

Theoretical and practical course plan form - Ilam University of Medical Sciences

Introduction to the course: Industrial and hazardous waste Semester: Second 2020-2021

Faculty: Health

Department: Environmental Health Engineering Course

Name and Number: Industrial and Hazardous Waste

Field and Degree: Bachelor of Environmental Health Engineering - Semester 3

Day and time: Wednesday 14.5-12.5

Number and type of unit (theoretical / practical): 2 theoretical units

lecturer name: Faragh Kazem Beigi

Email address: fkazembeigi@gmail.com

*** General purpose of the lesson:**

At the end of this course, the student fully recognizes the quantitative and qualitative characteristics of hazardous waste and their health and environmental effects, and with sufficient knowledge of production sources and methods of storage, collection, transportation, control, treatment and Hazardous waste disposal can design appropriate systems and prepare effective executive and management programs to address hazardous waste problems.

*** Specific or partial objectives of the lesson:** The specific objective is better to be written behaviorally (the behavioral objective has the audience, behavioral verb, degree and criteria of the conditions).

At the end of this course the student is expected to be able to:

- 1- The student should be able to know industrial and hazardous wastes as well as the sources of production of these materials.
- 2- The student can sample and analyze these materials in an appropriate way
- 3- Be aware of the rules and regulations
- 4- Know the international regulations in this field
- 5- Can evaluate health and environmental effects.
- 6- Be proficient in the method of storage, collection and transportation of these materials.
- 7- -can provide recycled materials for recycling and recycling.
- 8- Know the principles of monitoring and supervising the disposal of these materials and revitalization of these disposal sites.

*** Main resources** of the course Main resources (by observing the principles of source writing and giving an address for their preparation, including library, bookstore, Internet,)

Batston R. et al., "The Safe Disposal of Hazardous Waste". WHO, UNEP. Vol 3, World Bank 1989. Freeman H.M., "Standard Handbook of Hazardous Waste Treatment and Disposal" McGraw-Hill, 1989. Freeman H.M., "Hazardous Waste Minimization" McGraw-Hill, 1990. Richman W.S. "Handbook of industrial hazardous wastes", CRC Press, 1990. Manahan S.E. , "Hazardous waste Chemistry, Toxicology and Treatment" Lewis Publishers, INC.1990. Riskman W.S., "Handbook of Industrial Hazardous Waste", CRC Press .1990. Sell. N.J., "Industrial Pollution Control: Issues and Techniques" 2th Ed, VNR. 1992. Solan, W.M. ., "Site Selection for New Hazardous Waste Management Facilities" WHO, 1993. Watts . R .J "Hazardous Waste", John Wiley & Sons, 1998. Woodward F., "Industrial Waste Treatment Handbook" Butterworth-Heinemann, 2001. Loyrega M.D., "Hazardous Waste Management" 2th ed. 2001. Woodard, Curran. "Industrial Waste Treatment Handbook" . Sec. Ed Elsevier, 2006. Thomas H. Christensen., "Solid Waste Technology & Management" ., John Wiley & Sons, 2011. Clifton Van Guilder, "Hazardous Waste Management" David Pallai., 2012 □ John Pichtel, "Waste Management Practices : Municipal, Hazardous and Industrial" , second Edition., CRC Press 2014. Jiaping Paul Chen, Lawrence K. Wang, Mu-Hao S. Wang, Yung-Tse Hung, Nazih K. Shammass, "Handbook of Advanced Industrial and Hazardous Waste Management" ., CRC Press . 2016.

*** teaching method:**

- 1- Lecture using teaching aids
- 2- Describing the contents, questions and answers and discussing a topic in each session

*** Educational aids used:**

1. Using a computer and projector
- 3- Using magic and whiteboard

*** Methods and time of assessment and evaluation of the student and the bar related to each value B:**

Scoring method

Comparative assessment (at the end of the semester) will be a written exam. The questions will be descriptive and test (four options). 70% score

In order to formally evaluate (during the semester), questions and answers during the semester and provide research on environmental pollutants. 20% score

Active participation in class and attendance 10% score

Lesson rules and expectations from students:

1. Active student presence in the class, conducting and presenting research
2. Participate in group discussions
3. Solve the presented problems

Introduction form of theoretical and practical courses - Ilam University of Medical Sciences

Schedule for presenting the first semester curriculum 2020-2021

Session	Topic	Preparing students before class
1	Presenting course titles and lesson plans, introducing books and resources, introduction and history, identifying hazardous waste and classifying them	
2	Production resources, quantity and quality of hazardous waste, sampling methods and hazardous waste analysis techniques	Student reading, lectures and Q&A
3	Legal and policy requirements for hazardous waste, international laws and regulations, and review of regulations in different countries	
4	Health and environmental effects of hazardous waste, hazardous waste cycle in the environment	
5	Hazard assessment and methods of its analysis, principles of hazardous waste management	
6	Hazardous waste minimization, storage, collection and transportation of hazardous waste	
7	Hazardous waste treatment, landfill selection methodology	
8	Knowledge of recycling methods and recycling of hazardous waste,	
9	Final exam	