Lecture Contact Hours: 48-54; Homework Hours: 96-108; Total Student Learning Hours: 144-162

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT 230 – HAZWOPER CERTIFICATION

3 hours lecture, 3 units

Catalog Description
Instruction in safety and emergency response to chemical and physical exposures in industrial and field settings. Topics include: hazard analysis; contingency planning; housekeeping and safety practices including proper use and selection of PPE (Personal Protective Equipment); site control and evaluation; handling drums and containers; field sampling and monitoring; proper use of instruments; incident response planning; emergency response including field exercises in the use of PAPR (Powered Air Purifying Respirator) and SCBA (Self Contained Breathing Apparatus); and an overview of the ICS (Incident Command System). Satisfies requirements for generalized employee training under OSHA (Occupational Health and Safety Administration) [29 CFR 1910.120] and Title 8, California Code of Regulations [5192 (e) (3) (A)].

Prerequisite
None

Entrance Skills
Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed:
1) Interpret laws and regulations pertaining to environmental, health and safety management and related programs.
2) Distinguish between EHSM agencies that regulate environmental management and OSH programs.
3) Recognize and apply appropriate terms common to the environmental health and safety industry.
4) Understand best management practices (BMP) and safe operation procedures (SOP) used in the EHSM industry.

Course Content
1) Regulatory knowledge.
   a. A review of 29 CFR 1910.120, Title 8 CRR [5192] and the core elements of an occupational safety and health program.
   b. The content of a medical surveillance program as outlined in 29 CFR 1910.120(f) and Title 8 CRR [5192(f)].
   c. The content of an effective site safety and health plan consistent with the requirements of 29 CFR 1910.120(b) (4) (ii) and SARA Title 1, Section 126.
   d. Emergency response plan and procedures as outlined in 29 CFR 1910.38, 29 CFR 1910.120(l) and Title 8 CCR [5192].
   e. Adequate illumination.
   f. Sanitation recommendation and equipment.
   g. Review and explanation of OSHA's hazard communication standard (29 CFR 1910.1200) and CalOSHA Title 8 CCR [5194] and lock-out tag-out standard (29 CFR 1910.147) and Title 8 CCR [3314].
   h. Review of other applicable standards including but not limited to those in the construction standards (29 CFR Part 1926) Title 8 CCR [1500-1962].
   i. Rights and responsibilities of employers and employees under applicable federal and California OSHA and EPA laws.

2) Technical knowledge.
   a. Type of potential exposures to chemical, biological, and radiological hazards; types of human responses to these hazards and recognition of those responses; principles of toxicology and information about acute and chronic hazards; health and safety considerations of new technology.
   b. Fundamentals of chemical hazards including but not limited to vapor pressure, boiling points, flash points, pH, other physical and chemical properties.
   c. Fire and explosion hazards of chemicals.
   d. General safety hazards such as but not limited to electrical hazards, powered equipment hazards, motor vehicle hazards, walking working surface hazards, excavation hazards, and hazards associated with working in hot and cold temperature extremes.
   e. Review and knowledge of confined space entry procedures in 29 CFR 1910.146 and Title 8 CCR [5157].
   f. Work practices to minimize employee risk from site hazards.
   g. Safe use of engineering controls, equipment, and any new relevant safety technology or safety procedures.
   h. Review and demonstration of competency with air sampling and monitoring equipment that may be used in a site monitoring program.
   i. Container sampling procedures and safeguarding; general drum and container handling procedures including special requirement for laboratory waste packs, shock-sensitive wastes, and radioactive wastes.
   j. The elements of a spill control program.
   k. Proper use and limitations of material handling equipment.
   l. Procedures for safe and healthful preparation of containers for shipping and transport.
   m. Methods of communication including those used while wearing respiratory protection.
3) Technical skills. A minimum of one-third of the program should be devoted to hands-on exercises.
   a. Selection, use maintenance, and limitations of personal protective equipment including the components and procedures for carrying out a respirator program to comply with 29 CFR 1910.134 and Title 8 [5144].
   b. Instruction in decontamination programs including personnel, equipment, and hardware; hands on training including level A, B, and C ensembles and appropriate decontamination lines; field activities including the donning and doffing of protective equipment to a level commensurate with the employee's anticipated job function and responsibility and to the degree required by potential hazards.
   c. Sources for additional hazard information; exercises using relevant manuals and hazard coding systems. Review of and demonstration of competency in performing the applicable skills of 29 CFR 1910.120(q) and Title 8 CCR [5192].
   d. Hands-on experience with written and electronic information relative to response decision making including but not limited to the U.S. Department of Transportation's Emergency Response Guidebook (ERG), manufacturer safety data sheets, CHEMTREC/CANUTEC, shipper or manufacturer contacts, computer data bases and response models, and other relevant sources of information addressing hazardous substance releases. Familiarization with OSHA standard 29 CFR 1910.1201 and Title 8 CCR [5192].
   e. Review of the principles and practices for analyzing an incident to determine the hazardous substances present, their physical and chemical properties, the likely behavior of the hazardous substance and its container, the types of hazardous substance transportation containers and vehicles involved in the release, the appropriate strategy for approaching release sites and containing the release.
   f. Review of procedures for implementing continuing response actions consistent with the local emergency response plan, the organization's standard operating procedures, and the current edition of DOT's ERG including extended emergency notification procedures and follow-up communications.
   g. Review of the principles and practice for proper selection and use of personal protective equipment.

h. Review of the principles and practices of establishing exposure zones, proper decontamination and medical surveillance stations and procedures.
i. Review of the expected hazards including fire and explosions hazards, confined space hazards, electrical hazards, powered equipment hazards, motor vehicle hazards, and walking-working surface hazards.
j. Awareness and knowledge of the competencies for the Hazardous Materials Technician covered in the National Fire Protection Association's Standard No. 472, Professional Competence of Responders to Hazardous Materials Incidents.

Course Objectives
Students will be able to:
1) Select and use the appropriate PPE.
2) Describe and evaluate the laws and regulations pertaining to hazardous waste/materials emergency response.
3) Properly and safely handle a drum, container and other equipment.
4) Analyze, evaluate and respond properly to a hazardous materials incident.
5) Describe the basic functions of the Incident Command System.

Method of Evaluation
A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.
1) Exam and/or hands-on exercises which measure students' ability to plan and implement appropriate safety and emergency responses to chemical and physical exposures in industrial and field settings.
2) Exam and/or hands-on exercises which measure students' ability to conduct site control and evaluation including a hazard analysis and to develop an emergency contingency plan.
3) Hands-on exercises which measure students' ability to properly use instruments and equipment related to safety and emergency response.

Special Materials Required of Student
None

Minimum Instructional Facilities
1) Smart classroom
2) Laboratory space with storage unit

Method of Instruction
1) Lecture and discussion
2) Hands-on exercises

Out of Class Assignments
1) Reading assignments

Texts and References
1) Required (representative example): *40 HR HAZWOPER GUIDE, CURRENT*
2) Supplemental: Electronic Format of the most current: ERG, 29 CFR 1910.120, NIOSH Pocket Guide, and Hazardous Materials Table, Title 8 CCR 5192

Student Learning Outcomes
Upon successful completion of this course, students will be able to:
1) Select and use appropriate personal protective equipment and respiratory protection.

2) Describe and evaluate the laws and regulations pertaining to hazardous waste/materials emergency response.
3) Analyze, evaluate and respond to a hazardous materials incident.
4) Perform decontamination procedures.
5) Perform air and materials sampling procedures.