

2008 Course Catalogue

Course Descriptions

Fire Safety	4
COURSE 207 - Fire Protection Theory and Practice	4
COURSE 217 - Life Safety Code	4
Occupational/Industrial Health and Safety	5
COURSE 051 - Explosive Safety Management and Engineering	5
COURSE 028 - Crane Operations and Rigging Safety Refresher	6
COURSE 030 - Aerial Platform	6
COURSE 036 - Battery Safety	7
COURSE 200 - Construction Safety and Health	7
COURSE 201 - Construction Safety and Health Overview	8
Construction Safety and Health Seminars	9
COURSE 045 - Excavation and Trenching Safety	9
COURSE 057 - Hand and Power Tools	9
COURSE 058 - Fall Protection for Construction	10
COURSE 059 - Safety of Mobile Cranes, Derricks, Hoists, Elevators, and Conveyors in Construction	10
COURSE 060 - Steel Erection	10
COURSE 061 - Signs, Signals, and Barricades	10
COURSE 062 - Occupational Health and Environmental Controls	11
COURSE 063 - Material Handling, Storage, Use, and Disposal	11
COURSE 064 - Welding and Cutting	11
COURSE 065 - Stairways and Ladders	11
COURSE 066 - General Safety and Health Provisions	11
COURSE 067 - Personal Protective and Life Saving Equipment	12
COURSE 068 - Demolition	12
COURSE 069 - Concrete and Masonry	12
COURSE 070 - Fire Protection and Prevention in Construction	12
COURSE 071 - Underground Construction, Caissons, and Cofferdams	13
COURSE 072 - Motor Vehicles, Mechanized Equipment, and Rollover Protective Structures and Overhead Protection	13
COURSE 073 - Toxic and Hazardous Substances (Asbestos and Cadmium)	13
COURSE 075 - Power Transmission and Distribution	13
COURSE 204 - Machinery and Machine Guarding	14
COURSE 046 - Machine Guarding Seminar	14
COURSE 205 - Overhead Cranes and Material Handling	14
COURSE 208 - Mobile Crane Safety	15
COURSE 210 - Forklift Safety	15
COURSE 224 - Laboratory Safety and Health	16
COURSE 309 - Electrical Safety Standards	16
COURSE 310 - Electrical Safety Refresher	17
COURSE 311 - Fall Protection	17
COURSE 044 - Fall Protection Refresher	18
COURSE 312 - Scaffolding Safety	18
COURSE 316 - Scaffold User's Seminar	19
COURSE 313 - Cryogenics Safety	19

COURSE 314 - Liquid Nitrogen Handlers' Course	20
COURSE 315 - Safety in High Pressure Systems	20
COURSE 317 - Safety in High Pressure Operations.....	21
COURSE 056 - Flexible Hose Safety	21
COURSE 318 - Compressed Gas Trailer Safety	22
COURSE 319 - Compressed Gas Cylinder Safety	22
COURSE 047 - OSHA Record Keeping Seminar.....	23
COURSE 501 - General Industry Safety and Health	23
COURSE 806 - Confined Space Entry.....	23
COURSE 814 - Lockout/Tagout	24
COURSE 039 - Establishing, Maintaining, and Assessing OSHA VPP-Compliant Safety and Health Programs	24
COURSE 060A - Steel Erection.....	25
COURSE 077 - Hazardous Locations	25
Safety Engineering Courses	27
COURSE 001 - Facility System Safety.....	27
COURSE 002 - System Safety Fundamentals.....	27
COURSE 008 - System Safety Workshop	28
COURSE 011 - Payload Safety Review and Analysis.....	28
COURSE 016 - Payload Safety Review Process and Requirements	29
COURSE 015 - System Safety Special Subjects.....	29
COURSE 043 - System Safety Seminar.....	30
COURSE 025 - Software System Safety.....	30
Special Programs	31
COURSE 006 - Comprehensive Accident Investigation and Analysis.....	31
COURSE 006a - Investigators Initial Response, and Evidence Collection	31
COURSE 006b - Accident Investigation Tools and Methods.....	32
COURSE 012 - Human Factors in Accident Investigation.....	32
COURSE 017 - Design for Reliability, Availability, and Maintainability.....	33
COURSE 014 - Accident Investigation Refresher	33
COURSE 019 - Aircraft Accident Investigation	34
COURSE 024 - Accident Investigation Board Chairperson	34
COURSE 026 - Control Team/Crew Resource Management.....	35
COURSE 026P - Aircrew Resource Management.....	35
COURSE 026M - Maintenance Crew Resource Management	36
COURSE 029 - Special Programs Seminars.....	36
COURSE 034 - Situational Awareness	37
COURSE 035 - Management Oversight and Risk Tree (MORT) Principles and Practices.....	37
COURSE 049 - Root Cause Analysis	38
COURSE 078 - Mission Assurance for On-Orbit Spacecraft Operations Overview	38
COURSE 079 - Mission Assurance for On-Orbit Spacecraft Ops – Analysis Level	39
COURSE 083 - Human Factors/Ergonomics Engineering and Design	40
COURSE 828 - Process Safety Management and the HAZOP Methodology	40
COURSE 851 - Adult CPR	41
COURSE 854 - Standard First Aid	41

COURSE DESCRIPTIONS

Fire Safety

COURSE 207 - Fire Protection - Theory and Practice (3 Days)

This is a basic course that introduces the student to the recognition of potential fire hazards and procedures to minimize losses due to fires. Topics include previous and current trends in fire losses, the chemistry and mechanics of fire, fire prevention, fire detection, and fire suppression. 29 CFR Subparts E and L, and current NFPA codes and standards, provide the basis for the course.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Fire Protection Professionals who are responsible for reviewing and designing drawings and inspecting facilities for fire safety

CEUs: 1.8

COURSE 217 - Life Safety Code (3 Days)

This course addresses NFPA 101 - Life Safety Code. It is an overview of the NFPA's code to protect people from fires in buildings and structures. Discussions will primarily focus on chapters 1 through 7, which address fundamental requirements, classification of occupancy and hazard of contents, means of egress, protection equipment, specific occupancies, and operation features. Occupancy chapters commonly applicable at aerospace facilities are also discussed. A calculator is needed during this class.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Fire Protection Professionals who are responsible for reviewing and designing drawings and inspecting facilities for fire safety

CEUs: 1.8

COURSE 051 - Explosive Safety Management and Engineering (4 Days)

This two-part course covers the requirements for explosive safety programs and their management. Covered items include basic engineering concepts requirements in TM5-1300/NAVFAC P-397/AFM 88-22 - Structures to Resist the Effects of Accidental Explosions and DoD 6055.9-STD - Ammunition and Explosives Safety. The course provides basic information covering explosives safety engineering principles and requirements. The course includes hands-on demonstrations of software currently available to calculate explosive overpressures, fragment velocities, quantity distance calculations, etc., and exercises to try out tools and techniques discussed. A calculator is required for this class. A laptop computer will be required for the second part of this class. Course topics include:

- What are the effects of an explosion?
- What are the effects of fragments?
- How can personnel/facilities be protected from explosive effects?
- How do I site my facilities to reduce the effects from an explosion?
- How do I build my facilities to reduce the effects from an explosion?
- What types of tools are available to perform the job?

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Engineers with responsibility for designing new or modifying existing explosives, propellant, or pyrotechnics storage, manufacturing, and test facilities
- Managers of explosives, propellant, or pyrotechnics storage areas
- Supervisory personnel managing the storage and handling of explosive devices
- Anyone working with explosives, propellant, or pyrotechnics

CEUs: 2.4

COURSE 028 - Crane Operations and Rigging Safety Refresher (4 Hours)

This course serves as a refresher in overhead crane safety and awareness for operators, riggers, signalmen, supervisors, and safety personnel to update their understanding of existing standards and regulations related to such cranes. Areas of concentration include: general safety in crane operations, testing, inspections, pre-lift plans, and safe rigging. This course is intended to provide classroom training associated with re-certification of already-qualified crane operators, or for those who have only a limited need for overhead crane safety knowledge. It will not result in certified operators unless accompanied by some hands-on training and evaluation. Please contact MEI Safety if interested in hands-on training and/or certification.

