Course Syllabus

1. **Course Title:** Experiments on Soil Pollution
2. **Course Code**: EOSP317110
3. **Credit Units:** 1 credits (0/1/2) (0 units of theory/ 1 unit of practice/ 2 units of self-study)
   Duration: 5 weeks (0 hours of theory+6 hours of practice, and 12 hours of self-study per week)
4. **Course Instructors:**
   1 / Dr. Tran Thi Kim Anh
   2 / Ms. Nguyen Thi Tinh Au
5. **Course Requirements:**
   Prerequisite courses: None
   Parallel courses: Soil pollution and remediation techniques
6. **Course Description:**

The course provides students with the knowledge and skills in analysis, preparation of chemicals, equipment, and equipment, and evaluates the physical properties of the soil: dryness, mechanical composition, density, Acidity and soil nutrient indicators: nitrogen concentration, soil phosphorus, iron, aluminum concentration.

7. **Course goals**

Goals	Goal description	Programme Expect learning outcome (ELOs)
G1	Professional knowledge in analysis and identification of soil physical components: sampling, preservation of samples, use of tools, equipment, environmental significance, analytical background. .	ELO3
G2	Practise calculation, present, plot, explain the results and the phenomenon in the experiment.	ELO5 ELO8
G3	Practise team-work skill	ELO9

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

CLOs	CLO Description	Programme ELOs

G1	CLO1	Use tools, equipment and chemical in analyzing water sample.	ELO3
	CLO2	Describe the environmental significance of each parameter, the principles of analysis, affecting factors on the analytical method.	
G2	CLO3	Evaluate the experiments's result.	ELO5
	CLO4	Perform a precise, meticulous manual in experiments.	
	CLO5	Demonstrate honesty in experiments's reporting as well as in scientific research.	ELO8
G3	CLO6	Work in team	ELO9

9. Learning Resources

- Textbooks:

1. Textbook of experiments on soil pollution, Environmental technology Department, HCMC University of Technology and Education.

- References:

10. Student assessment:

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

Type	Content	Timeline	Assessment method	CLOs	Rate (%)
Subtest					**15**
BT#1	Summarize document of experiments on water treatment before class.	Week 1 -4	Small questions in class	CLO1 CLO2	15
Essay - Report					**35**
BL #1	Report process of experiments, results, all exercises of experiments.	Week 5	Report	CLO3 CLO4 CLO5 CLO6	35
Final exam					**50**
	The content covers all of course outcomes.	School calender	Wtiting / practical test	CLO1 CLO2 CLO3	50

				CLO4 CLO5	

11. Course Content:

Week	Contents	CLOs
1	**Chapter 1: Basic theory for sampling and sampling, soil profile (0/6/12)**	
	***A/* Teaching content in classroom (6)** 1.1 Definitions 1.2 Collection and preservation sample 1.3 Chemical preparation **Summary of teaching methodology:** + Presentation of lecture + Group discussion + Guide to how to manual experiments, do the report	CLO1 CLO2 CLO3 CLO4 CLO5 CLO6
	B/ Self-study content (12) The contens of home self-study + Do the report + Prepare the test lesson for the next class.	CLO1 CLO2 CLO3 CLO4 CLO5 CLO6
2	**Chapter 2: Practical analysis of pH, humidity, drying coefficient, soil acidity (0/6/12)**	
	A/ Teaching content in classroom (6) 2.1 Basic theory + Summarize concepts, meanings, principles and principles 2.2 Practice + How to perform the experiment **Summary of teaching methodology:** + Presentation of lecture + Group discussion + Guide to how to manual experiments, do the report	CLO1 CLO2 CLO3 CLO4 CLO5 CLO6
	B/ Self-study content *(12)* + Do the report	

	+ Prepare the test lesson for the next class.	
3	**Chapter 3: Determining Total Phosphorus (0/6/12)**	
	A/ Teaching content in classroom (6) 3.1 Basic theory + Summarize concepts, meanings, principles and principles 3.2 Practice + How to perform the experiment **Summary of teaching methodology:** + Presentation of lecture + Group discussion + Guide to how to manual experiments, do the report	CLO1 CLO2 CLO3 CLO4 CLO5 CLO6
	B/ Self-study content *(12)* + Do the report + Prepare the test lesson for the next class.	CLO1 CLO2 CLO3 CLO4 CLO5 CLO6
4	**Chapter 4: Determination of total nitrogen by kjendahal method by bremner (0/6/12)**	
	A/ Teaching content in classroom (6) 4.1 Basic theory + Summarize concepts, meanings, principles and principles 4.2 Practice + How to perform the experiment **Summary of teaching methodology:** + Presentation of lecture + Group discussion + Guide to how to manual experiments, do the report	CLO1 CLO2 CLO3 CLO4 CLO5 CLO6
	B/ Self-study content (12) + Do the report + Compare the effectiveness of models	CLO1 CLO2 CLO3 CLO4 CLO5 CLO6

	Chapter 5: Determining the Existence of Iron in Soils **Chapter 6: Determining Aluminum Exchanged in Soil** **(0/6/12)**	
5	**A/ Teaching content in classroom (6)** 5.1 Basic theory + Summarize concepts, meanings, principles and principles 5.2 Practice + How to perform the experiment 6.1 Basic theory + Summarize concepts, meanings, principles and principles 6.2 Practice + How to perform the experiment **Summary of teaching methodology:** + Presentation of lecture + Group discussion	CLO1 CLO2 CLO3 CLO4 CLO5 CLO6
	B/ Self-study content (12) + Do the report + Prepare the test lesson for the next class.	

12. Learning Ethics:

- Students study seriously and follow the instructions of experiments.
- Strictly implement the rules laboratories.
- Students who do not complete the task, banned exam.
- In case of the detection of students who replace the others in the exam, all of them will be suspended or leaved the learning program.

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

14. Approved by:

Dean	Head of Department	Compiler
A/Prof. Nguyen Van Suc	**MSc Nguyen Thi Minh Nguyet**	**Dr. Nguyen My Linh**

15. Date and Up-to-date content

1st time: Date: 2015 - Update content and structure of the programme adjusted in: Updated content of Experiments on Soil pollution	Instructor:

	Head of Department: