

Training Course Matrix
November 27, 2006

Organization of document

This document is intended to list courses for air pollution control personnel, both those currently available and those that should be developed. It is organized into the following groupings:

- Introductory and Core Courses (those which all personnel should take)
- SIP Development Courses
- Inspection and Enforcement Courses
- Permitting and New Source Review Courses
- Air Quality Monitoring Courses
- Emissions Inventory and Modeling Courses
- Mobile Sources Courses
- Air Toxics Courses (e.g., MACTs and NESHAPs)
- Other Specialized Courses

In addition, there are courses applicable to several different kinds of personnel – SIP planners, permit writers and inspection and enforcement personnel. These are grouped into two categories:

- Industry-specific courses
- Technology-specific courses

Explanation of Tables

Courses are listed by the name or type of course along the left-hand side and then in which format the course is delivered (course delivery mechanism), by the course identification (see next paragraph). Self-instructional courses are generally available only on-line unless otherwise indicated. If there is no information under “course delivery mechanism,” it means the course has not been developed.

The course identification (e.g., SI-422, AIR-255, CARB-100, GENAQ-100E) is the one given by the course developer. Rutgers Air Compliance Center does not use course identifications so their courses are indicated by “RACC” and sometimes with a footnote with the name of the course. The last page lists which entities prepared which courses and provides web sites for further information.

INTRODUCTORY & CORE COURSES				
Course Type	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Introduction to Air Pollution Control	SI-422 GENAQ-100E	APTI-452 CARB-103 AIR-293 RACC ¹		
<u>Policy/Law/Regulatory Courses</u>				
Background on Environmental Laws (existing legal and regulatory landscape)		CARB-100 CARB-112		
The Clean Air Act		RACC (2 courses) ²		
Environmental Laws & Regulations Primer (focusing on the process of legal and regulatory development)		CARB 112		
<u>Science/Math Courses</u>				
Environmental Chemistry, Physics, Biology, Math & Engineering	GEN-100E			
Environmental Science	RE-100			
Meteorology and Climate	SI-409	CARB-102		
Basic Chemistry of Air Pollution		CARB-111		
Mathematics	SI-100			
Environmental Statistics	SI-473A		U-III-Chicago ³	
Introduction to Visibility		AIR-255		
Emissions Calculation and Data Reduction		RACC		

¹ Principles and Practices of Air Pollution Control.

² Clean Air Act Today and Overview of the Clean Air Act Amendments of 1990.

³ Archived at <http://www.epa.gov/air/oaqps/eog/envirostats/index.html>.

SIP DEVELOPMENT COURSES⁴				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Control Strategies – introductory	SI-431	CARB-107 (equipment)		
Control Strategies – VOCs		APTI-482 CARB-284		
Control Strategies – NO _x	AIR-311E	RACC ⁵ APTI-418		
Control Strategies – PM _{2.5} and precursors		APTI-413 (PM) APTI-415 (SO ₂) AIR-332 (PM _{2.5})		
Control Strategies – Fugitive Dust		CARB-252 AIR-147		
Control Strategies – MACT	www.epa.gov/air/oaqps/eog/utrain.html			
Control Strategies – Greenhouse Gases (including CO ₂)				
Control Strategies – Alternatives (such as IGCC, EE/RE, transportation demand management)				
Involvement of Public/Communication Strategies				
EPA Regulatory Updates		AIR-282 ⁶ EMGM-110		
Introduction to the VIEWS and IMPROVE Data Retrieval and Analysis Web Sites (Regional Haze Planning)		AIR-258		

⁴ See also Industry-Specific Courses and Technology-Specific Courses.

⁵ NO_x Emissions Control.

⁶ Update on ozone and PM NAAQS and regional haze.

INSPECTION AND ENFORCEMENT COURSES⁷				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Basic Inspector Academy	CARB-310 CST-909	CARB-310 CARB-410 NETIAIR127 CST-109		
Baseline Source Inspection Techniques	SI-445			
Inspection & Enforcement Fundamentals		APTI-444 CARB-100		
Night Certification (seeing visible emissions at night)		CARB-100.2		
Health & Safety During Inspections - Introductory		APTI-446 CARB-104 RACC		
Inspection Report Writing Techniques		CARB-106		
Nuisances		CARB-109		
Sample Integrity/Chain of Custody	www.epa.gov/air/oaqps/eog/coc/	CARB-110		
Inspector Conduct & Liability		CARB-113		
Health & Safety During Inspections – Advanced		CARB-202 RACC		
Continuous Emission Monitoring	SI-476B	APTI-474 CARB-221 RACC AIR-270		
Observing Source Tests		CARB-224		

⁷ See also Industry-Specific Courses and Technology-Specific Courses.

