Course Syllabus

1. **Course Title:** Water Supply & Sewerage Engineering
2. **Course Code:** WSSE221317
3. **Credit Units:** 2 credits (2/0/4) (2 units of theory, 0 units of practice/4 units of self-study)
   Duration: 15 weeks (2 hours of theory + 0 hours of practice + 4 hours of self-study per week)
4. **Course Instructors:**
   1/ MSc. Nguyễn Bá Duy
   2/ MSc. Điền Hòa Anh Kiệt
   3/ Dr. Trần Tuấn Kiệt
5. **Course Requirements**
   Prerequisite courses: None
   Previous courses: None
   Parallel courses: None
6. **Course Description**
   This is a fundamental engineering course related to the field of water supply and sewerage. The course aims to introduce learners with basic knowledge of fluid mechanics such as flow, pressure, and flow velocities. Besides, the course also provide principles and solving methods to determine location, size and relationship between the parts of water supply and sewerage system in buildings as well as inside and outside urban. The course helps the learner to have abilities to design basically water supply and sewerage system inside and outside buildings.
7. **Course Goals**

Goals	Goal description	Programme ELOs
G1	Core knowledge in the area of water supply and sewerage	1.2
G2	Analysis and giving possible solutions for water supply and sewerage.	2.1, 2.4
G3	Ability of group working	3.1

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

CLOs		CLO Description	Programme ELOs
G1	**G1.1**	Demonstrate the basic concepts, terminologies, principles of water supply and sewerage.	1.2
G2	**G2.1**	Ability of design a water supply and sewerage system for a simple building.	2.1
	G2.2	Ability of design a water supply system for a zone.	2.4
G3	**G3.1**	Ability of group working for discussing and giving solutions of water supply and sewerage problems.	3.1

9. Learning resourses

- Textbooks:

1. PGS.TS Nguyễn Thống , *Cấp thoát nước*, NXB Xây dựng, 2007.
2. ThS Trần Thị Mai và các tác giả, *Cấp thoát nước trong nhà* , NXB Xây dựng, 2008.

- References:

1. KS.Lê Mục Đích, *Sổ tay thiết kế công trình Cấp thoát nước*, NXB Xây dựng, 2008

10. Assessment:

- Grading point: **10**
- Assessment plan:

Type	Content	Timeline	Assessment method	CLOs	Rate (%)
Attendance					**10**
Exam					**20**
E#1	Design water supply system for building	Week 12	Individual paper	G1.1, G2.2	10
E#2	Design sanitary system for building	Week 14	Individual paper	G1.1, G2.2	10
Project					**20**
P#1	Group working for design a water supply system of a zone.	Week 6-10	Report	G1.1, G2.1, G3.1	20
Final exam					**50**
	- Calculations of water supply and sanitary system of a building. - Duration 90		Paper assessment	G1.1, G2.1, G2.2	50

11. Course contents:

Week	Content	CLOs
1	**Chapter 1: Introduction of water supply**	
	***A/* Content and pedagogical methods in class**: *(2)* **Content:** 1.1 Introduction 1.2 Using water units 1.3 Water sources and intake station **Pedagogical methods**: - Presentation and Explaination	G1.1, G2.1
	***B/* Self-study content**: *(4)* - Review - Reading: Treatment plant and Intake water scheme	G1.1, G2.1

2	**Chapter 1: Introduction of water supply** (continue)	
	A/* Content and pedagogical methods in class: (2)* **Content:** 1.4 Treatment plant 1.5 Intake water scheme **Pedagogical methods**: - Presentation and Explaination	G1.1, G2.1
	***B/* Self-study content**: *(4)* - Review - Reading: Water demands	G1.1, G2.1
3	**Chapter *2:* Water demands**	
	A/* Content and pedagogical methods in class: (2)* **Content:** 2.1 Domestic water demand 2.2 Industrial demand 2.3 Demand for public use 2.4 Fire demand **Pedagogical methods**: + Presentation and Explaination + Group discussion	G1.1, G2.1, G3.1
	***B/* Self-study content**: *(4)* - Review - Reading: Flow of compressible fluids	G1.1 G2.1
4	**Chapter *3:* Flow of compressible fluids in pipeline**	
	A/* Content and pedagogical methods in class: (4)* **Content:** 3.1 Flow parameters (Q, ω, v, R) 3.2 Bernoulli equation **Pedagogical methods**: + Explaination. + Examples.	G1.1, G2.1
	***B/* Self-study content**: *(8)* - Review - Reading: Flow of incompressible/compressible fluids and energy losses	G1.1, G2.1
5	**Chapter *3:* Flow of compressible fluids in pipeline** (continue)	
	A/* Content and pedagogical methods in class: (2)* **Content:** 3.3 Energy losses 3.4 Flow of incompressible/compressible fluids **Pedagogical methods**: + Explaination.	G1.1, G2.1

