MINISTRY OF EDUCATION AND TRAINING

TAY DO UNIVERSITY

SOCIALIST REPUBLIC OF VIETNAM

Independence - Freedom - Happiness

TRAINING PROGRAM OF CONSTRUCTION ENGINEERING TECHNOLOGY

(Issued together with Decision No: 469/QD-ĐHTĐ August 20, 2021 by Rector of Tay Do University)

A. GENERAL INFORMATION

1. Name of training program (English name):	**Construction Engineering Technology**
2. Degree:	**University degree**
3. Training industry	**Construction Engineering Technology**
4. Training codes:	**7510102**
5. Training time:	**4 years**
6. Type of training:	**Formal and focused.**
7. Required credits:	**150**
8. Scale	**4 years (12 semesters; 3 semesters/year)**

B. GENERAL INFORMATION

I. Training Objectives

1. General objectives

The program aims to train construction engineers with professional capacity, political qualities, ethics, and good health, meeting the country's need for highly qualified technical workers.

2. Specific objectives

2.1 *Knowledge*

G1. Systematically grasp the basic knowledge of political theory, mathematics, social knowledge, and the natural sciences to apply in studying and researching the field of construction.

G2. Good use of foreign languages and information technology software in the construction industry.

G3. Equipping students with basic knowledge about: Mechanics and material strength, construction materials, design of steel structures, design of reinforced concrete structures, and some other basic knowledge.

G4. Equipping students with in-depth knowledge of specialized fields such as architectural design of civil and industrial works, foundation design of civil and industrial works, structural design of civil and industrial works, design and construction of civil and industrial works, construction organization and supervision of civil and industrial works, labor safety, and environmental sanitation during construction.

2.2. Skill

G5. Ability to apply mathematical, scientific, and engineering knowledge to problems in the fields of civil and industrial construction. Ability to design and conduct experiments, analyze, and interpret data in the civil and industrial construction sectors. Ability to design, supervise, and organize the construction of a structural part or a project in the field of civil and industrial construction to meet desired needs with practical constraints such as economics, environmental, social, political, ethical, health and safety, and sustainability.

G6. Use foreign languages well at level 3/6 of Vietnam's foreign language competency framework (foreign language equivalent to TOEIC level ≥ 450 points). Effective English skills in searching for English documents online. Effectively use specialized software in project design work.

2.3. Degree of autonomy and self-responsibility

G7. Respect the law, properly and fully comply with obligations, regulations and professional ethics. Have high responsibility in work as well as in life, agile and steady professional style, serious service attitude; Respect and sincerely cooperate with colleagues, preserve and promote good traditions of the industry.

G8. Ability to update knowledge quickly and be creative at work. Humble, honest, objective, progressive, with a spirit of scientific research and a sense of lifelong learning and career development.

II. Learning outcomes:

1. Knowledge

1.1 General knowledge

LO1. Systematically grasp basic knowledge of political theory, mathematics, social knowledge, and natural sciences to apply in study, research, and the field of construction.

LO2. Good use of foreign languages and information technology software in the Construction industry.

1.2 Professional knowledge

LO3. Equipping students with basic knowledge about: Mechanics and material strength, construction materials, design of steel structures, design of reinforced concrete structures, and some other basic knowledge.

LO4. Equipping students with in-depth knowledge of specialized fields such as: Architectural design of civil and industrial works, foundation design of civil and industrial works, structural design of civil and industrial works , design and construction of civil and industrial works, construction organization and supervision of civil and industrial works, labor safety and environmental sanitation during construction.

LO5. Understand and apply legal documents on construction related to specialized fields of activity.

2. Skill

2.1. Job skill

LO6. Ability to apply mathematical, scientific, and engineering knowledge to problems in the fields of civil and industrial construction.

LO7. Ability to design and conduct experiments, analyze and interpret data in the civil and industrial construction sector. Ability to design, supervise and organize the construction of a structural part or a project in the field of civil and industrial construction to meet desired needs with practical constraints such as economics, environmental, social, political, ethical, health and safety, and sustainable.

LO8. Ability to design, supervise and organize the construction of a structural part or a project in the field of civil and industrial construction to meet desired needs with practical constraints such as economics, environmental, social, political, ethical, health and safety, and sustainable.

LO9. Ability to function effectively in groups to accomplish a common purpose.

LO10. Ability to identify, express and solve technical problems in the field of civil and industrial construction.

2.2 Soft skills

LO11. Effectively apply soft skills (communication, teamwork, writing - reading and presenting, presentations, etc.) into real work.

