State
Community
College
of East St. Louis

MAY 16 1994

Office of Curricular and Instructional Services

May 9, 1994

Re: Environmental Science Curriculum Committee

Dear Committee Member:

The next Environmental Science Curriculum Committee meeting is scheduled to be held at **11:00 a.m., Wednesday, May 18, 1994 in the Board Room of State Community College, 601 James R. Thompson Blvd., East St. Louis, Illinois.** Again, your presence is needed to ensure a successful meeting.

At our previous meeting on Wednesday, April 20, 1994, Susan Noel, Chemical Waste Management and Stephanie Anthony, State Community College discussed marketing plans for the Environmental Science Program. It was stated that the best method of securing 25 students for the summer session, would be to concentrate on those students who are currently enrolled in classes at State Community College.

Letters will be mailed to high school students, giving them an overview of the program. State Community College along with the assistance of Southern Illinois University, Edwardsville, East St. Louis site, are also attempting to secure some of the students for the summer session.

Dr. Terry Lewis, Dean of Curricular and Instructional Services, informed the committee that on June 14, 1994 the NEPA will conduct a regional meeting at State Community College. Additional information regarding the regional meeting will be shared with committee members as it becomes available.

601 James R. Thompson Boulevard
East St. Louis, Illinois 62201-1129
Phone: (618) 583-2559-2560
Facsimile: (618) 583-2661

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Enclosed, you will find a letter from the U.S. EPA. Mr. William E. Muno, Director of the Waste Management Division has agreed to serve as a representative on the Environmental Science Curriculum Committee. Please review the enclosure, assistance of the U.S. EPA will be a definite boost to our program.

We look forward to seeing you at our **May 18, 1994** meeting. Thank you for your attention and continued support.

Sincerely,

Terry Lewis
Dean of Curricular Instructional Services

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

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DEAN OF INSTR.
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REPLY TO THE ATTENTION OF:
H-7J

Dr. Terry Lewis, Dean
Office of Curricular and Instructional Services
State Community College of East St. Louis
601 J.R. Thompson Boulevard
East St. Louis, IL 62201

Dear Dr. Lewis:

I am writing in response to your request for U.S. EPA representation on the Environmental Science Curriculum Committee. I will be happy to serve in that capacity with one caveat. Limited and ever-dwindling travel funds make it unlikely that I will be able to attend most of the meetings. However, I can, and am eager to, provide our Agency's perspective through the review of documents, reports, etc. I will also speak with other senior managers here in Region 5 in an effort to identify facilitators for workshops and opportunities for work experience. Thank you for the invitation.

As a new steering committee member, I would like to offer one comment on the curriculum that has been developed. I see an emphasis on pollution control and treatment without equal time being given to source reduction. With the Pollution Prevention Act of 1990, the Congress declared the national policy of the United States to be pollution prevention or reduction at the source, whenever feasible, before recycling, treatment and disposal. Movement within industry and environmental regulatory agencies, appropriately, is towards the use of techniques that will eliminate waste before it is generated. I recognize that there must still be a need for technicians trained in pollution control and treatment or it would not be the focus of a curriculum developed in part by industry. However, I feel we would be doing the students a disservice and limiting their opportunities in the future if we did not expose them to pollution prevention today.

I will ask my staff to look into what we have available in the way of pollution prevention training. You may also want to pursue this with the Illinois EPA. It is my understanding that the Collinsville office has pollution prevention staff. Someone else whom I think might be interested in furthering source reduction education and training at SCC is Dr. Dave Thomas, Director, Illinois Hazardous Waste Research and Information Center (HWRIC). HWRIC is a Division of the Illinois Department of Energy and Natural Resources, and is located on the University of Illinois Urbana-Champaign campus. The telephone number there is (217) 333-8940.

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If I can be of further assistance, do not hesitate to call me or Karen Lumino, of my staff, at (312) 886-7579 and (312) 886-0981, respectively. I look forward to working with you in the future.

Sincerely yours,

Wm. E. Muno

William E. Muno, Director
Waste Management Division

COURSE TITLE:

POLLUTION CONTROL AND TREATMENT TECHNOLOGIES

COURSE DESCRIPTION:

This course is not envisioned as a heavy engineering course, it is meant to provide the student with exposure to control and/or treat pollution in all media.

COURSE OUTLINE

AIR POLLUTION CONTROL TECHNOLOGY

1) BAGHOUSES
2) SCRUBBERS
3) ELECTRIC PRECIPITATORS
4) STACK INJECTION

WATER TREATMENT

1) CHEMICAL TREATMENT TECHNOLOGY
2) BIOLOGICAL TREATMENT TECHNOLOGIC
3) GROUND WATER TREATMENT
   a) Bioremediation
   b) Air Stripping
   c) Carbon Filtration
4) STORMWATER BEST MANAGEMENT PRACTICES (BMP 5)

WASTE TREATMENT

1) THERMAL TREATMENT TECHNOLOGIES
2) CHEMICAL STABILIZATION
3) BIOREMEDIATION/IN-SITU TREATMENTS
4) LANDFILLING

COURSE REQUIREMENTS/GRADING STANDARDS

Students will be required to demonstrate their fulfillment of the objectives through:

1. Class Participation
2. Class Analysis
3. Test Performance

Students will be graded on the following scale:

Class Participation	20%
Tests	40%
Mid-term	15%
Final	25%
	100%

There will be no make-up examinations except in **RARE** emergencies. Any student whose performance is 87% or better prior to final examinations, will **NOT** be required to take the final examination.

INSTRUCTIONAL METHODS

The Lecturer Method of instruction will be used with emphasis on case analysis.

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COURSE: **ENVIRONMENTAL LAB ANALYTICAL TECHNIQUE**

CREDIT HOURS: 3 - Taken Semester II
ACTUAL HOURS: 1 hr. Classroom, 4 hrs. Lab Work

PREREQUISITES: Chemistry I & Biology

COURSE DESCRIPTION: The objective of this course is to provide the student with a general understanding of environmental lab techniques in analysis of samples taken from the medias of water, wastewater, groundwater, solid waste, sludge, soils, stack discharges and ambient air.

COURSE OUTLINE:

I. Introduction to a Lab
- --Equipment
  - a. Glassware
  - b. Meters
  - c. Analytical Equipment
- --Lab Data
  - a. Lab Math
  - b. Record keeping & Data Acquisition
- --Lab Chemical Safety and Handling

II. Analytical Techniques
- --Sample Preservation
- --Measuring & Weighing
- --Titration
- --Standards Preparation
- --Sample Preparation
- __Sample Verification & QA/QC Procedure

III. Wet Chemistry
- a. Ph
- b. Conductivity
- c. Suspended Solids
- d. Total Solids
- e. Oil & Grease

IV. Metals Analysis
- a. Wet Chemistry
- b. Instrumental

V. Organics Analysis

VI. On-Line Computer Governmental References

COURSE REQUIREMENTS/GRADING STANDARDS

Students will be required to demonstrate their fulfillment of the objectives through:
1. Class Participation
2. Class Analysis

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3. Test Performance

Students will be graded on the following scale:

Class Participation	20%
Tests	40%
Mid-term	15%
Final	25%

	100%

There will be no make-up examinations except in **RARE** emergencies. Any student whose performance is 87% or better prior to final examinations, will **NOT** be required to take the final examination.

INSTRUCTIONAL METHODS

The Lecturer Method of instruction will be used with emphasis on case analysis.

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COURSE: **ENVIRONMENTAL MONITORING, SAMPLING & FIELD ANALYSIS**

CREDIT HOURS: 3 - Taken Semester III
ACTUAL HOURS: 2 hrs. Classroom & 2 hrs. Field Work

PREREQUISITES: Chem. I & II, Biology, Environmental Lab Analysis Technique

COURSE DESCRIPTION: The objective of this course is to provide the student with a general understanding of environmental monitoring and sampling techniques in the medias of water, wastewater, groundwater, solid waste, sludge, soils, stack discharges and ambient air.

TOPICS

I. Water & Wastewater Monitoring, Sampling & Field Analysis
- --Flow Measuring
  - a. Electrical & mechanical devices
  - b. Weirs & Flumes
  - c. Surface Water
- --Sampling Objectives
  - a. Outfalls, surface, sewers
  - b. QA/QC Procedures
- --Sampling Techniques
  - a. Types of Samples
    1. Automatic & Grab Samplers
    2. Microbiological
    3. Chemical
  - b. Sample Collecting, Preservation, Handling & Storage
  - c. Chain of Custodies
- --Portable Field Analysis
  - a. Ph
  - b. Temperature
  - c. Physical/Chemical Field Analysis

II. Groundwater Sampling
- --Groundwater Characteristics
- --Monitoring Wells
- --Sampling Techniques & Protocols
- --Sampling Objectives & QA/QC Procedures

III. Soil, Solid Waste & Sludge Sampling
- --Types & Frequency of Samples
- --Sample Techniques
- --Remedial Investigation
- --Sampling Objectives & QA/QC Procedures

IV. Air Quality & Stack Monitoring, Sampling & Field Analysis
- --Ambient Air Quality Monitoring
- --Fundamental Meteorology
- --Sampling Stations

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--Stack Testing (USEPA Methods 1-10)
a. Air Flows in Stack
1. Temperature
2. Pressure
3. Relative Humidity
4. Pitot
b. Sample Train
c. Sampling Parameters
d. Preparation, Preservation & Chain of Custodies
e. Data Collection
--Sampling Objectives & QA/QC Procedures

V. Sampling Safety & Protection
--Personal Protective Equipment
--Confined Space Entry (Sewers)
--Stack Sampling Safety

VI. On-Line Computer Governmental References

COURSE REQUIREMENTS/GRADING STANDARDS

Students will be required to demonstrate their fulfillment of the objectives through:
1. Class Participation
2. Class Analysis
3. Test Performance

Students will be graded on the following scale:

Class Participation	20%
Tests	40%
Mid-term	15%
Final	25%
	100%

There will be no make-up examinations except in **RARE** emergencies. Any student whose performance is 87% or better prior to final examinations, will **NOT** be required to take the final examination.

INSTRUCTIONAL METHODS

The Lecturer Method of instruction will be used with emphasis on case analysis.

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