Course Syllabus

1. **Course Title:** Introduction to Construction Engineering Technology
2. **Course Code:** ICET130117
3. **Credit Units:** 3 (2/1/6) (2 units of theory/ 1 unit of practice/ 6 units of self-study)
   Duration: 15 weeks (2 hours of theory+2 hours of practice, and 6 hours of self-study per week)
4. **Course Instructors**
   1/ Dr. Châu Đình Thành
   2/ Assoc. Prof. Dr. Nguyễn Trung Kiên
   3/ Dr. Phan Đức Hùng
5. **Course Requirements**
   Prerequisite courses: None
   Previous courses: None
   Parallel courses: None
6. **Course Description**
   This course introduces the programme of construction engineering technology (CET), including ELOs, specification, structure, and content. The course also provides an exciting introduction of the civil engineering profession, including professional and ethical responsibilities, and equips soft skills necessary for undergraduate study and professional practice.
7. **Course Goals**

Goals	Goal Description	Programme ELOs
G1	Introduction of the programme of Construction Engineering Technology (CET)	1.1
G2	Experience of professional skills and ethics	2.3, 2.4, 2.5
G3	Development of soft skills necessary to needs of study and profession	3.1, 3.2, 3.3

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

CLOs		CLO Description	Programme ELOs
G1	**G1.1**	Discuss career prospects, and the ELOs, specification, structure and content of the CET programme	1.1
G2	**G2.1**	Analyze key elements of construction engineering to choose possible solutions	2.3
	G2.2	Build ability of long-life learning	2.4
	G2.3	Perceive professional skills, responsibility, and ethics	2.5
G3	**G3.1**	Develop experience of collaborative group-working	3.1
	G3.2	Develop report-writing and presentational skills	3.2

	G3.3	Engage in reading and communicating in English	3.3

9. Learning Resources

- Textbooks:
  1. FCE, Lecture notes
- References:
  1. Philip Kosky, Robert Balmer, William Keat, George Wise, Exploring Engineering – An Introduction to Engineering and Design, Second Edition, 2010
  2. HCMUTE, Student's guide book
  3. HCMUTE, FCE Websites (hcmute.edu.vn; fceam.hcmute.edu.vn)

10. Student Assessment

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

Type	Content	Timeline	Assessment method	CLOs	Rate (%)
Assigments					**70**
BT#1	Analyze positions of civil engineers such as - Project management - Site/ Lab experiments - Design - Accreditation - Bidding - Construction - Inspection Homework	Week 3	Group-working Presentation	G2.3, G3.1, G3.2	10
BT#2	Plan for design of a construction project In-class practice	Week 5	Group-working Presentation	G2.1, G2.3, G3.1, G3.2	10
BT#3	Design and make a model of construction In-class practice and group-working	Week 6	Group-working Demonstration	G2.1, G3.1, G3.2	10
BT#4	Communicate in English: - Individuals: Self-introduction - Groups: Demonstrate a conversation	Week 7	Demonstration	G3.1, G3.3	10
BT#5	Make a MS. PowerPoint presentation Homework	Week 8	Individual Presentation	G3.2	10
BT#6	Write a formatted report by MS. Word Homework	Week 10	Report	G2.2, G3.1, G3.2	10
BT#7	Present student's plan for study and future profession Homework	Week 12	Individual Presentation	G1.1, G2.2, G2.3	10

Final exam					**30**
BT#8	Design and build a small construction model which can be subjected to largest load in a limit of given materials	Week 15	Team contest	G2.1, G3.1	30
Total					**100**

11. Course Content

Week	Content	CLOs
1	***Chapter 1:*** **Overview on engineering** *(4h,0,8h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:** Introduce the course's goals, CLOs, content, pedagogical and assessment methods 1.1 Engineering challenges for the 21st century 1.2 What do engineers do? 1.3 Key elements of engineering analysis 1.4 Solving problems 1.5 Engineering design process **Pedagogical methods**: + Presentation of lecture + Group discussion	G2.1, G2.3
	B/ Self-study content: *(8h)* + Study construction challenges in Vietnam in the next 10 years	G2.1, G2.3
2	***Chapter 2:*** **Programme of Construction Engineering Technology (CET)** *(4h,0,8h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:** 2.1 Introduction to HCMUTE 2.2 Introduction to the Faculty of Civil Engineering 2.3 Introduction to the major of CET 2.4 Introduction to the programme of CET 2.4.1 Expected learning outcomes (ELOs) 2.4.2 Programme specification 2.4.3 Programme structure and content **Pedagogical methods**: + Presentation of lecture + Group discussion	G1.1, G3.1
	B/ Self-study content: *(8h)* + Study content of courses by reading course description and syllabi	G1.1
3	***Chapter 3:*** **What civil engineers do** *(4h,4h,12h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:**	G2.3