Target Audience:

- Crane Operators
- Riggers
- Signalmen
- Site Supervisors
- Safety Personnel and others involved with cranes and/or material handling

No CEUs are available for this course.

COURSE 030 - Aerial Platform (3 Hours)

This course provides the classroom training required by OSHA 29 CFR 1910.67(C)(2)(ii) to allow employees to have on-site hands-on field training and testing to obtain proficiency in the operations of aerial lifts. Discussions include the awareness of hazards and how to gain from lessons learned. It will not result in certified operators unless accompanied by some hands-on training and evaluation. Please contact MEI Safety to discuss if interested in hands-on training and/or certification.

Target Audience:

- Supervisors over aerial lift operations
- Aerial lift operators

No CEUs are available for this course.

COURSE 036 - Battery Safety (2 Days)

This course will provide the student with an understanding of battery operations and hazards. Basic principles of batteries will be discussed in addition to safety requirements and controls for their hazards. The course will include discussion of OSHA and other safety requirements for battery design and usage. Specific applications of battery technology in the aerospace industry, along with their safety requirements and issues will be discussed including use of Commercial-Off-The-Shelf (COTS) batteries.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors managing the usage and handling of batteries, science and engineering personnel designing, planning and operating battery powered systems (including payloads)
- Technical personnel performing maintenance and operations for battery systems

CEUs: 1.2

COURSE 200 - Construction Safety and Health (4 Days)

This course assists the student in effectively conducting construction inspections and oversight. Participants are provided with basic information about construction standards, construction hazards and control, health hazards, trenching and excavation operations, cranes, electrical hazards in construction, steel erection, ladders, scaffolds, concrete, and heavy construction equipment. This course is based on the OSHA Training Institute Construction Safety course and is approved for award of the OSHA course completion card. This course may include a field exercise at a construction site if feasible.

Target Audience:

- Professional Safety and Health personnel
- Construction Managers, Construction Site Inspectors, and those whose day-to-day duties include construction work

CEUs: 2.4

COURSE 201 - Construction Safety and Health Overview (1-1/2 Days)

This course is intended to provide an overview of construction industry safety and health standards to Entry-Level Workers, Managers, Supervisors, and Safety Professionals. It is based on the OSHA 10-hour construction safety and health course. The five one-hour mandatory topic areas are listed below, and each customer should choose five other one-hour topic areas to be chosen from the options provided below. Students who attend the 10-hour class will receive a card of completion from OSHA. Those whose day-to-day work involves construction should take COURSE 0200, Construction Safety and Health.

REQUIRED COURSE TOPICS:

(1 Hour Total)

- Introduction to OSHA
- OSH Act/General Duty Clause 5(a)(1)
- Subpart C: General Safety and Health
- Provisions, Competent Person
- Record keeping (CFR Part 1904)

(1 Hour Each)

- Subpart K: Electrical
- Subpart M: Fall Protection
- Subpart E: Personal Protective and Lifesaving Equipment
- Subpart X: Stairways and Ladders

OPTIONAL COURSE TOPICS: Choose five:

(1 Hour each)

- Subpart F: Fire Protection and Prevention
- Subpart H: Materials Handling, Storage, Use, and Disposal
- Subpart I: Tools - Hand and Power
- Subpart L: Scaffolds
- Subpart N: Cranes, Derricks, Hoists, Elevators, and Conveyors
- Subparts O, W and G: Motor Vehicles, Mechanized Equipment
- Subpart P: Excavations
- Subpart Q: Concrete and Masonry Construction
- Confined Space Entry

Target Audience:

- Entry-Level Construction Workers
- Managers, Supervisors, and Safety and Health Professionals who need only a basic knowledge of safety and health issues associated with construction

CEUs: 0.9

Construction Safety and Health Seminars

These two to three hour seminars provide more detailed information concerning specific aspects of construction industry safety and health standards. These seminars are intended to provide more information than the overview or introductory level information presented in COURSE 201, Construction Safety and Health Overview but who do not need to be designated as “Competent Persons.” Individuals desiring to become “Competent Persons” should take the OSHA 200 Construction 30 hour class or should take the appropriate comprehensive level course (for example, COURSE 208, Mobile Crane Safety, etc.). These seminars allow individuals to tailor or focus their training on specific aspects of construction.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Safety Personnel
- Those working on construction sites
- Supervisors and Managers who oversee construction operations

No CEUs are available for this course.

Specific Seminars are as follows:

COURSE 045 - Excavation and Trenching Safety (3 Hours)

The purpose of this course is to provide employees with the standards, procedures, and practices necessary to meet the standards in CFR 1926.650 Subpart P – Excavations and Trenching Construction. Excavation, trenching, and soil testing are the fundamental concepts covered in this course.

COURSE 057 - Hand and Power Tools (2 Hours)

This course is based on OSHA CFR 1910.28 and 1926.451 - Requirements for Working with Hand Tools Safely in the General and Construction Industries. During the course, the student will receive an overview of those topics needed to work safely with hand and power tools including: standards, terminology, inspection of hand and power tool components, and proper usage.

**COURSE 058 - Fall Protection for Construction
(3 Hours)**

This course is designed to provide an overview or refresher training of the CFR 1926.500 Subpart M - Fall Protection. The course includes fall hazards, needs, and requirements for those who may be using fall protection during the performance of their duties. Basic requirements of OSHA fall protection standards will be discussed, along with an overview of protective devices and procedures. This course is based on the OSHA Training Institute Fall Arrest Systems course. This course is intended for those working in elevated environments in the performance of their duties, and/or for those with safety oversight and inspection responsibilities for operations in elevated environments where fall protection is required.

**COURSE 059 - Safety of Mobile Cranes, Derricks, Hoists, Elevators and Conveyors in Construction
(3 Hours)**

The primary purpose of the course is to provide employees with the standards, procedures, and requirements necessary to meet CFR 1926.550 Subpart N - Mobile Crane and Derricks. The course goal is to increase safety awareness for operators, riggers, signalmen, supervisors, and safety personnel involved in construction operations, and to further their understanding of safety standards and regulations related to lifting devices. This course introduces the student to the pertinent requirements in OSHA 1926.550 and ANSI standards. Students are provided with basic information concerning crane safety, crane operations, crane inspections and maintenance, pre-lift plans, wire rope, rigging components, and rigging safety. The course is intended to provide the basic for those operating in and around mobile cranes.

**COURSE 060 - Steel Erection
(3 Hours)**

The primary purpose of the course is to provide employees with the standards, procedures, and requirements necessary for safe operations involving erection of steel structures. The course will emphasize safety awareness for steel erectors, supervisors, and safety personnel and will further their understanding of standards and regulations related to such work including OSHA 1926.750 Subpart R, and ANSI standards. Students are provided with basic information concerning scope and application, definitions, site layout, erection plan, hoisting and rigging, and structural steel assembly.

**COURSE 061 - Signs, Signals, and Barricades
(2 Hours)**

This course is based on OSHA CFR 1926.200 - Requirements for Working with Signs, Signals, and Barricades in the Construction Industry. In this course, the student will receive an overview of those topics needed to work safely in circumstances where signs, signals, and/or barricades are required. Topics covered include: 1926.200 OSHA standards, terminology, and proper usage.

**COURSE 062 - Occupational Health and Environmental Controls
(3 Hours)**

This course is based on OSHA CFR 1926.50 - Requirements for Medical Services and First Aid, OSHA CFR 1926.51 - Sanitation, OSHA CFR 1926.52 - Occupational Noise, OSHA CFR 1926.53 - Ionizing Radiation, OSHA CFR 1926.54 - Non-Ionizing Radiation, OSHA CFR 1926.59 - Hazard Communication, OSHA CFR 1926.62 - Lead, and OSHA CFR 1926.64 - Process Safety Management of Highly Hazardous Chemicals. During the course, the student will receive an overview of those topics as needed to work safely in construction operations.

**COURSE 063 - Material Handling, Storage, Use and Disposal
(3 Hours)**

This course is based on OSHA CFR 1926.250 - General Requirements for Storage, OSHA CFR 1926.251 - Rigging Equipment for Material Handling, and OSHA CFR 1926.252 - Disposal of Waste Materials for the Construction Industry. During the course, the student will receive an overview of these topics, which are needed in handling materials to meet the requirements of the OSHA 200 Construction Safety and Health Standards.

