaking voice is low, pronunciation of certain words is unclear, terms in use are overly complicated, no interactions with audience.	Presentation has a clear 3-part outline (introduction, body & conclusion), speaking voice is clear & easy to listen to, presentation doesn't exceed allotted time, occasional interaction with audience, audience can understand & follow the presentation.	Presentaion is concise & easy to understand, terms in use are simple & unambiguous, has a clear 3-part outline (introduction, body & conclusion), speaking voice is clear with a fluent delivery, presentation doesn't exceed allotted time, effective interaction with audience, audience can understand & follow the presentation.	Presentaion is brief & has a clear 3-part outline (introduction, body & conclusion), speaking voice is clear & engaging with a fluent delivery, presentation doesn't exceed allotted time, effective interaction with audience, audience can understand & follow the entire presentation.	**30%**

Rubric 3.2: Answering questions

Rubric	Specified levels of standard					Weight
	F (0-3.9)	**D (4.0-5.4)**	**C (5.5-6.9)**	**B (7.0-8.4)**	**A (8.5-10)**	
Attitude when answering	Student displays rude, uncooperative, disrespectful attitude when communicating & answering questions,	Student displays civil attitude when communicating & answering questions, uses overly complicated & obscure terms,	Student displays gentle & pleasant attitude when communicating & answering questions, speaking voice is clear & easy	Student displays confident, gentle & calm attitude when communicating & answering questions, speaking voice is clear with fluent	Student displays highly confident attitude when communicating & answering questions, speaking voice is clear with fluent & engaging delivery,	**20%**

	uses inappropriate terms, slurred voice.	speaking voice is low, shows lack of confidence.	to listen to, uses appropriate & simple terms.	delivery, uses appropriate & simple terms.	effective interaction with audience.	
Content of answer	The answers are completely unrelated to the questions.	The answers are unclear, almost unrelated to the question, do not focus on the point of the question.	The answers are focus on the point of the question & related to the question but student lacks confidence.	The answers are concise, clear, complete & related to the question, student shows confidence & knowledge in their answers, arguments & explanations are not convincing.	The answers are concise, clear, complete & related to the question, student shows confidence in their answers, arguments & explanations are completely convincing.	**80%**

14. Learning Materials:

14.1. Books, lectures, main textbooks:

[1] Department of Building Materials Technology – Hanoi University of Civil engineering, *Guide to designing graduation projects for the field of calcined materials technology*, 1985

[2] Vu Minh Duc, *Technology of building ceramics*, Education Publishing House, 1999.

14.2. Reference materials:

[1] Huynh Phuong Nam, Nguyen Thi Tuyet An, Do Thi Phuong, *Construction Materials*, Construction Publishing House, 2016

[2] Doan Tai Ngo, Nguyen Thieu Xuan, Tran Van Tuan, Nguyen Thi Thanh Mai, Nguyen Kiem Anh, *Machines for the production of construction materials and components*, Education Publishing House, 2000.

[3] Bach Dinh Thien, Nguyen Kim Huan, *Thermal equipments in the production of construction materials*, Publishing Scientific and Technical, 1996

[4] Truong Hoai Chinh, *Industrial factory design facility*, Da Nang Publishing House, 2013.

[5] Do Thi Phuong, Vu Hoang Tri, *Building Ceramics Laboratory Manual* (for internal use only)

[6] Vietnam standards- Ministry of science and technology

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Do Thi Phuong, Msc**

49. Technology of concrete 1

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Công nghệ bê tông 1
English name: Technology of concrete 1

1. Course code:	7510105
2. Course abbreviation:	Technology of concrete 1
3. Credits: **ECTS credits (*):**	3 (45 hours) 4,25
4. Study workload:	
- Lecture:	45
- Exercise:	2
- Practice/ Laboratory:	
- Self-study/Assignment:	90
5. Responsible persons	
- Faculty/Division in charge:	Construction materials division
- Course coordinator:	M.Sc. Le Xuan Chuong
- Other lecturers:	M.Sc. Nguyen Tien Dung
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Machines and equipment for the production of building materials; Thermal equipment for production of building materials; Reinforced concrete structure - Basic part; Production technique of inorganic binder 1
- Corequisite:	None
7. Type course	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge

	□ Project/ Internship/ Graduate thesis

9. COURSE DESCRIPTION

This course provides knowledge about the properties and rheological properties of concrete mixes, the solidification process and the formation of structures in concrete. In addition, the course also focuses several topic including the methods of characterization; Measures to improve the performance of ordinary concrete, high strength concrete and other special concrete in ac-cordance with forming technology. Methods of calculating concrete mix, Technology of manu-facturing concrete mixes and production of aggregate concrete building materials.

10. COURSE LEARNING OUTCOMES (CLOs)

After completing the course, students have ability to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Atti-tude	Performance indicators (belongs to PLOs)
1	Explain the knowledge about the properties and rheological characteristics of the con-crete mix as well as the solidification process, the formation of the structure of cement stone in concrete; properties of concrete and con-crete mixtures.	a2. Under-stand			1.3.6
2	Select solutions to improve the technical per-formance of ordinary concrete and high-qual-ity concrete in accordance with the require-ments of structural and structural engineering technology.	a4. Analyze			1.3.6
3	Calculate the reasonable and optimal aggre-gate particle composition; composition of normal concrete and high strength concrete in accordance with the requirements in actual production.	a3. Apply	b4 Artic-ulation		1.3.6
4	Select the suitable technology and equip-ment for the production line of concrete mixes and the aggregate concrete building material factory	a4. Analyze			1.3.6; 8.1.1; 8.2.1; 8.2.2; 8.2.3; 8.2.4

11. CLOs AND PLOs MAPPING:

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU							TU
CLO1	x							
CLO2	x							x
CLO3	x							x
CLO4	x							x

12. STUDENTS' TASK:

Students must do the following tasks:

- Attend at least 80% of the lessons of the part class;

- Participating in group work activities according to the regulations of the class;
- Self-study the problems assigned by the lecturer to do outside of class time;
- Complete all course test.

13. ASSESSMENT

The results of the course evaluation are based on the assessment of the student's activities during the course, the mid-term exam and the final exam; the course output standards are assessed; criteria, standards and weights of the assessments.

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		CLOs
A1. Ongoing assessment	A1.1 Exercises /homeworks	P1.1. Do at class/Homeworks	Rubric R1.1	W1.110%	W1. 20%	
	A1.2 Class Attendance	P1.3. Diligence	Rubric R1.2	W1.210%		CLO 3
A2. Mid-term Assessment	A2. Mid-term exam	P2. Written exam	Answers of test	W2.120%	W2. 20%	CLO 1,2
A3. Final Assessment	A3. Final exam	P3. Written exam	Answers of test	W3.160%	W3. 60%	CLO 1,2,3,4

14. Study resources:

14.1 Textbooks:

[1] Concrete technology 1 - Nguyen Tan Quy, Nguyen Thien Rue - Construction publisher, 2000

[2] Textbook of Concrete Technology 1 (Concrete Theory) - Le Xuan Chuong- Department of Building Materials, Danang University of Science and Technology (internal circulation).

14.2 References:

[1] Concrete technology - IU.M Bazenov, Bach Dinh Thien, Tran Ngoc Tinh - Construction Publisher, 2004.