LO12. Be good at using foreign languages level 3/6 of Vietnam's foreign language competency framework (foreign language equivalent to TOEIC level ≥ 450 points) and information technology equivalent to the standard level of advanced information technology skills.

2.3 Capacity for autonomy and responsibility

LO13. Respect the law, properly and fully comply with obligations, regulations and professional ethics.

LO14. Have high responsibility in work as well as in life, agile and steady professional style, serious service attitude; Respect and sincerely cooperate with colleagues, preserve and promote good traditions of the industry.

LO15. Ability to update knowledge quickly and be creative at work.

LO16. Humble, honest, objective, progressive, with a spirit of scientific research and a sense of lifelong learning and career development.

2.4 Career orientation and job position of students after graduation

With the skills and qualifications acquired, strong political will, good health, and in-depth knowledge of Construction Engineering. Engineers can successfully complete the following tasks:

- Work as a technical officer, designer, supervisor and construction director at construction, civil, industrial and related companies and enterprises**;**

- Work as a consultant, researcher and designer at design consulting companies, scientific and technological research institutes for civil and industrial construction and related projects;

- Work as a teaching, training, scientific research and management officer at universities, colleges and vocational training schools, with the ability to study at the postgraduate level to expand and improve knowledge in the field Construction and related engineering technology;

- Do management work at State management agencies in the fields of civil and industrial construction and related works.

2.5 Ability to study and improve qualifications after graduation

- Able to self-study and improve knowledge and professional skills; Maintain and improve soft skills.

- Ability to study another university degree or continue studying at master's or doctoral level at universities according to regulations of the Ministry of Education and Training.

III. The content of studying program (name and credit for each subject): 150 credits

Total Study Volume		Number of Credits		
		Total	Theory	Practice
1	General knowledges	39	32	7
2	Professional knowledges	95	75	20
3	- Graduation thesis (or do the minor graduated thesis and study 02 alternative subjects)	16		16
	Total:	150	107	43

1. General Knowledge: 39 credits

No.	Code	Subject name	Number of Credits		
			Total	Theory	Practice
1.	0301001769	Marxist-Leninist philosophy	3	3	
2.	0301001825	Marxist-Leninist political economy	2	2	
3.	0301001826	Science socialism	2	2	
4.	0301001827	History of the Communist Party of Vietnam	2	2	
5.	0301000665	Ho Chi Minh Thought	2	2	
6.	0301000667	General law	2	2	
7.	0301000946	Toeic-oriented English	4	4	
8.	0301000947	Toeic 2 oriented English	4	4	
9.	0301000679	basic information technology	3		3
10.	0301000670	Calculus A1	3	3	

11.	0301000671	Calculus A2	3	3	
12.	0301000672	Linear Algebra and Geometry	3	3	
13.	0301000673	Basic informatics	3		3
14.	0301000695	General thermomechanics A	2	2	
15.	0301000696	Practice general thermomechanics A	1		1
16.	0301001035	Physical Education 1 - Volleyball*	1		1
17.	0301001036	Physical Education 1 - Football*			
18.	0301001037	Physical Education 1 - Badminton*			
19.	0301000660	Physical Education 2 - Volleyball*	1		1
20.	0301001038	Physical Education 2 - Football*			
21.	0301001039	Physical Education 2 - Badminton*			
22.	0301001030	Physical Education 3 - Volleyball*	1		1
23.	0301000661	Physical Education 3 - Football*			
24.	0301000662	Physical Education 3 - Badminton*			
25.	0301000650	Defense Education*	8	5	3
TỔNG CỘNG			**39+11**	**32+8**	**7+3**

2. Professional knowledges: 95 credits

2.1 Basic industry knowledge

No.	Subject code	Subject name	Number of Credits		
			Total	**Theory**	**Practice**
1	0301000058	Classical Mechanic	3	3	
2	0301000477	Strength of Materials	4	4	
3	0301000580	Survey land General	2	2	
4	0301000519	Practice of Survey land General	1		1
5	0301000629	Construction Materials	2	2	
6	0301000521	Practice of Construction Materials	1		1
7	0301000172	Descriptive geometry and engineering drawing	3	3	
8	0301000057	Structural Mechanics	4	4	

9	0301000056	Soil Mechanics	3	3	
10	0301000512	Practice of Soil Mechanics	1		1
11	0301000093	Engineering Geology	3	3	
12	0301000513	Practice of Engineering Geology	1	1	1
13	0301000224	Architectural of Building	2	2	
14	0301000116	Term paper of Architecture	1		1
15	0301001085	Basic Hydraulics	3	3	
TỔNG CỘNG			**34**	**30**	**5**