**COURSE 064 - Welding and Cutting
(3 Hours)**

This course is based on OSHA CFR 1926.350 - Requirements for Working with Gas Welding and Cutting, 1926.351 - Arc Welding and Cutting, 1926.352 - Fire Prevention, Ventilation and Protection in Welding Cutting and Heating, 1926.354 - Welding Cutting and Heating in way of Preservation Coating in the Construction Industry. During the course, the student will receive an overview of those topics needed to work safely in welding and cutting operations.

**COURSE 065 - Stairways and Ladders
(3 Hours)**

This course is based on OSHA CFR 1926.1050 through 1926.1059 Subpart X - Stairways and Ladders. During the class, the student will become familiar with OSHA CFR 1926.1051 - General Requirements for Working on Stairways and Ladders, OSHA CFR 1926.1052 - Stairways, OSHA CFR 1926.1053 Ladders, and OSHA CFR 1926.1060 - Training Requirements in the Construction Industry. The student will be shown the working guidelines, training requirements, and inspection requirements for ladders.

**COURSE 066 - General Safety and Health Provisions
(2 Hours)**

This course is based on OSHA CFR 1926.20 - Requirements for General Safety and Health Provisions, OSHA CFR 1926.21 - Safety Training and Education, and OSHA CFR - 1926.25 Housekeeping. During the course, the student will receive an overview of those topics needed to work safely.

**COURSE 067 - Personal Protective and Life Saving Equipment
(3 Hours)**

This course is based on the construction industry regulations OSHA CFR 1926.95 through 1926.107 Subpart E - Personal Protective and Life Saving Equipment. During the course, the student will become familiar with the 1926.95 through 1926.107 regulations criteria for personal protective requirements in construction, and will receive an overview of those topics needed to apply the proper personal protection equipment.

**COURSE 068 - Demolition
(3 Hours)**

This course is based on OSHA CFR 1926.850 through 1926.859 Subpart T - Demolition. The student will cover OSHA CFR 1926.850 - Preparatory Operations, OSHA CFR 1926.852 - Chutes, OSHA CFR 1926.853 - Material Removal, Removal of Walls, OSHA CFR 1926.854 - Masonry Sections and Chimneys, OSHA CFR 1926.855 - Manual Removal of Floors, OSHA CFR 1926.857 - Storage, and OSHA CFR 1926.859 - Mechanical Demolition. During the course, the student will receive an overview of those topics needed to work safely in accomplishing demolition activities and will be shown the working guidelines, training requirements, and inspection to be accomplished before demolition is started.

**COURSE 069 - Concrete and Masonry
(3 Hours)**

This course is based on OSHA CFR 1926.700 through 1926.705 Subpart Q - Concrete and Masonry Construction. The student will cover the scope, application, and definitions applicable to this subpart, OSHA CFR 1926.701 - General Requirements, OSHA CFR 1926.702 - Equipment and Tools, OSHA CFR 1926.703 - Requirements for Cast-In-Place Concrete, OSHA CFR 1926.703 - General Requirements for Form Work, OSHA CFR 1926.704 - Pre-Cast Concrete, OSHA CFR 1926.705 - Lift-Slab Operations, and OSHA CFR 1926.706 - Masonry Construction.

**COURSE 070 - Fire Protection and Prevention in Construction
(3 hours)**

This basic course introduces the student to the recognition of potential fire hazards and procedures required to meet the OSHA CFR 1926.150 - Fire Protection, OSHA CFR 1926.151 - Fire Prevention, OSHA CFR 1926.152 - Flammable and Combustible Liquids, OSHA CFR - 1926.153 Liquefied Petroleum Gas, OSHA CFR 1926.154 - temporary heating devices, OSHA CFR - 1926.155 Definitions to This Subpart F to Minimize Losses Due to Fires.

**COURSE 071 - Underground Construction, Caissons, and Cofferdams
(3 Hours)**

This course is based on OSHA CFR 1926.800 through 1926.804 Subpart S - Requirements for Working Underground Construction, Caissons, Cofferdams, and Compressed Air in the Construction Industry. In this course, the student will receive an overview of the knowledge needed to work safely in circumstances which involve working with construction of underground tunnels, shafts, chambers, and passageways. Topics covered include: access and egress, safety instructions, tools and protective equipment, and compressed air.

**COURSE 072 - Motor Vehicles, Mechanized Equipment, and Rollover Protective Structures and Overhead Protection
(3 Hours)**

This course is based on OSHA CFR 1926.600 through 1926.606 Subpart O - Requirements for Working with Equipment, Motor Vehicles, Material Handling Equipment, Pile Driving Equipment, Site Clearing, Marine Operations and Equipment Used in the Construction Industry and 1926.1000 through 1926.1003 Subpart W - Rollover Protection Overhead Structures; Protection. In this course, the student will receive an overview of those topics needed to work safely.

**COURSE 073 - Toxic and Hazardous Substances (Asbestos and Cadmium)
(2 Hours)**

This course is based on OSHA CFR 1926.1101 Subpart C- 1926.1101 - Requirements for OSHA General Safety and Health Provisions, Safety Training and Education. During the course, the student will receive an overview of those topics needed to work safely, exposure assessments and monitoring; understanding Permissible Exposure Limits (PEL), respiratory protection, and protective clothing.

**COURSE 075 - Power Transmission and Distribution
(2 Hours)**

This course is based on OSHA CFR 1926.950 through 1926.960 Subpart V - Requirements for Working with Power Transmission and Distribution in the Construction Industry. In this course, the student will receive an overview of those topics needed to work safely in circumstances where the construction of electric transmission and distribution lines and equipment are required. Topics covered include: 1926.950 - OSHA Standards, General Requirements, 1926.951 - Tools and Protective Equipment, 1926.952 - Mechanical Equipment, 1926.953 - Material Handling, 1926.954 - Grounding for Protection of Employees, 1926.955 - Overhead Lines, 1926.956 - Underground Lines, 1926.957 - Construction in Energized Substations, 1926.959 - Lineman's Body Belts, Safety Straps and Lanyards, and 1926.960 - Definitions Applicable to this Subpart.

COURSE 204 - Machinery and Machine Guarding (3 Days)

This course provides the student with an in-depth understanding of OSHA requirements for machinery and machine guarding. It is based on the OSHA Training Institute Machinery and Machine Guarding course. The course also includes an overview of various types of common machinery and the safety standards relating to those types of machines. This course will include a three-hour module on Lockout/Tagout suitable for attendance by non-class personnel on a space-available basis (see description for course 814).

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Maintenance Repair Supervisors, Fabrication Shop Personnel, and anyone working around or with machinery

CEUs: 1.8

COURSE 046 - Machine Guarding Seminar (4 Hours)

This course is designed to provide an overview or refresher of hazards, needs, and requirements for those who may use machines and machinery during the performance of their duties. Basic requirements from OSHA machine guarding standards will be discussed along with an overview of protective devices and procedures. This course is based on the OSHA Training Institute Machinery and Machine Guarding course. The course includes a quick review of various types of common machinery and the safety standards relating to those types of machines. The course is intended as a refresher for those who have taken COURSE 204 - Machinery and Machine Guarding, and have the need to use machinery in the performance of their duties, and/or for those with safety oversight/inspection responsibilities for operations where machinery is used.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Individuals working with or around machinery, or supervising those who do

No CEUs are available for this course.

COURSE 205 - Overhead Cranes and Material Handling (2 Days)

The primary purpose of the course is to promote overhead crane safety and awareness for Operators, Riggers, Signalmen, Supervisors, and Safety Personnel; and to further their understanding of the Federal standards and regulations related to such cranes. This course introduces the student to various types of overhead and gantry cranes and hoists used in general industry and construction operations, and includes a review of the pertinent OSHA and ANSI standards. Students are provided with basic information concerning crane safety, crane operations, crane inspections and maintenance, pre-lift plans, wire rope, rigging components, and rigging safety. The course is intended to provide the basic knowledge (both in breadth and in depth) for those operating in and around overhead cranes. It will provide classroom training which, when combined with hands-on training, will serve to certify overhead crane operators as required. It will not result in certified operators unless accompanied by some hands-on training

and evaluation. Please contact MEI Safety if you are interested in hands-on training and/or certification.

