TISHK INTERNATIONAL UNIVERSITY
FACULTY OF ENGINEERING
Department of CIVIL ENGINEERING,
2020-2021 Spring
Course Information for CE 422 SEWAGE SYSTEMS ENGENEERING

Course Name:	SEWAGE SYSTEMS ENGENEERING

Code	Regular Semester	Theoretical	Practical	Credits	ECTS
CE 422	8	2	2	3	

Name of Lecturer(s)-Academic Title:	Thamir Ahmed - Ass. Prof.
Teaching Assistant:	-
Course Language:	English
Course Type:	Main
Office Hours	4
Contact Email:	thamir.ahmed@tiu.edu.iq Tel:07508867963
Teacher's academic profile:	hydraulics
Course Objectives:	The aim of the course is to teach the students the basics and design of all components of sewage engineering systems.This course aims at conveying to the student the concepts of sewage collection management, storm water management, and wastewater treatmen
Course Description (Course overview):	Types of sewage systems (drainage), drainage system and separate the joint, the amount of sewage water, filtration, amount of rain water, the quarterly equation, coefficient of riverbed, time of concentration, the intensity of rainfall. Types of drainage pipe: muddy pipes, concrete, asbestos, iron, steel, hydraulic system, drainage, sedimentation in streams, the establishment of sewage, connectivity, safety and precautions in the creation of systems of exchange, systems accessories: slot screening, retail, current regulations, siphon, ejector, pumping stations, Properties of wastewater: solids, bacteria, oxygen required for the installation of bio-chemical chemical oxygen necessary, check the consistency, equivalent population, methods of wastewater treatment, water exchange: introducing the wastewater into rivers and ponds, dissolved oxygen and oxygen required for the installation of bio-chemical, oxidation ponds. Waste water treatment works.

COURSE CONTENT

Week	Hour	Date	Topic
1	2	31/1-4/2/2021	Introduction
2	2	7-11/2/2021	Sewerage systems
3	2	14-18/2/2021	Preliminary studies
4	2	21-25/2/2021	Sewer hydraulics,Pipe materials
5	2	28/2-4/3/2021	Loads on pipes
6	2	7-11/3/2021	Solved Examples
7	2	28/3-1/4/2021	Cases of Design
8	2	4-8/4/2021	Solved Examples
9	2	11-15/4/2021	Midterm Exam
10	2	18-22/4/2021	Midterm Exam
11	2	25-29/4/2021	Time of Concentration
12	2	2-6/5/2021	Solved Examples
13	2	9-13/5/2021	Design of Combined System
14	2	16-20/5/2021	Solved Examples

15	2	23-27/5/2021	Case Study I
16	2	30/5-3/6/2021	Case Study I
17	2	6-10/6/2021	Final Exam
18	2	13-17/6/2021	Final Exam

COURSE/STUDENT LEARNING OUTCOMES

1	Main Types of Sewage Systems
2	Forces on Sewers
3	Design of single system
4	Design of combined system

COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES

(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced)

	Program Learning Outcomes	**Cont.**
1	Apply principles of mathematics, science, and engineering	P
2	Design and conduct experiments, as well as analyze and interpret data accurately.	P
3	Design an engineering system, component, or process to meet desired industrial needs.	P
4	Identify, formulate and solve complex engineering problems	P
5	Apply, in design and construction, the most modern design codes, standards and specifications such as; AISC, ACI, ASCE 7, IBC, etc.	P
6	Use the techniques, skills, and modern engineering tools, such as surveying instruments, and designing software that are necessary for engineering practices.	P
7	Apply knowledge and skills in construction project management and recognition of international standards and methodologies	P
8	Manage to work with multi-disciplinary teams and communicate effectively.	P
9	Identify the moral values that ought to guide the Civil Engineering profession and resolve the moral issues in the profession.	P
10	Apply the principles of sustainable development in their professional duties which go in line with the paramount safety, health and welfare of the public.	I
11	Analyze the impact of engineering solutions in a global and social context	I
12	Identify the need and have the ability to engage in lifelong learning and knowledge of contemporary issues.	I

Prerequisites (Course Reading List and References):	Engineering Mechanics,Fluid Mechanics,Hydraulics
Student's obligation (Special Requirements):	The student must attend the classes effectively with a high level of participation .

Weekly Laboratory/Practice Plan:

Week	**Hour**	**Date**	**Topics**
1	2	31/1-4/2/2021	
2	2	7-11/2/2021	
3	2	14-18/2/2021	
4	2	21-25/2/2021	
5	2	28/2-4/3/2021	
6	2	7-11/3/2021	
7	2	28/3-1/4/2021	
8	2	4-8/4/2021	
9	2	11-15/4/2021	
10	2	18-22/4/2021	

	11	2	25-29/4/2021
	12	2	2-6/5/2021
	13	2	9-13/5/2021
	14	2	16-20/5/2021
	15	2	23-27/5/2021
	16	2	30/5-3/6/2021
	17	2	6-10/6/2021
	18	2	13-17/6/2021

Course Book/Textbook:	Water and Wastewater Engineering By Mackenzie L.Davis
Other Course Materials/References:	Hydraulics Handbook
Teaching Methods (Forms of Teaching):	Lectures, Excersises, Assignments, Case Studies

COURSE EVALUATION CRITERIA

Method	Quantity	Percentage (%)
Attendance	1	5
Participation	1	5
Quiz	4	5
Midterm Exam(s)	1	30
Final Exam	1	40
Total		**100**

Examinations: Essay Questions, True-False, Fill in the Blanks, Multiple Choices, Short Answers, Matching

Extra Notes:

ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD

Activities	Quantity	Workload Hours for 1 quantity*	Total Workload
Theoretical Hours	18	2	36
Practical Hours	18	2	18
Final Exam	1	16	16
Attendance	1	10	10
Participation	1	4	4
Quiz	4	10	40
Midterm Exam(s)	1	12	12
Total Workload			**136**
ECTS Credit (Total workload/25)			**5.44**

Peer review

Signature:	Signature:	Signature:
Name:	Name:	Name:
Lecturer	Head of Department	Dean