[2] Roller compacted concrete – Pham Huu Hanh – Construction Publisher, 2007

[3] High strength concrete – Pham Duy Huu – Construction Publisher, 2004

15. Scientific code of ethics:

- Plagiarism is prohibited
- References including textbooks, notes are prohibited in the mid-term examination
- Electronic devices are prohibited during mid-term and final examinations

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Le Xuan Chuong, M.Sc.**

50. PBL5-Technology of concrete 1

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS
Course name (Vietnamese): PBL5-Công nghệ bê tông 1
English name: PBL5-Technology of concrete 1

1. Course code:	7510105
2. Course abbreviation:	PBL5-Technology of concrete 1
3. Credits: **ECTS credits (*):**	2 3,33
4. Study workload:	
- Lecture:	
- Exercise:	15
- Practice/ Laboratory:	15
- Self-study/Assignment:	60
5. Responsible persons	
- Faculty/Division in charge:	Construction materials division
- Course coordinator:	M.Sc. Le Xuan Chuong
- Other lecturers:	M.Sc. Nguyen Tien Dung
6. Required and recommended pre-requisites for joining the course:	
Required prerequisite:	None
Recommended prerequisite:	Industry Architert, Machines and equipment for the production of building materials; Construction materials
Corequisite:	Technology of Concrete 1
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusterss:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. COURSE DESCRIPTION

PBL5 belongs to the project knowledge module combined with Machines and equipment for the production of construction materials. The course provides practical knowledge to evaluate the quality of concrete materials. Component design of normal concrete and high strength concrete. Determination of properties of concrete and concrete mixtures. Determine the influence of additives, environment and time on the properties of concrete during production. Design technology, machinery and equipment for concrete mix production and aggregate concrete production technology.

10. COURSE LEARNING OUTCOMES (CLOs)

After completing the course, students have ability to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Carry out experiments to determine the optimal particle distribution of aggregates, material properties, properties of concrete mixes and hardened concrete, the influence of additives, environment and time on properties of fresh concrete	a2. Understand	b.3. Precision	c.4. Organization	1.4.5, 2.1.1,2.1.2 5.1.1 5.1.2
2	Apply computational methods combined with experiments to design the composition of ordinary concrete and high-strength concrete	a3. Apply	b4 Articulation	c.4. Organization	1.4.5 2.1.1, 2.1.2 5.1.1 5.1.2
3	Analysis and select the technology and equipment to design a commercial concrete batching plant and production line of aggregate concrete materials	a4. Analyze	b4 Articulation	c.3. Valuing	1.4.5; 3.1.1,3.1.2 7.1.4, 7.2.1 8.1.2, 8.2.4;
4	Present the principle of operation, perform the calculation of basic parameters and show it on the explanations and drawings of some machinery and equipment in the technological line	a2. Understand a3. Apply	b.2. Manipulation	c.3. Valuing	1.4.5; 7.1.4; 7.2.1,8.1.2 8.2.4;

11. CLOs AND PLOs MAPPING:

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	U	T	T		U		U	TU
CLO1		x			x			
CLO2	x	x			x			x
CLO3	x		x				x	x
CLO4	x		x				x	x

12. STUDENTS' TASK:

Students must do the following tasks:

- Attend at least 80% of the lessons of the part class;
- Participating in group work activities according to the regulations of the class;
- Self-study the problems assigned by the lecturer to do outside of class time;
- Complete all course test.

13. ASSESSMENT

The results of the course evaluation are based on the assessment of the student's activities during the course, the mid-term exam and the final exam; the course output standards are assessed; criteria, standards and weights of the assessments.

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		CLOs
A1. Evaluation of the technology design process	A1.1. Class Attendance	P1.3. Diligence	Rubric R1.1	W1.1. 50%	W1. 20%	CLO.3,4
	A1.2. Attitudes, results of each section	Report	Rubric R1.2	W1.2. 50%		CLO.3,4
A2. Evaluation of the experiment process	A2.1 Class Attendance	P1.3. Diligence	Rubric R1.1	W2.1. 0%	W2. 20%	
	A2.2 Group report on the experimental results	Report	Rubric R2.2	W2.2. 30%		CLO.1,2
	A2.3 Personal report on the experimental results	Report	Rubric R2.3	W2.3. 70%		CLO.1,2
A3. PBL Final Assessment	A3.1. Report and Drawing	Report	Rubric R3.1	W3.1. 30%	W3. 60%	CLO 1,2,3,4
	A3.2. PBL result presentation	Presenatation	Rubric R3.2	W3.2. 70%		CLO 1,2,3,4

14. STUDY RESOURCES:

14.1 Textbooks:

[1] Guidelines for PBL-Concrete Technology 1- Le Xuan Chuong, Department of Building Materials, Danang University of Science and Technology (internal circulation)

[2] Technical instructions for selecting concrete components of all kinds – Construction Ministry – Construction Publisher – Ha Noi 2000

[3] Vietnam Standard – Cement concrete

14.2 References:

[1] Concrete technology 1 - Nguyen Tan Quy, Nguyen Thien Rue - Construction publisher, 2000

15. Scientific code of ethics:

- Plagiarism is prohibited
- References including textbooks, notes are prohibited in the mid-term examination
- Electronic devices are prohibited during mid-term and final examinations

16. Approved date: / 07 /2021

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Le Xuan Chuong, M.Sc.**

51. Construction Materials Testing & Inspections

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Kiểm định và thí nghiệm vật liệu công trình
English name: Construction Materials Testing & Inspections

1. Course Code:	
2. Course abbreviation:	Construction Materials Testing & Inspections
3. Credits: **ECTS credits:**	02 credits 3,25
4. Study workload:	
- Lecture:	15 periods
- Exercise:	
- Practice/ Laboratory:	30 Periods
- Self-study/Assignment:	60 Periods
5. Responsible persons	
- Faculty/Division in charge:	Construction materials division/ Faculty of Road and Bridge Engineering
- Course coordinator:	M.sc. Vu Hoang Tri
- Other lecturers:	Staff of Construction materials division
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite	None
- Recommended prerequisite	Technology of concrete 1
- Corequisite	
7. Course type:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusterss:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course on Construction Materials Testing & Inspections introduces comprehensive knowledge about the quality control of the main materials used in construction work: ceramic construction materials, concrete manufacturing materials, and concrete using inorganic binders, metal materials. The course provide students with knowledge about material inspection; destructive and non-destructive testing methods to evaluate the quality of materials used for construction work.

This course also helps students have practical skills, teamwork skills, communication skills; skills in self-research, analysis data and reporting in material inspection.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Present and explain the objectives, principles, methods and procedures of material inspection in the works.	a2.Understand		c1. Receive c2.Feedback	1.3.7
2	Analyze and select suitable test methods for testing for each type of materials	a4. Analyze	b2. Manipulate	c1. Receive c2.Feedback	1.3.7
3	Perform experiments on physical and mechanical criteria of materials Calculate and collect experimental data	a3. Apply	b4.	c4. Organize	1.3.7 2.1.1; 2.1.2; 2.2.4
4	Evaluate the quality of materials and analyze the factors affecting the quality of materials used for construction work and construction materials.	a5.Evaluate	b3. Accurate	c2.Feedback c3. Attitude	3.1.1; 3.2.2
5	Comply to principles and support teamwork activities			c4. Organize	5.1.2 5.2.3,5.2.6

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs) :

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Course distribution	IT	T	U		U			
CLO 1	x							
CLO 2	x							
CLO 3	x	x						
CLO 4			x					
CLO 5					x			

12. Student tasks

Student must:

- Attend at least 80% of the lessons of the theory class; Attend 100% of the testing experimental in lab. Below this number, student will be banned from taking the final exam.
- Participate in team-work activities following the course's regulations;
- Self-study outside class to solve problems provided by lecturers;
- Complete all types of the course assessment.