Target Audience:

- Crane Operators
- Crane Site Supervisors
- Signalmen
- Safety Personnel
- Riggers
- Others involved with cranes and/or material handling

CEUs: 1.2

**COURSE 208 - Mobile Crane Safety
(2 Days)**

The primary purpose of the course is to promote mobile crane safety awareness for Operators, Riggers, Signalmen, Supervisors, and Safety Personnel and to further their understanding of Federal standards and regulations related to such cranes. This course introduces the student to various types of mobile cranes, and provides a review of the pertinent OSHA and ANSI standards and requirements. Students are provided with basic information concerning crane safety, crane operations, crane inspections and maintenance, pre-lift plans, wire rope, rigging components, and rigging safety. The course is intended to provide the basic knowledge (both in breadth and in depth) for those operating in and around mobile cranes. It will provide classroom training which, when combined with the customer's own hands-on training, will serve to certify overhead crane operators as required. It will not result in certified operators unless accompanied by some hands-on training and evaluation. Please contact MEI Safety if you are interested in hands-on training and/or certification.

Target Audience:

- People who work with Operators and Riggers
- Construction Safety Personnel
- Managers who oversee operations using mobile cranes

CEUs: 1.2

**COURSE 210 - Forklift Safety Seminar
(3 Hours)**

The basis for the course is OSHA 29 CFR 1910.178(L). Discussions include awareness of hazards and how to gain from lessons learned. Other topics include the mechanics of a fork truck, inspections and maintenance, safe driving, pedestrian and traffic rules, special operating rules, stacking and tiering, and emergency procedures and refueling. This course provides training to support either an initial certification (three hours' duration) or a recertification (two hours' duration). It will not result in certified operators unless accompanied by some hands-on training and evaluation. Please contact MEI Safety if you are interested in hands-on training and/or certification.

Target Audience:

- Supervisors over Forklift Operations

- Forklift Operators
- Safety Personnel

No CEUs are available for this course.

COURSE 224 - Laboratory Safety and Health (2 Days)

This course addresses topics useful in preventing disease and injury among laboratory workers, and prepares laboratory workers and supervisors, industrial hygienists, and safety professionals to recognize, evaluate, and control the hazards specific to this type of workplace. The course includes discussion of the OSHA 29 CFR 1910.1420 - Laboratory Standard, and implementation of Chemical Hygiene Plans as well as discussion of chemical and physical hazards in laboratories.

Target Audience:

- Laboratory, Safety, Reliability, Quality, and Maintainability, and Health Professionals and Managers
- Industrial Hygienists
- Lab workers or anyone working in or around a laboratory

CEUs: 1.2

COURSE 309 - Electrical Safety Standards (3 Days)

This course is designed to provide the student with an in-depth study of OSHA's electrical standards, and hazards associated with electrical installations and equipment. The first day provides a review of electricity fundamentals for those who need it. Topics include single-phase and three-phase systems, cord-connected and plug-connected and fixed equipment, grounding, ground fault circuit interrupters, hazardous locations, and safety-related work practices. Emphasis is placed on electrical hazard recognition and OSHA standards. This course will include a three-hour module on Lockout/Tagout suitable for attendance by non-class personnel on a space-available basis (see description for course 814). A three-hour Electrical Safety Refresher is available for those who have previously taken this course (see description for course 0310). This course does not cover spacecraft or flight electrical systems.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors, Electrical Design Engineers, and anyone working around or with electrical systems

CEUs: 1.8

COURSE 310 - Electrical Safety Refresher (3 Hours)

This course is designed to provide the student with a review of OSHA electrical standards, and the hazards associated with electrical installations and equipment. Topics may include single-phase and three-phase systems, cord-connected and plug-connected and fixed equipment, grounding, ground fault circuit interrupters, hazardous locations, and safety-related work practices. Emphasis is placed on discussion of those areas most pertinent to the class makeup and needs. This course is designed for those who have either taken the three-day COURSE 0309 - Electrical Safety Standards, or who have considerable experience working with electrical systems. It may also be used for those who have a need for only electrical safety awareness, and who do not work with electrical systems on a regular basis. This course does not cover spacecraft or flight electrical systems.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors, Electrical Design Engineers, and anyone working around or with electrical systems

No CEUs are available for this course.

COURSE 311 - Fall Protection (2.0 Days)

This course is designed to establish an understanding of OSHA requirements for fall protection and knowledge of systems that can satisfy those requirements. The course includes an overview of these subjects, an in-class exercise to produce familiarity with requirements, demonstration of hardware, and discussion of fall protection planning. This course is based on the OSHA Training Institute Fall Arrest Systems course. This course will be significant for those who supervise or have safety oversight/inspection responsibilities for operations in elevated environments where fall protection is required.

Target Audience: Safety, Reliability, Quality, and Maintainability Professionals, and individuals working in elevated environments where fall protection is required

CEUs: 1.2

COURSE 044 - Fall Protection Refresher (3 Hours)

This course is designed to provide an overview or refresher of fall protection hazards, needs, and requirements for those who may be using fall protection during the performance of their duties. Basic requirements of OSHA fall protection standards will be discussed along with an overview of protective devices and procedures. This course is based on the OSHA Training Institute Fall Arrest Systems Course, and is intended as a refresher for those who have need to use fall protection equipment in the performance of their duties, and/or for those with safety oversight/inspection responsibilities for operations in elevated environments where fall protection is required.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Individuals working in elevated environments where fall protection is required

No CEUs are available for this course.

COURSE 312 - Scaffolding Safety (3 Days)

This course is based on OSHA CFR 1910.28 and 1926.451 - Requirements for Scaffolding Safety in the General and Construction Industries. During the course, discussions will focus on standards, required training, definition and duties of a Competent Person, design and safety factors, terminology and inspection of scaffold components, types of scaffolds, uses of scaffolds, ladder access to scaffolds, fall protection requirements, signs and barricades, etc. When possible, the class will include a hands-on exercise in erection, inspection, and/or teardown of an actual scaffold.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors for construction and other work which uses scaffolds
- Anyone working on operations requiring the use of scaffolds

CEUs: 1.8

COURSE 316 - Scaffold User's Seminar (4 Hours)

This course is based on OSHA CFR 1910.28 and 1926.451, requirements for scaffolding safety in the general and construction industries. During the course, the student will receive an overview of those topics needed to work safely on scaffolds including: standards, terminology, and inspection of scaffold components, uses of scaffolds, fall protection requirements, signs and barricades, etc. Those individuals desiring to become "Competent Persons" for scaffolds should take three-day Course 312 - Scaffold Safety.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Anyone working on operations requiring the use of scaffolds

No CEUs are available for this course.

COURSE 313 - Cryogenics Safety (2 Days)

This course is designed as a stand-alone course in cryogenics that addresses the safety requirements and potential hazards associated with processes and phenomena in the temperature region below -150°C (-238°F). OSHA, DoD, and NASA safety requirements are included as sources. The course will also cover important design and operational safety considerations for the delivery and control of cryogens (both flight and ground-based systems and vessels). These considerations include materials compatibility, dimensional contraction, impact sensitivity, condensation, cleanliness requirements, purge procedures, disposal, and chill-down techniques.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors, Fluid System Design Engineers, and anyone working around or with cryogenic systems

CEUs: 1.2

COURSE 314 - Liquid Nitrogen Handlers' Course (3 Hours)

This course addresses the hazards of cryogenic liquid nitrogen usage and handling, and the techniques for controlling these hazards. The bases for this course include OSHA documentation and cryogenics applications and accidents. The content includes: fundamentals of liquid nitrogen (physical and chemical characteristics); hazards of liquid nitrogen; safeguards for usage and handling of liquid nitrogen; safety features for storage, transfer, and transportation of liquid nitrogen; and emergency procedures and disposal of liquid nitrogen.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors managing the usage and handling of liquid nitrogen, science and engineering personnel designing, and planning and operating liquid nitrogen systems
- Technical personnel performing maintenance and operations for liquid nitrogen systems

No CEUs are available for this course.

