FORM I - SUMMARY PAGE FOR PROPOSAL **# CIVT102010-16**

1. **Title:** Rename CIVT 4201 from Environmental Engineering to Environmental Engineering I

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 4201 from Environmental Engineering to Environmental Engineering I. The title is more representative of the current proposed course sequence.

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:
   Additional:
   Deletions:

9. **Impact on Existing Programs:**

10. **Additional Resources Required:** None
    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_____

Savannah State University
CIVT 4201K Environmental Engineering I

COURSE DESCRIPTION (CATALOG DATA):

Basic concepts of environmental relationships; principles of environmental chemistry, microbiology, ecology and health; water quality parameters; water treatment processes; wastewater treatment processes; sludge treatment and disposal; industrial wastewaters; design of water, wastewater and sludge treatment units; water distribution and wastewater collection systems - design principles; computer applications.

Credit Hours: 4 (3-2-4)
Prerequisites: CHEM 1211, CIVT 3301K

EXPECTED STUDENT LEARNING OUTCOMES:

The student will gain an understanding of the principles and practices involved in engineering applications in the area of provision of safe drinking water and sanitary disposal of domestic and industrial wastewaters:

* planning water and wastewater systems
* significance of water quality parameters
* design of water treatment units
* design of wastewater treatment units
* wastewater effluent reuse
* water distribution systems
* wastewater collection systems

CORE COMPETENCIES:

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

- Quantitative reasoning and mathematics
- Scientific reasoning

TEXTBOOK: Mackenzie L. Davis and David A. Cornwell, Introduction to Environmental Engineering, McGraw-Hill, 2008

SUPPLEMENTAL RESOURCES:

Jayaraman, K: Online Course ' Environmental Engineering'
http://www.savstate.edu/scitech/engtech/online.htm

Howard S. Peavy, Donald S. Rowe and George Tchobanoglous, Environmental Engineering, McGraw Hill, 1985
Mackenzie L. Davis and Susan J. Masten, Principles of Environmental Engineering and Science, McGraw Hill, 2004
American Water Works Association, Water Quality and Treatment Handbook, 2003
American Society of Civil Engineers and American Water Works Association, Water Treatment Plant Design, 1997
Hammer, M. J. and M.J. Hammer, Jr., Water and Wastewater Technology, Prentice Hall, 2001
Metcalf & Eddy, Inc., Wastewater Engineering - Treatment, Disposal, and Reuse, McGraw Hill, 2003

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 7 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 Engineering'
http://www.savstate.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.
Laboratory sessions will be held to provide introduction to water and wastewater analysis. Field visits shall include visits to water and wastewater treatment plants.

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.

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:

Home assignments and tutorials:	30%
Tests:	30%
Final examination:	40%

A	Excellent	85 - 100
B	Good	70 - 84
C	Average	60 - 69
D	Poor	50 - 59
F	Fail	< 50

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:
Environmental pollution; ecological and health impacts; Water- and sanitation-related health hazards. ~½ week

B. Planning Water and Wastewater Systems:
General considerations; design periods; population forecasting; water demands; variations in water demand; design flows ~1½ weeks

C. Water Quality Considerations:
Examination of water and wastewater: Physical, chemical, bacteriological and biological; Significance of tests and interpretation (temperature, color, taste, odor, turbidity, conductivity, pH, alkalinity, acidity,

chlorides, nitrogen compounds, dissolved oxygen, sulfates, hardness, fluorides, iron and manganese, residual chlorine, lead, organics, etc.; BOD, COD, indicator organisms)
Sampling: Grab and composite; procedures; Standards and guidelines ~2½ weeks

D. Water Sources and Intakes:
Rain-, surface-, ground-, and sea-water; rainwater and roof catchments; intakes for lakes, reservoirs and rivers; types of wells; sanitary considerations. ~½ week

E. Water Treatment:
Principles, processes and design of component units: plain sedimentation; coagulation and flocculation; coagulants; rapid mixers and flocculators; sedimentation; sedimentation basins and solids contact basins; filtration; types of filters; disinfection; chlorination and ozonation; softening; desalination, other treatment processes; water treatment for industries. ~4 weeks

F. Wastewater Treatment:
Wastewater characteristics; decomposition of wastewaters (aerobic, anaerobic and anoxic); industrial wastewaters; population equivalents.

Principles, processes and design of component units; primary treatment; screens; grit chambers; primary sedimentation; secondary treatment; suspended culture systems; completely mixed and plug flow reactors; process variations; stabilization pond systems; attached culture systems; trickling filters, biotowers and rotating biological contactors; secondary clarifiers; advanced wastewater treatment; nutrient removal; effluent reuse and disposal; sludge treatment and disposal - thickening, digestion, vacuum filtration, drying and incineration; introduction to treatment of industrial wastewater. ~5 weeks

G. Water Distribution Systems and Wastewater Collection Systems:
Water distribution systems: types; storage; distribution and pumping; capacity of service reservoirs; introduction to design of distribution systems.
Wastewater collection systems: sanitary and storm sewer systems; introduction to design; sewer appurtenances. ~2 weeks

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 3101K (Surveying) lays special emphasis on the outcomes a, b, c, d, f, g, 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.stat-usa.gov/stat-usa.html	(Stat-USA)
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://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-nmd.usgs.gov	U.S. Geological Survey - National Mapping Information
http://www.asce.org	American Society of Civil Engineers
http://www.acs.org	American Chemical Society