13. Course assessments

- Don't attend 100% of the experimental sessions, the test score at the end of the testing experimental (A2) to point "Zero".
- Students who do not achieve the testing experimental score (less than 4.0 points on a scale of 10) will not be allowed to take the final exam.

13.1. **General assessment**

Assessment Component	**Test method**	**Assessment Methods**	**Criteria**	**` Weight (%)**		**Course learning outcomes (CLOs)**
A1. Attendance Check	A1.1 Attend	Attended	Rubric R1.1	W1.1. 50%	W1. 20%	CLO1 CLO2
	A1.2. Exercise	Report	Rubric R1.2	W1.2. 50%		
A2. On-going/Formative Assessment in testing lab	A2.1 Attend	Attended	Full attend-ance	W2.1 0%	W2. 20%	CLO3 CLO5
	A2.2 Testing re-port of Team	Report	Rubric R2.2	W2.2 30%		
	A2.3. Report of Personal	Written Re-port	Rubric R2.3	W2.3 70%		
A3. Summative assessment	A3.1. The report	Synthesis re-port	Rubric 3.1	W3.1. 30%	W3. 60%	CLO1 CLO2 CLO3 CLO4
	A2.2. Oral Exam	Oral Presen-tation	Rubric R3.2	W3.2. 70%		

13.2. **Progress Assessment from the organizations based on student's practice progress and written report**

1. Attendance Check

Rubric 1: Class Attendance

Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	Level D (4.0-5.4)	Level C (5.5-6.9)	Level B (7.0-8.4)	Level A (8.5-10)	
Diligence	< 30%	<50%	<70%	<90%	100%	50%
Class activi-ties	Never partici-pate in any class ac-tivity	Rarely partic-ipate in any activity. Inefficiently contribution.	Occasionally participate in class activi-ties. Inefficiently discussion.	Regularly discuss and exchange ideas related to the lesson. The contri-bution to the lesson is ef-fective.	Always partici-pate in class activities: speaking, ex-changing ideas related to the lesson. The contributions are very effective.	50%

Rubric 2: Project Attendance

Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	Level D (4.0-5.4)	Level C (5.5-6.9)	Level B (7.0-8.4)	Level A (8.5-10)	

Group organization	Group is completely broken:The responsibilitiesand duties of the team members are not specifically assigned, no association,team coordination.	The responsibilities and tasks of each team member are unclear, not suitable to their abilities. There is no coordination between team members.	Each member has his / her own task but is unclear and incompatible with the member's ability. The teamwork is not good.	The task of each team member is clear and relevant to their abilities. Good coordination of the team.	The duties of the team members are clear and consistent with their abilities, promoting the strength of the members. The teamwork is very good.	20%
Diligence	< 30%	<50%	<70%	<90%	100%	10%
Discussion	Never participate in group discussions	Rarely participated in group discussions and comments	Occasionally participate in Group discussions and comments	Regularly participate in Group discussions and Contribute to discussions among groups.	Always participate in group Discussions and contribute effectively to group activities and groups.	20%
Content is as schedule	No calculated content.	Incomplete calculations (<50%), wrong calculation results, unsuitable calculation sequence.	Calculation content includes enough volume as listed in the schedule (100%). Calculated results are some errors, mistakes.	Calculation content includes enough volume as listed in the schedule (100%). Calculated results are correct, calculation softwares are used but not appropriate.	Calculation content includes enough volume as listed in the schedule (100%). The sequence of calculation steps is reasonable. The results are calculated correctly.	20%
Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	Level D (4.0-5.4)	Level C (5.5-6.9)	Level B (7.0-8.4)	Level A (8.5-10)	
					Calculation softwares are used reasonable	

Format of reports	No report or report are incomplete.	Messy display in report, incorrect order. Drawings, tables and symbols used in the report are inappropriate.	The display of report is appropriate. There are some spelling errors, some confusion about size, notes, explanation parameters, tables.	Content is suitable. Structure of report is clear, logical. Notes,explanations, drawings, tables are suitable. There are few errors.	Contentissuitable. Structure of report is clear, logical.Notes, explanations,drawings, tables are suitable.	15%
Technical drawings	No drawings or drawings lacking parts or images as required. The content is not correct	Drawings are not complete, unclear and lack dimension. Composition details, the content on the drawing is as required but still contain many errors. Notes are not appropriate.	The drawings show the required images, but the layout does not fit, and some minor flaws in presentation. Content on the drawing is as required.	Drawings include full details, clear size. Content is expressed as required. Drawings are Arranged and present reasonable. Notes are clear, detailed.	Drawings include full details, clear size. Content is expressed as required. Drawings are Arranged and present reasonable. Notes are clear, detailed. Drawings can be implemented in reality	15%

2. Work Assignments

Rubric 3: Work Assignment

Assessment Criteria	Levels of achievement					Weight
	Level F (0-3.9)	Level D (4.0-5.4)	Level C (5.5-6.9)	Level B (7.0-8.4)	Level A (8.5-10)	
Submit assignments	Donot submit assignments	Submit70%assignment. Incorrect time.	Submit full assignment (100% of The assignment). Some assignments are not in time.	Submit full assignment (100% of the assignment). Most assignments are submitted on time.	Submission of full assignments (100% of the assignment). At regulation time.	20%
Presentation of assignments	Do not do exercises	Messy display, not in accordance with presenta-	The exercise meets the requirements (font, size, line).	The presentation is beautiful, and meets the requirements	The presentation is beautiful and meets the requirements (font, size,	30%

		tion requirements (font, size, line). Figures and tables used in the exercise do not match.	Drawings and tables used in the exercises are clear and appropriate. There are some minor defects in presentation (Misspelling, mistake, size)	(font, size, line). Drawings and tables used in the exercises are clear and appropriate. Note, full explanation, reasonable.	stream). Drawings and tables used in the exercises are clear and appropriate. Note, full explanation, reasonable.	
Content of the exercise	Do not do exercises	Inadequate content, some incorrect according to task requirements.	The content of the exercise is adequate, meets the requirements of the task but not reasonable. There are some errors in the calculation.	The content of the exercise is adequate, reasonable, and meets the requirements of the task. Correct calculation.	The content of the exercise is adequate, reasonable, and meets the requirements of the task. perfectly calculation.	50%

14. Materials

14.1 Books, lectures, main textbooks

[1] Huynh Phuong Nam, Nguyen Thi Tuyet An, Do Thi Phuong, *General construction materials*, Construction publisher, Hanoi, 2016.

[2] Building materials Division, *Instructions for testing construction materials* (internal circulation)

14.2 Reference materials

[1] Phung Van Lu, Pham Duy Huu, Phan Khac Tri, *Construction materials*, Educational Publisher, Ha Noi, 2001.

[2] Pham Duy Huu, Ngo Xuan Quang, *Construction materials*, Transportation Publisher, Ha Noi, 2004.

[3] Ministry of Construction, *Technical instructions for selecting components in types of concrete*, Construction publisher, Ha Noi, 2000.

[4] TCVN, Standards on Construction materials.

15. Scientific code of ethics:

- Students are not allowed to copy reports of other groups
- Students should conduct the experiments by themselves following the instruction content and honestly record experimental data
- Students must strictly comply with occupational safety regulations and equipment used in the laboratory.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Vu Hoang Tri, M.Sc.**

52. Heat insulating Materials

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Vật liệu cách nhiệt, chịu nhiệt
English name: Heat insulating Materials

1. Course Code:	
2. Course abbreviation:	Heat insulating Materials
3. Credits: **ECTS credits (*):**	02 Credits (30 Periods) 2,83
4. Study workload:	
- Lecture:	30 Periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 Periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	PhD Student. Nguyen Tien Dung
- Other lecturers:	PhD. Do Thi Phuong, PhD. Nguyen Minh Hai
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction Materials
- Corequisite:	None
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusterss:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course equips students with basic knowledge, properties of starting materials of each type of insulation and heat-resistant materials, technical properties and methods of evaluating the quality of such products. as well as manufacturing technology process and field of use. For students majoring in building materials, these contents will be developed into in-depth research topics on new materials.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLO)	Knowledge	Skills	Attiude	Performance indicators (belongs to PLOs)
1	Present the structure, operating principle of the machine and equipment	a2. Understand			1.3.5;
2	Classify, name and list types of construction machines and equipment	a4. Analysis	b2. Application		1.3.5
3	Present groups of methods to fabricate materials with large hollow structures	a2 Understand	b2 Application		3.1.1 4.1.1
4	Organize the content presented, have presentation skills, self-study, synthesize and work in groups through exercises and thematic reports.			C4. Organization	3.1.1 4.1.1

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU		T	T				T
CLO 1	X							
CLO 2	X							X
CLO 3			X	X				
CLO 4			X	X				

12. Student tasks

Students must perform the following tasks:

- Attend at least 80% of the lessons of the part class.
- Participating in group work activities according to the regulations of the class.
- Self-study the problems assigned by the lecturer to do outside of class time.
- Complete all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Review percentage (%)	Weighting percentage (%)	Course learning outcomes (CLOs)
A1. Ongoing assessment	A1.1 Exercise	P1.1. Exercise	R1.1	50	20	CLO 1, 2
	A1.2 Thematic reports	P1.2. Class report and presentation	R1.3	50		CLO 1, 2, 3
A2. Mid-term Assessment	A2. Mid-term examination	P2. Essay	R2.1	100	20	CLO 1, 2

A3. Final Assessment	A3. Final examination	P3. Essay	R3.1	100	60	CLO 1, 2, 3

14. Materials

14.1. Books, lectures, main textbooks

[1] Technology of insulation materials, "Nguyen Nhu Quy", Construction Publisher, 2002

[2] Technology of thermal insulation mineral materials - Nguyen Van Phieu, Nguyen Van Chanh, Construction Publisher, 2005

[3] Bazant, Z.P., Kaplan, M.F. (1996). Concrete at high temperatures: Material properties and mathematical models. London: Longman.

14.2. Reference materials

[1] Construction materials and products - Phung Van Lu - Construction Publisher, 2002.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Tien Dung, PhD Student.**

53. Building Glass

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
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UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Vật liệu thủy tinh xây dựng
English name: Building Glass

1. Course Code:	1090773
2. Course abbreviation:	Building Glass
3. Credits: **ECTS credits (*):**	2 credits (equivalent to 4 ECTS) 2,83
4. Study workload:	
- Lecture:	30 Periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 Periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	Nguyen Van Quang, Ph.D
- Other lecturers:	Do Thi Phuong, Ph.D
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Applied chemistry Engineering 1
- Corequisite:	None
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusterss:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The course introduces the knowledge of raw materials and technology to manufacture construction glass products. The main properties and composition of raw materials, products and the selection of glass products for construction works are mentioned.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Present the properties and roles of building glass products.	a2. Understand			1.3.10
2	Describe production technology and fabrication method of construction glass products; Develop principles of production organization and production technology of products.	a2. Understand	b2. Manipulate		1.3.10 8.2.1
3	Evaluate the quality and use of glass products in construction works	a4. Analyze			1.3.10
4	Organize the content of the report, have oral presentation skill, self-study skill, teamwork skill through exercises and special topics			c4. Organize	3.1.1 4.1.1

11.The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU		T	T				T
CLO 1	X							
CLO 2	X							X
CLO 3	X							
CLO 4			X	X				

12.Student tasks

Students must peform the following tasks:

- Attend at least 80% of the lessons of the class time;
- Participating in group-work activities following the regulations of the class
- Self-study the problems assigned by the lecturer
- Complete all course assessments.

13.Course assessments

Type of assessement	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)		Course learning outcomes (CLOs)
A1. Ongoing assessment	A1.1 Assignments / homeworks	P1.1.Exercises/Homeworks	R1.1	50	20	CLO 1, 2
	A1.3 Special topic reports	P1.3. Oral presentation in class	R1.3	50		CLO 1, 2, 3

A2. Mid-term Assessment	A2. Mid-term exam	P2. Written exam	R2.1	100	20	CLO 1, 2
A3. Final Assessment	A3. Final exam	P3. Written exam	R3.1	100	60	CLO 1, 2, 3

14. Materials

14.1. Books, lectures, main textbooks

[1] Technology of Building Glass – Bach Dinh Thien – Construction Publisher, 2004.

14.2. Reference materials

[1] Silicate Physical Chemistry – Do Quang Minh – NXB Ho Chi Minh city national university Publiser, 2009.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Van Quang, PhD.**

54. Decorative and Complete Materials

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Vật liệu trang trí - Vật liệu hoàn thiện
English name: Decorative and Complete Materials

1. Course Code:	
2. Course symbols:	
3. Credits: **ECTS credits (*):**	02 Credits (30 Periods) 2,83
4. Time distribution:	
- Lecture:	30 Periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 Periods
5. Lecturers in charge:	
- Faculty/Division in charge:	PhD Student. Nguyen Tien Dung
- Course coordinator:	PhD Nguyen Minh Hai
- Other lecturers:	Construction materials Division/ Faculty of Road and Bridge Engineering
6. Required and recommended pre-requisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction Materials
- Corequisite:	None
7. Type course:	☒ Compulsory ☐ Compulsive Electives ☐ Electives
8. Knowledge clusters:	☐ Maths & Natural Sciences ☐ General Knowledge ☐ Engineering Fundamentals ☒ Professional Engineering ☐ Supporting ☐ Projects, Internships, & Thesis

9. Course description

The course equips students with basic knowledge about decorative materials and interior and exterior finishing of construction works. Specifically, the module introduces the nature of the process of using decorative and finishing products, the properties of the input materials, the manufacturing technology process, the technical properties, the method of use and way of assessing the quality of decorative materials and finishes of a building.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes (CLO)	Knowledge	Skills	Attitude	Performance indicators (PLOs)
1	Presenting physical and mechanical properties, technical requirements and scope of use as well as production principles, origin, and the role of each material for each type of decorative and finishing materials.	a2. Understand			1.3.6
2	Analysis and selection of materials suitable for the purpose of using the project.	a4. Analysis	b2. Application	c4. Organization	1.3.6 8.2.1
3	Evaluation of the quality of decorative and finishing products	a4. Analysis	b2. Application		
4	Organize the content presented, have presentation skills, self-study, synthesize and work in groups through exercises and thematic reports.			c4. Organization	3.1.1 4.1.1

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU		T	T				T
CLO 1	X							
CLO 2	X							X
CLO 3			X	X				
CLO 4	TU		T	T				T

12. Student tasks

Students must perform the following tasks:

- Attend at least 80% of the lessons of the part class.
- Participating in group work activities according to the regulations of the class.
- Self-study the problems assigned by the lecturer to do outside of class time.
- Complete all course assessments.

13. Course assessments

Type of assessment	Performance assessment	Assessment methods	Rubric	Review percentage (%)	Weighting percentage (%)	Course learning outcomes (CLOs)
A1. Ongoing assessment	A1.1 Diligence	P1.1. Attendance	R1.1	50	20	
	A1.2 Short Exercises	P1.2. Exercise	R1.2	50		CLO 1, 2,
A2. Mid-term Assessment	A2. Mid-term examination	P2. Essay	R2.	100	20	CLO 1,2,3
A3. Final Assessment	A3. Final examination	P3. Essay	R3.	100	60	CLO 1,2,3,4

14. Materials

14.1. Books, lectures, main textbooks

1] Technology of insulation materials, "Nguyen Nhu Quy", Construction Publisher, 2002

[2] Technology of thermal insulation mineral materials - Nguyen Van Phieu, Nguyen Van Chanh, Construction Publisher, 2005

[3] Bazant, Z.P., Kaplan, M.F. (1996). Concrete at high temperatures: Material properties and mathematical models. London: Longman.

14.2. Reference materials

[1] Construction materials and products - Phung Van Lu - Construction Publisher, 2002.

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Tien Dung, M.Sc.**

55. Contruction economics

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Kinh tế xây dựng
English name: Contruction economics

1. Course Code:	
2. Course symbols:	Contruction economics
3. Credits: **ECTS credits (*):**	02 Credits (30 Periods) 2,83
4. Study workload:	
- Lecture:	30 Periods
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	60 Periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials Division/ Faculty of Road and Bridge Engineering
- Course coordinator:	Th.S Nguyễn Quang Trung
- Other lecturers:	Th.S Nguyễn Quang Trung, Th.S Trương Quỳnh Châu, Th.S Trương Ngọc Sơn;Th.S Huỳnh Thị Minh Trúc, Th.S Phạm Thị Trang
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	None
- Recommended prerequisite:	Construction Materials
- Corequisite:	None
7. Type course:	☐ Compulsory ☒ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☒ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☐ Project/ Internship/ Graduate thesis

9. Course description

The Construction Economics module aims to provide students of construction majors with basic knowledge about the contents of the Construction Law and economic issues in project management and construction activities. Students will learn about investment activities and construction investment projects, the process of implementing a project, methods of evaluating the financial effectiveness of a project, methods of product valuation. construction products, procurement and contract management in construction.

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Understand the basics of the contents of the Construction Law	a2.Understand			1.4.5
2	Ability to analyze basic economic knowledge into specialized economic - technical issues;		Analysis		1.3.8;8.3.4
3	Ability to apply knowledge of norms, valuation, construction economics to practice control of work volume;		b2.Application		1.3.8
4	Ability to effectively apply legal documents related to the Construction industry	a2.Understand			3.1.3

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU		T					T
CLO 1	X							
CLO 2	X							X
CLO 3	X							
CLO 4			X					

12.Student tasks

Students must do the following tasks:

- Attend at least 80% of the lessons of the course;
- Join group in work activities according to the regulations of the class;
- Self-study the problems assigned by the lecturer (outside of class time);
- Complete all course assessments.

13.Course assessments

The results of the course assessment are based on the assessment of the students' activities during the course of study, the mid-term exam and the final exam expressed through the assessment; the course output standards are assessed; criteria, standards and weights of the assessments.

Type of assessment	Performance assessment	Assessment methods	Rubric	Weighting percentage (%)	CLOs	Type of assessment
A1. Ongoing assessment	A1.1 Attendance	Attendance	Rubric R1.1	10%	30%	CLO 4
	A1.2 Short class exercises or answering questions from the teacher	Q&A – according to the curriculum content	Rubric R1.1	10%		CLO 1, 2, 4
	A1.3 Individual/group homework	According to the answer and grading scale	Rubric R1.2, R1.3	10%		CLO 2, 3,
A2. Mid-term Assessment	A2.1 Midterm exam	Essay	According to the answer and grading scale	20%	20%	CLO 1, 2, 4
A3. Final Assessment	A3.1 Final exam	Essay	According to the answer and grading scale	50%	50%	CLO 1, 3, 4

14. Study materials:

14.1. Books, lectures, main textbooks:

[1] Pham Anh Duc, Textbook of Construction Economics, Construction Publishing House, Hanoi, 2019.

14.2 Books and references:

[1] Bui Manh Hung, Construction investment project manager, Science and Technology Publishing House, Hanoi, 2006.

[2] Danny Myers, Construction Economics, Routledge, England, 2004

15. Scientific code of ethics:

- Students must respect their lecturers and other students.
- Students must comply with the university's academic integrity.
- Students must strictly follow the rules and regulations of the university.

16. Approval date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Assoc. Prof. Le Thi Kim Oanh**

56. Graduation Internship

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Thực tập Tốt nghiệp
English name: Graduation Internship

1. Course Code:	1091270
2. Course abbreviation:	Graduation Internship
3. Credits: **ECTS credits (*):**	02 credits (120 Periods) 3,33
4. Study workload:	
- Lecture:	
- Exercise:	
- Practice/ Laboratory:	120 periods
- Self-study/Assignment:	
5. Responsible persons:	
- Faculty/Division in charge:	Construction materials division/ Faculty of Road and Bridge Engineering
- Course coordinator:	Staff of Construction materials division
- Other lecturers:	Supervisors from organizations
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	
- Recommended prerequisite:	Worker Pratice, Construction materials fieldtrip
- Corequisite:	
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☒ Project/ Internship/ Graduate thesis

9. Course description

The course offers students opportunities to be familiar with the jobs of a bachelor in Construction Materials Engineering and Technology in areas such as binder manufacturing technology, concrete structure production, building ceramic technology, Construction, Design; materials Research. The students can collect documents and data for graduation projects. Students can apply the knowledge to be able to solve problems in real production, know how to handle situations that occur in the field and factory.

10. Course Learning Outcomes

After completing the course, students will be able to

N^O	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators (belongs to PLOs)
1	Present the production technology diagram of a factory producing building materials and concrete structures	a2.Understand			8.2.2
2	Develop communication skills		b5. Techniq ue		5.2.1
3	Compare between theory in class and actual production	a4. Analyze			8.1.1
4	Apply the theory to each stage in the production and operation of the factory	a3. Apply			8.4.5
5	Use foreign languages, softwares, tools and machines to serve the production process of building materials		b2. Manipu late		1.4.9;6.1.1;7.2.1
6	Analyze the actual situation to propose solutions to improve production technology	a4. Analyze			3.1.3
7	Determine the position and roles of a bachelor for a project or in the manufacturing plant		b3. Accurat e		4.1.1
8	Develop teamwork skills		b5.Tech nique		5.1.5
9	Collect data for professional work			c4. Organize	2.2.2

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs) :

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	U	U	T	T	U	U	U	TU
CLO 1								x
CLO 2					x			
CLO 3								x
CLO 4								x
CLO 5	x					x	x	

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	U	U	T	T	U	U	U	TU
CLO 6			x					
CLO 7				x				
CLO 8					x			
CLO 9		x						

12. Student tasks

- Absolutely comply with the working rules of the unit where the students practice.
- Daily practice diary.
- Practice report written on A4 paper in groups including the decision, the internship outline and the assessment of the head of the organization/units where the students practice.