	+ Examples.	
	***B/* Self-study content**: *(4)* - Review - Reading: Pipe network analysis	G1.1, G2.1
6	**Chapter *4:* Pipe network analysis**	
	A/* Content and pedagogical methods in class: (2)* **Content:** 4.1 Layouts and principles of water distribution system 4.2 Design of water distribution system **Pedagogical methods**: - Presentation and Explaination	G1.1 G2.1
	***B/* Self-study content**: *(4)* - Do Project#1	G2.1 G3.1
7	**Chapter *4:* Pipe network analysis** (continue)	
	A/* Content and pedagogical methods in class: (2)* **Content:** 4.3 Hydraulic computations of tree system 4.4 Hydraulic computations of ring system **Pedagogical methods**: - Presentation and Explaination	G1.1, G2.1
	***B/* Self-study content**: *(4)* - Do Project#1	G2.1 G3.1
8	**Chapter *4:* Pipe network analysis** (continue)	
	A/* Content and pedagogical methods in class: (2)* **Content:** 4.5 Details of distribution network 4.6 Examples **Pedagogical methods**: - Presentation and Explaination	G1.1, G2.1
	***B/* Self-study content**: *(4)* - Do Project#1	G2.1 G3.1
9	**Chapter *5:* Water supply network for building**	
	A/* Content and pedagogical methods in class: (2)* **Content:** 5.1 Details of layout and symbols 5.2 Determine the water pressure of building outside **Pedagogical methods**: + Explaination + Discussion	G1.1 G2.2 G3.1

	***B/* Self-study content**: *(4)* - Review. - Do Project#1	G2.2 G3.1
10	**Chapter *5:* Water supply network for building** (continue)	
	A/* Content and pedagogical methods in class: (2)* **Content:** 5.3 Details of water supply network for building 5.4 Design of water supply network for building **Pedagogical methods**: + Presentation and Explaination	G1.1 G2.2
	***B/* Self-study content**: *(4)* - Review. - Finish P#1	G2.2 G3.1
11	**Chapter *5:* Water supply network for building** (continue)	
	A/* Content and pedagogical methods in class: (2)* **Content:** 5.5 The components of water supply system for building 5.6 Examples **Pedagogical methods**: + Presentation and Explaination	G1.1 G2.2
	***B/* Self-study content**: *(4)* - Review. - Reading: Pump, pump station, storage reservoir, storage tank - Prepare E#1	G1.1 G2.2
12	**Chapter *6:* Pump, pump station, storage reservoir, storage tank**	
	A/* Content and pedagogical methods in class: (2)* **Content:** 6.1 Pump 6.2 Pump station 6.3 Storage reservoir 6.4 Storage tank **Pedagogical methods**: + Presentation and Explaination	G1.1 G2.2
	***B/* Self-study content**: *(4)* - Reading: Sanitary system for building	G1.1 G2.2
13	**Chapter *7:* Sanitary system for building**	
	A/* Content and pedagogical methods in class: (2)* **Content:** 7.1 Concept, classification 7.2 Details of sanitary network for building **Pedagogical methods**:	G1.1 G2.2

	- Presentation and Explaination - Group discussion	
	***B/* Self-study content**: *(4)* - Review. - Reading: Design of sanitary network for building - Prepare E#2	G2.2 G3.1
14	**Chapter *7:* Mạng lưới thoát nước trong nhà** (tiếp theo)	
	A/* Content and pedagogical methods in class: (2)* **Content:** 7.3 Design of sanitary network for building **Pedagogical methods**: - Presentation and Explaination - Group discussion	G1.1 G2.2 G3.1
	***B/* Self-study content**: *(4)* - Review.	G2.2
15	**Chapter *7:* Mạng lưới thoát nước trong nhà** (tiếp theo)	
	A/* Content and pedagogical methods in class: (6)* **Content:** 7.4 All review **Pedagogical methods**: - Presentation and Explaination - Group discussion	G1.1 G2.1 G2.2 G3.1
	***B/* Self-study content**: *(4)* - All review. - Prepare for final exam	G1.1 G2.1 G2.2 G3.1

12. Learning Ethics

Home assignments must be done by the students themselves. Plagiarism found in the assessments will get zero grade point.

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

14. Approval:

Dean	Head of Department	Instructuor
A/Prof. Dr. Nguyễn Trung Kiên	**MSc. Nguyễn Văn Hậu**	**MSc. Nguyễn Bá Duy**

15. Date and Up-to-date content

1st time: Date:	Instructor Head of department: