CALIFORNIA COMMUNITY COLLEGES
AND
HARTNELL
COMMUNITY COLLEGE DISTRICT

#92-0009
California Community Colleges  
Curriculum and Instructional Resources Division

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<th>FISCAL YEAR</th>
<th>ID NUMBER</th>
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<td>1992-93</td>
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**PROJECT TITLE**

A Hazardous Materials Site Remediation Course for EHMT Programs

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<th>ELIGIBLE PROGRAM</th>
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<td>Grant = $15,000</td>
<td>B --- Improving Teaching Ability</td>
<td>Curriculum Design</td>
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<td>Vocational Education</td>
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**PROJECT DIRECTOR**  
Victor Krimsley, Chemistry Instructor

**PROJECT SUPERVISOR**  
Gustavo Valadez-Ortiz, Dean of Sciences

**PROPOSAL DESCRIPTION**

This proposal is a grant request. A unique opportunity exists for the California Community College system to create a course in Site Remediation for Environmental Hazardous Materials Technology (EHMT) programs. Currently, no such course exists in our system. This proposal seeks funding to take advantage of an unusual on-the-job training opportunity that would allow one of our system's instructors to develop expertise in site remediation and then develop a course that would be made available to all California Community Colleges.

Over the past two decades, we have witnessed a growing awareness of the severe environmental impact that often results from the improper handling of the many substances used in our society. One can hardly read a newspaper without coming across an account of some problem related to the release of hazardous materials into the environment. In response to growing public concern over the impact of such substances, there has ensued a rash of legislation designed to protect the public interest. The many regulations that have accompanied this legislation have resulted in the need for training programs to prepare personnel to deal safely with hazardous materials.

This is a consortium project.
A Hazardous Materials Site Remediation Course for EHMT Programs

A unique opportunity exists for the California Community College system to create a course in Site Remediation for Environmental Hazardous Materials Technology (EHMT) programs. Currently, no such course exists in our system. This proposal seeks funding to take advantage of an unusual on-the-job training opportunity that would allow one of our system’s instructors to develop expertise in site remediation and then develop a course that would be made available to all California Community Colleges.

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Over the past four years, a consortium of community colleges, formed under the umbrella of the Economic Development Network (ED>Net), has developed a curriculum in Environmental Hazardous Materials Technology (EHMT). The EHMT program, offered at consortium colleges, consists of both certificate and A.A. degree options. While the program has done an excellent job of creating a curriculum designed to assist businesses in complying with current regulations, it lacks a specific course in the very important area of site remediation. Site remediation is the actual cleanup of sites that have already become contaminated with hazardous materials. Many of the worst sites in the United States have been targeted for cleanup under the so-called "Superfund."

This year, in the course of assisting his college in joining the ED>Net EHMT consortium and setting up its own hazardous materials program, Dr. Victor Krimsley (a Hartnell College chemistry instructor) made contact with personnel at Fort Ord, a local military base which is also a Superfund site in need of remediation. Because of the diverse scope of remediation problems present at Fort Ord, it represents an excellent opportunity for the study of site remediation. Fort Ord personnel would like to have Dr. Krimsley work with them. This not only represents an excellent opportunity for a California Community College instructor to gain valuable on-the-job training in the area of site-remediation, but more importantly, it would
provide our system with an individual who would be able to develop course materials in site remediation for students engaged in EHMT programs throughout the state.

In order to provide comprehensive EHMT programs for our students, our system needs a course in site remediation. Currently, no instructor in the EHMT Consortium has the expertise to develop such a course. Funding of this proposal would provide training for Dr. Krimsley which would enable him to develop instructional materials for a course in site remediation. Furthermore, he would then be able to train other consortium (and non-consortium) instructors by offering workshops for them. Ultimately, this would broaden the scope of the EHMT program, providing our students with a more well-rounded education in hazardous materials technology and increasing their opportunities for employment in this well-paying, exciting new field.
A Hazardous Materials Site Remediation Course for EHMT Programs

1. Specific Educational Program Being Addressed

Specific Educational Program Addressed:

Background:
A person can hardly pick up a newspaper on a given day without reading of some incident in which hazardous substances have adversely impacted the environment. For example, in a major incident this past summer, a Southern Pacific railway car overturned, spilling its lethal contents into the Sacramento River and ultimately into Lake Shasta. Almost immediately following the Sacramento River incident, another major spill in Ventura County caused the closure of a ten mile stretch of U.S. 101 for several days. In response to reports that the deterioration of the ozone layer is worse than previously believed, President Bush has shortened the deadline for elimination of the use of CFC's (chlorofluorocarbons). Famous incidents such as the contamination at Love Canal and the Bhopal catastrophe seem to bombard us. These and similar events have created a flurry of legislation at the Federal, State, and local levels, designed to regulate the handling of hazardous materials. The myriad of regulations that has grown up out of this legislation has forced many businesses and public agencies to train personnel who will be responsible for the handling and cleanup of their hazardous materials.

The ED>Net Environmental Hazardous Materials Technology (EHMT) Program:

Many training programs have sprung up in direct response to the need for personnel trained in hazardous materials technology. On the community college level, a unique training effort commenced in 1988 with the inception of a consortium of eight California Community Colleges, brought together under the aegis of the Economic Development Network (ED>Net), a network set up by the Chancellor's Office in an effort to assist businesses within the State of California. Selected instructors from the eight colleges underwent intensive summer training in hazardous materials management, and then set about the task of developing and writing an Environmental Hazardous Materials Technology (EHMT) curriculum.
Supported by funds from the Chancellor's Office and their own colleges, and aided with technical assistance from outside consultants, eight faculty wrote the curriculum for six core EHMT courses. The EHMT certificate and A.A. degree programs offered at the various consortium colleges are reinforced with courses in chemistry, biology, and an elective in speech, business writing, or computer literacy. The program is completely transferable from one consortium school to another. Over the past two years, the consortium has grown to 17 institutions, and under the auspices of an FII Grant, the six core courses have recently been rewritten into modules for easier scheduling and staffing. The program is being considered by Cal Poly, Pomona, for students who wish to transfer into their Bachelor's Degree program in Environmental Engineering Technology.

Hartnell College Efforts in EHMT:

During the past year, Hartnell College has moved in the direction of setting up an EHMT program and joining the ED>Net EHMT Consortium. Toward that end, Dr. Victor Krimsley (Instructor in Chemistry) has had considerable contact with Mr. Howard Guyer (the ED>Net Environmental Technologies Hazardous Materials Consultant to the Chancellor's Office). Dr. Krimsley has not only gathered materials from Mr. Guyer that will enable the college to adopt the ED>Net EHMT curriculum, but he has also attended the most recent meeting of the consortium, held in Anaheim in December. Additionally, Hartnell College has granted Dr. Krimsley a sabbatical leave of absence to complete some formal coursework he began last summer through Staff Development funding and to help set up an EHMT program at Hartnell. Because of its involvement in the EHMT Committee this year, Mr. Guyer considers Hartnell College to be an informal member of the consortium. Hartnell will become a full member of the consortium once it submits its program to the Chancellor's Office and receives approval.

The Lack of an EHMT Site Remediation Course:

Due to the speed with which the original EHMT curriculum was developed and the lack of experience among the participants, the EHMT curriculum lacks any course specifically dealing with site remediation (the work involved in cleaning up contaminated sites, such as the Love Canal or any of the many Superfund sites that have been targeted for cleanup by the Federal government). The absence of a course in site remediation is simply a reflection of the fact that the consortium lacks a faculty member who has expertise in the specific area of site remediation. This proposal seeks funds to support the training of an instructor who will study site remediation and then develop the curriculum and write the modules for an EHMT Site Remediation course.

Programs and Services Addressed in the Proposal:

This proposal addresses a number of programs and services within the FII Grant Guidelines and Board of Governors Agenda:
1. This proposal will improve teaching abilities of faculty members by developing a new course that will be made available to all EHMT instructors and by offering workshops to help EHMT instructors become proficient in the materials covered (lb).

2. This proposal will improve traditional instruction (i.e. existing instruction) by adding an important missing component in an otherwise well-rounded EHMT program (1c).

3. Since most EHMT students are either working in the field or retraining for a new career, we anticipate that EHMT programs will impact heavily upon new clientele, particularly older, working students (1d).

4. Most experts predict that there will be a great need for additional, trained personnel to clean up the many contaminated sites that exist throughout the nation. This proposal broadens the training EHMT students will receive, further improving their chances of employment (2b,1).

5. EHMT programs offer an excellent opportunity for minorities who wish to complete a certificate or A.A. degree. Hazardous materials technology is a newly emerging field, without an established work force. Consequently, it offers excellent work opportunities to traditionally underrepresented minorities (2b,3).

6. By developing further a program that deals with the handling of hazardous materials and by specifically creating a course designed to educate students about the remediation of sites that are already contaminated, this proposal also supports the Board of Governors' call for "public information projects on topics of special concern...to the environment..."
2. Specific Problems Being Addressed

Specific Problem Addressed:

The Need to Develop An EHMT Course in Site Remediation:
Despite the excellent start that the ED>Net EHMT Consortium has provided, the program lacks a course specifically designed to teach about site remediation. Thus far, the focus of the program has been to assist businesses in complying with regulations designed to avoid the creation of new sites in need of remediation. However, an important aspect of the education of hazardous materials technicians is the cleanup of sites such as the Love Canal or the many sites on the government's Superfund list. Clearly, a need exists to expand the focus of the current EHMT core curriculum to include this very important educational area.

Fort Ord: a Superfund Site:

In the course of his activities this fall, Dr. Krimsley has made contact with the environmental branch of Fort Ord, a local military base which is a Superfund site that is also slated for closure. The pending closure of the base has been the subject of considerable national and local news, particularly since the base is a Superfund site, in need of considerable remediation before it can be returned to the public domain. Through this contact at Fort Ord, there began mutual discussion between Hartnell College and Fort Ord personnel of the concept that Hartnell's forthcoming EHMT program could provide training for Fort Ord personnel engaged in the cleanup who are in need of greater background. Concurrently, Fort Ord could provide a "laboratory" through which Hartnell students could gain valuable practical experience in the hazardous materials field throughout the 1990's.

In their initial discussions with one another, Fort Ord expected that they would be able to provide Dr. Krimsley with on-the-job training by hiring him as a Hazardous Materials Specialist at the end of the academic year. However, a hiring freeze has prevented the Environmental Branch from employing Dr Krimsley as earlier anticipated. Nevertheless, because of his expertise in chemistry, the Environmental Branch at Fort Ord is very anxious to have Dr. Krimsley work with them.

The site itself represents a unique educational opportunity for anyone interested in the specific hazardous materials area of site-remediation. The range of problems that exist on the base is very broad, encompassing such things as contamination from years of dumping of petroleum products in the motor pool area to the presence of hazardous metals from shells left on the ground at the artillery range. Unexploded shells are reported to be a problem that will face cleanup crews. In addition to contamination of the grounds at Fort Ord, personnel working in their Hazardous Materials section are faced with the handling of exotic chemicals not generally encountered in normal industrial situations. There is little doubt that access to the Fort Ord site would provide a rich environment of appropriate problems for EHMT students and faculty to study. Information gathered at the Fort Ord site (such as technical data, photographs and other
Developing an EHMT Site-Remediation Course:

The Fort Ord opportunity represents a unique opportunity for the entire community college system in the field of hazardous materials education. Within the EHMT consortium, none of the faculty have expertise in the area of site remediation. The extensive nature of the problem at Fort Ord provides a unique learning opportunity for any hazardous materials instructor. As mentioned earlier, virtually every imaginable type of remediation problem exists at Fort Ord, from the simple dumping of petroleum products in the motor pool to extensive explosives found in the ground at the various firing ranges. Clearly, the skills that will be required to remediate Fort Ord are the same as those that one would need to clean up a community such as Love Canal or to remediate a gas station with a leaky underground storage tank.

From the standpoint of the California Community College system, the opportunity to have one of its instructors develop expertise in the specific area of site remediation has ramifications for the entire system. While the six core EHMT courses deal effectively with many of the most pressing issues of hazardous materials technology, none of them deals comprehensively with site remediation. Not only do EHMT students planning to enter the hazardous materials field need this information, but the faculty who are teaching those students need to learn about site remediation as well.

The Proposal:

This proposal requests funding to allow Dr. Krimsley to spend several months working at Fort Ord (under the supervision of Mr. James Willison, Chief of the Environmental and Natural Resources Branch), where he will gain firsthand on-the-job training in site-remediation. Upon completion of his on-site training, Dr. Krimsley will develop instructional materials and write modules for a course in Site Remediation which will be made available to all California Community College institutions through the ED>Net EHMT Consortium. The course will be modeled after the newly completed modules of the original six core EHMT courses. Upon completion of the course development, Dr. Krimsley will offer a workshop for instructors from throughout the state who wish to teach the course developed (or who simply wish to enrich their own knowledge of site remediation). This effort will be coordinated through the consortium's EHMT Coordinator/Manager Committee. Under this proposal, information gathered and organized by Dr. Krimsley will be disseminated to other instructors, who will then transmit it to the students at their various institutions. (See letter of Support from Howard Guyer.) Dr. Krimsley's qualifications to carry out this task include his expertise in chemistry, twenty years of classroom teaching experience, and the publication of several nationally marketed chemistry texts and laboratory manuals.
3. Population To Be Served

Populations to be Served by the Project

There are several populations to be served by this project. Because the proposal involves the creation of a new course, it serves instructors and students. Instructors: The first population to be served is the core of EHMT instructors. Because this proposal seeks to create a new course, the instructors themselves must do some study, and they will be served by:

a. the development of a course outline

b. the development of instructional materials. the presentation of workshops from which they will themselves study the material that they will later disseminate

Students: Once the instructors have studied the site remediation material, they will be able to pass it on to their students. Several student populations highlighted in the coversheet categories will be served prominently.

1. Older, working adults: Past experience has shown that most of the interest in EHMT programs comes from individuals who currently hold positions working in the hazardous materials field but have never been trained formally in this field and need to learn some basic skills to carry out their job functions effectively. A second group also exists, consisting of individuals who have decided to change careers and see EHMT as a program that they can complete that will lead to new employment opportunities. Both groups are heavily populated by older, working adults.

2. Individuals seeking employment: In a statewide needs assessment and training survey, the EHMT Committee found that over half of the 900 companies that responded to their survey plan to hire one or more EHMT technicians in the next five years. The survey also revealed that over 70% of the companies responding indicated that they would send their current employees to a local community college for hazardous materials technology training. This would seem to indicate a favorable attitude toward hiring new employees trained in such programs. At a recent meeting (February 21-22, 1992) of the Partnership for Environmental Technology Education (a consortium that includes the western state community colleges, EPA, DOE, and a number of major businesses), representatives of the business community (IBM and Lockheed, for example) indicated a desire and need to hire graduates of community college hazardous materials training programs. It was reported that an estimated one million hazardous materials technicians will be needed nationally by the end of the century.

3. Minorities: The need for trained personnel in hazardous materials technology makes it an ideal place for all people looking for employment. Because it is a
relatively new field without an entrenched employee population, it should offer better-than-average opportunities for the traditionally underrepresented to advance their careers.

All of these student groups, currently served by the existing EHMT curriculum, will have a broader base of skills with which to enter the work place and realize successful careers.
4. Objectives

Proposal Objectives:

1. Work on-site at Fort Ord for a minimum of 600 hours* This on-the-job training will be completed no later than June 1, 1993. Satisfactory completion will be a letter from Mr. James Willison, Chief of the Environmental and Natural Resources Branch of Fort Ord confirming the completion of this task. (*See Budgetary details. Only 300 of these hours are to be charged to the FII Grant.)

2. Carry out independent research in areas related to site remediation. A list of pertinent readings for study will be determined through conversations with professionals, such as the various contractors actually working on the Fort Ord cleanup. Preliminary study, sufficient to write a course outline, will be completed on or around March 15, 1993. A final reading list will be completed by June 1, 1993. Satisfactory completion will consist of an annotated bibliography to accompany the course materials.

3. Write Site Remediation course outline. Satisfactory completion will be presentation of the outline to the EHMT Coordinator/Manager Committee at its March meeting. This task will be completed on or about March 15, 1993.

4. Write Site Remediation course materials. Following the same practice used to develop the existing EHMT modules, the course outline will be subdivided into an appropriate number of modules and instructional materials for each module will be developed. Satisfactory completion will be presentation of the course materials to the EHMT Coordinator/Manager Committee no later than its June meeting. Materials will then go to the ED>Net Environmental Technologies Committee for their approval. This task will be completed no later than June 30, 1993.

5. Coordinate and report on study/research activities. While attending the first three quarterly EHMT Coordinator/Manager Committee meetings, meet with members of the consortium to update them on interim research progress and obtain their suggestions and constructive criticisms. Satisfactory completion will be attending the workshops. This task will be completed on or around March 15, 1993.

6. Hold a workshop for all interested instructors. In conjunction with the June meeting of the EHMT Coordinator/Manager Committee, a workshop, based upon the materials developed, will be held in the same locale for all interested California Community College instructors. Satisfactory completion will be the offering of the workshop itself. This task will be completed no later than June 30, 1993.
5. Workplan Narrative

[NO “WORKPLAN” ACCOMPANIES THIS DOCUMENT.]
6. Expected Outcomes

Expected Outcomes:

Project Objectives: This project will have a number of worthwhile products, including:
   a. A new course (composed of several modules) in the EHMT curriculum, needed to fill in
      the void in the area of site remediation
   b. A modular course outline and instructional materials to support the instructors who will
      teach the course.
   c. An in-service workshop for instructors, enabling them to teach the newly created
      course.
   d. A group of trained EHMT instructors. Prepared to teach the new course. Project
      Impact:

This project will provide the entire California Community College system with an expertise that
it currently lacks in an important area. The system will benefit on many levels. Instructors at all
colleges will be able to avail themselves of the workshop on Site Remediation that will be
offered in conjunction with the June meeting of the EHMT Manager/Coordinator Committee.
Additionally, the materials produced under the grant will be available to all community colleges.
In particular, the EHMT Consortium will be able to make immediate use of the course outline
and materials to offer the course in their established programs. Finally, students studying at
those schools that offer the new course will be better trained and capable of finding a greater
range of employment opportunities as a result of their training.

Potential for Continued Support:

This specific project should require little or no further funding once completed, with the
possible exception that it might be desirable to offer additional workshops in the year following
completion. (Because of the FII requirement that the project be completed within the year it
begins, it is unlikely that the materials will be developed in time to offer more than the one
proposed workshop in the allowable timeframe.) In addition, funding might be sought to further
refine the course by gathering information from field testing at consortium colleges.

The project will not need additional funding to be assimilated into the system, because the
EHMT Consortium already in existence will take over the dissemination of the project results
once the materials have been prepared. Once completed, materials will be available to
consortium and non-consortium schools alike through the ED>Net EHMT machinery.

Potential for Adaptation to Other Institutions or Programs:

As with the other EHMT courses already developed by the consortium, this product is to be
prepared for "as is" use at all EHMT Consortium institutions, who will provide feedback during
its development. Because the product itself will be a modular course outline and supporting
instructional materials, any other school in the system should be able to reorganize and edit the course outline to suit their own needs and then use the supporting instructional materials to assist in the preparation of their own class assignments.
Evaluation:

Due to the varied nature of the objective/activity tasks, the following vehicles will be used to evaluate the progress of each task and to identify problems and correct them.

a. Environmental Technology Advisory Committee: This project is a technical project that requires expertise in both the educational and hazardous materials areas for appropriate evaluation. Under ED>Net, there exists a statewide Environmental Technologies (ET) Advisory Committee, composed of coordinators, managers, industry/business, and community leaders. This advisory group has been used to evaluate previous EHMT courses and will be used to guide and evaluate the content of the course outline and the quality of the instructional materials developed. Mr. Howard Guyer will serve as the contact person from this advisory committee.

b. EHMT Coordinator/Managers Committee: This committee, composed of the EHMT faculty and managers from the various consortium colleges, meets quarterly. As materials are developed, they will be submitted to the EHMT Coordinator/Managers Committee at their quarterly meetings for input. In the second year, when the course is field tested, this committee will help refine the course outline and materials.

c. Project Supervisor: Mr. Gustavo Valadez-Oritz, the Hartnell College Dean of Science/Math/AHT/Nursing will act as the Project Supervisor. The Project Director will report to him on a regular basis concerning the progress of the project.

Evaluation by Objective/Activity:

1. The Project Director (Dr. Krimsky) will brief the Project Supervisor on his activities at Fort Ord on a monthly basis.

2. The Project Director, after developing a preliminary list of readings to be used for his own study of site remediation, will submit the list to the ET Advisory Committee for their evaluation and note any suggestions for additional readings they deem important to include.

3. The Project Director will present the Site Remediation course outline to the EHMT Managers/Coordinators Committee at a quarterly meeting and make appropriate changes suggested at the meeting. The revised outline will then be submitted to the ET Advisors Committee for their comments and suggestions.

4. The Project Director will present the Site Remediation course modules and instructional materials to the EHMT Managers/Coordinators Committee at a quarterly meeting and make appropriate changes suggested at the meeting. The revised materials will then be submitted to the ET Advisory Committee for their comments and suggestions.

5. The EHMT Manager/Coordinators Committee will be briefed on progress at quarterly meetings throughout the duration of the project. Suggestions for improvement and direction will be noted.
6. The quality of the workshop will be evaluated by participants, using an anonymous workshop evaluation form, and suggestions for improvement will be used to guide future workshops that may be offered. It is anticipated that most participants will be members of the EHMT Managers/Coordinators Committee. Members of the ET Advisory Committee will be invited to attend the workshop in order to obtain their suggestions for improvement of materials.
8. Dissemination Plan

Dissemination:

The ED>Net Hazardous Materials Technology Subcommittee already has the machinery in place for the dissemination of their program. That machinery has been used to disseminate information about the existing EHMT program. Once completed, this project will be disseminated to all consortium colleges through the ED>Net EHMT Committee. Additionally, it will be made available on a cost-recovery basis to all other California Community Colleges.

Throughout the progress of the grant, the results of each objective will be disseminated to members of the EHMT Consortium at the quarterly EHMT Manager/Coordinator meetings, held in September, December, March, and June. The information disseminated in this fashion will include progress on work done at Fort Ord, the reading list developed for study, the course outline, and the instructional materials developed.

The final course outline, course modules, and all instructional materials produced under the grant will be transmitted no later than June 30, 1993 to the ED>Net Hazardous Materials Technology Subcommittee. That committee will be responsible for distributing copies of the course materials to consortium members and making copies available to non-consortium colleges in the system. Ultimately, it is the colleges in the system that will transmit the information to students by offering appropriate courses in site remediation.
9. Budget Narrative

Budget Summary:

For the completion of this project's goals and objectives, a budget allocation of $25,729 is requested from FII.