Federal Emergency Management Agency
Training and Fire Programs Directorate
National Fire Academy

FOREWORD

The Federal Emergency Management Agency (FEMA) was established in 1979 and is now directed by The Honorable Louis O. Giuffrida. FEMA's mission is to focus federal effort on preparedness, mitigation, response and recovery of emergencies encompassing the full range of natural and manmade disasters.

FEMA's National Emergency Training Center in Emmitsburg, Maryland, includes the National Fire Academy, the United States Fire Administration, and the Emergency Management Institute. This center is headed by The Honorable Clyde A. Bragdon, Jr., Acting Associate Director for Training and Fire Programs.

To achieve the Academy's legislated mandate (under Public Law 93-493, Oct. 29, 1974) "to advance the professional development of fire service personnel and of other persons engaged in fire prevention activities," the Field Programs Division has developed an effective program linkage with established fire training systems which exist at the state and local level. It is the responsibility of this division to support and strengthen these delivery systems. Academy field courses have been sponsored by the respective state fire training systems in every state.

The goal of the *Hazardous Materials Incident Analysis* course is to provide local emergency response personnel with the basic knowledge necessary to effectively analyze a hazardous materials incident before selecting appropriate action alternatives. Accordingly, the course stresses recognition and identification of hazardous materials, analysis of their likely behavior, and estimation of the likely harmful hazardous materials emergency outcomes. The present course addresses selected standards in the National Professional Qualifications System, which are noted in this edition following the Course Goal and Objectives.

The staff of the Training and Fire Programs Directorate is proud to join with state and local fire agencies in providing educational opportunities to the members of the nation's fire and rescue services.

TABLE OF CONTENTS

APPENDICES

ACKNOWLEDGEMENTS

The preparation of this course was made possible through the assistance, cooperation, and dedication of many people. The National Fire Academy wishes to thank all of the following persons and organizations for their roles in the development of this course.

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The Academy would also like to thank Events Analysis, Inc. of Reston, Virginia, for the kind support and generous permission to use the copyrighted D.E.C.I.D.E. Events Analysis Methodology of Ludwig Benner in this programm.

Joseph L. Donovan
Superintendent
National Fire Academy

SCOPE OF THE COURSE

Hazardous Materials Incident Analysis is designed to enable the student to better assess the hazardous materials emergency threat to people, property, and systems, through an analytical study of general hazardous materials emergency behaviors. The course is designed to develop the necessary skills to adequately define the problem posed by hazardous materials in emergency situations. These analytical skills will be reinforced throughout the course.

These skills can also be used to support your:

- Pre-emergency planning activities,
- Training of emergency response personnel,
- Learning from your own experience.

This course focuses on events analysis and defining the hazardous materials problem.

The course is best suited for the following personnel:

1. Fire officers
2. Fire training officers
3. Other emergency response agency supervisory and training personnel (EMS, law enforcement, emergency management, public health, etc.)

COURSE GOAL AND OBJECTIVES

The overall course goal is:

To provide the student with the knowledge to assess a hazardous materials emergency using the first two steps of the D.E.C.I.D.E. method.

Enabling objectives for students which lead to this goal are to:

- Define hazardous materials, and the Department of Transportation categories and classifications.
- Describe five areas hazardous materials are present in the community, and five modes of hazardous materials transportation.
- Describe three situations where hazardous materials created harm when released from their containers.
- Define a hazardous materials incident/emergency.
- Define "outcome" as it relates to an emergency.
- Name at least five potentially dangerous assumptions about hazardous materials.
- Specify ways hazardous materials emergencies are different.
- Give reasons why it is important to "define your hazardous material problem" before getting directly involved in an emergency.
- Explain course goals, objectives, scope, and limitations.
- Explain the purpose of an emergency response effort.
- List in order and describe Benner's D.E.C.I.D.E. steps.
- List and describe the six groups of clues for detecting the presence of hazardous materials.
- Recognize the presence of hazardous materials in scenarios from visual information about the scenarios.
- Describe the two parts of "estimating likely harm without intervention."
- Explain how events analysis can be used to estimate likely harm without intervention.
- Identify the significant events in a given scenario, and then place those events in sequence.
- Explain the format for describing likely outcomes in emergencies.
- Explain the process of identifying hazardous materials.
- Identify five specific sources of information to help identify hazardous materials.
- Prepare a "Hazardous Material Data Sheet."
- Describe the Hazardous Materials Behavior Model.
- List and be able to recognize the types of stress, breach, releases, dispersion, and hazardous materials travel patterns.
- Differentiate between impingement and harm, and identify factors which influence the range of harm.
- Identify four factors which affect behavior of hazardous materials in emergencies.
- Given three scenarios and background information, complete several events analysis worksheets.

STANDARDS

The National Fire Academy strongly supports the standards-making process of the National Professional Qualifications Board for the Fire Service which operates under the jurisdiction of the Joint Council of National Fire Service Organizations.

The Academy, in its preparation of this course, reviewed the appropriate professional qualifications standards to determine which specific standards were to be addressed in whole or substantially in part.

Those addressed in whole or substantially in part are:

NFPA-1001 Firefighting Professional Qualifications (1981)

5-11.1	The firefighter shall define and identify the symbols and signs used to designate hazardous materials.
5-11.2	The firefighter shall define and identify the precautions to be observed and followed in hazardous material areas.

NFPA-1021 Fire Officer Professional Qualifications (1981)

2-6.1	The Fire Officer I shall identify the public and private national organizations which support the fire protection services, and describe the functions of each.
2-6.2	The Fire Officer I shall identify the public and private state organizations which support the fire protection services, and describe the functions of each.
2-6.3	The Fire Officer I shall identify the public and private local organizations which support the fire protection services, and describe the functions of each.
2-7.5	The Fire Officer I shall identify the special hazards which might be encountered in the following occupancies: (b) Educational (1) Residential (2) Nonresidential (f) Basic Industry (g) Manufacturing (h) Storage (i) Special Properties
2-7.9	The Fire Officer I shall identify and explain the local, national, and international symbols used to designate hazardous materials, and identify the precautions that firefighters are expected to observe and follow.
2-10.1	The Fire Officer I shall identify and describe the factors of size-up which must be considered to determine procedures for control of an emergency situation.
2-10.9	The Fire Officer I, given equipment and personnel, shall demonstrate the attack procedures required to control, confine, and extinguish a fire in the following simulated situation: (b) Flammable liquids (c) Flammable gases (d) Hazardous materials

2-10.10	The Fire Officer I, given a simulated fireground situation requiring multiple company operations, shall analyze the situation and determine the resources required for control and demonstrate the assignment and placement of the resources.
2-10.11	The Fire Officer I, given an actual or simulated target hazard and all pertinent information, shall develop a prefire plan, which will include the utilization of personnel, equipment, and extinguishing agents.
3-5.1	The Fire Officer II shall explain the characteristics of flammable liquids, flammable gases, and flammable solids.
3-5.2	The Fire Officer II, given a simulated emergency incident and all pertinent information involving each of the following materials, shall analyze each simulated situation, determine the resources required for control, and demonstrate the assignment and placement of the resources: (a) Flammable Liquids (b) Flammable Gases (c) Poisons (d) Explosives (e) Radioactive Materials (f) Flammable Solids (g) Reactives (h) Corrosives
3-5.3	The Fire Officer II shall identify national, state and local information resources for handling of hazardous materials under fire or emergency situations.
4-9.1	The Fire Officer III shall identify the authority having jurisdiction, and all the agencies available in controlling a major disaster.
4-9.2	The Fire Officer III shall describe the responsibilities, authority, and utilization of all support agencies in the jurisdiction having authority.
4-9.3	The Fire Officer III, given all the pertinent information and available resources, shall prepare a plan to cope with a large scale emergency situation.
4-9.4	The Fire Officer III, given a simulated disaster situation and all pertinent information, shall describe/illustrate the application of the major emergency operations plan.
4-9.5	The Fire Officer III, given a simulated disaster situation which would require extensive supervision of personnel, shall describe how basic operational principles would be applied to the simulated disaster situation.
4-9.6 (c)	The Fire Officer III, given a simulated disaster situation, shall: (a) Describe how a major disaster plan is activated (b) Demonstrate knowledge of the disaster plans (c) Identify the outside assistance available to the fire department and the methods of summoning the assistance.
4-9.8	The Fire Officer III, given actual or simulated problems, shall demonstrate knowledge of how to determine objectives and formulate plans, organize for emergency operations, and direct and control the emergency operations

THE INCIDENT COMMAND SYSTEM (ICS)

Although many systems exist throughout the nation for the command and control of resources at emergency incidents, the National Fire Academy has adopted the Incident Command System (ICS) as its base for teaching the concepts of incident command.

ICS is recognized by the Academy as a system that is documented and has been successfully used in managing available resources at emergency operations. All procedures will not perfectly fit all departments nor will the system necessarily need to be fully implemented for all situations the fire service will encounter.

The Incident Command System was developed as a consequence of fires that consumed large portions of wildland including structures in Southern California in 1970. As a result of those fires, a need was identified to develop a system whereby different agencies could work together toward a common goal in an effective and efficient manner. The material contained in this manual was developed by a multi-agency task force. The California Department of Forestry, through the United States Forest Service and the Federal Emergency Management Agency, developed the materials in cooperation with the California State Fire Marshal's Office, the California Office of Emergency Services and the FIRESCOPE task force.

The system consists of procedures for controlling personnel, facilities, equipment, and communications.

It is designed to begin developing from the time an incident occurs until the requirement for management and operations no longer exists. The "Incident Commander" is a title which can apply equally to an engine company captain or to the chief of a department depending upon the situation. The structure of the Incident Command System can be established and expanded depending upon the changing conditions of the incident. It is intended to be staffed and operated by qualified personnel from any emergency services agency and may involve personnel from a variety of agencies.

As such, the system can be utilized for any type or size of emergency, ranging from a minor incident involving a single unit, to a major emergency involving several agencies. The Incident Command System allows agencies to communicate using common terminology and operating procedures. It also allows for the timely combining of resources during an emergency.

ICS is designed to be used in response to emergencies caused by fires, floods, earthquakes, hurricanes, tornados, tidal waves, riots, hazardous materials, or other natural or human-caused incidents.

OPERATING REQUIREMENTS

The design requirements for the Incident Command System are the following:

- Can provide for the following kinds of operations: (a) single jurisdiction/single agency involvement, (b) single jurisdiction with multiagency involvement, (c) multi-jurisdiction/ multiagency involvement.
- Organizational structure can adapt to any emergency or incident to which fire protection agencies would be expected to respond.
- Can be applicable and acceptable to users throughout the country.
- Should be readily adaptable to new technology.
- Must be able to expand in a logical manner from an initial attack situation.
- Must have basic common elements in organization, terminology, and procedures. This allows for the maximum application and use of already developed qualifications and standards, and ensures continuation of a total mobility concept.
- Implementation should have the least possible disruption to existing systems.
- Must be effective in fulfilling all of the above requirements and yet be simple enough to ensure low operational maintenance costs.

COMPONENTS OF THE ICS

The Incident Command System has a number of components. These components working together interactively provide the basis for an effective ICS concept of operation:

- Common terminology
- Modular organization
- Integrated communications
- Unified command structure
- Consolidated action plans
- Manageable span-of-control
- Predesignated incident facilities
- Comprehensive resource management

ORGANIZATION AND OPERATIONS

The ICS has five major functional areas.

- Command
- Operations
- Planning
- Logistics
- Finance

THE INTEGRATED EMERGENCY MANAGEMENT SYSTEM

The Integrated Emergency Management System (IEMS) is a long-term, all-hazard concept for improving the program implementation and development of emergency management capabilities at the state and local levels. It is a process for applying comprehensive emergency management concepts to "real world" emergency plans and capabilities. It formally recognizes the roles of the fire service in responding to the full range of emergencies at the local level.

Its specific objectives are to:

1. Save lives and protect property threatened by hazards.
2. Reduce duplication of efforts and resources.
3. Increase jurisdictional flexibility in upgrading the capacity to handle potential hazards.
4. Integrate FEMA support and objectives with those state and local operational requirements.

Viewed in this manner, it becomes clear that existing fire service programs such as the Incident Command System (ICS) are part of the broader concept of IEMS. ICS-IEMS identifies the need for "baseline" fireground command systems to provide for a predictable, coordinated, effective and acceptable response to emergencies of all types by the fire services of this country.

The IEMS approach recognizes that there are certain characteristics and requirements which are common across the full spectrum of emergencies—evacuation, sheltering, provision of food and medical supplies, etc. Each of the aforementioned functions requires an operational procedure. ICS is such a procedure to ensure all areas of concern are addressed. FEMA's programs are using the IEMS approach to assist state and local officials in building capability in these areas as a basic foundation for planning, response, recovery, and mitigation of hazards—whether they are related to natural or technological disasters, resource shortages, or war-related national security situations.

IEMS is being introduced to a nationwide network of emergency management organizations representing thousands of jurisdictions, not all confronted by the same hazards, and not all having or requiring the same capabilities. Going through the IEMS process, therefore, will require different levels of effort by each jurisdiction and will result in the identification of different functional areas requiring attention. The process, however, is logical and applicable to all jurisdictions regardless of their size, level of sophistication, potential hazards, or current capabilities.

The goal of the system is to develop and maintain a credible emergency management capability nationwide by integrating activities along functional lines at all levels of government, and, to the fullest extent possible, across all hazards. It should be kept in mind that the IEMS process is a means of improving capability and is not an end in itself. The various steps in the IEMS process are intended to serve management at each level of government by providing basic information upon which reasonable and justifiable plans can be made and effective action taken to increase emergency management capability nationwide.

COURSE SCHEDULE

As this course was designed to be taught in the field in various localities, the time allocation for each section is dependent upon the needs of each community. Therefore, the following is a suggested outline.

UNIT	*TITLE*	*TIME*
I	Hazardous Materials—An Overview of the Problem	90
II	Why This Course?	90
III	Decisionmaking in Emergencies	35
IV	Detecting Hazardous Material Presence	75
V	Estimating Likely Harm Without Intervention	60
VI	Identifying Hazardous Materials	90
VII	Visualizing Hazardous Materials Behavior	160
VIII	Putting It All Together	120
	TOTAL CLASSROOM TIME:	12 hrs

National Fire Academy courses are designed for 12 hours of student contact. These 12 contact hours *do not* include time for registration, introductions, breaks, meals, student examinations, course evaluations, and the distribution of certificates. With these activities, the actual time required will be approximately 16 hours.

INSTRUCTIONAL AIDS

EQUIPMENT NEEDED

- One screen (two if using overhead transparencies).
- Slide/tape projector (for using inaudible signals on the tape to advance slides); or
- Slide projector (with extra bulb) and cassette player.
- Chalkboard and chalk.
- 16mm film projector (with extra bulb)—optional.
- Overhead transparency projector (Optional).

STANDARD COURSE MEDIA

- 452 slides.

Unit I	—slides	1 through 130
Unit II	—slides	131 through 160
Unit III	—slides	161 through 176
Unit IV	—slides	177 through 283
Unit V	—slides	284 through 312
Unit VI	—slides	313 through 335
Unit VII	—slides	336 through 417
Unit VIII	—slides	418 through 454

- Four cassette tapes. Each tape has an audible cue for advancing slides on side A and an inaudible cue to 50 Hz on side B for use with an automatic slide/tape projector
- Overhead transparency thermofax masters are provided in Appendix A. These include the Hazardous Materials Emergency Model, the Hazardous Materials Data Sheet, the General Hazardous Materials Emergency Behavior Model, and the Outcome Estimate Worksheet.

OPTIONAL FILM

- "Closed Container and Fire" for use in Unit V. Order from:
  Film Communicators
  11136 Weddington Street
  North Hollywood, California 91601
  (800) 423-2400
- Copies of printed guides for identifying hazardous materials would be helpful as additional reference materials in Unit VI.

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INSTRUCTOR'S PREFACE

INSTRUCTIONAL METHODS

The following instructional methods are used in this course:

LECTURE

Lecture is both the easiest and the hardest instructional method to use. It is easiest because it requires no special equipment—just an instructor and a class—and, also hardest, because it is difficult to keep the students' attention and be sure they are understanding you. The following suggestions can help make your lectures effective:

- Encourage students to ask questions.
- Enliven dry material with relevant anecdotes or examples.
- Pause after particularly difficult material for questions and reactions.
- Be sure to provide clear, definitive transitions when you change subjects. When subject matter blends together too much, students can get lost.
- Break lecture material with questions to stimulate thinking. Suggested questions have been included in this *Instructor Guide*.
- Use a flipchart or chalkboard to record both participant input and your own observations. Displaying views in this way creates a data base against which you and the class can analyze concepts.
- Let the level of interest and skill demonstrated by the group dictate your sense of timing and the speed with which you proceed through lectures, guided class discussions, and student activities.

GUIDED CLASS DISCUSSION

Discussions can range from the carefully controlled type (in which you provide strong leadership and correct answers) to the freewheeling type (in which you promote interaction among students). The following tips should be useful:

- The type of discussion you conduct should be determined by the objective of that session. If there are definite right answers, you should provide maximum guidance and feedback. When the goal is to gather a variety of solutions to a problem or to promote debate on an issue, avoid stifling discussion with heavy-handed intervention.
- People often relax in a discussion to the point that they are not really listening but are, in effect, waiting for class to continue. Combat this by frequent summation of student comments, by asking one person to respond to what another has said, or by recording key comments on the chalkboard.
- If the discussion wanders from the topic, bring it back firmly with a comment or question.

STUDENT ACTIVITIES

Before beginning an activity, review the procedure. Move among the groups, giving guidance as needed. If you see one student dominating a group, try to involve the others by asking direct questions. Encourage students to share information and insights from their own experiences. Attempt to compose groups of individuals with differences in years of experience, geographic locations, and other conditions which will contribute to livelier discussions and more diverse points of view.

CONTENTS OF THIS TRAINING PACKAGE

All materials are coordinated to provide a varied and interesting format of instruction and organized for easy delivery. Check to be sure that your training package includes the following items:

- One *Instructor Guide*.
- One *Student Manual* (to be reproduced for each member of the class).
- Four cassette tapes. Each tape has an audible cue for advancing slides on side A and an inaudible cue to 50 Hz and 100 Hz on side B for use with an automatic slide/tape projector.
- 452 slides.

Unit I	—slides	1 through 130
Unit II	—slides	131 through 160
Unit III	—slides	161 through 176
Unit IV	—slides	177 through 283
Unit V	—slides	284 through 312
Unit VI	—slides	313 through 335

Unit VII	—slides	336 through 417
Unit VIII	—slides	418 through 454

If any items are missing, double check; then contact your supplier for replacements.

Some instructors prefer using an overhead transparency of the General Hazardous Materials Behavior Model for the exercises in Units VII and VIIII. A thermofax master is provided in Appendix A for this purpose.

Additional information can be obtained from these items:

- *DOT Hazardous Materials Emergency Response Guide,*
- DOT placard/label charts
- CHEMTREC (CMA) flyer.

CONTENTS AND LAYOUT OF THE *INSTRUCTOR GUIDE*

STUDENT OBJECTIVES

Hazardous Materials Incident Analysis is divided into 8 units. Each unit has one or more student objectives listed on the title page. These are also listed in the *Student Manual* and are intended to set the direction for and specify the intended result of each unit.

CONTENT AND METHODOLOGY

Next in each unit is the Content and Methodology section. The first page contains an overview of the unit, including a brief outline, times required for each part of the unit and instructional methods used.

Next is the lesson outline. This step-by-step outline identifies the activities and materials required to teach each unit. It is suggested that each subject be taught in sequence. Recommended times for each step are included as well as the materials needed and page numbers where those materials are located in both the *Instructor Guide* (IG) and the *Student Manual* (SM).

Each lesson outline begins with an introduction. These are brief and the instructor should interject his or her own thoughts to spark interest in the subject.

SLIDE/TAPE PRESENTATIONS

There are several slide/tape presentations in the course. The slides are correlated with the audio tape, if you change the order of the slides they will not synchronize with the audio portion. The slides are numbered consecutively, but are packaged in carousels for each unit. Slide/tape scripts are included in the *Instructor Guide.*

STUDENT ACTIVITIES

The student activities are designed to facilitate the learning process. Since these activities are the best measure of what students are learning from the instruction, be sure to allow enough time for completion of each activity and for questions.

Some of the case studies have background information to help you establish the parameters of the exercise. Please review this information and add to it when necessary Generally, students should develop their answers by themselves. Group work is appropriate later for the development of consensus solutions.

PRE- AND POST-TEST

The pretest will help students to recognize how much they know or do not know about the subject at the start of the course.

The post-test will provide a quantitative measure of student learning in the program. The exercises in Unit VIII can also be used as an effective post-test measure of student learning.

REPRODUCING THE STUDENT MANUAL

The instructor may wish to reproduce selected parts of the *Student Manual,* such as activities, accompanying figures, etc., and insert them into the *Instructor Guide* for quick reference.

There are several ways to modify the *Instructor Guide* by adding *Student Manual* material. Here are two suggestions:

1. Reproduce the Notetaking Guides of each unit in the *Student Manual.* Collate these behind the corresponding unit in the *Instructor Guide.*
2. Intersperse relevant student pages into the lesson plan where referenced.

PRESENTING THE COURSE

The course is designed for 12 hours of student contact time, and should take about 16 hours to complete. Although the units are not equal in length, they can be presented alone or grouped to fill almost any time frame.

This course can be easily presented in one of three main formats. The presentation can be scheduled on a weekend or within any two-day period. Two presentations separated by several days allow some homework assignments and an opportunity for review at the second session. The course can also be delivered in four or more 3-hour blocks. Care should be taken to ensure continuity because of the difficulty of some of the content.

No matter what format you choose, students will go away with a deeper respect for hazardous materials emergencies. This should lead to reduced human injuries and death and greatly reduced environmental damage.

SPECIAL NOTES ABOUT THE COURSE CONTENT

As you have seen from the objectives in the preceding section, this course is designed to provide the student with an opportunity to learn and practice systematic methods for defining the problems posed by hazardous materials in an emergency.

These methods enable students to build logical, orderly, and comprehensive problem definition skills. The methods also give students a framework for effective hazardous materials incident decision making and action.

This course focuses on presenting methods and building the skills necessary to define their problems and estimate the outcome in an emergency when hazardous materials are present.

Problem definition is an essential step before emergency response personnel can effectively select their strategy and tactics for a specific incident. In other words, in a given incident, emergency response personnel must be able to define correctly what their problem is before they can identify and implement effective strategy and tactics.

It is important to clarify at the beginning of the course that this is *not* a hazardous material survey course, and that the course material *does not* include strategy, tactics, operations, equipment, emergency response team design or training, chemistry, regulations, or hands-on training. These subjects are addressed in other courses.

They are referred to occasionally in this course only to illustrate how the analysis skills influence these other subject areas. The focus of this course is the analytical methods and skills of *recognizing* hazardous materials in incidents, and systematically estimating the likely *course of events* and their harmful *outcome*.