	3.1 Introduction to a construction project 3.2 Process of implementing the project and key roles of a civil engineer - Investigation, evaluation of project possibility - Primary design - Technical design - Accreditation - Bidding - Construction - Acceptance, use and guarantee **Pedagogical methods**: + Presentation of lecture (or invite a civil specialist to present)	
	B/ Self-study content: *(8h)* *+ Homework BT#1*	G2.3, G3.1
4	***Chapter 3:*** **What civil engineers do (cont.)** *(4h,4h,12h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:** 3.3 Career orientation **In-class practice:** Present *BT#1* **Pedagogical methods**: + Group discussion	G2.3, G3.1, G3.2
	B/ Self-study content: *(4h)* + Choose and study a construction project	G2.3
5	***Chapter 4:*** **Engineering design** *(2h,6h,10h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:** 4.1 Basic concepts 4.2 Defining the problem 4.3 Generation of alternative concepts 4.4 Evaluation of alternatives and selection of a concept 4.5 Detailed design 4.6 Design defense 4.7 Manufacturing and testing 4.8 Performance evaluation 4.9 Design report **In-class practice:** Group working *BT#2* **Pedagogical methods**: + Presentation of lecture + Group working and report results	G2.1, G2.3, G3.1, G3.2
	B/ Self-study content: *(6h)* + Study procedure and meaning of technical design in detail	G2.1, G2.2

6	***Chapter 4:*** **Engineering design (cont.)** *(2h,6h,10h)*	
	A/ Content and pedagogical methods in class*: (4h)* **In-class practice:** Group working *BT#3* **Pedagogical methods**: + Group working + Present and defense designed models	G2.1, G3.1, G3.2
	B/ Self-study content: *(4h)* + Reading group-working skills	G3.1
7	***Chapter 5:*** **Soft skills** *(8h,12h,28h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:** 5.1 Group-working skills 5.2 Skills in communication in English **Pedagogical methods**: + Presentation of lecture + Group discussion	G3.1, G3.3
	B/ Self-study content: *(6h)* + Homework *BT#4*	G3.1, G3.3
8	***Chapter 5:*** **Soft skills (cont.)** *(8h,12h,28h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:** 5.3 Skills in speaking communication - Skills in presentation - Techniques for preparing a presentation by MS PowerPoint **In-class practice:** Group working *BT#4* **Pedagogical methods**: + Presentation of lecture	G3.1, G3.2, G3.3
	B/ Self-study content: *(6h)* + Homework *BT#5*	G3.2
9	***Chapter 5:*** **Soft skills (cont.)** *(8h,12h,28h)*	
	A/ Content and pedagogical methods in class*: (4h)* **In-class practice:** Individual presentation of *BT#5* **Pedagogical methods**: + Students present and Q&A	G3.2
	B/ Self-study content: *(4h)* + Study word processing software such as MS Word, MS Excel, MS PowerPoint	G2.2, G3.2
10	***Chapter 5:*** **Soft skills (cont.)** *(8h,12h,28h)*	

	A/ Content and pedagogical methods in class*: (4h)* **Content:** 5.4 Skills in word-writing communication 5.5 Skills in graphic communication 5.6 Skills in collection and analysis of data **Pedagogical methods**: + Presentation of lecture	G3.2
	B/ Self-study content: *(6h)* + Homework *BT#6*	G2.2, G3.1, G3.2
11	***Chapter 5:*** **Soft skills (cont.)** *(8h,12h,28h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:** 5.7 Skills in self-study and life-long learning **Pedagogical methods**: + Presentation of lecture + Group discussion	G2.2
	B/ Self-study content: *(6h)* + Students prepare a study and career plan for yourselves	G2.2
12	***Chapter 6:*** **Personal and professional ethics** *(2h,2h,6h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Content:** 6.1 Personal ethics 6.2 Engineering ethics 6.3 Studying ethics 6.4 Professional and ethic responsibilities of civil engineers **In-class practice:** Solve ethic scenarios **Pedagogical methods**: + Group discussion	G2.3
	B/ Self-study content: *(6h)* + Homework *BT#7*	G1.1, G2.2, G2.3
13	***Chapter 7:*** **Team building activities** *(4h,8h,16h)*	
	A/ Content and pedagogical methods in class*: (4h)* **In-class practice:** Field trips, visiting laboratories or watching video related to career **Pedagogical methods**: + Site-visiting/ presenting video clips + Group discussion	G2.3, G3.1
	B/ Self-study content: *(4h)* + Search and read documents of safety in laboratory and construction sites	G2.2

14	***Chapter 7:*** **Team building activities (cont.)** *(4h,8h,16h)*	
	A/ Content and pedagogical methods in class*: (4h)* **In-class practice:** Individuals present *BT#7* **Content:** Introduce content and rule for design contest **Pedagogical methods**: + Help to look for information related to the design contest + Consult students to prepare for the contest + Group discussion	G1.1, G2.2, G2.3, G3.2, G2.1
	B/ Self-study content: *(4h)* + Study knowledge related to the design contest to find out the best solution	G2.1
15	***Chapter 7:*** **Team building activities (cont.)** *(4h,8h,16h)*	
	A/ Content and pedagogical methods in class*: (4h)* **Out-class practice:** Group contest *BT#8* **Pedagogical methods**: + Organize contest activities + Groups present design ideas + Evaluate and award	G2.1, G3.1
	B/ Self-study content: *(4h)* + Review the course	

12. Learning Ethics

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

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

14. Approved by

Dean	Head of Department	Instructor
A/Prof. Dr. Nguyễn Trung Kiên	**MSc. Nguyễn Văn Hậu**	**Dr. Châu Đình Thành**

15. Date and Up-to-date content

1st time: Date: August 25th, 2015 - Update content and structure of the programme adjusted in 2015	Instructor: Head of Department: