HCMC UNIV.OF TECHNOLOGY AND EDUCATION
Faculty of Chemical and Food Technology

Programme : Environmental Engineering Technology
Level : Undergraduate

Course Syllabus

1. **Course title :** Environmental Toxicology
2. **Course code:** ENTO125410
3. **Credit units: 2** (2/0/4) (2 units of theory/ 0 units of practice, experiment/ 4 units of self-study)
   Duration: 10 weeks (3 hours of theory + 0 hour of practice + 6 hours of self-study per week)
4. **Course instructors:**
   1/ Dr. Nguyen Thai Anh
   2/ MSc. Nguyen Thi Thu Thao
5. **Course requirements :**
   Prerequisite courses : None
   Previous courses : General Environment, Environmental engineering chemistry
   Parallel courses : None
6. **Course Description :**
   This course provides basic knowledge about the toxics, environmental risk factors and its effects on human health related to soil, water, air pollution; refers to risk assessment of toxic factors.

7.Course Goals

Goals	Goal description	Programme ELOs
G1	Describe basic concepts in terms of toxicology and toxic; determine toxic units from the relationship between dose and response.	ELO3
G2	Categorize types of toxicants, explain working mechanism of toxic substances	ELO3
G3	Build teamwork skills and comprehend English materials.	ELO9
G4	Determine the measures of environmental protection	ELO6, ELO8, ELO12

8. Course learning outcomes (CLOs):

CLOs	CLOs description	Programme ELOs

G1	CLO1	List some basic concepts of toxicology, regulations regarding toxic.	ELO3
G2	CLO2	Classify toxic substances; Analysize factors affecting toxicity, acute and chronic poisoning expressions.	ELO3
G3	CLO3	Build teamwork skills and comprehend English materials.	ELO9
G4	CLO4	Explain the source of toxicants in the environment, the mechanism of toxicity.	ELO6
	CLO5	Experiment with environmental protection and safety management in companies and factories ...	ELO8
	CLO6	Assume responsibility for environmetal protection.	ELO12

9. Learning Resources

- Text book :
  1. David A. Wright and Pamela Welbourn. Environmental toxicology. Cambridge University Press, 2002.
- References :
  2. Le Huy Ba. Basic Environmental toxicology. Publisher of Vietnam National University, 2008.

10. Student Assessment :

- Grading scale : 10
- Assessment plan :

Type	Content	Timeline	Assessment method	CLOs	Rate (%)
Assignments					**20**
Ex#1	Determine the parameters related to chronic and acute poisoning.	5	subtest	CLO2	5
Ex#2	Analyze toxic factors likely to affecting human health	5	subtest	CLO5	5
Ex#3	Determine risk factor (R)	10	subtest	CLO4, CLO6	5
Ex#4	Classify toxicants in soil, water, air. Determine measures for treating naturally contaminated soil.	20	subtest	CLO2	5
Processing test		**20**			**15**
	Writing test	Week 8	Test	CLO1, CLO2, CLO4	15

Essay					**15**
	Students work in groups. Each group is assigned topic concerning some kind of toxicants.	Week 8	Report file	CLO3	15
Final test					**50**
	The content covers all of course outcomes.	School calendar	Test	CLO1, CLO2, CLO4	50

11. Course content

Week	Content	ELOs
1	**Chapter 1: Overview of toxicology (3/0/6)**	
	***A/* Teaching content in classroom (3)** 1.1 The basic concepts of toxicology and related concepts 1.2 Objects of environmental toxicology 1.3 Origin and classification of toxic substances 1.4 Regulations of toxic chemicals 1.5 Relationship between dose and response **Summary of teaching methodology:** • Presentation (Powerpoint)	CLO1
	***B/* Self-study content (6)** 1.6 Poisoning, mechanism of toxicants	CLO2
2-3	**Chapter 2:** Principle of toxicology **(6/0/12)**	
	***A/* Teaching content in classroom (6)** 2.1 The way of pollutants to the environment 2.2 Exposures and effect of toxicants on the body **Summary of teaching methodology:** • Speech • Presentation (Powerpoint) • Work in group	CLO3, CLO4
	***B/* Self-study content (12)** 2.3 Cumulation and response of organisms to toxicants	CLO4
4-6	**Chapter 3: The properties of poison and effects (9/0/18)**	
	***A/* Teaching content in classroom (9)** 3.1 Properties of poisons	CLO2, CLO3, CLO4,

	3.2 Effects of toxins on organs 3.3 Industrial toxicology 3.4 Toxicology of some pollutants 3.5 Prevention of industrial intoxication **Summary of teaching methodology:** • Speech • Presentation (Powerpoint) • Work in group	CLO6
	***B/* Self-study content (18)** 3.5 Some typical poisoning processes in ecological environment	CLO2
7-8	**Chapter 4: Risk assessment for human health and environment (6/0/12)**	
	***A/* Teaching content in classroom (6)** 4.1 Overview of risk assessment 4.2 Environmental risk assessment models 4.3 Environmental risk management 4.4 Environmental risk assessment caused by hazardous waste **Summary of teaching methodology:** • Speech • Presentation (Powerpoint) • Work in group	CLO2, CLO3, CLO4, CLO5, CLO6
	***B/* Self-study content (12)** Cancerous substances	CLO2
9	**Chapter 5:** Environmental toxicology **(3/0/6)**	
	***A/* Teaching content in classroom (3)** 5.1 Soil toxicology 5.2. Aquatic toxicology 5.3 Air toxicology **Summary of teaching methodology:** • Speech • Presentation (Powerpoint) • Work in group	CLO1, CLO2, CLO3, CLO4

	***B/* Self-study content (6)** 5.4 Poisons used for war in the past	CLO2, CLO6
10	Students give presentation for given topics	CLO3

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. Nguyen Van Suc	**MSc Nguyen Thi Minh Nguyet**	**Nguyen Thi Thu Thao**

15. Date and Up-to-date content

1st time: Date: August 25th, 2015 - Update content and structure of the programme adjusted in: teaching content and assessment method	Instructor: Head of Department: Dr. Tran Thi Kim Anh