

ENVS 561 Industrial Pollution	
Master of Science in Environmental Science King Saud University	
Course Description	Source of industrial pollution (gaseous, liquid and solid), physical-chemicals properties of contaminate. The basic of chemical, physical, biological, and thermal treatments of industrial pollution, techniques for controlling and managing industrial wastes, recycling of industrial wastes. Solid waste and hazardous wastes management. 2 (2, 0)
Course Learning Objectives	<ol style="list-style-type: none"> 1. Compare and identify the regulatory requirements for the industrial waste treatment and disposal. 2. Recognize the physical-chemical properties of the contaminate. 3. Compare and discuss the various physical, chemical, biological, and thermal treatment technologies used to remove contaminants. 4. Identify the key elements in a pollution prevention and minimization of waste 5. Recognize and describe the waste management hierarchy (source reduction, recycling, treatment, and disposal). 6. Discuss the source, classification, and management of solid waste and hazardous waste
Topics Covered (30 hours)	<ol style="list-style-type: none"> 1. Introduction to Waste Streams (4 hours) 2. Waste Stream Regulations (2 hours) 3. Physical-Chemicals Properties of Contaminate (4 hours) 4. Overview of Liquid Waste Treatment (2 hours) 5. Common Industrial Waste Processes (4 hours) 6. Typical Industrial Wastes Example (4 hours) 7. Environmental Audits (2 hours) 8. Minimization of Waste & Pollution Prevention (2 hours) 9. Life Cycle Design for General Manufacturing (2 hours) 10. Introduction to Solid Waste Hazardous Waste (4 hours)
Teaching Methods	Two 120-minute lecture session per week.
Textbook(s) Other Supported Material	<ul style="list-style-type: none"> – Howard H. Guyer (1998) Industrial processes and waste stream management, New York: Wiley. – LaGrega et al (2010) Hazardous Waste Management, 2nd edition, Environmental Resources Management, IL: Waveland Press.
Grade Distribution	<p>Midterm Exam – 20%</p> <p>Homework – 20%</p> <p>Reports & Assignment – 20%</p> <p>Final Exam – 40%</p>
Prepared by	Dr. Mohamed A. Othman
Date of Preparation	07-Dec-2017