

CIVE 3331 Environmental Engineering

CIVE 3331 - ENVIRONMENTAL ENGINEERING

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Purpose: Exercises related to Lecture # 1. These exercises develop library and Internet research capabilities, develop critical thinking skills, and exercise technical writing skills. Direct relationships to various accreditation objectives are highlighted in **Bold** type in the following sections. The exercises start on the next page.

Relevant ABET EC 2000 Criteria: Criterion 3 Program Outcomes and Assessment

- (3-b) **an ability** to design and conduct experiments, as well as **to analyze and interpret** data.
- (3-f) an understanding of professional and ethical responsibility.
- (3-g) **an ability to communicate effectively**.
- (3-i) a recognition of the need for, and **an ability to engage in life-long learning**
- (3-j) **a knowledge of contemporary issues**.
- (3-k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Relevant CEE Educational Objectives:

- (4) **Instill in each student the importance of service to the engineering profession**, ethical conduct, and service **to society**.
- (5) **Prepare every student to develop the skills for critical thinking and lifelong learning**.
- (6) **Incorporate** the results of the latest research and provisions of **current** codes and **regulations in our undergraduate courses**.

Relevant CEE Program Outcomes:

- i. **Students should obtain a broad education that** furnishes them with a knowledge base and intellectual perspective, and **gives them an ability to understand the role** and the impact of civil **engineering** solutions in a global, **societal, and environmental context**.
- v. **Students should acquire the capability to function and communicate effectively**, both as **individuals** and as members of interdisciplinary teams.

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Exercise_001-1

Read the National Environmental Policy Act of 1969, then briefly answer the following questions:

- a) Title I of the act proclaims “national policy” in regards to the environment and contains specific instructions on how Federal agencies shall act. It also contains instructions to individuals. What are the specific responsibilities of individual citizens under the act?
- b) Title II of the act creates an entity in the Executive Office of the President of the United States. What is the title of this entity?
- c) Title II provides examples of environmental classes (essentially defines of what the environment is comprised). List these examples.

A copy of the legislation is attached as a PDF file named: NEPA_1969.pdf

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Exercise_001-2

Write a brief essay where you compare and contrast the concepts between effluent/emissions-based standards and quality/ambient-based standards.

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Exercise_001-3

Using the world-wide-web find, read, and write one page summaries of

- a) PL 92-500
- b) Superfund
- c) CERCLA
- d) Current water quality standards for non-designated streams in Texas.

In each summary, include the URL (web address) you used to prepare your summary. Do not attach print-outs for this exercise (if you have found the actual legislation and not a link, these print-outs would be quite large).

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Exercise_001-4

Using the world-wide-web find the current address of the Region 6 headquarters of EPA. Attach a print-out of the Region 6 home page.

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Exercise_001-5

Using the world-wide-web find the current address of the headquarters of the ~~Texas Natural Resources Conservation Commission~~ Texas Commission on Environmental Quality. The strike-through name is the previous name for this State Agency. When was the name changed?

Attach a print-out of the web page of the state agency (home page only!).

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Exercise_001-6

The concept of “commons” is fundamental to environmental law and engineering. Find the article listed below in the library and attach a copy to this exercise.

Hardin, G., 1968. “The tragedy of the commons.” Science, **162**, pp. 1243-1248.

The “Tragedy of the Commons” suggests several methods to allocate limited resources. Find examples from daily life or from the newspaper where resources are allocated in the manner described in the article. Prepare a brief essay where each of the allocation methods in the article is identified and an example from daily life is presented.

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