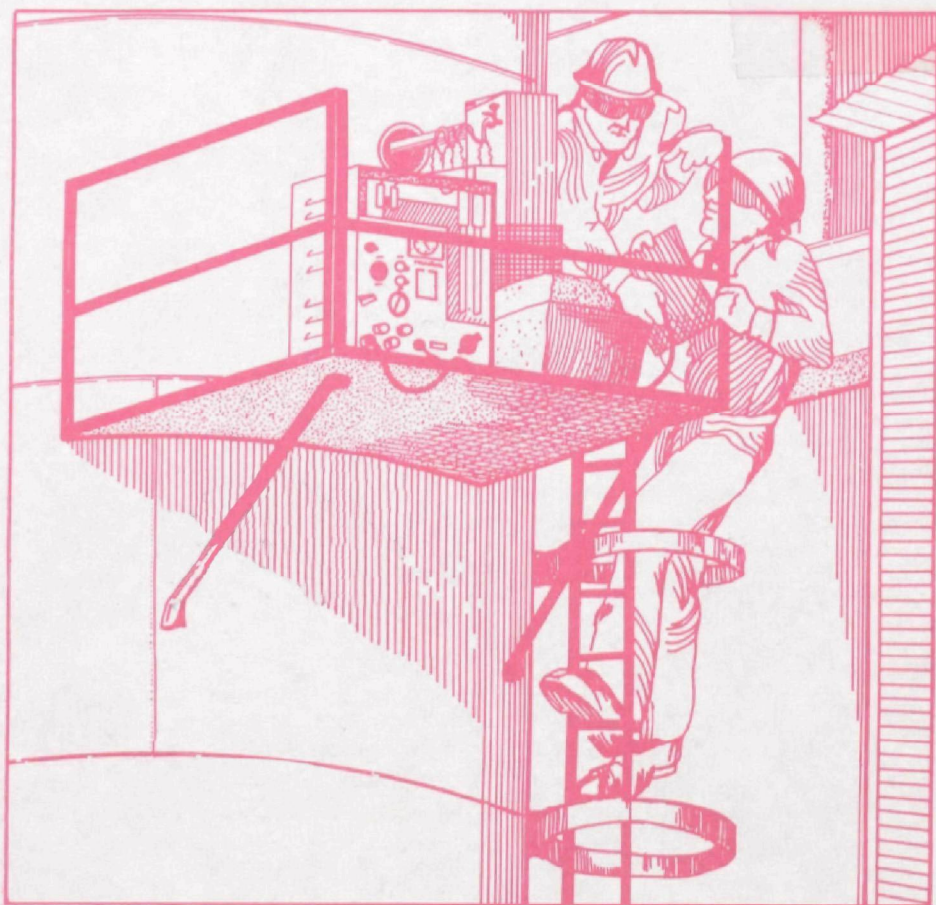


Air



Chronological Schedule of Air Pollution Training Courses

October 1982
through
September 1983



Air



Chronological Schedule of Air Pollution Training Courses

**October 1982
through
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INTRODUCTION

The Air Pollution Training Institute

The Air Pollution Training Institute (APTI), with its associated programs, offers the widest scope of air pollution training in the United States. Funded by the U.S. Environmental Protection Agency, APTI develops instructional material for and provides technical assistance to training activity conducted in support of the nation's regulatory programs of air pollution abatement.

EPA-sponsored lecture and laboratory courses using APTI materials are scheduled at several locations across the country. Self-instructional courses providing opportunity for individual training at home or in place of employment are obtainable from APTI. Training material is continually updated, and individual courses undergo periodic major revision.

Area Training Centers

Associated with the APTI in the conduct of air pollution training are six universities who, with financial support from EPA, serve as Area Training Centers (ATCs). The ATC role is dual: the Centers provide EPA-financed student support for graduate training in air pollution control science/technology, and they provide EPA-sponsored intensive instruction (short courses) in the same subject area.

EPA financial support for graduate study is provided to individuals employed in State/local air pollution control agencies or to individuals interested in pursuing careers in air pollution abatement in such agencies. Support provided through the ATCs is by traineeship appointment, and is conditional; i.e., money is loaned but the loan is forgivable for subsequent service in a governmental agency. Traineeships provide money for tuition/fees and for living expenses. Individual ATCs should be contacted for details of application procedure.

ATCs also conduct scheduled APTI courses on their home campuses. These courses, using APTI student and instructor materials, are taught by ATC personnel, augmented by specialists from industry and government.

Management and Operation

Activity of APTI and the ATCs is conducted under the technical direction of the Manpower and Technical Information Branch (MTIB), Control Programs Development Division, Office of Air Quality Planning and Standards. Most APTI course materials are developed by Northrop Services, Inc. under contract with EPA.

Area Training Centers operate under grant agreements. With minor exceptions, ATCs will conduct all regularly scheduled EPA-sponsored air pollution courses for FY 1983.

ATC-taught courses are identified on the FY 1983 course schedule. Registration for all ATC courses is processed by the Air Pollution Training Institute (see Registration section). The Area Training Centers and their directors are:

1. **Rutgers, The State University**
Cook College
Joseph V. Hunter
Department of Environmental Science
P.O. Box 231
New Brunswick, NJ 08903
(Coml. & FTS) 201-932-9571
2. **University of Florida**
Dale A. Lundgren
Department of Environmental Engineering Sciences
Gainesville, Florida 32611
(Coml. & FTS) 904-392-0834/0846
3. **University of Cincinnati**
Michael G. Ruby
Department of Civil & Environmental Engineering
Location 71
Cincinnati, OH 45221
(Coml. & FTS) 513-475-2540
4. **Illinois Institute of Technology**
Kenneth E. Noll
Pritzker Department of Environmental Engineering
Alumni Hall, Room 102
3200 South State
Chicago, IL 60616
(Coml. & FTS) 312-567-3538
5. **University of Washington**
Michael J. Pilat
Department of Civil Engineering (FC-05)
Seattle, WA 98195
(Coml. & FTS) 206-543-4789

6. University of California, Davis
Daniel P. Y. Chang
Department of Civil Engineering
Davis, CA 95616
(Coml. & FTS) 916-752-2537

Harvard University
David Leith (*in regard to Traineeships only*)
School of Public Health
665 Huntington Avenue
Boston, MA 02115
(Coml. & FTS) 617-732-1169

EPA Regional Offices

EPA Regional Offices may be able to provide technical assistance and information on other air pollution training. For information, please contact the appropriate Regional Office, as listed:

