

College of Engineering

Department of Civil Engineering

جامعة
الملك سعود
King Saud University



GE 203 Engineering and Environment

Credit and Contact hours	2 / 2 (Lectures), 1 (Tutorials), 0 (Laboratory)	
Required, or Elective	Required for All Departments	
Course Description	Introduces the impact of engineering and industrial activities on the environment. The lectures cover basics of ecosystems, environmental balance, types of pollution, and types, sources, and limits of pollutants; in addition to fundamentals of Environmental Impact Assessment (EIA). Pollution control technologies and examples of pollution from various engineering and industrial sectors are also covered.	
Prerequisites or Co-requisites	PHYS 104 (General Physics (2)), CHEM 101 (General Chemistry) and MATH 107 (Vectors and Matrices).	
Course Learning Outcomes	Students completing this course successfully will be able to	
	Course Learning Outcomes	<i>Related Student Outcomes (SO)</i>
	CLO1. Recognize the environment, ecosystems and environmental pollution, (Water- Soil- Air) in a global context.	SO4
	CLO2. Recognize the impact of industrial activities on the environment and its major natural cycles	SO4
	CLO3. Assess the different types of pollutants, their sources, limits and the different technologies for pollution control.	SO4
	CLO4. Recognize the importance of sustainable development and maintaining environmental balance in global context.	SO4
	CLO5. Demonstrate professionally a pollution problem and means for controlling it through presenting the results of a project to peers and students.	SO3
Student Outcomes related to this Course	<p>SO4. an ability to recognize ethical and professional responsibilities in engineering situations and make <u>informed judgments</u>, which must consider the <u>impact of engineering solutions in global, economic, environmental, and societal contexts</u>. [ABET 4]</p> <p>SO 3. an ability to communicate effectively with a range of audiences. [ABET 3]</p>	

	List of Topics	Related CLOs								
Topics Covered	1. Introduction to the environment, ecosystems and environmental pollution (definition of some environmental terms, categories of pollutants, examples on different types of pollution, natural cycles of important components).	CLO 1,								
	2. Sustainable development and environmental balance	CLO4								
	3. Natural cycles of important components	CLO2								
	4. Water pollution (water quality, water quantities, pollutants and their standard limits and treatment; wastewater quantity, characteristics, reuse, and discharge standards, and treatment) 5.	CLO 3								
	6. Air pollution (types of pollutants, standards, and control	CLO 3								
	7. Solid wastes (quantity, characteristics, management, and disposal)	CLO 3								
	8. Noise pollution (introduction, rating systems, effects on people, sources, and control).	CLO 3								
	Textbook(s) and Other Required Material	<ol style="list-style-type: none"> 1. G. Tyler Miller, Scott Spoolman (2014) Living in the Environment, 17th edition, Cengage Learning. (Chapter: 3, 6, & 23) 2. Jerry A. Nathanson, Richard A. Schneider (2014) Basic Environmental Technology: Water Supply, Waste Management, and Pollution Control, 6th edition, Pearson Education, Limited. (Chapter: 5, 11, 12, 13, & 14) 								
Grading System	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Assignments & Quizzes</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Mid-Term Test</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Term Project</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Final Examination</td> <td style="text-align: right;">40%</td> </tr> </table>		Assignments & Quizzes	20%	Mid-Term Test	20%	Term Project	20%	Final Examination	40%
Assignments & Quizzes	20%									
Mid-Term Test	20%									
Term Project	20%									
Final Examination	40%									
Instructors	Dr. Mohab Amin M. Kamal (Room 2A60), email; maamin@ksu.edu.sa									
Date of Review	September 2020									