COURSE 315 - Safety in High Pressure Systems (2 Days)

This is a stand-alone course in liquid and gaseous high-pressure systems that addresses the safety requirements and potential hazards associated with these systems and their operations. This course will cover important operating and design considerations for pressure vessels/systems. These considerations include inspection and test requirements, the certification/re-certification process, hazards (such as vessel rupture, blast effects, fragmentation, and leakage of flammable, toxic, and asphyxiating fluids/gasses), and hazard analysis. The focus of the course is on ground high-pressure systems – flight/payload system requirements will not be discussed.

Target Audience:

- Systems Engineers, Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors, Foremen, Technicians/Operators or Pressure Systems
- Those whose activities are associated with or come in contact with fluid systems

CEUs: 1.2

COURSE 317 - Safety in High Pressure Operations (1 Day)

This is a modified version of the two-day COURSE 315 class on safety in liquid and gaseous high-pressure systems that concentrates on those elements that are necessary for technicians and operators of such systems. It addresses the safety requirements and potential hazards associated with these systems and their operations. This course will cover important operating considerations for pressure vessels/systems including inspection and test requirements, the certification/re-certification process, and hazards (such as vessel rupture, blast effects, fragmentation, and leakage of flammable, toxic, and asphyxiating fluids/gasses). The focus of the course is on ground high-pressure gaseous systems - flight/payload system requirements will not be discussed.

Target Audience:

- Systems Engineers, Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors, Foremen, Technicians/Operators, and Pressure Systems
- Those whose activities are associated with or come in contact with fluid systems

CEUs: 0.6

COURSE 056 - Flexible Hose Safety (4 hours)

This course addresses topics such as: an introduction to existing standards for high pressure operations, marking and tagging high pressure components, inspection items for high pressure systems/components, design and fabrication of flex hoses/connections and restraints, proof/periodic testing, and operations concerns of working with flex hoses in high pressure (connecting, torquing, restraints, etc.). This course will make maximum use of lessons learned from industry accidents and close calls to drive home the hazards associated with flex hoses and high-pressure system operations.

Target Audience:

- Systems Engineers, Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors, Foremen, Technicians/Operators, and Pressure Systems
- Those whose activities are associated with or come in contact with fluid systems

No CEUs are available for this course.

COURSE 318 - Compressed Gas Trailer Safety (1 Day)

This is a course that addresses the safety requirements and potential hazards associated with compressed gas trailers, some common commodities, typical trailer configurations and components, and the operations of such. The focus of the course is on compressed gas trailers as applied to small or temporary usage requirements for compressed gasses to support facility needs. This course covers important trailer considerations associated with gaseous commodities, components, and systems typically found on compressed gas trailers and trailer operating procedures. These considerations include properties of common trailer supplied gasses used in high-technology industries and facilities, typical trailer system components, and hazards associated with tube trailer operations experienced during compressed gas trailer fill, withdrawal and securing operations.

Target Audience:

- Systems Engineers, Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors, Foremen, Technicians/Operators, and Pressure Systems
- Those who may work around or are directly associated with compressed gas trailers

CEUs: 0.6

COURSE 319 - Compressed Gas Cylinder Safety (4 Hours)

This course seeks to enhance the safety aspects of using, storing, and handling compressed gas cylinders. It addresses topics such as: an introduction to existing standards and requirements for gas cylinders, properties and hazards of common cylinder gases, operations and storage, marking and tagging, inspection items for cylinders and their components, and the use of flex hoses and restraints. This course will include the use of lessons learned from industry accidents and close calls to drive home the hazards associated with typical compressed gas cylinder operations.

Target Audience:

- Facility/Lab System Safety, Quality, and Maintainability Professionals
- Operators, Technicians, Supervisors, and others who may have the occasion to inspect and/or work around/with compressed gas cylinders and/or who may write procedures including the use of compressed gas cylinders

No CEUs are available for this course.

COURSE 047 - OSHA Record Keeping Seminar (3 Hours)

This seminar will assist the student in understanding the new OSHA rules and requirements for record keeping. The 29 OSHA CFR 1940 - Recording and Reporting Occupational Injuries and Illnesses has been completely revised and the new rules took effect on 1 January 2002.

Everything concerning this new standard, from the scope of who must comply to the new more specifically defined “work-related recording criteria,” is outlined in this seminar. Several examples of the “old rule” compared to the “new rule” are presented to aid those making the transition. Workshop activities accomplished during class include discussion of some “sanitized” case histories for determination of “recordables.” This seminar is recommended for those who are responsible for reporting occupational injuries and illnesses at their work sites.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors and Managers
- Anyone who may be responsible for reporting/recording occupational injuries and illnesses in the workplace

No CEUs are available for this course.

COURSE 501 - General Industry Safety and Health (4 Days/32 Hours)

This course is intended to provide instruction on general industry safety and health topics at the introductory level. Examples of topics include an introduction to OSHA standards, Lockout/Tagout, confined space electrical safety, and hazard communications. OSHA CFR 1910 - Occupational Safety and Health Standards is the primary source document for this course. Industry accident examples and experience have been integrated into the OSHA-provided course material.

Target Audience: Managers, Technical Personnel, and Safety Professionals who need a basic understanding of OSHA requirements

CEUs: 2.4

COURSE 806 - Confined Space Entry (3 Hours)

The purpose of this course is to provide employees with the standards, procedures, and requirements necessary for safe entry to and operations in confined spaces. 29 OSHA CFR 1910.146 - Confined Space is the basis for this course. The course covers the hazards of working in or around a confined space and the precautions you should take to control these hazards.

Target Audience:

- Supervisors and Employees required to work in confined spaces
- Safety Professionals
- Facility Managers of facilities containing confined spaces

No CEUs are available for this course.

**COURSE 814 - Lockout/Tagout
(3 Hours)**

The purpose of this course is to provide employees with the standards, procedures, and requirements necessary for the control of hazardous energy through lockout and tagout of energy-isolating devices. 29 OSHA CFR 1910.147 - The Control of Hazardous Energy (Lockout/Tagout) is the basis for this course.

Target Audience:

- Supervisors and Craftsmen in servicing and maintenance
- Safety Professionals

No CEUs are available for this course.

**COURSE 039 - Establishing, Maintaining, and Assessing OSHA Voluntary Protection Program (VPP) Compliant Safety and Health Programs
(2 Days)**

This course will provide knowledge and understanding the OSHA Voluntary Protection Program, including in-depth discussions of the 32 program elements and how to implement them. The course will address the use of the evaluation techniques to assess and compare management and employee attitudes and assessments of safety, and will discuss techniques to reduce gaps between management and employee ratings, and to raise low ratings.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Mid and upper-level Managers, Supervisors, and others tasked with ensuring the existence of a safe work environment through policy, planning, and control of activities
- All who are interested in becoming familiar with VPP

CEUs: 1.2

COURSE 060A - Steel Erection (8 Hours)

The primary purpose of the course is to provide employees with the standards, procedures, and requirements necessary for safe operations involving erection of steel structures. The course will emphasize safety requirements for steel erectors, supervisors, and safety personnel and will further their understanding of standards and regulations related to OSHA 1926.750 Subpart R, and ANSI standards. Students are provided with basic information concerning scope and application, definitions, site layout, erection plan, hoisting and rigging, and structural steel assembly. Those individuals desiring to become "Competent Persons" in steel erecting should take this course and the Construction Safety and Health course, COURSE 0200. This course will primarily be presented in the classroom.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Those who work with steel erection operations
- Construction Safety Personnel
- Managers who oversee steel erection operations

CEUs: 0.6

COURSE 077 - Hazardous Locations (2 Days)

The class covers the requirements for electric equipment and wiring in locations which are classified as hazardous depending on the properties of the flammable vapors, liquids or gases, or combustible dusts or fibers which may be present and the likelihood that a flammable or combustible concentration or quantity is present. The class specifically addresses:

