1. **Title:** Rename CIVT 4211 from Environmental Pollution Control to Environmental Engineering II

2. **Submitting College:** COST

3. **Department(s) Generating the Proposal:** Engineering Technology and Mathematics

4. **Effective Date:** Fall 2011

5. **Brief Summary of Proposal:**
   We would like to propose renaming CIVT 4211 from Environmental Pollution Control to Environmental Engineering II. The title is more representative of the current course content.

6. **Type of Proposal:**
   - ___ New Program
   - ___ Program Change
   - **X** Course Change Only

7. **Graduate School Endorsement Status:** N/A

8. **Impact on Library Holdings:**
   - Existing: none
   - Additional: none
   - Deletions: none

9. **Impact on Existing Programs:** None

10. **Additional Resources Required:**
    - A. Personnel
    - B. Non-Personnel

11. **Approvals:**
    - ___ Department Faculty Date__________________
    - ___ College Faculty Date__________________
    - ___ Curriculum & New Programs Committee Date__________________
    - ___ Faculty Senate Date__________________
    - ___ Vice President for Academic Affairs Date__________________
COURSE DESCRIPTION (CATALOG DATA):
Water pollution; point and diffuse sources; river pollution and oxygen sag curve analysis; groundwater pollution analysis; eutrophication of lakes; coastal pollution; solid wastes management - collection, storage and transport; processing and transformation; incineration, composting and sanitary landfilling; recycling; hazardous waste management - types of wastes, RCRA, CERCLA and others, treatment and disposal methods; air pollution - air pollutants and interaction products, preventive and control measures.

Credit Hours: 3 (3-0-3)
Prerequisites: CIVT 4201K

EXPECTED STUDENT LEARNING OUTCOMES:
The student shall understand the principles and practices involved in engineering applications for control of water pollution, air pollution, and management of solid wastes and hazardous wastes. The student shall learn the fundamental concepts/design procedures for:

* study and analysis of river pollution
* control of eutrophication in lakes
* storage, collection, treatment & disposal of solid wastes
* hazardous wastes and treatment technologies
* air pollution control devices
* environmental laws

CORE COMPETENCIES:
The course shall emphasize, among others, on the following core competencies:

- Quantitative reasoning and mathematics
- Cultural & social perspectives

TEXTBOOK:

SUPPLEMENTAL RESOURCES:
Jayaraman, K: Online Course ‘ Environmental Pollution Control’
http://www.savannahstate.edu/scitech/engtech/online.htm


Howard S. Peavy, Donald S. Rowe and George Tchobanoglous, Environmental Engineering, McGraw Hill, 1985


CLASS ATTENDANCE POLICY:
Credit may not be awarded if the number of absences exceeds the number of times that the class meets per week - namely 3 hours. Punctuality will be strictly enforced.
METHODS OF INSTRUCTION & ASSESSMENT:

Online Course:
Class lectures will be supplemented by the web-based on line course:
Jayaraman, K: Online Course ‘ Environmental Pollution Control’
http://www.savannahstate.edu/scitech/engtech/online.htm

Tutorial Sessions:
A number of tutorials (problem-solving) will be held, and each student must have his scientific calculator during all
the classes. These sessions will provide ample opportunity to ask questions, to clear doubts, to improve problem-
solving skills, and to understand practical applications. Computer usage will form part of these sessions.

Home assignments:
Use of library facilities and internet resources shall be incorporated. These should be submitted in time. Late
submissions will not be accepted for evaluation

Course Folders:
All tutorial sheets (question papers and answer sheets), assignments and test papers shall be placed in a Course
Folder. The Course Folder must be submitted on specified dates (to be announced in the class).

Tests and Final Examination:
These should be taken on the dates and times which shall be announced at least one week in advance. No make-up
tests will be given except under extremely special circumstances.
Tentative dates for Tests:
Test 1: Wednesday, February 3, 2010
Test 2: Wednesday, February 24, 2010
Test 3: Monday, March 29, 2010

GRADING POLICY:
The final grade for indicating the quality of academic work represents the student’s successful performance in all the
instructional areas of this Course.
The final evaluation shall be based on the following:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
<td>85 - 100</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>70 - 84</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>60 - 69</td>
</tr>
<tr>
<td>D</td>
<td>Poor</td>
<td>50 - 59</td>
</tr>
<tr>
<td>F</td>
<td>Fail</td>
<td>&lt; 50</td>
</tr>
</tbody>
</table>

ACADEMIC IRREGULARITY:
Academic honesty will be enforced as an essential component of student conduct as detailed in the
University Catalog.