13. Course assessments

13.1. General assessment

Assessment Component	Performance assessment	Course learning outcomes (CLOs)	Assessment Methods	Criteria	Weight (%)
A1. Assessment from organization	A1.1 Written report	CLO1, 2, 3, 5, 6	PPĐG 7	Rubric 6	30%
	A1.2 Teamworks	CLO4	PPĐG 9	Rubric 7	20%
A2. Assessment from lecturers	A2.1 Written report	CLO1,2,3,4,5,6,7	PPĐG 3	Rubric 4	20%
	A2.2 Oral defense	CLO1,2,3,5, 6, 7	PPĐG 6	Rubric 5	30%

13.2. Progress Assessment from the organizations based on student's practice progress and written report

A1.1 – Rubric 6 – Written Report

Assessment Criteria	Levels of achievement					Weight (%)
	Level F (0-3.9)	Level D (4.0-5.4)	Level C (5.5-6.9)	Level B (7.0-8.4)	Level A (8.5-10)	
Contents	No content of the irrelevant content	The report is fully represented as requirement. Still, the calculation is wrong or not specific as the requirement	The report is fully represented as requirement. Still, the calculation is not reasonable.	The report is fully represented as requirement. The calculation is correct and exact. Still there is not specific and reasonable explanation for the results	An exemplary report with complete, accurate and relevant content. Discussion and recommendations are outstanding, creative and realistic.	**60%**
Organization,	A poorly edited report with	Report format lacks	The order of the report follows the	Format and contents flow	A well-organized report	**20%**

Assessment Criteria	Levels of achievement					Weight (%)
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
format, language	grammatical and spelling errors.	consistency. Weak command of the language	requirement. There are several mistakes in grammar and spelling. There is not adequate note	smoothly building on one idea to another. Uses language and conventions appropriate for report writing.	that displays an excellent command of the language. The overall appearance is neat and professional	
Images/Drawings	No images/drawing or irrelevant drawings	The quantity of images/drawings is adequate. The dimension and note are not clear. The images/drawings are lack of some important parts	The quantity of images/drawings is adequate. The dimension and note are clear. There are some mistakes in images/drawings	The quantity of images/drawings is adequate. The dimension and note are clear. There are no mistakes in images/drawings. The arrangement of the images/drawings is reasonable	Same as level B. Students can use the computer fluently as a drawing tool. The drawings can be used in practical cases.	**20%**

A1.2 – Rubric 7 - Peer Assessment

Criteria	Levels of achievement					Weight (%)
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Group organization	There is no teamwork	The responsibilities and tasks of the team members are not specifically assigned.	Each member has his or her own job duties but is unclear and does not fit the abilities of the team members.	Job assignments are clear and relevant to the abilities of each team member.	The task of each member is clear, specific, appropriate. Promote the strength of the team members. Interaction, good coordination between members.	**30%**
Diligence	< 30%	<50%	<70%	<90%	100% (Participate in full meetings, groups discussion)	**30%**

Criteria	Levels of achievement					Weight (%)
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Discussion	Never participate in group discussions.	Rarely participated in group discussions and comments.	Occasionally participate in group discussions and comments.	Have a good group discussion and good comments.	Always participate in group discussions and contribute good ideas for group activities.	**20%**
Group Co-ordination	Never coordinate, cooperate with groups.	Rarely collaborated, teamwork.	Collaborate, collaborate with the team. Occasionally respect and share experiences from other members of the group.	Collaborate, collaborate with the team. Respect and share experiences from other members of the group.	Collaborate with the team. Always respect and share experiences for other members of the group.	**20%**

13.3. **Lecturers' assessment based on written report and oral defense**

A2.1 Rubric 4: Oral Presentation

Criteria	Levels of achievement					Weight (%)
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Content of presentation	No content or content is inappropriate for the request.	Content matching requirements, images and explanations are not clear	Content meets requirements. Use simple and easy to understand terminology. The picture is clear and beautiful	Content meets requirements. Use simple and easy to understand terminology. Pictures are clear, and beautiful. Used video	Content meets requirements. Use simple and easy to understand terminology. Pictures are clear and beautiful. Use video and explain specific insights on video.	**50%**
Slide presentation	Slide presentation is too sketchy, not enough quantity as prescribed	Slides are presented in appropriate quantities, using the word and picture clearly	Slides are presented with a clear, layout (introduction, body and conclusion)	Slides are presented with clear, logical layout, consists of 3 parts, demonstratin	Slides are presented with clear, logical layout, consists of 3 parts. The term is	**25%**

				g proficiency in presentation.	simple to understand, demonstrating proficiency in presentation and language.	
Presentation	The presentation is not logical, beyond the specified time, uses of incorrect terminology, unclear pronunciation, low voice. Listeners do not understand.	The presentation is full, but the voice is low, pronouns some words unclear, uses complex terminology, do not contact with the listener when presented.	The presentation has a clear three-part layout. The voice is reasonable, clear, easy to listen, time is properly presented, sometimes interact with the listener. Listeners can understand and keep track of the content presented.	The presentation is brief, easy to understand, uses simple and easy-to-understand terms. Clear layout. The voice is clear and fluent. Time to present correctly. Good interaction with the listener. Listeners can understand the content.	The presentation is brief with clear layout. The voice is clear and fluent. Attract the attention of the listener, interact well with the listener. Listeners can understand and keep up with all the content presented. Time to present correctly.	**25%**

A2.2 – Rubric 5 - Oral Exam

Assessment Criteria	**Levels of achievement**					**Weight (%)**
	Level F (0-3.9)	**Level D (4.0-5.4)**	**Level C (5.5-6.9)**	**Level B (7.0-8.4)**	**Level A (8.5-10)**	
Answering Attitude	Communicating and answering attitude is rude, not cooperated, lack of respect in communication. Use inappropriate terms. Voice is hard to listen.	Attitude is quite polite. Use complex terms, confusing answers, hard to understand. Small voice, lack of confidence.	Communicative attitude is, gentle. The voice is clear, easy to hear. The term used in the answer is appropriated, easy to understand.	Attitude in the answer is confident, calm, gentle. Use simple terms, easy to understand. Clear voice fluently speak.	Attitude is very confident. Voice is clear, fluent and attractive, well interact with the listener.	**30%**

Answer questions	The answers are completely unrelated to questions.	Answers are not clear, almost unconnected, not focus on the question.	Answers focus on questions. The lack of confidence in the answers.	The answers are concise, clear, completed, relevant to the question asked. Attitude in answering is confident, calm, gentle, calm.	Answer shortly, clearly, completely, directly related to the question asked, explain convincedly. Attitude in answering is confident, calm, persuasive.	**70%**

14. Materials

14.1 Books, lectures, main textbooks

[1] Vu Dinh Dau, Bui Danh Dai, *Inorganic binder*, Construction publisher, Ha Noi, 2006
[2] Vu Minh Duc, *Technology of building ceramics*, Construction publisher, Ha Noi, 1999
[3] Nguyen Tan Quy, Nguyen Thien Rue, *Technology of concrete 1*, Construction publisher 2000

14.2 Reference materials

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date:

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Tien Dung, M.Sc.**

57. Graduation Project – Concrete

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology

Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Đồ án tốt nghiệp – Bê tông
English name: Graduation Project – Concrete

1. Course code:	1092880
2. Course abbreviation:	Graduation Project – Concrete
3. Credits: **ECTS credits (*):**	6 credits (180 periods) 10,0
4. Study workload:	
- Lecture:	
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	180 periods
5. Responsible persons:	
- Faculty/Division in charge:	Lecturer staff of Construction materials division
- Course coordinator:	
- Other lecturers:	Construction materials division/ Faculty of Road and Bridge Engineering
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	PBL5. Technology of concrete 1
- Recommended prerequisite:	All courses
- Corequisite:	
7. Type course:	☐ Compulsory ☒ Compulsive Electives ☐ Electives
8. Knowledge clusters:	☐ Maths & Natural Sciences ☐ General Knowledge ☐ Engineering Fundermentals ☐Professional Engineering ☐ Supporting ☒ Projects, Internships, & Thesis

9. Course description

The graduation project in concrete is a compulsory elective course of undergraduate program of Construction Materials Engineering and Technology . Its contents belong to the specialized knowledge module or the professional Engineering module, including cement (binder), construction ceramics, and concrete. The course provides students with skills in the inspection and evaluation in properties of raw materials and concrete products; the skills in designing the engineering technology of a concrete factory or researching and fabricating concrete products used in the construction industry.

10. Course Learning Outcomes

After completing the course, students will be able to

NO	Course Learning Outcomes(CLO)	Knowledge	Skills	Attitude	Performance indicators PLO
1	Selecting the product aims to implement the design (Basic properties of the products and consumption ability; Choosing the types of raw materials, origin, and technical requirements of manufacturing materials).	a.4.Analyze	b.4.Fluent	c.3. Attitude	1.4.9; 3.1.2; 3.1.3; 3.2.1; 8.1.1
2	Evaluating technical factors of raw materials. Carrying out experiments to design and mix concrete types according to the product's aims.	a.5.Evaluate	b.3.Accurate	c.4. Organize	1.4.9;2.1.1; 2.1.2; 2.2.4; 4.1.1;5.1.2; 7.1.4;
3	Analyzing and selecting construction sites, Production planning; Selecting the of technology line diagram and calculating material balance.	a.4.Analyze	b.4. Fluent	c.3. Attitude	1.4.9; 3.1.2; 4.1.1; 8.1.1;
4	Designing the concrete production s: calculating and selecting machinery and equipment; quality control process; architectural design; calculating economic efficiency of investment.	a.3. Apply	b.4. Fluent	c.3. Attitude	1.4.9; 3.1.2;4.1.1; 8.2.4.
5	Report presentation (reports, drawings, slides).		b.4. Fluent	c.1. Reception	5.2.6; 7.1.4; 7.1.5; 7.2.1
6	Oral presentation and defense.			c.3. Attitude	3.1.1

11. The relationship between course learning outcomes(CLOs) and program learning outcomes (PLOs)

PLO	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course	TU	U	TU	TU	U	U	U	TU
CLO 1	x		x					x
CLO 2	x	x		x	x		x	

CLO 3	x		x	x				x
CLO 4	x		x	x				x
CLO5					x		x	
CLO6			x					

12. Student tasks

Students must do the following tasks:

- Attend not less than 80% of the instruction periods in class following the course regulations;
- Do and submit individual/group assignments following the course regulations.
- Self-study the problems assigned by the lecturer;
- Group discussion on the topic assigned by the lecturer;
- Attend the final exam following the time prescribed by the university.

13. Course assessments

Graduation project evaluation follows the current university regulations.

14. Materials

14.1. Books, lectures, main textbooks

[1]. Instructions for Graduation Project- Concrete – Construction Materials Division, Danang University of Science and Technology (internal circulation)

[2]. Technical instructions for choosing concrete components of all types – Ministry of Construction – Construction publisher, 2000.

[3]. Nguyen Tan Quy, Nguyen Thien Rue, Technology of concrete 1, Construction publisher, 2000

14.2. Reference materials

[1] Cement concrete – TCVN standards

[2] Nguyen Tan Quy, Nguyen Thien Rue, Technology of concrete 2, Construction publisher, 2000

15. Scientific code of ethics:

- Students must respect a lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the university.

16. Approved date: / /2021

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, Ph.D.	**Vo Duy Hung, Ph.D.**	**Le Xuan Chuong, M.Sc.**

58. Graduation Project – Binders

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS

Course name (Vietnamese): Đồ án tốt nghiệp – Chất kết dính
English name: Graduation Project – Binders

1. Course code:	
2. Course abbreviation:	Graduation Project – Binders
3. Credits: **ECTS credits (*):**	06 credits (180 periods) 10,0
4. Study workload:	
- Lecture:	
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	180 periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction Materials Division/Faculty of Road and Bridge Engineering
- Course coordinator:	Lecturers of Construction Materials Division
- Other lecturers:	Construction Materials Division
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	PBL3 - Production Technique for Inorganic Binders 1
- Recommended prerequisite:	All courses included in the Training Program
- Corequisite:	
7. Type course:	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☒ Project/ Internship/ Graduate thesis

9. Course description

The Graduation Project for the Undergraduate/Bachelor level of the Construction Materials Engineering and Technology major is a compulsory electives course included in the Professional Engineering Knowledge module. This course synthesizes the knowledge of fundamental engineering subjects and professional engineering subjects. The course content shows the volume of either engineering design projects of manufacturing workshops or plants, research and manufacture of construction materials; or testing of raw materials and products properties. After completing the course, students are equipped to create a technical design of a workshop or a plant for construction material production, or research and manufacture different construction material products.
Students can choose 01 of 03 graduation projects:

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No.	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators PI (belongs to PLOs)
1	**Establish** production targets: 02 products (types, physico-mechanical properties, technical requirements, scope of use, domestic & global production and consumption)	a.4. Analyze	b.4. Competency	c.3. Attitude	1.3.4; 2.1.1; 2.1.2; 3.1.2; 3.1.3; 8.1.1
2	**Analyze** & **select** construction sites; raw material sources; production methods	a.3. Manipulate	b.4. Competency	c.3. Attitude	3.1.2; 4.1.1; 1.4.3
3	Conduct **empirical experiments** on batch mixing by using 2÷3 types of admixtures with different ratios to manufacture products in accordance with the set targets	a.6. Create	b.3. Accuracy	c.4. Organize	1.3.4; 2.1.1; 2.1.2; 4.1.1; 5.1.2
4	Create a **technical design** of production workshop/plant: establish production line; calculate mass balance; calculate & select equipment; calculate economy.	a.3. Manipulate	b.4. Competency	c.3. Attitude	1.4.9; 3.1.2; 4.1.1.; 5.1.2; 8.2.4.
5	**Present** reports (project description, drawings, slides)		b.4. Competency	c.1. Receive	5.2.6; 7.1.5
	Present & **defense** project			c.3. Attitude	3.1.1

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs)

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course (6)	TU	U	TU	TU	U	U	U	TU
CLO 1	x	x	x	x				x
CLO 2	x		x	x				
CLO 3	x	x		x	x			
CLO 4	x		x	x	x			x
CLO 5					x		x	
CLO 6			x					

12. Student tasks

Students must perform the following tasks:

- Attend no less than 80% of the project guide sessions according to the regulations of the course;
- Complete and submit individual/ group assignments according to the regulations of the course;
- Self-study the problems assigned by the lecturer to solve at home or in the library;
- Participate in group discussions on topics assigned by the lecturer;
- Attend the final exam according to the date & time regulated by the University.

13. Course assessments

According to the current graduation project evaluation criteria of the University

14. Learning Materials:

14.1. Books, lectures, main textbooks:

[1] Huynh Phuong Nam, Nguyen Thi Tuyet An, Do Thi Phuong, *Construction Materials*, Construction Publishing House, Hanoi, 2016.

[2] Construction Materials Division, *Construction Materials Laboratory Manual* (for internal use only)

14.2. Reference materials:

[1] Phung Van Lu, Pham Duy Huu, Phan Khac Tri, *Construction Materials*, Vietnam Education Publishing House, Hanoi, 2001.

[2] Pham Duy Huu, Ngo Xuan Quang, *Construction Materials*, Transport Publishing House, Hanoi, 2004.

[3] Ministry of Construction, *Technical Manual for Concrete Composition Selection*, Construction Publishing House, Hanoi, 2000.

[4] TCVN, Construction Materials Standards

15. Scientific code of ethics:

- Students are not allowed to copy each other's assignments verbatim.
- Students must not use reference materials in mid-term exams.
- Students must not use audio-visual equipment in the examination room.

16. Approved date: / /2022

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Nguyen Thi Tuyet An, M.Sc.**

59. Graduation Project – Ceramics

THE UNIVERSITY OF DANANG
UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Road and Bridge Engineering

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

Awarded degree: Undergraduate/Bachelor

Name of the study program: Construction Materials Engineering and Technology Program Code: 7510105

SYLLABUS
Course name (Vietnamese): Đồ án tốt nghiệp - Gốm XD
English name: Graduation Project – Ceramics

1. Course code:	
2. Course abbreviation:	Graduation Project – Ceramics
3. Credits: **ECTS credits (*):**	06 credits (180 periods) 10,0
4. Study workload:	
- Lecture:	
- Exercise:	
- Practice/ Laboratory:	
- Self-study/Assignment:	180 periods
5. Responsible persons:	
- Faculty/Division in charge:	Construction Materials Division/Faculty of Road and Bridge Engineering
- Course coordinator:	Lecturers of Construction Materials Division
- Other lecturers:	Construction Materials Division
6. Required and recommended prerequisites for joining the course:	
- Required prerequisite:	PBL4 - Technology of Construction Ceramics 1
- Recommended prerequisite:	All courses included in the Training Program
- Parallel courses	
7. Type course	☒ Compulsory ☐ Selected elective ☐ Free elective
8. Knowledge clusters:	☐ Math and natural science ☐ General knowledge ☐ Core engineering fundamental knowledge ☐ Disciplinary knowledge ☐ Supportive knowledge ☒ Project/ Internship/ Graduate thesis

9. Course description

The Graduation Project for the Undergraduate/Bachelor level of the Construction Materials Engineering and Technology major is a compulsory electives course included in the Professional Engineering Knowledge module. This course synthesizes the knowledge of fundamental engineering subjects and professional engineering subjects. The course content shows the volume of either engineering design projects of manufacturing workshops or plants, research and manufacture of construction materials; or testing of raw materials and products properties. After completing the course, students are equipped to create a technical design of a workshop or a plant for construction material production, or research and manufacture different construction material products.
Students can choose 01 of 03 graduation projects:

10. Course Learning Outcomes (CLOs)

After completing the course, students will be able to:

No.	Course Learning Outcomes (CLOs)	Knowledge	Skills	Attitude	Performance indicators PI (belongs to PLOs)
1	**Establish** production targets: 02 products (types, physico-mechanical properties, technical requirements, scope of use, domestic & global production and consumption)	a.4. Analyze	b.4. Competency	c.3. Attitude	1.4.9. 6.1.1 8.1.1
2	**Analyze** & **select** construction sites; raw material sources; production methods	a.3. Manipulate	b.4. Competency	c.3. Attitude	2.2..1 3.1.1 7.2.1
3	**Conduct** batch mixing in accordance with the set targets	a.6. Create	b.3. Accuracy	c.4. Organize	1.4.9. 2.1.1 3.2.1 7.2.1
4	Create a **technical design** of production workshop/plant: establish production line; calculate mass balance; calculate & select equipment; calculate economy.	a.3. Manipulate	b.4. Competency	c.3. Attitude	7.2.1 8.2.1
5	**Present** reports (project description, drawings, slides)		b.4. Competency	c.1. Receive	3.2.1.; 4.1.1.; 5.1.1.; 5.2.1; 6.1.1.; 7.1.1; 8.3.1
	Present & **defense** project			c.3. Attitude	3.2.1.; 4.1.1; 5.1.1; 5.2.1; 6.1.1; 7.1.1; 8.3.1

11. The relationship between course learning outcomes (CLOs) and program learning outcomes (PLOs)

PLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
Contribution of the course (6)	TU	U	TU	TU	U	U	U	TU
CLO 1	X					X		X
CLO 2		X	X				X	

CLO 3	X	X	X				X	
CLO 4							X	X
CLO 5			X	X	X	X	X	X
CLO 6			X	X	X	X	X	X

12. Student tasks

Students must perform the following tasks:

- Attend no less than 80% of the project guide sessions according to the regulations of the course;
- Complete and submit individual/ group assignments according to the regulations of the course;
- Self-study the problems assigned by the lecturer to solve at home or in the library;
- Participate in group discussions on topics assigned by the lecturer;
- Attend the final exam according to the date & time regulated by the University.

13. Course assessments

According to the current graduation project evaluation criteria of the University

14. Learning Materials:

14.1. Books, lectures, main textbooks:

[1] Construction Materials Technlogy Division – University of Construction, *Graduation Project Design Guide for Calcined Materials Technology* 1985.

[2] Vu Minh Duc, *Construction Ceramics Technology*, Construction Publishing House, 1999.

14.2. Reference materials:

[1] Doan Tai Ngo, Nguyen Thieu Xuan, Tran Van Tuan, Nguyen Thi Thanh Mai, Nguyen Kiem Anh, *Equipment in Construction Materials & Components Production*, Construction Publishing House, 2000

[2] Nguyen Kim Huan, Bach Dinh Thien, *Thermal Equipment in Construction Material Production*, Science and Technics Publishing House, Hanoi, 1996.

[3] Truong Hoai Chinh, *Industrial Workshop Design Basis*, Danang Plishing House, 2013.

[4] Do Thi Phuong, Vu Hoang Tri, *Construction Ceramics Laboratory Manual* (for internal use only), 2021.

[5] Vietnamese Standards (TCVN)

15. Scientific code of ethics::

- Students must respect the lecturer and other students.
- Students must comply with the University's academic integrity policy.
- Students must obey the rules and regulations of the University.

16. Approved date: xx/xxx/2022

17. Approved by:

Dean of Faculty	Program chair	Lecturer in charge
Cao Van Lam, PhD.	**Vo Duy Hung, PhD.**	**Do Thi Phuong, M.Sc.**