

GE 302 Industry and the Environment

Credit and Contact hours	2 / 2 (Lectures), 0 (Tutorials), 0 (Laboratory)
Instructors	Prof. Ashraf M. Refaat (2A4) Dr. Mohab M. Kamal Amin (2A60) Dr. Ahmed Alnuaim (2A63)
Textbook(s) and Other Required Material	<ol style="list-style-type: none"> 1. "Principles of Environmental Engineering and Science" By Mackenzie L. Davis and Susan J. Master (2009), 2nd ed. 2. "Environmental Engineering" By Salvato, Nemerow, & Agardy (2008), 5th ed., Wiley 3. "Environmental Pollution: Atmosphere, Land, Water & Noise" By Herbert Mason Dix (1981), John Wiley, Chichester. 4. Saudi Drinking Water Standards. 5. Saudi Ambient Air Quality Standards. 6. American Ambient Air Quality Standards.
SPECIFIC COURSE INFORMATION	
Course Description	This course gives an introduction to 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. The course also includes a group term project.
Prerequisites or Co-requisites	None
Required, Elective, or Selected Elective	Required for a BSCE degree
SPECIFIC GOALS FOR THE COURSE	
Course Learning Outcomes	Students completing this course successfully will be able to CLO 1 - Recognize the environment & its elements & pollution (Water- Soil- Air).

	<p>CLO 2 - Recognize the basics of the global ecosystem and the natural cycles of its major components.</p> <p>CLO 3 - Explain the types of environmental pollution caused by engineering and industrial activities.</p> <p>CLO 4 - Write projects, presentation and reports.</p>															
Student Outcomes	<p>SO 1 - An ability to apply knowledge of mathematics, science, and engineering</p> <p>SO 7 - An ability to articulate professional ideas clearly and prepare written materials, graphical communications and make oral presentations</p> <p>SO 8 - The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context for serving the society</p> <p>SO 11 - An ability to use the techniques, skills and modern engineering tools necessary to civil engineering practice</p>															
Topics Covered	<ol style="list-style-type: none"> 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). 2. Water pollution (water quality, water quantities, pollutants and their standard limits and treatment; wastewater quantity, characteristics, reuse and discharge standards, and treatment) 3. Air pollution (types of pollutants, standards, and control) 4. Solid wastes (quantity, characteristics, management, and disposal) 5. Noise pollution (introduction, rating systems, effects on people, sources, and control). 6. Fundamentals of EIA. 															
Grading System	<table> <tr> <td>Mid-term Exam</td> <td>1</td> <td>15%</td> </tr> <tr> <td>Mid-term Exam</td> <td>2</td> <td>15%</td> </tr> <tr> <td>Field Visit</td> <td></td> <td>15%</td> </tr> <tr> <td>Project</td> <td></td> <td>15%</td> </tr> <tr> <td>Final Exam</td> <td></td> <td>40%</td> </tr> </table>	Mid-term Exam	1	15%	Mid-term Exam	2	15%	Field Visit		15%	Project		15%	Final Exam		40%
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