INSPECTION AND ENFORCEMENT COURSES⁷				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Emissions Capture and Gas Handling System Inspection		APTI-345 RACC ⁸		
Source Sampling		APTI-450		
Bias and Interference in Aerosol Sampling		AIR-259		
Fugitive Emissions Inspection		APTI-380		
Combustion Source Inspection		RACC		
Advanced Visible Emissions Inspection		CARB-370		
Optical Remote Sensing		NETIAIR201		
Smoke School		NESCAUM		
Multi-Media Enforcement		CARB-300 CARB-360		
Variance Hearing Boards		CARB-321 CARB-322		
Intermediate Enforcement				
NSR/PSD Enforcement		CARB-325		
Mutual Settlement Workshop		CARB-350		
Advanced Inspector Training		CST-309		
Advanced Enforcement Workshop		CARB-400		
Penalties		CST-103 CST-203 CST-303 CST-306		
Fugitive VOC Emissions Inspection	SI-417	CARB-262		
VOC Sampling and Analysis		RACC		

⁸ Evaluation of Stationary Source Emission, Capture, Transport and Testing Systems

INSPECTION AND ENFORCEMENT COURSES ⁷				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Surface Coating Sampling, Transport and VOC Content Calculations		RACC		
Methodologies for Sampling HAPs		AIR-234		
Stack Testing for HAPs		AIR-264		
MON Inspector Training		NETIAIR206 NETIAIR304		
MACT	www.epa.gov/air/oaqps/eog/utrain.html			

* CARB has courses focusing on subsets of this industry, including Surface Coating Operations: Aerospace Industry (CARB-230.1); Surface Coating Operations: Auto Refinishing (CARB-230.2); Metal Container, Closure & Coil Coating Operations (CARB-230.3); and Graphic Arts (CARB-230.4).

PERMITTING AND NEW SOURCE REVIEW COURSES⁹				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Introduction to Permitting	SI-460	AIR-182		
Fundamentals of NSR and PSD		EMGM-382 NESCAUM		
NSR/PSD Enforcement		CARB-325		
Permitting Staff Development Workshop		CARB-330		
Permit Writing		APTI-454 CARB-333		
Effective Permit Writing II		CARB-334		
Intermediate Permitting		APTI-461		

⁹ See also Industry-Specific Courses and Technology-Specific Courses.

AIR QUALITY MONITORING COURSES				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Introduction to Monitoring	SI-434			
Monitoring Site Selection Principles – PM	SI-433			
Monitoring Site Selection – SO ₂	SI-436			
Quality Assurance for Monitoring	SI-471			
Atmospheric Sampling		APTI-435		
Source Sampling		APTI-455		
Continuous Emissions Monitoring	SI-476B	APTI-474 CARB-221		
Quality Assurance for Monitoring Systems		APTI-470		
Analytical Methods for Air Standards		APTI-464		
Validating Air Toxics Data		AIR-232		
Optical Remote Sensing		AIR-254		
Satellite Retrieval of Air Quality Related Variables		AIR-257		
Compliance Assurance (and Periodic) Monitoring		RACC		
PM Data Analysis		AIR-310		

EMISSIONS INVENTORY AND MODELING COURSES				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Emissions Inventories - Basic	SI-419A	AIR-190		
Emissions Inventories – PM _{2.5}		APTI-419B AIR-148		
Emissions Inventories – ozone				
Combustion Emissions Accounting		APTI-427		
Managing Air Quality Data		EMGM-196		
Emissions Modeling - Introductory	OS-411 ¹⁰ SI-410			
Introduction to Dispersion Modeling	SI-410	AIR-215		
Air Pollution Models – Applications		APTI-423		
Source Receptor Modeling		APTI-424		
AERMOD		AIR-165 AIR-297		
Hands-on Use of AERMOD		AIR-245		
Introduction to PRIME		AIR-296		
Introduction to CALPUFF		AIR-298		
AERMOD with PRIME Air Dispersion Modeling		AIR-299		

¹⁰ on EPA's web site http://www.epa.gov/air/oaqps/eog/course_topic.html.

