Course Number and Name	CE462-3 Sanitary Engineering
Credits hours	3 Credits hours
Contact hours	4 Contact hours; 2for lecture, 2 for tutorial and 0 for practical
Instructor/s name/s	Prof. Dr. Yasser Moussa
Textbook	Textbook of Water Supply and Sanitary Engineering (3/e) [Paperback] [Jan 01, 2006] S.K. Husian 3rd Edition
Other supplemental materials	1- Digital library of jazan university 2- Lecture notes
Specific course information	
a. Catalog description	Sanitary Engineering course aims at providing the students with a complete knowledge on wastewater collection, conveyance, treatment, disposal methods and design. The course will provide the knowledge of sludge and solid waste management. After completing the course, the students are expected to solve the problems of wastewater and solid waste management
b. Prerequisite	CE261-3 Environmental microbiology
c. Required / Elective	Required
Specific goals for the course	
Course Learning Outcomes (CLOs)	By the end of this course, the student will be able to: 1- Recognize principles of sanitary engineering. 2- Forecast population and water consumption. 3- Design sewer, pipe lines systems and sedimentation tanks. 4- Demonstrate the water treatment stages 5- Participate small project.
Student outcomes that addressed by the course	The following student outcomes are addressed by the course: SO1: An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. So2: An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. SO3: An ability to communicate effectively with a range of audiences. SO5: an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

Topics to be covered

Topic	Number of weeks
Identify Water Purification-Types of water and water pollutants.	**2**
Identify Main stages of water purification,	**2**

Design of water purification plant	**2**
Water distribution-Planning and Designing of water distribution	**2**
Identify Wastewater Treatment-Types of wastewater and pollutants, Main stages of wastewater treatment, Design of sewerage pipe lines using hydraulic formulae and charts	**3**
Design of sewers and sewerage-Calculating wastewater flows, Design of pipes and manholes, Valves and joints, Design of pump stations	**3**
1analysis and sampling, sludge treatment, disposal and reuse	**1**

Schedule of Assessment Tasks for Students During the Semester

Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week due	Proportion of Total Assessment
Homework- Reports	10	10%
Quizzes	10	10%
Midterm-exam I	15	15%
Midterm-exam II	15	15%
Term Project	20	20%
Final Exam	30	30%

CLO-SO Map							
	S01	S02	S03	S04	S05	S06	S07
CLO 1	√						
CLO 2	√						
CLO 3		√					
CLO4			√				
CLO 5					√		