**Air Branch
Region I—EPA
John F. Kennedy Federal Bldg.
Boston, MA 02203
(Coml. & FTS) 617-223-6883**

**Air Branch
Region II—EPA
Federal Office Bldg.
26 Federal Plaza
New York, NY 10007
(Coml. & FTS) 212-264-2517**

**Air Programs & Energy Branch
Region III—EPA
Sixth & Walnut Streets
Philadelphia, PA 19106
(Coml. & FTS) 215-597-8175**

**Larry Hyde
Manpower Development Specialist
Air & Hazardous Materials Div.
Region IV—EPA
345 Courtland Street, NE
Atlanta, GA 30365
(Coml.) 404-881-4101
(FTS) 257-4101**

**Air Branch
Region V—EPA
230 S. Dearborn Street
Chicago, IL 60604
(Coml. & FTS) 312-886-6266**

**Air Branch
Region VI—EPA
1201 Elm Street
Dallas, TX 75270
(Coml.) 214-767-1594
(FTS) 729-6553**

**Air Branch
Region VII—EPA
324 E. 11th Street
Kansas City, MO 64106
(Coml.) 816-374-3791
(FTS) 758-3791**

**Air Programs Branch
Region VIII—EPA
1860 Lincoln Street
Denver, CO 80295
(Coml.) 303-837-3471
(FTS) 327-3471**

**Air Programs Branch
Region IX—EPA
215 Fremont Street
San Francisco, CA 94101
(Coml.) 415-974-8058
(FTS) 454-8058**

**Air Programs Branch
Region X—EPA
1200 Sixth Avenue
Seattle, WA 98101
(Coml.) 206-442-1230
(FTS) 399-1230**

How to Use this Schedule

This Chronological Schedule contains full information on Institute courses and registration procedures. It is divided into several major sections, including (a) Registration; (b) Lecture and Laboratory Courses; (c) Self-Instructional, Correspondence, and Video-Instruction Courses; and (d) Application Forms.

In the Registration section you will find application and registration instructions. In the section following is a course schedule for Fiscal Year 1983, along with descriptions of lecture and laboratory courses. Self-instructional, correspondence, and video-instruction course descriptions appear in a later section. Finally, Application for Training forms are included at the back of this schedule.

REGISTRATION

Applications for Courses

Application for all lecture and laboratory courses must be made on the standard Application for Training, included at the back of this Schedule. You may photocopy the form if you need additional ones.

Please mail your application and fee payment (if applicable—see section on tuition fees) at least 45 days before the course starting date. The registration cutoff for courses without pre-course study is 10 days prior to the offering; for courses with pre-course study the cutoff is 45 days prior to the beginning of class. Because courses fill rapidly (some as much as 6 months in advance), you should send your application as early as possible.

Telephone applications are not accepted.

Mail all applications to:

Registrar

Air Pollution Training Institute

Environmental Research Center, MD 20

Research Triangle Park, NC 27711

Approval of Applications

The basic pre-requisite for approval of an application is employment in a position with work responsibility involving enforcement of or compliance with regulatory programs for achievement of air quality. Applications are reviewed for enrollment eligibility by APTI staff. Applicants judged to be fully qualified are approved immediately following application review. Applicants considered less than fully qualified or those whose attendance would make class enrollment exceed established ceilings are placed on a "wait" list with final decision on acceptance for enrollment deferred until 4 to 6 weeks before the scheduled begin date for the course. Ceilings are 36 for lecture courses and 24 for laboratory courses.

Confirmation

Written notice of application action (acceptance, wait list, or disapproval) is typically mailed within 10 working days from receipt of your application. Please do not telephone to check on application status unless you have not received notice within the time frame established by this section. Pre-course materials, if any, are mailed to students who have been accepted for enrollment 4 to 6 weeks prior to the course starting date.

Cancellations/Substitutions

If you find that you cannot attend a course for which you are registered, please notify the Registrar in writing as soon as possible. APTI courses often have waiting lists, and your failure to cancel in advance means that another qualified applicant cannot take your place. To receive a refund of fees, you must cancel in writing at least 10 days prior to the course start date.

Substitutions cannot be made except through the normal application and approval procedures.

Fees

Employees of the U.S. Environmental Protection Agency and non-Federal employees of regional, State, and local government agencies are exempt from tuition fees. All other students must pay fees according to the following schedule:

Course length	Lecture course	Laboratory course
3½ days	\$ 77.00	NA
4 days	\$ 88.00	\$140.00
4½ days	\$ 99.00	\$157.50
5 days	\$110.00	\$175.00

Applicants employed by commercial firms must send a check or money order payable to the U.S. Environmental Protection Agency with the application form. EPA cannot bill individuals or companies.

Non-EPA Federal employees must send a check or money order with applications, or they may send billing instructions. The former is preferable.

If you are subject to tuition fees, you must send payment or billing instructions (as appropriate); otherwise your application will be returned to you without further consideration. No exceptions can be made.

Grading and Certification

Course certificates and Continuing Education Units (CEUs) are awarded only to students who:

- maintain an attendance record considered satisfactory by the Course Director. (Note: Students are expected to attend all scheduled meetings of the class. Course Directors may authorize short term absence for illness or emergency, but if such absence exceeds ½ day over the period of the course, a certificate and CEUs may not be awarded.)
- satisfactorily complete all course assignments.
- receive a satisfactory score on the final examination, normally 70% or above.

The Institute maintains a record of the CEUs awarded to each student and updates this record as additional units are earned in APTI courses.

Travel

Students must make their own travel arrangements. Please note that some courses include half days, which are always the last days (e.g., a 4½-day course beginning on Monday ends at noon on Friday). Allow ample time between the end of the course and your departure.

Lodging

Students must also make their own lodging arrangements. You will receive local lodging information with your confirmation letter when such information is available.

LECTURE AND LABORATORY COURSES

Course Characteristics

The Air Pollution Training Institute conducts both lecture and laboratory courses. Instruction is intensive. Classes are typically held from 8:30 a.m. to 4:30 p.m. each day; students usually have homework problems and reading assignments for the evenings.

A course schedule for Fiscal Year 1983 and complete course descriptions follow this introduction.

Course Materials for Registered Students

Students receive full course materials either in pre-course mailings or during the course. These materials include such items as student manuals, workbooks, lab manuals, and handouts, depending on the course.

Availability of Course Materials to Others

Institute training materials, while developed primarily for use by students in scheduled courses, are available to others under certain conditions.

Selected course materials which have received EPA approval are available in paper copy or microfiche from the National Technical Information Service (NTIS), Springfield, Virginia. These materials include Student Manuals, Student Workbooks, etc. You may determine which materials are available from NTIS by consulting our publication, "Ordering APTI Materials from the National Technical Information Service." This document, which gives you complete ordering information, is available from the Registrar. Other printed course materials not available from NTIS may, under certain conditions, be obtained from APTI.

Institute materials, as all USEPA publications, are in the public domain and may be copied. The Institute does request that the use of its materials in training courses or in other publications be properly cited as a matter of courtesy.

Course 411

Air Pollution Dispersion Models— Fundamental Concepts

4½-day lecture course
3 CEUs

Course Description

The student successfully completing this course will comprehend the role of meteorology in the transport and dispersion of airborne pollutants. Students will be able to identify types and sources of meteorological data, assemble such data needed for air quality impact analysis and will understand the limitations that meteorology as a science imposes on the accuracy of pollution dispersion estimates. With case study and problem solving exercises, students address selected basic problems in air quality impact analysis such as meteorological instrument siting to obtain representative observations, industrial plant siting to minimize the impact of pollutant discharge on receptors, calculation of continuous-release pollutant concentrations, calculation of plume rise, etc.

A scientific calculator is required for class exercises.

Major Topics

- Atmospheric structure and motion (fundamentals review)
- Statistical method in air quality impact analysis
- Meteorological measurements, instruments and instrument siting
- Meteorological observations and forecasts
- Climatology
- Atmospheric stability and turbulence
- Plume rise
- Dispersion models: point source, line source and area source
- Industrial plant siting

Desired Background

Completion of APTI Course SI:409; skill in operational use of mathematics to the level acquired by successful completion of freshman undergraduate courses in algebra.

1982-83 Offerings

December 13-17, 1982.....Davis, CA
August ~~1982~~, 1983.....Chicago, IL
8-12

Course 413

Control of Particulate Emissions

4-day lecture course
3 CEUs

Course Description

Students successfully completing this course will be able to evaluate systems typically employed for controlling particulate emissions including systems reviewed in installation inspection and systems as reflected in permit applications. Installation inspection, typically associated with an emission standard violation, is for the purpose of determining need for regulatory action; permit review is for the purpose of deciding whether a proposed particulate control system, when operating as it is supposed to, will meet regulatory standards.

Students will acquire: (1) knowledge of the types of devices available for particulate control; (2) an understanding of how the devices work and of the influences on control efficiency; (3) ability to perform the calculations necessary to determine control efficiency; and (4) ability to select and size a particulate pollutant control device.

A scientific calculator is required for class exercises.

Major Topics

- Particulate pollutant control equipment (cyclones, scrubbers, fabric filters, electrostatic precipitators). For each of the foregoing: principles of operation, design influences, mechanical designs, efficiency considerations, installation factors, typical applications, capital and operating costs.
- Particle dynamics
- Particle sizing
- Settling chambers

Desired Background

Engineering or scientific degree

1982-83 Offerings

October 19-22, 1982.....Houston, TX
January 17-20, 1983.....Gainesville, FL
July 18-21, 1983.....New Brunswick, NJ

Course 415

Control of Gaseous Emissions

4-day lecture course
3 CEUs

Course Description

Students successfully completing this course will be able to evaluate systems typically employed for controlling emissions of gaseous pollutants including systems in operation and as reflected in permit applications. Evaluation may be associated with inspection or for judging whether a planned system will meet regulatory standards. A primary focus of the course is on calculations which are needed to check system design. The course develops understanding of the process factors which guide selection of control devices for various abatement requirements and develops ability to select and size a gaseous pollutant control device.

A scientific calculator is required for class exercises.

Major Topics

- Basic concepts of gases (review)
- Gaseous pollutant control processes: (condensation, combustion, absorption, adsorption). For each of the foregoing:
principles of operation, design influences, mechanical designs, installation consideration and features, typical applications, capital and operating costs.
- Gas flow design including fan laws
- Flue-gas desulfurization
- NO_x control

Desired Background

Engineering or scientific degree

1982-83 Offerings

February 21-24, 1983.....Gainesville, FL
March 7-10, 1983.....Seattle, WA
May 17-20, 1983.....Dallas, TX

Course 423

Air Pollution Dispersion Models—Application

4½-day lecture course
3 CEUs

Course Description

Students successfully completing this course will be able to select dispersion models appropriate to particular problems in air quality impact analysis, will be able to guide application of the models, judge validity of the answers, and apply some of the more basic models. Students will become familiar with selected theories of dispersion as employed in current modeling practice and with the application of plume rise and dispersion formulas to actual situations. Students will review the accuracy of calculations based on Pasquill's method and will apply the concepts employed in selected dispersion models for point, area and line sources. Case study method will be a part of the course.

A scientific calculator is required for class exercises.

Major Topics

- Basic dispersion factors, data sources and representation
- Briggs' plume rise equation
- Atmospheric dispersion factors in application of Gaussian theory
- Use of climatological data
- EPA guidelines on air quality models
- Single source modeling
- Topographical and pollutant type influences in physical modeling
- Cooling tower plume dispersion

Desired Background

Completion of APTI Course 411; skill in operational use of mathematics to the level acquired by successful completion of freshman undergraduate courses in algebra.

1982-83 Offerings

May 2-6, 1983.....Gainesville, FL
August 15-19, 1983.....Chicago, IL

Course 427

Combustion Evaluation

4½-day lecture course
3 CEUs

Course Description

The student successfully completing this course will understand combustion principles and the more significant design influences on achievement of combustion efficiency. In application of this understanding students will be able to evaluate combustion system design as typically contained in permit applications. Evaluation is for the purpose of judging whether a proposed design will meet regulatory standards. Students will also, in conduct of regulatory type inspections, be able to recognize sub-optimal performance in combustion system component operations. To help develop these skills the course emphasizes problem sessions in which students make the basic chemical/thermodynamic calculations involved in checking design.

A scientific calculator is required for class exercises.

Major Topics

- Combustion fundamentals
- Burning of fossil fuels (coal, oil and natural gas)
- Municipal incineration and the burning of solid wastes
- Catalytic incineration
- NO_x and SO_x control

Desired Background

Engineering or scientific degree

1982-83 Offerings

December 6-10, 1982.....Cincinnati, OH
March 14-18, 1983.....Davis, CA

Course 435

Atmospheric Sampling

4½-day laboratory course
3 CEUs

Course Description

The student successfully completing this course will understand the basis for selection of sampling methods and instruments appropriate to various sampling needs. The student will be able to calibrate and operate certain air sampling devices and will gain knowledge of factors affecting sample collection efficiency. Topics which are discussed in lectures and investigated in the laboratories include: methods of calibration, use of flow rate measuring instruments, general techniques for sampling the atmosphere, and reference methods for sampling and analyzing criteria pollutants.

A calculator is necessary for class exercises.

Major Topics

LECTURE

- Generation of test atmospheres of gaseous pollutants
- Effects of variables on atmospheric sampling
- Selection of sampling train components
- Air quality surveillance networks and their siting
- Concepts and procedures for assuring quality in atmospheric sampling

PARTICULATE LABORATORY

- High volume sampler and orifice calibration
- Reference flow device performance audit
- Use of constant flow controllers

FLOW LABORATORY

- Calibration of flow devices including wet test meters, limiting orifices, rotameters, and mass flow meters

CONTROLLED TEST ATMOSPHERE LABORATORY

- Preparation of dynamic calibration gas via a dilution system
- Preparation of dynamic calibration gas via a permeation system coupled with a dilution system
- Calibration of continuous monitors using these calibration gases

Desired Background

Skill in operational use of mathematics to the level acquired by successful completion of freshman undergraduate courses in algebra.

1982-83 Offerings

September 27-October 1, 1982.....Cincinnati, OH
July 11-15, 1983.....Davis, CA

Course 444

Air Pollution Field Enforcement

3½-day lecture course
2 CEUs

Course Description

The student successfully completing this course will be able to follow legally proper and effective procedure in investigating an air pollution complaint, conducting an inspection, gathering evidence of an emission violation, presenting that evidence effectively in formal hearings or court sessions and finally to handle complaints in all the steps involved in a way that generates public acceptance and support of agency programs. The course provides an overview of the statutory and regulatory base that govern enforcement actions and the types of enforcement systems that may be employed. Case study method is a part of the instruction with attention to specific problems such as odor complaints and air pollution episodes.

Major Topics

- Common and statutory law as related to air pollution control
- The Clean Air Act
- The role of the field inspector
- Handling public complaints on air quality
- Inspection of air pollution sources
- Gathering evidence
- Hearing boards
- Courtroom procedures
- The expert witness

Desired Background

Course SI:422 — *Air Pollution Control Orientation Course* (3rd ed.) or have a minimum of six months of applicable work experience.

1982-83 Offering

June 6-9, 1983.....Cincinnati, OH

Course 450

Source Sampling for Particulate Pollutants

4½-day laboratory course
3 CEUs

Course Description

This course develops ability to plan for, guide, evaluate and (after experience on the job) perform source sampling measurements to determine rates of particulate emissions from stationary sources. The course details and clarifies EPA Reference Methods 1, 2, 3, 4, and 5. The course develops: (1) knowledge of the equipment employed; (2) understanding of why the prescribed methods are established; and (3) ability to perform the calibrations and calculations which are a part of the reference methods. Instruction relies heavily on laboratory exercises where students work with stack sampling equipment. They perform components of the various methods, extract a sample from an actual or simulated stack, and make calculations necessary in sampling procedure and for reporting test results.

Major Topics

- Basic concepts of gases
- EPA Methods 1 through 5, process tasks and basis for tasks requirement
- Source sampling equipment (function and calibration)
- Calculations in source sampling
- Orsat analysis
- Quality assurance and safety in source sampling

Desired Background

Engineering or scientific degree or technician work experience in source sampling.

1982-83 Offerings

January 10-14, 1983.....New Brunswick, NJ
March 14-18, 1983.....Dallas, TX
July 11-15, 1983.....Chicago, IL
September 19-23, 1983.....Seattle, WA

Course 452

Principles and Practice of Air Pollution Control

3½-day lecture course
2 CEUs

Course Description

This entry level classroom course deals with the principles and practice of air pollution control. The course presents a broad view of all major practical aspects of air pollution control. The lessons include information about pollutants, pollutant sources, effects of pollution, dispersion of pollution, legal authority for air pollution control, measurement and control of emissions, enforcement of regulations, inspections, implementation plans, and other related topics.

This course should be taught at an instructional level equivalent to that of advanced undergraduate university study. In the Air Pollution Training Institute curriculum, it is a recommended background course for all areas of study. Students should have a college-level education.

Major Topics

- Legal authority—State, Federal, and local; administrative law, regulation, and the agency
- Field enforcement: the role of the inspector
- Principles of ambient air sampling and analysis
- Criteria pollutants and reference methods for their measurement
- Elements of air quality surveillance networks
- Standards and criteria: the Clean Air Act and State implementation plans
- Legislative and judicial developments related to the Clean Air Act
- Meteorological and topographical factors affecting pollutant dispersion
- Emission regulations
- Source sampling for air pollutants
- Systems for control of pollutant emissions
- Expert testimony—an example of the specialist's role in the agency

Desired Background

Course SI:422—*Air Pollution Control Orientation Course* (3rd ed.) or have a minimum of six months of applicable work experience.

1982-83 Offering

September 12-15, 1983.....Davis, CA

Course 464

Analytical Methods for Air Quality Standards

5-day laboratory course

3.5 CEUs

Course Description

This course is designed for chemists and technicians responsible for the sampling and analysis of ambient air. Calibration of continuous analyzers is covered. This laboratory course emphasizes the reference and equivalent methods for air quality standards, including sulfur dioxide, nitrogen dioxide, ozone and carbon monoxide. Quality assurance programs are also introduced. Laboratory procedures and principles taught include the nondispersive infrared method for carbon monoxide; the coulometric, flame photometric, and the UV fluorescent methods for sulfur compounds; the chemiluminescent method and UV calibration procedure for ozone; and the chemiluminescent method for nitrogen dioxide. Students also learn the use of dynamic calibration systems to calibrate continuous air monitoring equipment and to determine performance specifications of the various instruments.

A calculator is helpful for laboratory reports.

Major Topics (Laboratory)

LABORATORY METHODS

- Equivalent methods for SO₂
- Reference method for NO₂
- Reference method for CO
- Reference and equivalent methods for O₃

CONTROLLED TEST ATMOSPHERES

- Permeation tube systems
- Dynamic dilution systems

PERFORMANCE PARAMETERS OF INSTRUMENTS

- Zero drift, range, precision, rise time, lag time, fall time, linearity

AUDIT SAMPLE

- CO (instrumental)

Desired Background

Successful completion of Course 435 or familiarity with basic laboratory techniques, including preparation and analysis of test atmospheres, calibration and use of common flow-measuring devices, and calculations involving the ideal gas laws.

1982-83 Offering

June 13-17, 1983 New Brunswick, NJ

Course 468

Source Sampling and Analysis of Gaseous Pollutants

4-day laboratory course
3 CEUs

Course Description

This course presents the principles and techniques necessary for gaseous sampling and analysis of source pollutants, as outlined in Reference Methods 6, 7 and 11 of the New Source Performance Standards. In addition, students are given experience in problem solving and application, using EPA Reference Methods 1, 2, 3 and 4. The course is designed around laboratory exercises, which familiarize the student with the analytical procedures for determination of gaseous pollutants. Students perform extraction, recovery, and analysis of various pollutants to determine their concentration. Lectures cover theory and application of gaseous source testing.

A calculator is recommended.

Major Topics

LECTURE

- Measurement and calculation of stack gas velocity, pressure, temperature, and moisture
- Calculation of stack volumetric flow rate
- Orsat analyses of stack gas oxygen, carbon dioxide, and molecular weight
- Sampling and analysis of SO_2 , NO_x , and H_2S
- Introduction to continuous source monitoring

LABORATORY

- Reference Methods 1 through 4 (velocity, pressure, temperature, Orsat, moisture)
- Sampling and analysis of SO_2 , NO_x , and H_2S

Desired Background

Completion of pre-course reading materials.

1982-83 Offering

April 11-14, 1983.....Seattle, WA

CHRONOLOGICAL SCHEDULE OF COURSES

October 1982—September 1983

The comprehensive course schedule appears on the next two pages. It can easily be removed for posting.

1982-83 Chronological Schedule of Air Pollution Training Institute Courses

Dates	Course	Course title	Days	Location	ATC
October, 1982					
Sept. 27-Oct. 1	435*	Atmospheric Sampling	4½	Cincinnati, OH	3
Oct. 19-22	413	Control of Particulate Emissions	4	Houston, TX	**
November, 1982					
Nov. 15-18	482	Sources and Control of Volatile Organic Air Pollutants	4	Gainesville, FL	2
Nov. 30-Dec. 3	482	Sources and Control of Volatile Organic Air Pollutants	4	Portland, OR	5
December, 1982					
Dec. 6-10	427	Combustion Evaluation	4½	Cincinnati, OH	3
Dec. 13-17	411	Air Pollution Dispersion Models—Fundamental Concepts	4½	Davis, CA	6
January, 1983					
Jan. 10-14	450*	Source Sampling for Particulate Pollutants	4½	New Brunswick, NJ	1
Jan. 17-20	413	Control of Particulate Emissions	4	Gainesville, FL	2
February, 1983					
Feb. 21-24	415	Control of Gaseous Emissions	4	Gainesville, FL	2
March, 1983					
March 7-10	415	Control of Gaseous Emissions	4	Seattle, WA	5
March 14-18	427	Combustion Evaluation	4½	Davis, CA	6
March 14-18	450*	Source Sampling for Particulate Pollutants	4½	Dallas, TX	**
March 21-24	482	Sources and Control of Volatile Organic Air Pollutants	4	Cincinnati, OH	3
April, 1983					
April 11-14	468*	Source Sampling and Analysis of Gaseous Pollutants	4	Seattle, WA	5
May, 1983					
May 2-6	423	Air Pollution Dispersion Models—Applications	4½	Gainesville, FL	2
May 17-20	415	Control of Gaseous Emissions	4	Dallas, TX	**

June, 1983					
June 6-9	444	Air Pollution Field Enforcement	3½	Cincinnati, OH	3
June 7-10	474*	Continuous Emission Monitoring	4	Chicago, IL	4
June 13-17	464*	Analytical Methods for Air Quality Standards	5	New Brunswick, NJ	1
July, 1983					
July 11-15	435*	Atmospheric Sampling	4½	Davis, CA	6
July 11-15	450*	Source Sampling for Particulate Pollutants	4½	Chicago, IL	4
July 18-21	413	Control of Particulate Emissions	4	New Brunswick, NJ	1
August, 1983					
August 8-12	411	Air Pollution Dispersion Models—Fundamental Concepts	4½	Chicago, IL	4
August 15-19	423	Air Pollution Dispersion Models—Applications	4½	Chicago, IL	4
August 22-25	482	Sources and Control of Volatile Organic Air Pollutants	4	New Brunswick, NJ	1
September, 1983					
Sept. 12-15	452	Principles and Practice of Air Pollution Control	3½	Davis, CA	6
Sept. 19-23	450*	Source Sampling for Particulate Pollutants	4½	Seattle, WA	5

*Laboratory Course

**Adjunct Faculty

ATC numbers in the far right column indicate courses conducted by Area Training Centers under EPA grant and identify the institutions which are as follows:

- | | |
|--|--|
| 1. Rutgers University
New Brunswick, New Jersey | 4. Illinois Institute of Technology
Chicago, Illinois |
| 2. University of Florida
Gainesville, Florida | 5. University of Washington
Seattle, Washington |
| 3. University of Cincinnati
Cincinnati, Ohio | 6. University of California
Davis, California |

Course 474

Continuous Emission Monitoring

4-day laboratory course
3 CEUs

Course Description

This course is designed for engineers and other technical personnel responsible for the development and implementation of continuous monitoring systems for both gaseous and particulate source emissions. Federal Regulations for continuous monitoring, instrumental principles, and problems involved in developing monitoring systems are included in the course presentation. Three afternoons of the course are devoted to laboratory experiments involving the operation and inspection of transmissometers, in-situ gas monitors, extractive spectroscopic systems, and extractive electrochemical systems.

A calculator or slide rule is required for class exercises.

Major Topics

- Regulations for continuous source monitoring
- Instrumentation for the continuous monitoring of gases (extractive and in-situ systems)
- Opacity monitoring and transmissometers
- Continuous monitor data evaluation
- Performance specification tests for gas and opacity monitors
- Quality assurance programs—role of the inspector
- Research developments on continuous monitoring systems
- Laboratory sessions—exercises with continuous monitoring instrumentation

Desired Background

Completion of Course 468 or 450; equivalent experience with EPA source test methods may be substituted.

1982-83 Offering

June 7-10, 1983.....Chicago, IL

Course 482

Sources and Control of Volatile Organic Air Pollutants

4-day lecture course
3 CEUs

Course Description

The student successfully completing this course will be able to evaluate systems typically employed for the control of volatile organic emissions including systems in operation and as represented in VOC control plans. Evaluation of systems in operation identifies sub-optimal features and is for the purpose of guiding regulatory action. Evaluation of planned systems is for the purpose of determining whether a VOC control plan is likely to meet the control objective it addresses. The course emphasizes calculations needed to check system efficiency. Course content draws heavily from EPA Control Technique Guidelines.

A scientific calculator is required for class exercises.

Major Topics

- The regulatory frame for VOC control
- Organic chemistry basics
- Impact of VOC emissions on achievement of photochemical oxidant standards
- VOC emissions measuring techniques
- Source categories emitting significant volumes of VOC:
 - Petroleum storage and transport
 - Industrial surface coating
 - Operations involving organic solvents evaporation
 - Asphalt operations
- Common VOC control methods
- Operations/Maintenance programs in VOC control

Desired Background

Course SI:422—*Air Pollution Control Orientation Course* (3rd ed.) or have a minimum of six months of applicable work experience.

1982-83 Offerings

November 15-18, 1982.....Gainesville, FL
November 30-December 3, 1982.....Portland, OR
March 21-24, 1983.....Cincinnati, OH
August 22-25, 1983.....New Brunswick, N

SELF-INSTRUCTIONAL, CORRESPONDENCE, AND VIDEO-INSTRUCTION COURSES

The Air Pollution Training Institute has for several years offered self-instructional courses as a supplement to the short-course program. Last year the Institute expanded the self-instructional program to include not only self-instructional courses and video-instruction but correspondence courses. This year the "Home Study" series of courses will add new courses to provide an opportunity for a wider participation in Institute programs by State and local agency personnel without the cost of travel associated with short-course offerings.

Self-Instructional (SI) Courses

Self-instructional courses have been developed for individual self-paced learning. They are provided in a format which is best suited for the material being presented and may include written text or audio tape and slide presentations.

Major features:

- Register and begin course at any time
- No prerequisites
- Self-paced
- May require an audio tape cassette player and a 35-mm slide projector
- Certificate of completion awarded for successful completion of course
- Continuing education unit credits awarded
- A score of 70 on final test is required to receive a certificate and CEUs

Correspondence (CC) Courses

The correspondence courses differ from the short courses and self-instructional courses in several significant ways: they do not require travel or time away from the office or laboratory as with short courses. They do, however, require pre-registration, tests, and adherence to a time schedule.

Major features:

- Specific dates for registration
- Course begins and ends on specific dates
- Pre-registration and limited in class size
- Posttests required
- Class roster provided
- Course director available to answer questions (phone number provided)
- Continuing education units and certificates of completion awarded
- Final grade based upon homework assignments and posttest grades

Video-Instruction (VI) Courses

Video-instruction courses are sets of video tapes covering a specific topic. These tapes are suitable for individualized or group learning exercises. However, because most programs were not designed as instructional units, continuing education units and certificates are not currently awarded for VI courses.

Major features:

- Tapes are available to governmental agencies on a loan basis from APTI
- No testing
- No continuing education units or certificates
- Available only on $\frac{3}{4}$ -inch U-Matic cassettes

Registration in Home Study Courses

Use the standard APTI course applications found at the end of this publication to register for SI, CC, and VI courses. There is no tuition fee. If, however, you wish to purchase the course materials, please contact the National Audiovisual Center (NAVC). The Home Study courses currently available from NAVC have NAVC ordering information at the bottom of the course description.

Availability of Materials

The Air Pollution Training Institute will provide government agencies with loan copies of self-instructional programs. Others may obtain copies from:

National Audiovisual Center
National Archives and Records Service
General Services Administration
Order Section HH
Washington, DC 20409
(301) 763-1891

or

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161

Course Listings

Please note that the following course listings are in numerical order, with CC, SI, and VI courses intermixed.

SI:406

Effective Stack Height/Plume Rise

10 hours

1 CEU

Course Description

This self-instructional package is designed for air pollution control agency personnel responsible for making or reviewing plume rise estimates for elevated air pollutant sources. The package consists of three exercises. Exercise 1 is made up of a narrated slide series and an APTI article, both entitled "Effective Stack Height." Exercise 2 is made up of the text "Plume Rise" and an audio tape presentation by Dr. Gary A. Briggs, with accompanying lecture notes in the work manual. Exercise 3 contains a summary of Dr. Briggs' latest analyses and the current EPA calculation procedures. Problem sets conclude each exercise. Suggested involvement time is 10 hours.

Major Topics

- Effective stack height by mathematical calculation
- Observations of plume rise through empirical means
- Formulas for estimating plume rise mathematically
- Comparisons of calculated and observed plume behavior
- Critical analyses of plume rise observation by Dr. Briggs
- Estimation of plume rise

NAVC number: 009121/HH

Price: \$48.00

SI:409

Basic Air Pollution Meteorology

25 hours
2.5 CEUs

Course Description

This 25-hour self-instructional course uses slide/tape presentations, text materials, and reading assignments to present basic meteorology, meteorological effects on air pollution, meteorological instrumentation, air quality modeling, and regulatory programs requiring a knowledge of meteorology.

Major Topics

- Solar and terrestrial radiation
- Cyclones and anticyclones
- Wind speed and direction
- Atmospheric circulation
- Cold, warm, and occluded fronts
- Atmospheric stability
- Turbulence
- Meteorological instrumentation
- Plume rise/effective stack height
- Topography
- Types of air quality models
- Regulatory air quality programs

NAVC number and price not available at time of printing.

SI:410

Introduction to Dispersion Modeling

35 hours
3.5 CEUs

Course Description

This 35-hour self-instructional course uses slide/tape presentations, text materials, and reading assignments as instructional formats. The course presents general concepts of air quality point source models and specific, detailed considerations of individual point source models. Models and their use in determining air pollution ground-level concentrations will be put into proper perspective by examining two case studies.

Major Topics

- Introduction to the regulations requiring model use
- Introduction to air quality point source models
- General characteristics of air quality point source models
- Review of UNAMAP, Version 4 models
- Required model inputs
- Interpreting model output
- Case studies

NAVC number and price not available at time of printing.

SI:412

Baghouse Plan Review

20 hours
2 CEUs

Course Description

This course is designed for engineers and other technical personnel responsible for reviewing plans for installations of fabric filtration air cleaning devices. The course focuses on review procedures for baghouse devices used to reduce particulate air pollution from industrial sources.

Major Topics

- General baghouse description
- Bag cleaning methods
- Fabric selection and filter types
- Design parameters affecting collection efficiency
- Operation and maintenance problems associated with baghouses

NAVC number and price not available at time of printing.

CC:414

Quality Assurance for Source Emission Measurements

35 hours
3.5 CEUs

Course Description

This 35-hour correspondence course covers quality assurance procedures for EPA manual source measurement methods 1 through 8. The course reviews, in detail, essentials of equipment calibration, proper testing methods, proper use of standardized testing forms, and EPA data tolerances.

