جامعة الشرقية
A' SHARQIYAH UNIVERSITY

Course Descriptor

ENEN531 Advanced Wastewater Treatment

ACADEMIC YEAR	2016/2017	**SEMESTER**	
Course Code	**ENEN531**	**Course Title**	**Advanced Wastewater Treatment**
Credit hours	3	**Level of study**	Fourth year
College / Centre	Engineering	**Department**	Environmental Engineering
Pre-requisites	**ENEN431**	**Co-requisites**	
Instructor	Dr. Mahfouz Saeed	**Office Hours**	

1. COURSE OUTLINE

The course aims to improve the understanding of the advanced course is oriented towards physical, biological, and advanced treatment of wastewater

2. AIMS

The course provides students with concepts and techniques that enable them to understand the The course covers topics such as physical unit operations and design, biological unit processes, design of facilities for the biological treatment of wastewater, advanced wastewater treatment

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

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
1. Understand the chemical reactions and kinetics which related to the environment	Lectures	Assignments and in-class tests
2. Understand the concepts of chemical kinetics	Lectures	Assignments and in-class tests
3. Ability to analyze continuous the environmental issues from chemistry 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%.**

NB *Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)

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WEEK	LECTURE TOPIC	TIME (HOURS)
1,2	Introduction to advance water treatment	6
3	Advance physical water treatment	3
4,5	Advance biological water treatment	6
6,7	Physical unit operations and design	6
8,9, 10	Biological unit processes, design of facilities for the biological treatment of wastewater	9
11,12	Advanced wastewater treatment	3
13	Advanced wastewater issues	3
14	Design of facilities for the treatment and disposal of sludge	6
15	Complex treatment	3
	TOTAL HOURS	45
1 - 15	Plus **RECOMMENDED INDEPENDENT STUDY HOURS**	
	TOTAL COURSE HOURS	**45**

7. RECOMMENDED READING

Core text/s:

Elementals of Environmental Chemistry, *Hites and Raff* Water Chemistry, *Snoeyink, V. L and Jenkins, D.*

8. PLAGIARISM POLICY

As per the University Policy the following actions (not limited to), without proper attribution (quoting and/or referencing), will attract stringent penalties:

1. To copy the work of another student;
2. To directly copy any part of another person's work;
3. To summarize another person's work;
4. To use or develop an idea or thesis derived from another person's work; 5. To use experimental results or data obtained or gathered by another person;
6. To demonstrate academic misconduct during an exam.

9. ATTENDANCE POLICY

1. Students should attend all classes.
2. The course instructor will warn any student if he/she is absent for more than 10% of the lectures.

Compulsory withdrawal will be recorded for a student if he/she is absent from lectures for more than 20% of the classes.