جامعة الشرقية
A' SHARQIYAH UNIVERSITY

Course Descriptor

ENEN422 ENVIRONMENTAL MEASUREMENTS

Proposed Academic Year	2020/2021	**Last Reviewed Academic Year**	2019/2020
Course Code	ENEN422	**Course Title**	Environmental Measurements
Credit hours	3	**Level of study**	Third
College / Centre	College of Engineering	**Department**	Environmental Engineering
Co-requisites		**Pre-requisites**	CHEM101& CHEM181

1. COURSE OUTLINE

This course discusses the modern laboratory techniques and basic sampling principles in environmental water, air, and biological analysis. Also, to analysis of water and wastewater, aseptic technique, coagulation, solid waste generation rates, solid waste leachate water quality, and microbial isolation from soil and water samples

2. AIMS

The course provides students with concepts and techniques that enable to understand the sampling principles in environmental engineering

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS (Indicative)

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
1. Understand the sampling principles	Lectures	Assignments and in-class tests
2. Understand the Water and wastewater treatment techniques	Lectures	Assignments and in-class tests
3. Ability to analyze and detect the environmental issues from measurements approach	Lectures	Assignments and in-class tests

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Assignments	20%
Mid-term Examinations (two)	40%
Final Examination	40%
TOTAL	**100%**

5. ACHIEVING A PASS

Students will achieve **3** credit hours for this course by passing **ALL** of the course assessments and achieving a **minimum overall score of 50%.**

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NB *Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)

LECTURE TOPIC	TIME (HOURS)
Introduction to Environmental Sampling	6
Analysis of water 1. Water and wastewater pH measurements 2. Water and wastewater conductivity measurements	3
Air pollution measurements	3
Soil contamination and their measurements	6
Noise, hazardous and solid waste, and their control	6
Water quality 1. Hardness measurements 2. Turbidity Experiment 3. B.O.D measurements	6
Water and wastewater treatment 1. Total Solids analysis 2. Olfactometer (Odor Analysis)	6
Sewerage systems 1. Dissolved solids analysis	3
Error of Sampling	6
TOTAL HOURS	45
Plus **RECOMMENDED INDEPENDENT STUDY HOURS**	
TOTAL COURSE HOURS	**45**

7. RECOMMENDED READING

Core text/s:

Fundamentals of Environmental Sampling and Analysis, Chunlong Zhang

Library + online resources:

https://www.oercommons.org/courses/soil-core-sampling-2

https://19january2017snapshot.epa.gov/measurements_.html

https://www.oercommons.org/courses/combustion-and-air-quality-emissions-monitoring/view