Major Topics

- Quality assurance principles
- Procurement of apparatus and supplies
- Calibration of apparatus
- Presampling operations
- On-site measurement methods
- Postsampling operations
- Equipment maintenance methods
- Auditing procedures
- Use of data and calculation forms.

The following documents are to be used as texts:

- EPA 600/4-77-0276 "Quality Assurance Handbook for Air Pollution Measurement Systems. Volume III — Source Measurements"
- EPA 40 CFR 60 Appendix A.

Available only from APTI.

CC:416

Inspection Procedures for Organic Solvent Metal Cleaning (Degreasing) Operations

20 hours

2 CEUs

Course Description

This is a 20-hour correspondence course dealing with inspection procedures for degreasing operations. The course reviews in detail the inspection and VOC source-testing procedures for degreasers.

Major Topics

- **EPA policy on RACT regulations for degreasers**
- **Degreaser description for cold cleaners, open top vapor degreasers, and conveyorized degreasers**
- **VOC emission points**
- **Typical emission control methods**
- **Inspection procedures**
- **Emission-testing procedures**

Available only from APTI.

SI:417

Controlling VOC Emissions from Leaking Process Equipment

20 hours

2 CEUs

Course Description

This course is designed for technical people involved in monitoring industries for VOC emissions from leaking process equipment. The course reviews in detail the sources of fugitive VOC emissions and the procedures and equipment used to detect the leaks.

Major Topics

- Introduction to source categories and regulations
- Potential sources of emissions
- Inspection procedures
- Devices used to detect leaking components
- Equipment and procedures used to control leaks

Available only from APTI.

SI:422
Air Pollution Control
Orientation Course (3rd Edition)

30 hours
3 CEUs

Course Description

This self-instructional course is intended primarily for new employees in governmental air pollution control agencies. It may also be useful for other persons seeking a general knowledge of the air pollution field. The instructional materials, consisting of audio cassette tapes and printed booklets, provide broad coverage of air pollution and its control. Suggested involvement time is 30 hours.

Major Topics

- Air pollution law
- Air pollutants and their sources
- Effects of air pollution on health and welfare
- Sampling and analysis of air pollutants
- Control techniques for gaseous and particulate pollutants
- Air pollution meteorology
- Standards and regulations
- Enforcement systems
- Air quality management

NAVC number: A05855-AE00
Price: \$74.00

SI:431

Introduction to Source Emission Control

40 hours

4 CEUs

Course Description

This course is an introduction to the fundamental operating characteristics of particulate and gaseous pollutant emission control systems. It reviews physical, chemical, and engineering principles of control devices and the application of control systems to several types of industrial processes.

Major Topics

- Principles of gaseous emission control equipment, including scrubbers, afterburners, condensers, and adsorbers
- Principles of particulate emission control equipment, including cyclones, fabric filters, electrostatic precipitators, and scrubbers
- Application of control equipment to selected industries such as power plants, incinerators, asphalt batch plants, cement plants, and foundries
- Methods of hydrocarbon, NO_x, and SO_x control

NAVC number and price not available at time of printing.

Introduction to Ambient Air Monitoring

50 hours

5 CEUs

Course Description

This 50-hour correspondence course covers ambient air quality monitoring. It introduces terms used in air monitoring and presents practical information about the monitoring process. Theoretical monitoring concepts are also described.

Major Topics

- Ambient air monitoring objectives
- Ambient air sampling train design
- Basic gas properties
- Air movers and air measuring devices
- Statistical techniques pertaining to air monitoring
- Ambient sampling of particulate matter
- Manual sampling of ambient gaseous pollutants
- Calibration gas preparation
- Reference methods and reference measurement principles for the criteria pollutants
- Continuous air quality monitors
- Air quality monitoring network design

Available only from APTI.

CC:436

Site Selection for Monitoring of SO₂ and TSP in Ambient Air

**35 hours
3.5 CEUs**

Course Description

This 35-hour correspondence course covers the siting of ambient SO₂ and TSP monitors. The course presents general concepts of ambient monitor site selection and specific, detailed considerations and procedures for selecting SO₂ and TSP ambient monitoring sites.

Major Topics

- Use of monitoring data and related monitor siting objectives
- Special considerations associated with SO₂ and TSP monitoring
- Procedures and criteria for site selection for SO₂ and TSP monitors
- Rationale for SO₂ and TSP siting criteria
- Network design and probe siting criteria for SO₂ and TSP SLAMS, NAMS, and PSD monitoring stations

Available only from APTI.

Site Selection for Monitoring of Photochemical Pollutants and CO in Ambient Air

35 hours

3.5 CEUs

Course Description

This 35-hour correspondence course covers the siting of ambient monitors for CO, nonmethane hydrocarbons, NO, NO₂, and ozone. The course presents general concepts of ambient monitor site selection and specific, detailed considerations and procedures for selecting CO, nonmethane hydrocarbons, NO, NO₂, and ozone ambient monitoring sites.

Major Topics

- Use of monitoring data and related monitor-siting objectives
- Special considerations associated with the monitoring of CO, nonmethane hydrocarbons, NO, NO₂, and ozone
- Procedures and criteria for site selection for the monitoring of CO, nonmethane hydrocarbons, NO, NO₂, and ozone
- Rationale for siting criteria associated with the monitoring of CO, nonmethane hydrocarbons, NO, NO₂, and ozone
- Network design and probe-siting criteria for CO, NO₂, and ozone SLAMS, NAMS, and PSD monitoring stations

Available only from APTI.

SI:448

Diagnosing Vegetation Injury Caused by Air Pollution

30 hours

3 CEUs

Course Description

This self-instructional course provides basic training in procedures helpful in identifying and verifying injury to plants caused by air pollutants. Types of vegetation known to be sensitive to certain pollutants and the means of identifying or excluding alternative pollutant symptoms are covered. This course consists of 35-mm slides, booklets, audio cassette tapes, and quizzes with answers at the end of each unit.

Major Topics

- Glossary of relevant terms
- Introduction to diagnosis of air pollution damage to vegetation
- Structure and function of plants in relation to air pollution injury
- Injury by photochemical oxidants, sulfur dioxide, and fluorides
- Injury by less common pollutants
- Interactions between pollutants and between pollutants and pathogens
- Mimicking symptoms
- Meteorology and air pollution injury to vegetation
- Diagnosis of suspected air pollution injury to vegetation

NAVC number: 010013

Price: \$85.00

Note: The EPA handbook, "Diagnosing Vegetation Injury Caused by Air Pollution," is a useful companion for this course and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. GPO stock number 005-003-000882. Price is \$8.75/copy. (Price subject to change).

VI:472

Aerometric and Emissions Reporting System (AEROS)

No CEUs

Course Description

This course consists of 14 videotapes covering various aspects of the EPA AEROS air quality and emissions data handling systems. These include NEDS, SAROAD, HATREMS, SOTDAT, SIPS, EHIS, WSAP, SIEFA, CAASE, and REPS. The purpose of these tapes is to train personnel in the capabilities and uses of the systems, especially in the storage and retrieval of emissions and air quality data. Some of these tapes are also intended to train State and local agency personnel on data coding and input. New tapes may be added, or existing tapes revised, from time to time.

Tapes Currently Available

- Introduction to NEDS (1 tape, 41 minutes)
- Emission Inventories Training Program (1 tape, 42 minutes)
- NEDS SCC and Emission Factor Update (1 tape, 14 minutes)
- AEROS Edit: Recordkeeping and Analysis (1 tape, 12 minutes)
- Computer Software Documentation Standards (1 tape, 28 minutes)
- Coding NEDS Forms for Selected Industries (5 tapes, 3 hours)
- Coding NEDS Forms for Area Sources (4 tapes, 2¼ hours)

Available only from APTI.

SI:473

Introduction to Environmental Statistics

70 hours

7 CEUs

Course Description

This self-instructional package introduces the basic concepts of statistical analysis. It was designed for students with little formal education in statistics who must apply statistical techniques to analysis of environmental data. It also serves as a review and prerequisite for the advanced Course 426 *Statistical Evaluation Methods for Air Pollution Data*. The package is in seven modules and include workbook, 35-mm slides, and audio cassette tapes.

Major Topics

- Descriptive statistics
- Hypothesis testing
- One and two sample t-tests of significant differences
- Analysis of variance
- Chi square techniques for tests of homogeneity of data sets
- Decision flow chart
- Quality control charts
- Guide to statistical problem solving

Desired Background

College-level training in mathematics

NAVC number: A00181

Price: \$126.00

VI:475

Comprehensive Data Handling System (CDHS—AQDHS-II, EIS/P&R)

No CEUs

Course Description

The course consists of 12 videotapes, covering various aspects of the EPA-developed, State-installed air quality and emissions data handling systems. Viewing time is approximately twelve hours. The purpose of these tapes is to train State and local governmental air pollution control personnel in the operation and software maintenance of these computerized automatic data handling systems. New tapes may be added, or existing tapes revised from time to time.

The publication, "Air Quality Data Handling System (AQDHS-II) Test Run Series Documentation" (EPA 450/4-79-010) is sent with the tapes. The student may also wish to acquire "The Air Quality Data Handling System User's Guide" (EPA 450/4-79-009); however, the Institute does not distribute this publication.

Desired Background

Familiarity with EPA emissions and air quality data systems and a working knowledge of electronic data storage and retrieval.

Available only from APTI.



United States
Environmental Protection
Agency



Air Pollution
Training
Institute

APPLICATION FOR TRAINING

(See Instructions on Back)

1. Name of Applicant (First, Middle, Last)

Mr.
Mrs.
Miss

2. Title of Course Desired

3. Course Number

4. Place Where Given

5. Course Dates

6. Sponsor or Employer (name, address)

7. Mailing Address (if different from # 6)

City State Zip Code
Phone No.

City State Zip Code
Phone No.

8. Profession or Occupation

9. A. Total Years Experience in Profession _____
B. Total Years Experience in Air Pollution _____

10. Position Title

11. Brief Description of Your Present Position or Experience which Satisfies Prerequisites

12. Previous Air Pollution Control Training Courses Attended:

Titles

Dates

Location

13. High School Graduate
☐ Yes ☐ No

14. Number of Years Education Completed
Beyond High School

15. College or University Education

Name of Institution

Date Attended

Major

Degree

16. Signature of Applicant

17. Date

18. Signature of Approving Officer
(Where Applicable)

19. Title

20. Date

21. Agency Use Only

Amt. Rec'd. _____ Date _____ Billing Info. _____

TUITION FEE (WHERE APPLICABLE) SHOULD ACCOMPANY COMPLETED APPLICATION.
Checks should be made payable to: U.S. Environmental Protection Agency. Applicants from Federal agencies may send a purchase order or other acceptable financial commitment.

Applications for Courses

Please mail your application and fee payment (if applicable—see section on tuition fees) at least 45 days before the course starting date. The registration cutoff for courses without pre-course study is 10 days prior to the offering; for courses with pre-course study the cutoff is 45 days prior to the beginning of class. Because courses fill rapidly (some as much as 6 months in advance), you should send your application as early as possible.

Telephone applications are not accepted.

Mail all applications to:

**Registrar
Air Pollution Training Institute
Environmental Research Center, MD-20
Research Triangle Park, NC 27711**

Approval of Applications

Applications are reviewed by the appropriate Course Directors. The criterion for approval is satisfaction of course prerequisites. Therefore you must indicate on the application form how you satisfy the prerequisites through your position and experience. If you do not provide this information, or if you do not satisfy prerequisites, your application will not be approved.

Confirmation

Written notice of acceptance or non-acceptance is normally mailed within 10 days after your application is received. Please do not telephone to check on your application. You will receive pre-course materials, if any, 4 to 6 weeks prior to the course starting date.

Cancellations/Substitutions

If you find that you cannot attend a course for which you are registered, please notify the Registrar in writing as soon as possible. APTI courses often have waiting lists, and your failure to cancel in advance means that another qualified applicant cannot take your place. To receive a refund of fees, you must cancel in writing at least 10 days prior to the course start date.

Substitutions cannot be made except through the normal application and approval procedures.

Fees

Employees of the U.S. Environmental Protection Agency and non-Federal employees of regional, state, and local government agencies are exempt from tuition fees. All other students must pay fees according to the following schedule:

Course Length	Lecture Course	Laboratory Course
3½ days	\$ 77.00	NA
4 days	\$ 88.00	\$140.00
4½ days	\$ 99.00	\$157.50
5 days	\$110.00	\$175.00

Applicants employed by commercial firms must send a check or money order payable to the U.S. Environmental Protection Agency with the application form. EPA cannot bill individuals or companies.

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8. Profession or Occupation

9. A. Total Years Experience in Profession _____
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10. Position Title

11. Brief Description of Your Present Position or Experience which Satisfies Prerequisites

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Titles

Dates

Location

13. High School Graduate
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Name of Institution

Date Attended

Major

Degree

16. Signature of Applicant

17. Date

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(Where Applicable)

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21. Agency Use Only

Amt. Rec'd. _____ Date _____ Billing Info. _____

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