2.2 Specialized knowledge

No.	Subject code	Subject name	Number of Credits		
			Total	Theory	Practice
1	0301000023	Water Supply and Drainage	2	2	
2	0301002376	Steel- Wood Structures	3	3	
3	0301002377	Reinforce Concrete Structures 1	4	4	
4	0301000202	Reinforce Concrete Structures 2	3	3	
5	0301000114	Term paper of Concrete Structures	1		1
6	0301001327	Foundation Engineering	3	3	
7	0301000117	Term paper of Foundation	1		1
8	0301000205	Steel building structures	3	3	
9	0301000115	Project of steel structures	1		1
10	0301000267	Construction Methods	3	3	
11	0301000569	Organization of Construction	3	3	
12	0301000118	Term paper of construction	1		1
13	0301000316	Building Equipment	2	2	
14	0301002379	Seminar on Full-Scale Construction Experiment and Verification	2	1	1
15	0301002380	Practical topics - XD	2		2
16	0301000046	Thematic cement concrete technology	1		1
17	0301000200	Concrete Structures 3	3	3	
18	0301000435	Construction Project Management	3	3	
19	0301001330	High-rise Building Structures	3	3	
20	0301002385	Engineer practice	6		6
21	0301002387	Type 1: Graduation Thesis - XD	10		10

22		Type 2:			
23	0301002386	- Graduation Project - XD	6		6
24	0301000295	- Graduation course 1: Construction Law	2	2	
25	0301000203	- Graduation course 2: Masonry Structures.	2	2	
26	0301000232	- Graduation course 3: Construction Economics.	2	2	
27	0301002381	- Graduation course 4: Prestressed Concrete Structures.	2	2	
TỔNG CỘNG			**57**	**31**	**25**

2.3 Additional, optional, in-depth knowledge of the field of study

STT	**Subject code**	**Subject name**	**Number of Credits**		
			Total	**Theory**	**Practice**
1.	0301000538	Engineering Hydrology	2	2	
2.	0301000420	Methodology of Scientific Research and Report Writing - XD	2	2	
3.	0301000257	Electrical engineering	2	2	
4.	0301000369	Principals of Planning	2	2	
5.	0301002382	Engineering - applied informatics 1	2		2
6.	0301002383	Engineering - applied informatics 2	2		2
7.	0301000462	Urban Planning	2	2	
8.	0301000077	Foundation Engineering on soft soils	3	3	
9.	0301000076	Hydraulic Structures	3	3	
10.	0301000543	English for Civil Engineering	3	3	
11.	0301002384	Traffic Structure	3	3	
TOTAL:			**20**	**16**	**4**

IV. TEACHING PLAN: (expected)

Semester: 1

No.	**Subject name**	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1	Physical Education 1 - Volleyball*	1		1	15		30
2	Physical Education 1 - Football*						

3	Physical Education 1 - Badminton**						
4	Basic informatics	3		3	45		90
5	Calculus A1	3	3		45	45	
6	General thermomechanics A	2	2		30	30	
7	Practice general thermomechanics A	1		1	15		30
8	Linear Algebra and Geometry	3	3		45	45	
9	General law	2	2		30	30	
	Total:	**14+1**	**10**	**4+1**	**225**	**150**	**150**

Semester: 2

No.	**Subject name**	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1.	Physical Education 2 - Volleyball*	1		1	15		30
2.	Physical Education 2 - Football*	1					
3.	Physical Education 2 - Badminton*	1					
4.	Marxist-Leninist philosophy	3	3		45	45	
5.	Toeic 1 oriented English	4	4		60	60	
6.	Calculus A2	3	3		45	45	
7.	Probability statistics	3	3		45	45	
	Total:	**14**	**13**	**1**	**210**	**195**	**30**

Semester: 3

No.	**Subject name**	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1.	Marxist-Leninist political economy	2	2		30	30	
2.	Toeic 2 oriented English	4	4		60	60	
3.	Defense Education*	8	8		120	120	
	Total:	**6+8**	**6+8**		**210**	**210**	

Semester: 4

No.	Subject name	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1.	Science socialism	2	2		30	30	
2.	Physical Education 3 - Volleyball*	1		1	15		30
3.	Physical Education 3 - Football*	1					
4.	Physical Education 3 - Badminton*	1					
5.	Classical Mechanic	3	3		45	45	
6.	Descriptive geometry and engineering drawing	3	3		45	30	30
7.	Basic Hydraulics	3	3		45	45	
8.	Construction Materials	2	2		30	30	
9.	Practice of Construction Materials	1	1		15		30
	Total:	**14+ 1**	**14**	**1**	**225**	**180**	**90**

Semester: 5

No.	Subject name	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1.	History of the Communist Party of Vietnam	2	2		30	30	
2.	Strength of Materials	4	4		60	60	
3.	Engineering Hydrology	2	4		60	60	
4.	Methodology of Scientific Research and Report Writing - XD	2					
5.	Electrical engineering	2					
6.	Principals of Planning	2					
7.	Engineering - applied informatics 1	2		4	60		120
8.	Engineering - applied informatics 2	2					
9.	Urban Planning	2					
	Total:	**14**	**10**	**4**	**210**	**150**	**120**

Semester: 6

No.	Subject name	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1.	Ho Chi Minh Thought	2	2		30	30	
2.	Structural Mechanics	4	4		60	60	
3.	Survey land General	2	2		30	30	
4.	Practice of Survey land General	1		1	15		30
5.	Architectural of Building	2	2		30	30	
6.	Project of Architecture	1		1	15		30
	Total:	**12**	**10**	**2**	**180**	**150**	**60**

Semester: 7

No.	Subject name	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1.	Engineering Geology	3	3		45	45	
2.	Practice of Engineering Geology	1		1	15		30
3.	Steel- Wood Structures	3	3		45	45	
4.	Reinforce Concrete Structures 1	4	4		60	60	
5.	Water Supply and Drainage	2	2		30	30	
	Total:	**13**	**12**	**1**	**195**	**180**	**30**

Semester: 8

No.	Subject name	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1.	Soil Mechanics	3	3		45	45	
2.	Practice of Soil Mechanics	1		1	15		30
3.	Building Equipment	2	2		30	30	
4.	Reinforce Concrete Structures 2	3	3		45	45	
5.	Term paper of Concrete Structures	1		1	15		30
6.	Steel building structures	3	3		45	45	
	Total:	**13**	**11**	**2**	**195**	**165**	**60**

Semester: 9

		Number of credits	Number of credits

No.	Subject name	Total	Theory	Practice	Total	Theory	Practice
1.	Project of steel structures	1		1	15		30
2.	Thematic cement concrete technology	1		1	15		30
3.	Foundation Engineering	3	3		45	45	
4.	Term paper of Foundation	1		1	15		30
5.	Construction Methods	3	3		45	45	
6.	Concrete Structures 3	3	3		45	30	30
	Total:	12	9	3	180	120	120

Semester: 10

No.	Subject name	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1.	Seminar on Full-Scale Construction Experiment and Verification	2	2		30		60
2.	Organization of Construction	3	3		45	45	
3.	Term paper of construction	1		1	15		30
4.	Practical topics - XD - XD	2		2	30		60
5.	Construction Project Management	3	3		45	30	30
6.	**Total:**	**11**	**8**	**3**	**165**	**75**	**180**

Semester: 11

No.	Subject name	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
1.	High-rise Building Structures	3	3		45	45	
2.	Foundation Engineering on soft soils	3	9		135	135	
3.	English for Civil Engineering	3					
4.	Hydraulic Structures	3					
5.	Traffic Structure	3					
	Total:	**12**	**12**		**180**	**180**	

Semester: 12

No.	Subject name	Number of credits			Number of credits		
		Total	Theory	Practice	Total	Theory	Practice
Group of students writing Graduation Thesis							
1.	Engineer practice	6		6	90		120
2.	Graduation Thesis - XD	10		10	150		300
	Total:	16		16	210		420
Group of students writing Graduation Project (additional elective courses)							
3.	Engineer practice	6		6	90		180
4.	Graduation Project	6		6	90		180
5.	Masonry Structures	2	4		60	60	
6.	Construction Law	2					
7.	Construction Economics	2					
8.	Prestressed Concrete Structures	2					
	Total:	**16**	**4**	**12**	**240**	**60**	**360**

V. PROGRAM IMPLEMENTATION GUIDELINES

1. How to convert time:

The conversion hours are calculated as follows:

1 credit (TC) = 15 theoretical lectures (Theoretical modules)

= 30 for internship and practice modules

= 60 interns graduated at the internship unit

The number of sections of each module is a multiple of 15.

One lecture period is 50 minutes.

2. The Construction Engineering Technology program is designed according to a single discipline:

This program is compiled in compliance with regulations issued by the Ministry of Education and Training. In addition to the required modules, the School has designed the remaining modules to suit the training major and output standards.

PRINCIPAL