DISABILITY ACCOMMODATIONS:
If a student has a documented and declared disability, reasonable accommodations will be provided if requested by the
student according to the recommendations of the office of Counseling and Disability Services (CDS) (912) 356-2285/(912) 303
1650/(912) 356-2202.
INSTRUCTIONAL UNITS

A. Introduction:
   Environment: Changing scope of environmental problems; Ecological impacts of environmental pollution;
   Health impacts of microbiological and microchemical pollution; Role of environmental technology.
   ~1 week

B. Water and Water Pollution
   Review of water quality parameters.
   Water Pollution - Sources of pollution; point and diffuse; ecology of flowing waters; point source of pollution and self-purification of rivers; deoxygenation and reaeration; oxygen sag curve analysis; water pollution surveys. Impounded waters and their ecology; eutrophication of lakes; significance and use of phosphorous loading; prevention and control of eutrophication. Estuaries and ocean pollution; laws and regulations.
   ~6 weeks

C. Solid Waste and Hazardous Waste Management:
   Solid wastes: importance of proper collection, storage, transport and disposal; quantity, composition and characteristics solid wastes; storage and collection systems; collection vehicles; collection routes.
   Sanitary landfills: principles, rate-controlling factors; operational problems.
   Composting: principles and parameters; types of compost plants.
   Other methods of resource conservation and recovery; laws and regulations.
   ~5 weeks
   Hazardous wastes: definition and classification; sources; storage, collection, transfer and transport; HW management - principles and considerations; risk assessment; priorities - waste management, minimization and recycling; treatment, storage and disposal requirements; treatment technologies; disposal methods; groundwater contamination and site remediation; laws and regulations.
   ~3 weeks

D. Air Pollution
   Introduction to air pollution; Air pollutants and their effects; origin and fate of air pollutants; photochemical oxidants; air pollution control; dilution and control at source; control devices for particulates; control devices for gaseous contaminants.
   ~1 week

Civil Engineering Technology Program Outcomes

The educational objectives of the program are prescribed and achieved to demonstrate the following outcomes:

1. The graduate will have the engineering competence with ability to identify and analyze engineering problems and to apply knowledge, techniques and skills in creatively designing and maintaining systems for solving those problems
2. The graduate will have a good understanding of mathematics, science, technology, engineering, and computational methods and an aptitude for life-long learning for continuous improvement and to solve current and future problems at the regional and global level
3. The graduate will develop an ability to conduct experiments, analyze the data for engineering applications, and ensure quality control
4. The graduate will have the ability to function in multidisciplinary teams, assume societal and ethical responsibilities, communicate effectively, and contribute to the advancement of the art and science of engineering technology

As an ABET-accredited program, the Civil Engineering Technology program totally embraces the following Program Outcomes:

a. an appropriate mastery of the knowledge, techniques, skills, and modern tools of their disciplines
b. an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology
c. an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes
d. an ability to apply creativity in the design of systems, components, or processes appropriate to program objectives
e. an ability to function effectively on teams
f. an ability to identify, analyze and solve technical problems  
g. an ability to communicate effectively  
h. a recognition of the need for, and an ability to engage in lifelong learning  
i. an ability to understand professional, ethical and social responsibilities  
j. a respect for diversity and a knowledge of contemporary professional, societal and global issues  
k. a commitment to quality, timeliness, and continuous improvement  

The Course CIVT 4211 (Environmental Pollution Control) lays special emphasis on the outcomes a, b, d, f, i, j, and k.

Internet Resources:

United States Government:

http://www.epa.gov (Environmental Protection Agency)  
http://www.census.gov (U.S. Bureau of Census)  
http://www.ed.gov (Department of Education)  
http://www.doe.gov (Department of Energy)  
http://info.er.usgs.gov/doi/doi.html (Department of the Interior)  
http://www.fws.gov (Fish & Wildlife Service)  
http://www.fs.fed.us/ (Forest Service)  
http://lcweb.loc.gov/homepage/lchp.html (Library of Congress)  
http://www.nara.gov (National Archives)  
http://www.nih.gov (National Institute of Health -NIH)  
http://www.nsf.gov (National Science Foundation -NSF)  
http://www.nara.gov (National Archives)  

Associations/ Societies/ Groups:

http://www.eartsystems.org (Earthsystems)  
http://www.wef.org (Water and Environment Federation)  
http://www.envirolink.org (EnviroLink)  
http://www.worldenvironment.com (World Environment)  
http://www.unep.org (United Nations Environmental Program)  
http://www.gwpca.org (The Georgia Water Pollution Control Association)  
http://www.eegs.org/ (Environmental and Engineering geophysical Society)  
http://www.awma.org (Air & Waste Management Association)  
http://www.nwra.org/newsite/ (National Environmental Health Association)  
http://www.h2o-ngwa.org/vs/ (National Water Resources Association)  
http://www.ngwa.org/ (National Groundwater Association)  
http://www.awwa.org (American Water Works Association)  
http://www.asce.org (American Society of Civil Engineers)  
http://www.acs.org (American Chemical Society)