- OSHA CFR 1910.307 - Requirements for Hazardous Locations
- The general requirements for these locations found in section 500 of the National Electrical Code including the Protection Techniques, and Equipment used in Hazardous Locations (T Rating of Equipment)
- The requirements Class 1 Locations (in detail): Wiring Methods and equipment used in Hazardous Classified Locations, Sealing and Drainage, Switches, Circuit Breakers, Motor Controllers, and Fuses, Motors and Generators, Lighting, Utilization Equipment, Flexible Cords, Receptacles and Attachment plugs, Signaling, and Communications Systems and Grounding
- The requirements for Class II Locations (Dust) and briefly the requirements for fibers and flyings
- The requirements of NFPA 496 for purging and pressurized enclosures and NFPA 77 for controlling electricity
- The requirements for Intrinsically Safe Wiring including color-coding of conductors, control drawings and grounding

This course will be presented in-class at your location, and may be combined with COURSE 0309, Electrical Safety Standards, into four and a half days of training. The course includes lecture and demonstrations.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Supervisors, Electrical Design Engineers, and anyone working around or

with electrical systems in hazardous locations

CEUs: 0.9 or 1.2 depending on whether it is presented with COURSE 0309 or as a stand-alone course

Safety Engineering

COURSE 001 - Facility System Safety

(2 Days)

This course is designed to provide attendees with an understanding of system safety and how it applies to facility acquisition, modification, and operations. It is based on NASA Standard 8719.7 - NASA Facility System Safety Guidebook. The guidebook will be provided to the students as part of the course material. The purpose of the course is to provide guidelines for personnel with facility safety responsibility to assist them in identifying and eliminating or controlling hazards throughout the facility life cycle. The course provides the logical framework necessary for implementing facility system safety. The course also addresses safety issues both from a management and engineering perspective. Topics of discussion include: Review of System Safety Concepts; Hazard Identification, Assessment, and Control (in the facility context); the Facility Acquisition Process and Integration of System Safety into it; Annual Safety Survey and Tracking Procedures; Safety Activities During Facility/Equipment Integration and testing; and Safety Management during Facility/Equipment operations. Recommended course prerequisite: training or experience in system safety.

Target Audience:

- Personnel with facility safety responsibility
- Professionals involved in managing, performing, or reviewing of facility acquisitions, plans, designs, safety analyses, and operations

CEUs: 1.2

COURSE 002 - System Safety Fundamentals

(4-3/4 Days)

This course instructs the student in the fundamentals of system safety management and hazard analysis of hardware, software, and operations. Basic concepts and principles of the analytical process are stressed. The student is introduced to a variety of publications that guide safety analysis, as well as to general reference texts on subject areas covered. Types and techniques of hazard analysis are addressed in enough detail to give the student a working knowledge of their uses and how they are accomplished. Skill in analytical techniques are developed through the use of practical exercises worked by the students in class. This course establishes a foundation for the student to pursue more advanced studies of system safety and hazard analysis techniques while allowing students to effectively apply their skills to straightforward analytical assignments. Note: this course is a combination of COURSE 008 - System Safety Workshop and COURSE 015 - System Safety Special Subjects).

Target Audience:

- Supervisors
- Any Technical or Non-Technical personnel who perform safety analysis and/or manage system safety programs

CEUs: 2.8

COURSE 008 - System Safety Workshop (3 Days)

This course teaches the fundamentals of hazard recognition and analysis for hardware and operations. Basic hazard concepts and the basics of the analytical process are stressed. The student is introduced to publications that guide safety analysis, and to general reference texts on subject areas covered. Types and techniques of hazard analysis are addressed in enough detail to give the student working knowledge and provide a basis for continued refinement of analytical skills. Extensive use of in-class workshops and group exercises allow hands-on practice in techniques discussed. Note: students who have attended COURSE 002 - System Safety Fundamentals should not attend this course.

Target Audience:

- Technical Interns
- Supervisors
- Any Technical or Non-Technical Personnel who perform safety analysis or who are interested in making their hardware safe

CEUs: 1.8

COURSE 011 - Payload Safety Review and Analysis (4 Days)

This course is designed as a guide to payload safety review for Payload Program Safety and Management Personnel. The student will gain an understanding of payload safety as it relates to the overall payload integration process, how the payload safety review process works, and the roles and responsibilities of the various players in the Payload Safety Review Process. In addition, the student will be instructed in the hands-on fundamentals of payload hazard analysis, hazard documentation, and presentation of analyses to the Payload Safety Review Panel. The course will include a mock presentation to the Payload Safety Review Panel. Those with only support or supervisory responsibilities in payload safety should attend COURSE 016, Payload Safety Process and Requirements.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Additional duty Safety Personnel, and Engineers who perform hazard analyses on STS/ISS payloads and who must meet the safety review requirements of NSTS/ISS 13830, NSTS 1700.7, NSTS 1700.7/ISS Addendum, NSTS/ISS 18798, and/or KHB1700.7

CEUs: 2.4

COURSE 016 - Payload Safety Process and Requirements (8 Hours)

This course is intended as an overview of the requirements and will merely introduce the payload safety and hazard analysis process. It is intended for those who may be monitoring, supervising, or assisting those who have the responsibility of identifying, controlling, and documenting payload hazards. It will provide an understanding of the relationship between safety and the payload integration process with an orientation to the payload safety review process. It will also describe payload safety requirements (both technical and procedural) and discuss their application throughout the payload safety process - analysis, review, certification, and follow-up to assure implementation. System safety concepts and hazard recognition will be briefly discussed and documentation requirements explained in general terms. Those with primary responsibilities in payload safety should attend COURSE 011, Payload Safety Review and Analysis.

Target Audience: Program Managers and supervisory personnel, engineering and safety staff, and others who need a general understanding of the payload safety review process and primary technical requirements

CEUs: 0.6

COURSE 015 - System Safety Special Subjects (2 Days)

This course is presented as a follow up to the COURSE 008 - System Safety Workshop for those students whose primary duties involve safety or system safety. Management aspects of system safety are discussed, along with some additional analytical techniques that are not covered during the three-day workshop. Subjects discussed include system safety implementation, human factors in system safety analysis, system safety planning, and an introduction to software system safety. Students who have attended COURSE 002 - System Safety Fundamentals should not attend this course.

Target Audience:

- Supervisors/Managers with safety related management duties
- Any Technical or Non-Technical Personnel who performs safety analysis or safety management
- Personnel whose primary duty is system safety

CEUs: 1.2

COURSE 043 - System Safety Seminar (2-3 Hours)

This seminar serves to provide an overview of system safety origins, definitions, principles, and practices. It includes a discussion of requirements for both the engineering and management aspects of system safety and answers the following questions:

- Why should we care about system safety?
- What does this mean to me?
- Why do we do system safety?
- What is system safety?
- How do we do system safety?

Engineering aspects will include a discussion of three typically used analytical techniques – Failure Modes and Effects Analysis (FMEA), Fault Tree Analysis (FTA), and Probabilistic Risk Assessment (PRA). Several accidents are discussed to emphasize and illuminate the system safety principles involved. This course will not serve to prepare attendees to develop or manage system safety programs or to perform specific analyses, only to introduce them to the concepts.

Target Audience:

- Attendees at Customer Safety Days
- Other audiences who need a quick overview of System Safety

No CEUs are available for this course.

COURSE 025 - Software System Safety (4 Days)

This course discusses applications of systems safety concepts, principles, and techniques to the development of software, based primarily on NASA-STD-8719.13. Course topics include an overview of system safety and of software development, requirements for software system safety, setting up a software system safety program, implementing a software system safety program, software hazard analysis including the application of Fault Tree and Failure Modes and Effects Analysis (FMEA) to software, software system safety design techniques, and software system safety assurance techniques.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Those involved in setting up and implementing a software system safety program, software hazard analysis, software system safety design, and assurance

CEUs: 2.4

Special Programs

COURSE 006 - Comprehensive Accident Investigation and Analysis (5 Days)

The purpose of this workshop is to provide the knowledge and analytical tools and techniques to conduct effective and efficient investigations, and to report the results of such clearly and concisely. While the basics of accident investigation and evidence collection are discussed, the focus of the course is on the application of a variety of analytical techniques to accident investigation. Lecture and theory are reinforced by practical examples and exercises. The information presented is sufficient for investigation of major accidents by members of boards of investigation, but is also easily adapted for use by individuals investigating lesser accidents.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Executive or Supervisory Personnel selected for the standing body of board members
- Anyone interested in, or subject to, being assigned to conduct accident investigations

CEUs: 3.0

COURSE 006a - Investigators Initial Response, and Evidence Collection

The purpose of this course is to provide the knowledge and skills to secure the site; preserve the Accident scene; collect and impound data, records, equipment, and facilities; video and photograph the scene, and map and tag debris; interview witnesses, handle witness information, and develop a witness correlation matrix; and initiate forensic analysis. This course will also cover dealing with the press. The course is designed to provide field investigation and management techniques for the individual who must respond to the scene and assure the capture of as much evidence as possible in a minimum amount of time.

