



College: Engineering

Department: Civil

Course Title: **Environmental Design and Wastewater Systems**

Course No: **0901504**

Credit Hours: 3hr

Semester:2020/ first

### About The Course

Course Title: **Environmental Design  
and Wastewater Systems**

Class:A

Course No: **0901504**

Credit Hours: 3hrs

Lecture Room:410

Obligatory/ Optional:

Text Book: Wastewater Engineering : Treatment and Reuse, Metcalf  
&Eddy, Inc., 2003

### The Instructor

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### **Course Description**

**Characterization of water and wastewater, Design of water distribution networks and sewerage systems; Wastewater treatment design; Storm drainage design; Design basic of non-conventional treatment methods including: processing of sludge, and water reuse**

### **Course Objectives**

- 1-This course aims to provide you with a basic understanding of the wastewater analysis/characterization,**
- 2- the preliminary design and operation of unit processes in wastewater treatment.**
- 3-Basics of waste water sewerage system Design , and showing the deference between sewerage system types.**
- 4- deeper knowledge of the physical, chemical, and biological principles in wastewater assessment and treatment,**
- 5-particular emphasis on water recycle and resources recovery.**

## Learning Outcome

- 1. Reading and understanding the Analysis physical, chemical and biological characteristics of wastewater.**
- 2. Determine the quantities of demand drinking water and water for fire and the Dry whether flow and finally the wastewater quantity that will entered to the sewage systems and pipelines.**
- 3. Determine the design and operation of unit processes in wastewater treatment.**
- 4. Explore and develop sustainable wastewater treatment technologies.**
- 5. Conduct the system analysis toward optimal operations.**

## Course Outline and Time schedule

Week	Course Outline
First week	Course review and introduction
2 <sup>nd</sup> week	Characterization of Water and Wastewater
3 <sup>rd</sup> week	Population Growth
4 <sup>th</sup> week	Water Usage for Domestic , Industrial , for all Uses

5 <sup>th</sup> week	Wastewater Water quality and monitoring
6 <sup>th</sup> week	1. Waste Water Supply and Distribution
	2. Storm water design
7 <sup>th</sup> week	Collection of Wastewater
8 <sup>th</sup> week	Guide to Selection of Waste Water Treatment Processes& places.
	Mid Exam
9 <sup>th</sup> week	Wastewater Treatment System
10 <sup>th</sup> week	Preliminary Treatment Design
11 <sup>th</sup> week	Primary Treatment Design

12 <sup>th</sup> week	Secondary Treatment Design
13 <sup>th</sup> week	Tertiary Treatment .
14 <sup>th</sup> week	Reuse of reclaimed water
15 <sup>th</sup> week	Sludge Treatment and Disposal
	Final Exam

### Presentation methods and techniques

Methods of teaching varied according to the type of text, student and situation. The following techniques are usually used:

- 1- Lecturing with active participations.
- 2- Problem solving.
- 3- Cooperative learning.
- 4- Discussion.
- 5- Learning by activities.
- 6- Connecting students with different sources of information

## Sources of information and Instructional Aids

Computer ... power point

- Transparencies
- Library sources

## Assessment Strategy and its tools

The assigned syllabus is assessed and evaluated  
Through: feedback and the skills that are acquired by the students

The tools:

- 1- Diagnostic tests to identify the students level and areas of weakness
- 2- Formal (stage) evaluation
  - a) Class Participation
  - b) Ist Exam
  - c) 2nd Exam
  - d) Activity file

## Tool & Evaluation

Tests are permanent tools & assessment, in addition to the activity file which contains curricular and the co-curricular activities, research, report papers and the active participation of the student in the lecture.

The following table clarifies the organization of the assessment schedule:

Test	Date	Grade
First Exam		30

Activities & Participation	Students should be notified about their marks	20
Final Exam		50

### **Activities and Instructional Assignment**

- 1- Practical assignments to achieve the syllabus objectives.
- 2- .....

#### **Regulations to maintain the teaching-Learning Process in the Lecture:**

- 1- Regular attendance.
- 2- Respect of commencement and ending of the lecture time.
- 3- Positive relationship between student and teacher.
- 4- Commitment to present assignments on time.
- 5- High commitment during the lecture to avoid any kind of disturbance and distortion.
- 6- High sense of trust and sincerity when referring to any piece of information and to mention the source.
- 7- The student who absents himself should submit an accepted excuse.
- 8- University relevant regulations should be applied in case the student's behavior is not accepted.
- 9- Allowed Absence percentages is (15 %).

### **Internet websites**

- 1 [www.pdfdrive.com](http://www.pdfdrive.com)....**
- 2 [www.springer.com](http://www.springer.com).....**

3 [www.sciencedirect.com](http://www.sciencedirect.com).....

**References :**

1. Introduction to Environmental Engineering, by M. L. Davis and D. A. Cornwell, Fourth Ed., McGraw-Hill, 2008\*
2. Water and Wastewater Technology, 3rd edition, Hammer and Hammer, Jr, Prentice-Hall, Inc., 1996.
3. Wastewater Engineering: Treatment, Disposal and Reuse, Metcalf & Eddy, Inc., 3rd ed., 1991

## Syllabus Classification

<b>Objectives</b>	<i>Learning outcome</i>	<i>Assessment tools</i>
1-		
2-		
3-		
4-		
5-		

