NEW/MODIFIED/ACTIVATED/INACTIVATED COURSE

Division: **Health & Public Services** Date **9/17/98**

Course Designator: **EHMT 110**

Title: **Waste Stream Generation/Reduction & Treatment**

Same as (other course(s) designator(s), ,

Effective Catalog Year: **1999-2000** Faculty Originator: **Robert Evangelista**

New Course [ ] Course Classification Code: **I2**

Course Modification* [✓] SAM Classification Code: **C**

Inactivate Course [ ] Activate Course [ ]

Requires Board Approval:

Units of Credit	From:	To:	Prerequisite [ ] (attach change)
Lecture Hours	From:	To:	Corequisite [ ] (attach change)
Laboratory Hours	From:	To:	
Degree Status	From:	To:	Course Designator: [ ]
			From:
			To:

Board Approval Not Required:

Course Description [✓] Title: [ ]
Grading Basis [ ] From:
Recommended Preparation [ ] To:
Other:

Rationale for Modification or Activation or Inactivation:
Clarification

*NOTE: **Attach new or modified course outline for all course modifications.**

Division Dean _____ Date _____

Vice President for Academic Affairs _____ Date _____

Academic Senate Vice President _____ Date _____

Instructional Office Use Only:
Approved by:
C & I Sub A Date _____
C & I Committee Date _____
Governing Board Date _____
Catalog Number Date _____

SOUTHWESTERN COLLEGE
COURSE OUTLINE

Division: **Health & Public Services**

Origination Date: 11/90

Modification Date: **9/98**

Effective Date: **Fall 1999**

Course Designator and Number	Title	Units	Lec	Lab.
EHMT 110	Waste Stream Generation/Reduction & Treatment	3	3	

Same as (other course(s) designator(s),

Grading Basis: Grading Scale; Credit/No Credit option available

Prerequisite:

Corequisite:

Recommended Preparation:

Course Description & Scope: (50 words or less)
Industrial processes and generation of waste streams. The course will study various r~~aw materials and chemicals used~~, **waste streams (air, water, and solids), examining the changes that occur through the industrial processes, and understanding the material balance concept.** Discussion of applicable r~~egulations~~ **technology** will be included. The ~~importance~~ **fundamentals** of waste minimization and treatment concepts will be stressed.
Field trips will show waste treatment technologies in action. [CSU]

Measurable Course Objectives and Minimum Standards, as Determined by Standards set by the instructor, at 70% Proficiency for a Grade of "C":

1. Student will, through a written exam and report, describe several examples of the minimization of the use of hazardous materials in industries.

2. Student will, through a written exam and report, describe several examples of how the production of hazardous waste has been reduced in industries.

3. Student will, through a written exam and report, explain several treatment procedures used for hazardous wastes and the legal requirements for using these procedures.

4. Student will, through a written exam and report, outline the basic processes occurring in several different industries, including what waste streams are produced.

5. Student will, through a written exam, explain a regulatory audit and discuss corrective actions which may be required after such an audit.

Core Content to be Covered in all Sections:

1. Approximate 10 % of course
   "Flow of materials" analysis; sources of raw materials and the fates; energy conservation.

2. Approximate 10 % of course
   Overview of hazardous waste; HSWA, SB1500, county waste minimization plans, AB 939

3. Approximate 10 % of course
   Electroplating, metal finishing, and circuit board production; methods for reducing chemical waste, conserving water, planning facilities to prevent pollution catastrophes

4. Approximate 10 % of course
   Oil refining and chemical production as examples of continuous processing; process terminology; waste types; applicable regulations

5. Approximate 10 % of course
   Steel production processes; recovery/disposal of pickling liquors; recovery of off-gasses; particulate control; applicable regulations

6. Approximate 10 % of course
   General manufacturing; combined processes; importance of trade associations; regulatory considerations

7. Approximate 10 % of course
   Printing and graphic reproduction; applicable regulations; material balance

8. Approximate 10 % of course
   Processes in agriculture: pesticides, fertilizers, and their application; regulations

9. Approximate 10 % of course
   The consumer services industry: auto services, dry cleaners, retailing, painting, photo processing

10. Approximate 10 % of course
    Hazardous waste generation in the home; applicable regulations; waste reduction

11. Approximate ___ % of course: Supplemental

NOTE: For Specific Details, see Instructor's Syllabus.

Method of evaluation to determine if objectives have been met by students:
(Check all that apply)

Exams:

Essay	[✓]	Class Activity	[ ]	Written Assignments	[✓]
Problem Solving Exercise	[ ]	Skill Demonstration	[ ]	Lab Activity	[ ]
Objective Test	[✓]	Oral Assignments	[ ]	Quizzes	[ ]

Other

Instructional Methodology: (Check all that apply)

Lecture	[✓]	Demonstration	[ ]	Discussion	[✓]
Audiovisual	[✓]	Individual Assistance	[ ]	Group Activity	[ ]

Computer Assisted Instruction [ ]

Requires a minimum of three (3) hours of work per unit, including class time [✓]

Required and Major Optional Reading(s), Including Textbook(s) and Software: (Author-last name, first name. Title. Location: Publisher, Year)

Doll, Frederick L. Industrial Processes. HMTRI, 1988.