Target Audience:

- Safety, Engineering, or Management Professionals subject to being assigned to serve as a member, advisor, or consultant for an accident investigation (accident investigation board, team, or individual investigator)
- Personnel who may be directed to rapidly respond to the scene of an Accident with the responsibility to assure the effective capture of as much evidence as possible in a minimum amount of time

CEUs: 1.8

COURSE 006b - Accident Investigation Tools and Methods (3 Days)

The purpose of this course is to provide the knowledge and skills to use analytical tools and techniques to support Accident investigations. The application of the following will be covered: three column list, timeline analysis, process flow diagram (functional analysis) change analysis, barrier analysis, root cause analysis/event and causal factor analysis, IAT-M, and the Management Oversight and Risk Tree (MORT). Additionally, the participant will be asked to integrate evidence, draw conclusions, and generate recommendations. The information presented in this course is required to support Type A, Type B, and Type C investigations, but is also easily adapted for use by individuals investigating lesser Accidents.

Target Audience:

- Safety, Engineering, or Management Professionals subject to being assigned to serve as a member, advisor, or consultant for an accident investigation (accident investigation board, team, or individual investigator)

CEUs: 1.8

COURSE 012 - Human Factors in Accident Investigation (3 Days)

This course is specifically focused on the analysis of human error and human factor contributions to accidents. It will discuss the human factors aspects of accident causation and also advocate the use of the Management Oversight and Risk Tree (MORT) for an in-depth analysis of accidents to identify human factors contribution. The course provides an overview of basic human factors and MORT concepts. The human error analysis aspects of MORT will be expanded using concepts from other analytical techniques and a modified MORT diagram will be presented and used during class on scenarios based on actual accidents.

Target Audience:

- Single investigators
- Accident Investigation Board Members
- Ground Operations Management Personnel
- Rapid Response Personnel
- Facility Managers

CEUs: 1.8

COURSE 014 - Accident Investigation Refresher (2-1/2 Days)

The Accident Investigation Refresher course is provided to update the student's knowledge of accident investigation policies, procedures, and requirements. The practical aspects of investigation and reporting (initial response, collecting and interpreting evidence, managing an investigation, and writing the report) will be briefly reviewed, and proficiency in the application of commonly used analytical tools, including MORT, will be sharpened through classroom training and student group exercises. Students participating in this course should have previously taken an accident Investigation and Analysis course.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Executive or Supervisory personnel selected for the standing body of board members
- Anyone interested in, or subject to, being assigned to conduct accident investigations and/or in need of a refresher of accident investigation policies, procedures, and requirements

CEUs: 1.2

COURSE 017 - Design for Reliability, Availability, and Maintainability (RAM) (2.5 days in a 1/2-day format)

The purpose of this course is to introduce the basic concepts of reliability, availability, and maintainability; to provide an overview of availability engineering; and to improve integration of availability analysis into current and future programs. The benefits include shortening the design and development cycle, reducing the number of occurrences of time-consuming problems, improved quality, maintenance, safety, increased product life, and improved customer satisfaction.

Target Audience:

- Managers, Engineers, and Technicians who are working in design, project management, test and systems integration, and who require a basic knowledge of availability to assure a dependable product

CEUs: 1.5

COURSE 019 - Aircraft Accident Investigation (3 Days)

This course is designed to provide field investigation and management techniques for individuals who must respond to the crash scene and assure the capture of as much evidence as possible in a minimum amount of time. Topics of discussion include pre-accident preparation, witness interviewing, systems investigation, medical issues, response to the scene, photography, preserving evidence, site mapping, and structural failure mode determinations. Discussion of supporting analytical services and laboratory methods is included for familiarization, but not covered in depth. The course instructor uses practical examples and discussion of actual aircraft accidents in teaching the dos and don'ts of field investigation.

Target Audience:

- Single Investigators
- Accident Investigation Board Members
- Flight Operations and Maintenance Personnel

CEUs: 1.8

COURSE 024 - Accident Investigation Board Chairperson (1-1/2 Days)

The Accident Investigation Board Chairperson Course is provided to update the student's knowledge of accident investigation policies, procedures, and requirements as they relate to leading/managing a board. The practical aspects of investigation and reporting (initial response, collecting and interpreting evidence, managing an investigation, and writing the report) will be reviewed, and the application of commonly used analytical tools will be discussed. Principles and practices of use to any type of accident investigation will be included.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals who may be selected to support or advise an accident investigation
- Executive or Supervisory Personnel selected to lead an accident investigation
- Anyone interested in, or subject to, being assigned to lead an accident investigation

CEUs: 0.9

COURSE 026 - Control Team/Crew Resource Management (2-1/2 Days)

This training directly addresses the human factors issues that most often cause problems in team and crew interaction. No one who works in a team or on a crew, especially in high stress activities, is immune to these effects. The Control Team/Crew Resource Management course provides awareness of the human factors problems that too often result in Accidents, and offers recommendations and procedures for eliminating these problems with an emphasis on safety risk assessment, crew/team coordination, and decision-making in crisis situations. The two versions of this course are applicable both to those in aircrew-type operations and also to personnel operating consoles for hazardous testing or on-orbit mission operations. It is preferable that a “team” experiences the course as a group if possible. One and two-day versions of this course are also available - check with the COURSE to determine which version of the course is most applicable to your operations.

Target Audience:

- Safety Reliability, Quality, and Maintainability Professionals
- Managers, Engineers, and Technicians who work in a team environment and who must coordinate with, and depend on, others to accomplish work objectives and goals

CEUs: 1.5

COURSE 026P - Aircrew Resource Management (5 ½-day modules or 2-1/2 Days)

This course is a spin-off of the Crew Resource Management course tailored for aircrew members. It directly addresses the human factors issues that most often cause problems during aircrew interaction. No one who works on a crew, especially in a high stress activity such as flight, is immune to these effects. The Aircrew Resource Management course deals with interpersonal relations by providing awareness of the human factors problems that too often result in accidents. It offers recommendations and procedures for eliminating these problems, with an emphasis on safety risk assessment, aircrew coordination, and decision-making in crisis situations. It is preferable that a “team” experiences the course as a group if possible.

Target Audience:

- Aircrews and associated personnel

CEUs: up to 1.5, depending on the version of the class delivered

COURSE 026M - Maintenance Crew Resource Management (1 Days)

This course is a spin-off of the COURSE Crew Resource Management 026 course tailored for aircraft maintenance crewmembers. It directly addresses the human factors issues that most often cause problems during aircraft maintenance and maintenance team interaction. No one who works on any crew or team, especially in high stress activities, is immune to these effects. The Maintenance Crew Resource Management Course deals with interpersonal relations by providing awareness of the human factors problems that too often result in Accidents. It offers recommendations and procedures for eliminating these problems, with an emphasis on safety risk assessment, maintenance crew coordination, and decision-making in crisis situations. It is preferable that a “team” experiences the course as a group if possible.

Target Audience:

- Aircraft Maintenance Crews Associated Personnel

CEUs: 0.6

COURSE 029 - Special Programs Seminars (4 Hours)

These seminars provide top-level overviews of basic tenets and practices taught in courses provided within the Special Programs portion of the catalogue. These are tailored version of the longer class offerings designed specifically for special uses such as Safety Days, etc. Previously provided seminars in this category include:

- Control Team/Crew Resource Management
- Situational Awareness

Contact the staff for further discussion on adapting an existing course to your specific needs.

Target Audience:

- Safety Reliability, Quality, and Maintainability Professionals
- Managers, Engineers, and Technicians who work in a team environment and who must coordinate with, and depend on, others to accomplish work objectives and goals

No CEUs are available for this course.

COURSE 034 - Situational Awareness (2-1/2 Days)

There are many hazardous operations and activities involving operator control over systems in which component failure or operator error can threaten the safety of involved or surrounding personnel. Examples include such varied operations as hazardous testing, propellant transfers, aircraft operations, and maintenance. For such operations where extreme danger can result from system failure or operator error, a body of knowledge, called situational awareness, has been developed to promote safe outcomes from potentially hazardous events. Situational awareness involves combining an awareness of inner workings of the operations environment, knowledge of system failure design criteria, and an understanding of expected outcomes from system failures to avoid hazardous situations and develop safe responses to unsafe conditions that may arise. This course instructs students in the basic tenets and practices of situational awareness, and how such apply to hazardous operations in order to promote the best proactive safety techniques in practice. This course may be presented in conjunction with COURSE 026 - Control Team/Crew Resource Management.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Those involved as test/operations team members in hazardous operations
- Anyone designing, writing procedures for, or supervising those working in hazardous operations

CEUs: 1.5

COURSE 035 - Management Oversight and Risk Tree (MORT) Principles and Practices (1 Day)

In this course, the use of the Management Oversight and Risk Tree (MORT) analytical technique is discussed in accident investigation. The course includes discussion of the technique and a short, hands-on exercise on using the technique in an accident investigation. The class also explores how MORT fits into the accident investigation process and output use from this technique, in conjunction with other fact-finding and analysis techniques, in determining findings, root causes, and recommendations for improvement. Students who have taken COURSE 006 - Comprehensive Accident Investigation and Analysis, COURSE 006b Accident Investigation Tools and Methods, or COURSE 014 - Accident Investigation Refresher should not take this course except as a refresher on the MORT technique.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Executive or Supervisory Personnel selected for the standing body of board members
- Anyone interested in, or subject to, being assigned to conduct accident investigations

CEUs: 0.6

COURSE 049 - Root Cause Analysis

This course provides basic training on several root cause analysis techniques that can be used for problem solving or accident investigation. The student will understand the concept of root causes, how to identify them, and how to formulate corrective actions. Examples and exercises will be provided from historical sources. The primary focus in this class is how most of the tools available are derived from cause and effect relationships. Several software driven tools will also be discussed.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Managers, Supervisors, and others tasked with accident investigation or problem correction

CEUs: 1.8

COURSE 078 - Mission Assurance for On-Orbit Spacecraft Operations Overview (1 Day)

A large portion of space missions include the development, launch, and operations of manned and unmanned spacecrafts and satellites. One of the primary responsibilities in this mission is to perform analyses to identify and mitigate public and other risks associated with orbital operations. This course is designed to give the student a detailed understanding of orbital safety requirements and analysis. It includes multi-agency requirements for space safety analysis and introduces students to various models and tools used to perform or aid in analyses. It introduces the students to topics such as: mission planning of on-orbit safety, end-of-life considerations, on-orbit hazards, the orbital environment, conjunction assessments and planning, roles and responsibilities, and interactions with other agencies. It is designed to make the audience aware of such program requirements, and present suggested timeframes that allow adequate consideration of space safety during Program/Project startup and design to minimize potential delays and costs. A field trip to a mission control facility may be included in this course - if so, an additional half-day may be required.

Target Audience:

- Senior, Program, and Project Managers
- Safety, Reliability, Quality, and Maintainability Professionals with an interest in space safety activities

CEUs: 0.6, or 1.0 with field trip

COURSE 079 - Mission Assurance for On-Orbit Spacecraft Operations – Analysis Level (2 Days)

Operations in aerospace industries include the development, launch, and operations of unmanned spacecrafts. This course provides an overview of policies and requirements for such vehicles, with emphasis on mission assurance during on-orbit operations and the overall safety of the unmanned spacecraft mission. It is designed to give senior, program, and project managers an understanding of space and orbital safety, the associated policies and requirements, and roles and responsibilities. The course covers topics such as:

- Mission Planning for On-orbit Mission Success (policies and practices) - interference, RFI, MIJI, lasers, system safety and design issues, preliminary and critical reviews, operator inputs, and end-of-life concerns
- Orbital Debris Issues
- Reentry Procedure Risk Management
- Safety and Hazard Reporting Policy
- Orbital environment/weather
- Conjunction Assessment – tools and common products
- Collision Avoidance (COLA) Tools, Common Products, and Actions
- Information exchanges with commercial, other nations, and DoD as updated using the AFSPC CFE Program
- Orbital and Launch Safety exchange with AFSPC, FCC, and FAA
- On-orbit Space Flight Plan risk management
- Crew Management and Human Factors

Target Audience:

- Orbital Safety Representatives
- FAA and DoD Space Mission Assurance Representatives
- Other personnel associated with Space Safety and Analysis
- Program/project managers and engineers who design systems for space operations
- Personnel who conduct operations with on orbit systems

CEUs: 1.2

NSTC Course 083 - Human Factors/Ergonomics Engineering and Design (2 Days)

This comprehensive course covers the consideration of the human element in system design for both hardware and software. It will address human capabilities and imitations regarding workplace layout, manual material handling, environmental conditions, and software user-system interfaces. This course will provide the students with cost-effective and practical solutions, tools, and strategies to successfully integrate human factors/ergonomics into system design and development.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals
- Engineers and others involved in the design and development of hardware and software

CEUs: 1.2

COURSE 828 - Process Safety Management (PSM) and the Hazard and Operability Analysis (HAZOP) Methodology (2 Days)

This course is designed to provide the student an understanding of the OSHA 1910.119 - Process Safety Management requirements for operations and the use of the HAZOP methodology in satisfying those requirements in the analysis of processes and facilities. Topics to be discussed will include: Background for Process Safety Management; an overview of OSHA 1910.119 - Process Safety Management Requirements; HAZOP Process; HAZOP Team Make-up and Selection, Roles, and Responsibilities; Meeting Management; HAZOP Process Tailoring and Node Selection; Use/Tailoring of Guidewords; Hazard Analysis, Safety Risk Assessment, and Hazard Tracking. The course includes both lecture and in-class, group exercises to familiarize students with PSM requirements, the HAZOP methodology, and HAZOP meeting dynamics.

Target Audience:

- Safety, Reliability, Quality, and Maintainability Professionals responsible for Process Safety Management activities
- Safety and Facility Engineers who may be asked to perform a HAZOP analysis or be members of a HAZOP team
- Facility and Process Operators who may be asked to perform a HAZOP analysis or be members of a HAZOP team

CEUs: 1.2

COURSE 851 - Adult CPR (3.5 Hours)

This is an American Red Cross Workplace training course, designed to help participants become familiar with recognizing and appropriately responding to emergencies. Students will learn "emergency action steps" which will guide them in caring for victims of sudden illness or injury involving the heart. Students will become familiar with the signals of breathing and cardiac emergencies and learn skills to provide care until professional help arrives. They will also learn how to protect themselves and overcome obstacles that may influence their decision to help in an emergency. The participants will be able to demonstrate how to care for a person who is not breathing, is choking, or is in cardiac arrest. New techniques in administering CPR, per 2006 standards, are included in the training. Students will work with each other and manikins to practice emergency response skills. Students who successfully pass skill and written tests will receive an American Red Cross certification card for CPR. CPR certification is good for one year. The objective of this course is to help people feel more confident of their ability to help in an emergency.

Target Audience:

- Anyone with an interest in or need for accomplishing CPR

No CEUs are available for this course.

COURSE 854 - Standard First Aid (1 Day)

This is an American Red Cross Workplace training course, designed to help participants become familiar with recognizing and appropriately responding to emergencies. Students will learn emergency action steps which will guide them in caring for victims of sudden illness or injury, including breathing and cardiac emergencies. Students will become familiar with the signals of sudden illnesses and learn skills to provide care until professional help arrives. They will also learn how to protect themselves and overcome obstacles that may influence their decision to help in an emergency. New techniques in administering CPR and First Aid, per 2006 standards, are included in the training. Students will work with each other and manikins to practice emergency response skills. Students who successfully pass skill and written tests will receive an American Red Cross certification card for Standard First Aid. CPR certification is good for one year; the First Aid portion is good for three years. The objective of the course is to help people feel more confident of their ability to help in an emergency.

Target Audience:

- Anyone with an interest in or need for accomplishing First Aid and/or CPR

CEUs: 0.6