



Course description:

This course will cover; basic definitions and classification of wastewater engineering, the collection of wastewater and its resources. Estimation the quantity of the wastewater. Treatment of wastewater, in different methods. We will study the activated study method as it is very efficient way. Management of wastewater to be used after design of sanitary and treatment plants.

Aims of the course: after complete the course student should know

- 1) The wastewater systems
- 2) The resources of wastewater
- 3) Quality of wastewater and types of its origin
- 4) Treatment of wastewater
- 5) Activated sludge treatment
- 6) Operation control for wastewater and its management
- 7) The design of the sanitary system

Intended Learning Outcomes (ILOs):

- 1) **Remembering skills - with ability to** Identify the nature of wastewater sources and how to recycle. The different stages of treating the wastewater up to the limits able for irrigation purposes and to protect the underground water and the surface water.
- 2) **Understanding skills - with ability to** discuss and classify the sources and characteristics of wastewater sludge and their effects on the choice of wastewater treatment methods.
- 3) **Evaluate Skills - with ability to** compare and contrast the risk assessment of the effect of disposal of non treated wastewater on the surrounding environment. To compare the best available methods of treatment.
- 4) **Create skills – with ability to** Design the different the wastewater treatment plants to gain the clean water suitable for using it for many purposes without pollution.

Course structures:

Week	C. Hrs	ILOs	Topics	Teaching Procedure	Assessment methods
Week 1		3	purpose of sanitary and necessity of systematic collection of wastewater	PPT. lecture	
Week 2		2-3	Population prediction and water consumption.	PPT. lecture	
Week 3		1	Sewerage systems types of sewerage systems material or sewers their sizes and joints manhole.	PPT. lecture	
Week 4		1+3	Quantity of sewage, domestic sludge, and sewage flow..	PPT. lecture	
Week 5-6		4	Types and design of deceleration tank and approach channel.	PPT. lecture	
Week 7		3+4	Purpose, Types and design of screens	PPT. lecture	Assignments 2 Test 1_ 10/4/2016
Week 8		1+2+4	Purpose, Types and design of grit removal chamber	PPT. lecture	
Week 9		3+4	Purpose, Types and design of primary settling tank .	PPT. lecture	
Week 10-11		2+3+4	Purpose, Types and design of trickling filter tank.	PPT. lecture	Test 2_ 28/5/2017 Assignments 2
Week 12-13-14		3+4	Purpose, Types and design of aeration tank	PPT. lecture	Assignments 3
Week 15		2+4	Purpose, Types and design of final settling tank.	PPT. lecture	
Week 16			Reports due, Presentation Due		

References:

- 1) wastewater engineering(with practical) by Metcalf& Eddy Fourth Edition-2009.
- 2) Wastewater operation control 2nd edition 2000 by Dr. Ahmed Abou Elmagd
- 3) Operation of wastewater treatment plants. A filed study training program by Kenneth D. Kerri-1980

Assessment Methods:

Methods	Grade	Date
Assignments	5	term
Report	5	term
First Exam	20	10/4/2017
Second Exam	20	28/5/2017
Final Exam	50	





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الإصدار: 01

تاريخ الإصدار: 24 حزيران 2015