To this end, the analytical methods for detecting hazardous materials and estimating an incident's outcome are taught and practiced in this course. The objectives are achieved by the combination of individual lectures, classroom exercises and discussions, and examinations. By the end of the course, each unit will have contributed to improving the students' emergency problem definition skills through the use of *systematic* methods.

Because the course teaches a *systematic* method, it is important that the instructor pace the course materials carefully, and faithfully present the contents. The typical course schedule precedes this section, and can be used to pace the instruction. Additional exercises can be used as time permits, depending on the student responses.

Students need to have an opportunity to think about or discuss the General Behavior Model and its concepts during the first evening. The approach seems new to most students, and they need time to reflect on it.

The course materials are also different in that they treat classes of hazardous materials and their chemistry very lightly. Their use is presented in the context of the new approach and the models.

The main focus is to teach students how to *use* this kind of data after they look it up, rather than trying to get them to memorize a lot of facts, which they tend to forget easily. Therefore, do not allow excessive time to be spent on regulations, classifications, chemistry, or other information that they can look up after the course.

At the end of the course, students can indicate how the detailed estimates of likely harm (the prob-

lem) shape their decisions about the strategy and tactics they will use to solve their problem. Use the time available to practice defining the problems posed by the hazardous materials in an emergency.

The reference materials that the students use to solve many of the problems are contained in the *Student Manuals*. Generally, you will have excerpts in the *Instructor Guide* showing portions of *Student Manual* pages, with appropriate *Student Manual* page numbers indicated.

These activities, especially the exercises involving the analysis of actual incidents, are key to the student's understanding of this course. They should be performed and presented as faithfully and comprehensively as is possible.

CLASSROOM MANAGEMENT

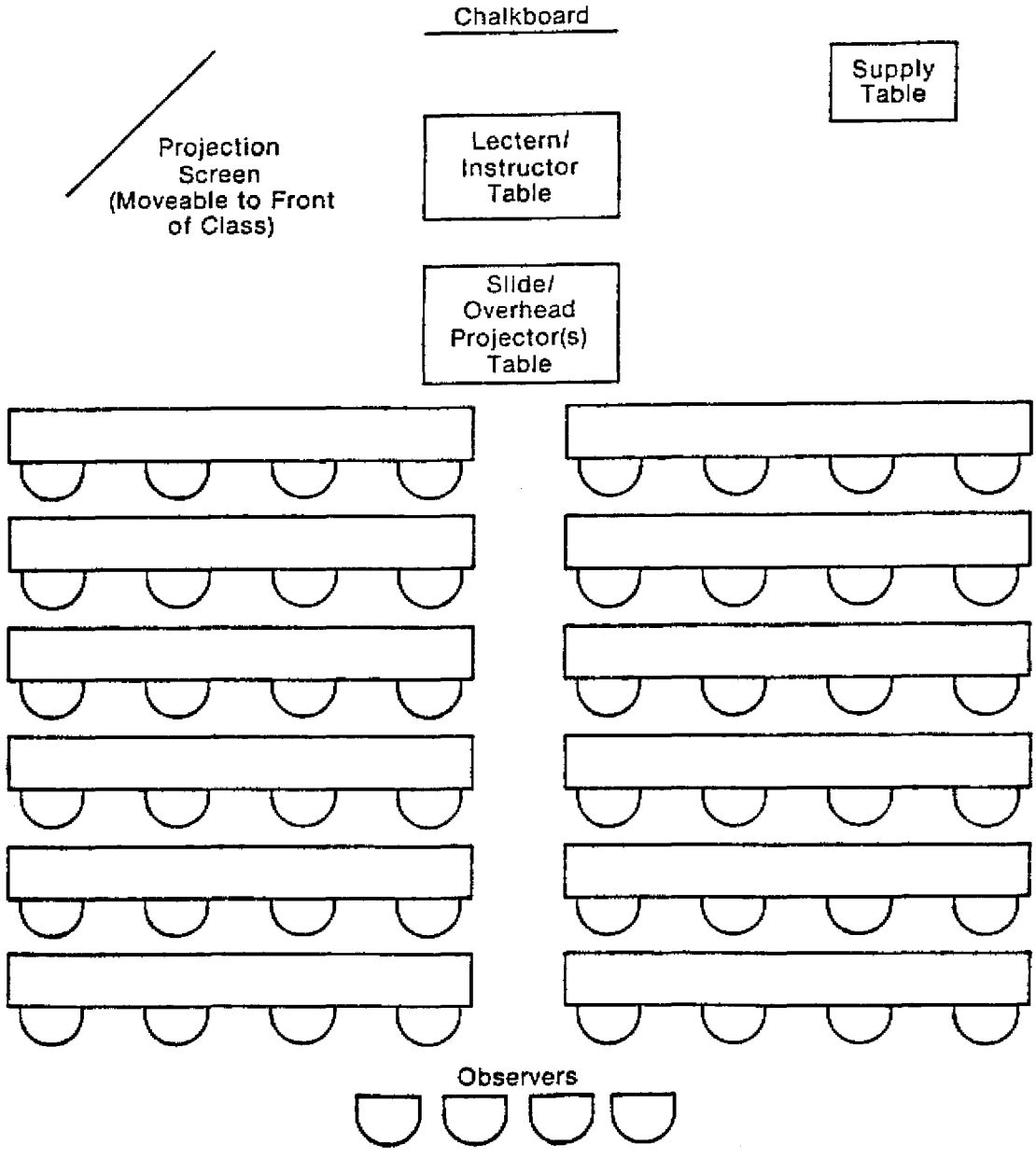
This course is demanding to teach. Be well prepared before the class starts. Study the course and practice what you are going to do.

In the classroom, take charge of any situation and keep problems under control. Stick to the subject at hand. If you do not know the answer to a question, admit it. Then find out the answer as soon as you can and get back to the student who made the inquiry.

When you break the class into groups for participant activities, be sure to answer questions so that all groups can benefit. Attempt to localize the case studies and exercises and make them realistic. Communication procedures, terminology, and equipment will vary throughout the country. Identify these differences early so they will not cause communication problems within the class.

For a class with more than 25 participants, you may need an assistant. Be sure he or she knows the correct answers and has studied the course in advance.

Suggested Classroom Layout



DIRECTIONS FOR REPORTING

These course materials were developed by the National Fire Academy for your use, to enhance and supplement state and local training for the nation's fire and rescue services. Under the mandate of the Fire Prevention and Control Act of 1974, the National Fire Academy is dedicated to the support of state and local training programs through the national Train-the-Trainer Course Hand-off Program. This program calls for a *collaborative* effort between national, state, and local fire and rescue training organizations to achieve delivery of National Fire Academy-developed course packages to fire and emergency management personnel.

To provide us with data as to how frequently these course materials are being utilized by the nation's fire and rescue services, it is requested that you make a short report on each of your course deliveries. Addressed, postage-paid postal cards are provided for this purpose. If the cards are not in this manual, or you have used your supply, you may request additional cards from:

Field Programs Division
National Fire Academy
National Emergency Training Center
16825 South Seton Avenue
Emmitsburg, Maryland 21727
301-447-6771
800-638-9600

Please indicate the course title, dates held, location (city and state), course sponsor or host organization, instructor's name, instructor's affiliation, and the number of volunteer and career fire service personnel and others attending. Any comments you have regarding the materials would also be appreciated.

Thank you for your cooperation in this important matter.

IMPORTANT

It is critical to this program that you provide feedback about your use of these materials. We want to continue to provide national support for your training effort through development of course packages for you, but we can only do so with your help. The effectiveness of this program can only be measured in terms of its impact on your training efforts, and so it is imperative that you provide this important information about your use of the materials.