CALIFORNIA COMMUNITY COLLEGES
AND
NORTH ORANGE COUNTY
COMMUNITY COLLEGE DISTRICT

#89-0018
Developing Curriculum Guidelines for Hazardous Materials Technology

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<td>Fullerton</td>
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**FUNDING CATEGORY & AWARD**
Grant = $30,800

**ELIGIBLE PROGRAM**
E --- Improvement of Trad. Instruction Prog

**PROJECT CATEGORY**
Curriculum Design

**PROJECT PRODUCT**
Resource Materials

**PROJECT TOPIC #1**
Curriculum Develop

**PROJECT TOPIC #2**
Hazardous Materials

**ACADEMIC SUBJECT**

**PROJECT DIRECTOR**
Debra Sharick, Director Economic Development

**PROJECT SUPERVISOR**
Ronald Krimper, VP Institutional Advancement

**PROPOSAL DESCRIPTION**
This project developed a basic certification program and associate degree program for hazardous materials technicians. This program was designed in cooperation with the University of California Extension, representatives of seven community colleges, State Chancellor's Office, Department of Commerce, California Manufacturers Association and other hazardous materials interest groups.
Developing Curriculum Guidelines for Hazardous Materials Technology

Hazardous waste, hazardous materials, toxic spills... Any Californian who reads the newspapers, listens to the radio, or watches television news is almost sure to hear about one or all of these on any given day. Our awareness of the problems related to the handling and disposal of hazardous materials is increasing rapidly. We are learning, too, that these problems apply not only to industry but to schools, small businesses, farms, and even private homes.

Examples of disasters abound around the state. Why are these problems occurring? Rarely do businesses actually set out to violate the law. Usually there are other causes, such as: simple lack of knowledge by businesses of their obligations under the law and/or how to meet those obligations; inability to comply because of costs and/or know-how; lack of training programs and standards for those charged with administering the hundreds of regulations involved; and a lack of understanding by many users and regulators of hazardous materials of the properties of different substances and the resultant differences in appropriate handling practices.

In consideration of the needs of the state's economy, the impending economic dislocation that may be imminent as we attempt to fully implement and enforce guidelines and regulations concerning hazardous materials management and I disposal, and in a desire to strike a balance between social imperatives and economic need, the Hazardous Materials sub-committee (representing Bakersfield, Cosumnes River, Fresno, Fullerton, Oxnard, West Los Angeles, and West Valley colleges) of the Task force on Applied Competitive Technologies of ED>Net was formed in September. The sub-committee has worked with state and local enforcement agencies, Commerce, the California Manufacturers Association, and the hazardous waste management industry to develop an action agenda that addresses the needs of the regulators, employers and employees, and commercial as well as public handlers.

This proposed project focuses on the need to develop a basic certification program for regulators and a new associate degree program for hazardous materials technicians training in California's community colleges.

1. In cooperation with University of California Extension programs in Hazardous Materials Management and representatives from business and industry around the state, design
a taxonomy of programs as part of a master plan for education in hazardous materials management and related topics.

2. Within the taxonomy to be developed, design a new California community college certificate and associate degree program for hazardous materials technicians.

Fullerton College (NOCCCD) will be the fiscal and coordinating agent for this consortium project.
Developing Curriculum Guidelines for Hazardous Materials Technology

1. Specific Educational Program Being Addressed

The proposed project touches on several areas of the Basic Agenda of the Board of Governors, including those addressing the need for faculty training and in-service, the need for new program design and development to meet the changing economic climate of the state, and the need to provide instruction in nontraditional formats to non-traditional students.
Specific Problems Being Addressed

Specific Problems:

Hazardous waste, hazardous materials, toxic spills... Any Californian who reads the newspapers, listens to the radio, or watches television news is almost sure to hear about one or all of these on any given day. Our awareness of the problems related to the handling and disposal of hazardous materials is increasing rapidly. We are learning, too, that these problems apply not only to industry but to schools, small businesses, farms, and even private homes.

This concern about hazardous materials results from the realization that many products people work with every day, often with casual indifference, can produce adverse short and long term health effects and/or contribute to the degradation of our environment. Government has responded to this by establishing a large number of new regulations on the federal, state, and local levels. Among their provision, these regulations specify the manner in which businesses may handle, store, use, and dispose of hazardous materials, as well as requiring that employees be notified of the potential dangers involved and trained to take appropriate actions in the event of spills or other emergencies. Industry, too, has recognized its responsibility to the safety of its employees and the public and has cooperated with government in developing regulations as well as producing guidelines of its own. Indeed, for most industry, safety was a primary concern long before the legislation of recent years.

Only now are we beginning to recognize that these regulations, as needed as they are, may be having a serious economic impact. Some examples:

- In February 1988, the Los Angeles Times reported that 4200 companies in Los Angeles County were in violation of hazardous materials and/or waste regulations. Potential fines varied, but over one fourth of those cited indicated that they could not pay nor could they make the needed technological modifications to stay to business.

- In the same week it was reported that a large number of furniture manufacturers in Orange County -- the third largest furniture producing center in the country -- were cited for air pollution violations. Most of these small and medium sized companies were financially unable to bring their businesses into compliance.

- On October 17, 1988, the Bakersfield Californian reported that about 200 businesses were in violation of State hazardous materials regulations and faced fines of up to $5000 per day.

- The Ventura County Star-Free Press reported on October 22, 1988 that a local firm was fined $2,250 and placed on one year probation for violation the Fish
and Game Code. Employees had washed 5 gallons of spilled corrosion inhibitor (coolant) into a storm drain at the site.

Such examples abound around the state. Why are these problems occurring? Rarely do businesses actually set out to violate the law. Usually there are other causes, such as: simple lack of knowledge by businesses of their obligations under the law and/or how to meet those obligations; inability to comply because of costs and/or know-how; lack of training programs and standards for those charged with administering the hundreds of regulations involved; and a lack of understanding by many users and regulators of hazardous materials of the properties of different substances and the resultant differences in appropriate handling practices.

Response to the Problem:

Since the problem is multifaceted, its solution will be neither linear nor straightforward. It will require better education for both users and regulators of hazardous materials; as well as skills development and training for the trainers. Probably it also will require considerably improved coordination among regulating agencies. Finally, some assistance for those businesses which need expertise or financial help in order to comply with the law will be needed.

It appears, however, that the primary problem is insufficient training, both for those subject to regulation and the increasing force charged with enforcing the laws. In consideration of the needs of the state's economy, the impending economic dislocation that may be imminent as we attempt to fully implement and enforce guidelines and regulations concerning hazardous materials management and disposal, and in a desire to strike a balance between social imperatives and economic need, the Hazardous Materials sub-committee of the Task force on Applied Competitive Technologies of ED>Net (the Economic Development Network established by the Chancellor's Office in January, 1988) was formed in September. The sub-committee now includes seven community colleges that present this consortium proposal -- Bakersfield, Cosumnes River, Fresno, Fullerton, Oxnard, West Los Angeles, and West Valley. Over the past seven months the sub-committee has worked with the State Chancellor's Office, the Department of Commerce, the California Manufacturers Association, and a myriad of state and local agencies, the hazardous waste management and disposal industry, fire and law enforcement departments, industry groups, and concerned individuals, the sub-committee has developed a seven point action agenda. This agenda address the needs of the regulators while other elements are targeted towards employers and employees, and commercial as well as public handlers:

1. Develop criteria for, and promote legislation that requires a basic certification for all agents designated to enforce any aspect of hazardous materials handling, management and disposal.

2. Develop complimentary criteria for a basic certification program to be delivered by the California Community Colleges through their ADA credit program.
3. Develop and implement a new expanded associate degree program for Hazardous Materials Technicians.

4. Develop general information short term training programs and related activities for employees, managers and business owners that focus on hazardous materials communications, handling and management and related compliance issues.

5. Develop and implement appropriate linkages with federal, state and local agencies that promote the transfer of state-of-the-art technologies that afford compliance; and that facilitates the acquisition of appropriate low interest and readily available financing.

6. Develop articulated lower division Hazardous Materials program/courses with the University of California and/or California State University system so that a comprehensive, systematic multi-level approach to the training and educational needs emerges.

7. Create a statewide database network that stores, catalogs and accesses the various training opportunities available throughout the state

To implement the agenda, the sub-committee has already taken several important steps forward. We have developed a working cooperative partnership with the University of California Extension Programs in Hazardous Materials Management; and they have agreed to assist us throughout the state at their nine sites in developing, implementing and recruiting for hazardous materials technician training program. In addition, working with UC, Davis we have developed a vocational in-service proposal to support training for representatives from the seven community colleges so that we can identify and then train qualified hazardous materials management program coordinators from within our faculty. These seven faculty will attend the 1989 summer institute at UC Davis where special components and/or activities will be built into the summer institute for specific training for these participants. Other activities built into the in-service include the development of opportunities for job-shadowing and a follow-up session of three to five days in January to design a dedicated summer institute for 1990.

This proposed Fund for Instructional Improvement project focuses on items number two and three in the sub-committees action agenda; the need to develop a basic certification program and the need to develop a new associate degree program (beyond the basic certificate program) for hazardous materials technicians training in California’s community colleges.
3. Population To Be Served

Population Served:

A survey recently conducted by the University of California, Davis identified a widespread need in small, medium and large businesses of a vast variety of business employment types for trained hazardous materials technicians. Clearly, every indication around the state is that this need will continue to expand dramatically for the foreseeable future. The University Extension centers focus their program on raising the awareness level of middle and upper level managers and on providing some training in responding to regulations and preparedness. Community colleges must first look inward to determine what resources -- human and otherwise -- it can commit to this ever expanding and threatening problem.

Faculty have been identified at seven community colleges around the state for retraining as hazardous materials management program coordinators. These efforts will be enhanced by this proposed project and these faculty will be one population served.

Community colleges must then work with the appropriate state agencies to design and develop a certification program for those empowered to enforce the all too abundant and often overlapping and contradictory regulations and guidelines for hazardous materials handling, management and disposal. These regulators constitute the second population to be served by the project.

Community Colleges must then go beyond this to implement a training program for the technician of the future who will be employed by medium and even small businesses and be responsible for implementing procedures and mechanisms for maintaining compliance, managing hazardous materials, and responding effectively to emergencies when they occur. And, the colleges must be certain that under-represented groups of women and ethnic minorities play a prominent role in this training effort. This group of future students constitutes the third population to be served by the project.

In addition, components of the program must be built in such a way that the awareness level of the general community college student population is heightened; and that the average student becomes a citizen of California committed to re-dressing those hazards that threaten our environment and our very existence. This group, the community college student at large, constitutes the fourth Population to be served by this project.
4. Objectives

Objectives:
Program objectives for this Fund for Instructional Improvement project include:

1. In cooperation with University of California Extension programs in Hazardous Materials Management and representatives from business and industry around the state, January 31, 1990, design a taxonomy of programs as part of a master plan for education in hazardous materials management and related topics. ($20,250, 65.7%)

2. By June 30, 1990, within the taxonomy to be developed, design a new California community college certificate and associate degree program for hazardous materials technicians (or environmental services technician). ($10,550, 34.3%)
5. Workplan Narrative

Activities:

1. In cooperation with University of California Extension programs in Hazardous Materials Management and representatives from business and industry around the state, January 31, 1990, design a taxonomy of programs as part of a master plan for education in hazardous materials management and related topics.

   • Establish a curriculum development task force of faculty and administrative representatives from each of the seven community colleges, the UC Extension programs, local business and industry, and the various state agencies involved in hazardous materials regulations and response (for example, Department of Commerce, Department of Health Services, CHP, etc.).

   • Search for and collect information (already underway) about any existing programs or components of programs within the state, and in other states (for example, the Iowa Hazardous Materials Research Institute. Colorado Community Colleges).

   • Meet with appropriate state and local agencies to determine skills and abilities, tasks and responsibilities, of current regulators.

   • Develop a taxonomy of programs and services, audiences, outcomes, etc. for training and education in hazardous materials management in California.

2. By June 30, 1990, within the taxonomy to be developed, design a new California community college certificate and associate degree program for hazardous materials technicians (or environmental services technician).

   • Design the framework for a new basic certification program that addresses the needs identified within the taxonomy.

   • Submit drafts of program design to state and local enforcement agencies for review, comments and recommendations.

   • Building on work accomplished, extend the search for and collect additional information about any existing certificate or degree programs.

   • Design the framework for a new certificate and associate degree program for hazardous materials technicians.
• Submit drafts of program design to state and local enforcement agencies and to local advisory committees for review, comments and recommendations.

Project Management:

In September 1988, four community colleges -- Bakersfield, Fresno, Fullerton and Oxnard -- formed the Hazardous Materials Sub-Committee of the Task force on Applied Competitive Technology of ED>Net. Over the course of the ensuing months the sub-committee proceeded to study the problem of hazardous materials technology, management, and disposal in California. Statewide surveys conducted by the University of California, Davis and local surveys conducted by several of the individual community colleges participating in the project, indicate that there is a widespread need for trained technologists in the area of hazardous materials management and/or disposal.

In December, the sub-committee linked up with the University of California statewide program in Hazardous Materials Substances, and since that time has been working with the local coordinator at UC Davis as well as the statewide coordinator of the nine regional programs at each UC campus in shaping a long-term cooperative relationship. In February, in anticipation of moving forward on the action agenda statewide, the sub-committee was expanded to include three additional community colleges -- Cosumnes River, West Los Angeles and West Valley.

If funded, the project will maintain the project management structure currently in place. Ronald Krimper, Vice President of Institutional Advancement and the chair of the sub-committee and the overall Task force on Applied Competitive Technology for ED>Net, will be responsible for overall project direction including fiscal management and for liaison and coordination among the consortium members, industry groups, and the various participating agencies and state departments. Mr. Krimper has had considerable experience in project development and management, and has managed more seven EBT, VEA or similar training and development projects in the last five years. Fullerton College of the North Orange County Community College District thus will serve as the fiscal agent for the consortium project. The project will be managed on a day-to-day basis by Debra Sharick, formerly the Director of ED>Net and presently the Director of Economic Development at Fullerton College. Each participating college has identified both a faculty member responsible for program and curriculum development and a management person responsible for the local management of the project, including the fiscal responsibilities.

Together, the project director, the project manager, the managers from the participating colleges, a representative from UC Davis University Extension, a representative from UC statewide, industry representatives, and representatives from the various state and local enforcement agencies and the Department of Commerce, will constitute a project advisory committee. The advisory committee shall review major project goals and objectives -- related to this proposed project and to the overall agenda of the Haz Mat subcommittee -- and assist
in project evaluation, dissemination and follow-up activities. In each instance, all elements of project management are provided as an in-kind and matching contribution to the project.
6. Expected Outcomes

Expected Impact and Transferability:

The sub-committee has assumed responsibility for a set of challenging tasks that address one of the two or three most serious issues facing California and the nation, hazardous materials management and toxic waste disposal. With input from agencies and individuals around the state, the sub-committee has established a broad action agenda. This proposed project represents an important component of that agenda. The population to be served by the project -- faculty, regulators, new students being trained as technicians, and the community college student population at large -- constitutes a significant effort to address the pressing need for training and for enhanced public awareness leading to positive and constructive action. The potential impact of the proposed project over the course of the next three to five years, and beyond, is extraordinary. No other state agency has the wherewithal -- the faculty expertise, the facilities, the industry base -- to attack the problem in this manner.

Seven community colleges are already deeply involved in the project. More will be shortly. Inquiries from other community college faculty and managers are received on a regular basis. Any community college with a Chemistry Department is a potential repository for the training programs being proposed in this project. Over the course of the next three to five years, at least one half of the community colleges in the state will likely adopt the proposed program for incorporation into their curriculum.

The University of California has offered training and educational programs through its University Extension programs for the past five years. Efforts are currently underway to incorporate components of these programs into the University’s Environmental, Health Sciences, and related program areas. Efforts are also already underway to articulate community college program efforts with UC.
7. Evaluation Plan

Evaluation:

The project advisory committee will assume primary responsibility for formative project evaluation. Each component of the program design project will be reviewed by the faculty from the seven colleges and then reviewed again by the industry representatives. This dual review assures that the curriculum is both pedagogically sound and that it truly reflects industry training needs. Data collected from these various evaluation components will provide the basis for the final report for the project; but the actual determination of the success of the project will come some six to nine months later when the first course components of the new curriculum are in place at each college and when efforts to disseminate the curriculum have been initiated.
8. Dissemination Plan

Dissemination:
The ED>Net Hazardous Materials Management sub-committee has identified several vehicles for promoting the project and thereby sharing information about its goals and successes – and recruiting additional community colleges statewide as potential program participants in coming years. The California Manufacturers Association and the Merchants and Manufacturers Association of California, representing approximately 10,000 companies around the state, have both agreed to feature reports about the project in one or more editions of their monthly newsletters and/or magazines. A report about the work of the sub-committee has already appeared in the CMA publication. Both are strong supporters of the work of the sub-committee and will materially support the proposed curriculum development projects. Additionally, the California State Department of Commerce, Southern California Edison, the California Engineering Foundation as well as each of the individual sponsoring employers, have all expressed an interest in publishing reports on the activities of the sub-committee in their statewide newsletters or bulletins.

We are working to shape an ongoing relationship of support and cooperation with the University of California Haz Mat Program. Such a relationship might take the form of a jointly operated statewide institute that focuses on developing and distributing up-to-date curriculum materials to community colleges, develops and distributes additional curriculum materials to high schools and junior high schools for integration into their curricula, provides in-service opportunities for community college, high school and junior high school faculty.

Written agreements from each of the seven colleges that bind the colleges to the action agenda and to this as well as other projects are on file at Fullerton College. 3
9. Budget Narrative

[NO “BUDGET NARRATIVE” ACCOMPANIES THIS DOCUMENT.]