MOBILE SOURCES COURSES				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Mobile Sources 101		NESCAUM		
Biodiesel Workshop		NESCAUM		
Advanced Mobile Sources – Diesel		NESCAUM		
Mobile 6.2		NESCAUM		
Transportation Conformity				T-004-05
Smart Growth				T-001-05
Technologies to Improve Environmental Considerations in Transportation Decisions				T-006-05

AIR TOXICS COURSES				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Toxics 101, Including MACT	UTenn web site*	CARB-290		
MACT	EPA** UTenn web site*			
Air Toxics Now				T-005-05
Toxics Emissions Inventories		AIR-148		
Validating Air Toxics Data		AIR-232		
Methodologies for Sampling HAPs		AIR-234		
Stack Testing for HAPs		AIR-264		
Area Source MACT		RACC		
Area Source MACT – Outreach to Regulated Community				
Boiler MACT & NESHAP	UTenn web site*	AIR-284		
Hazardous Waste Combustor MACT testing		AIR-285		
Boat Manufacturing MACT	UTenn web site*			
Miscellaneous Organic Chemical Manufacturing MACT	UTenn web site*			
MSW Landfill MACT	UTenn web site*			
Plywood and Composite Wood Products NESHAP	UTenn web site*			
Surface Coating of Miscellaneous Metals Parts and Products NESHAP	UTenn web site*			
Hazardous Organic NESHAP (HON)		MARAMA***		
Polymers and Resins		MARAMA***		
Miscellaneous Organic NESHAP (MON)		MARAMA***		

* <http://www.cis.utk.edu/EPAMACT/>

** www.epa.gov/air/oaqps/eog/utrain.html

*** MARAMA developed a course covering the HON, Polymer and Resin and MON

OTHER SPECIALIZED COURSES				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Smoke Management Training		CARB-375		
Ozone and Your Patients' Health	EPA*			
Nitrogen Compounds and Animal Agriculture		AIR-146		
ROVER Technology		NESCAUM		
Negotiation Skills		NESCAUM CST-112 CST-113 CST-304		
Supplemental Environmental Projects (SEPs)	CST-801 (video)	CST-116 (calculating value of SEPs)		
Fundamentals of Environmental Justice		OEJ-104		
Smart Growth				T-001-005 T-002-005

* www.epa.gov/air/oaqps/eog/utrain.html

INDUSTRY-SPECIFIC COURSES¹¹				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Gasoline Cargo Trucks		CARB-210		
Surface Coating Operations, Metal Parts and Products ¹²	UTenn (video)	CARB-230 NETIAIR111		
Solvent Cleaning: Degreasing Operations		CARB-233		
Printed Circuit Board Manufacturing		CARB-234		
Hot Mix Asphalt Facilities		CARB-242		
Aggregate Plants (Sand&Gravel)		CARB-243		
Concrete Batch Plants		CARB-244		
Cement Plants		CARB-245		
Oil Field Production		CARB-260		
Polyester/Epoxy Resin, Fiberglass & Composite Manufacturing		CARB-261		
Landfill Gas Control Facilities		CARB-285		
Dry Cleaning		CARB-287 RACC**		
Petroleum Refining		CARB-288		
Chrome Plating & Anodizing		CARB-290.3 RACC**		
Paints (Liquid Coatings)	UTenn (2 videos)			
Other Industries		RACC**		

** RACC offers a course on Area Source MACT that covers control strategies for dry cleaners and hard and decorative chromium electroplating and chromium anodizing tanks. It also covers ethylene oxide sterilization facilities and halogenated solvent cleaning.

¹¹ These courses are suitable for SIP planners, inspection and enforcement personnel and permit writers.

¹² CARB has courses focusing on subsets of this industry, including Surface Coating Operations: Aerospace Industry (CARB-230.1); Surface Coating Operations: Auto Refinishing (CARB-230.2); Metal Container, Closure & Coil Coating Operations (CARB-230.3); and Graphic Arts (CARB-230.4).

TECHNOLOGY-SPECIFIC COURSES¹³				
Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Vapor Recovery Systems		CARB-265 CARB-266 CARB-340		
Incinerators		CARB-273		
Stationary Reciprocating Engines		CARB-271		
Stationary Gas Turbines and Power Plants		CARB-272		
Boilers	SI-428A	CARB-273 AIR-284		
ESPs	SI-412B	CARB-281		
Baghouses		CARB-282		
Fabric Filters	SI-412A			
Wet Scrubbers	SI-412C			
Inspection of VOC Control Devices		CARB-284 RACC ¹⁴		
Inspection of PM Control Devices		APTI-445 ¹⁵		
Inspection of Gas Control Devices		APTI-455 ¹⁶		
Air Pollution Control for Combustion Systems		AIR-311 AIR-312 APTI-427		
Low-NO _x Burners				
Gasification				
Pyrolysis				

¹³ These courses are suitable for SIP planners, inspection and enforcement personnel and permit writers.

¹⁴ RACC uses APTI-482 materials, but the course is truncated to 3 days and instruction caters toward the compliance inspection and enforcement audience.

¹⁵ RACC also offers this course but truncates it to 3 days and classroom instruction caters toward the compliance inspection and enforcement audience.

¹⁶ RACC also offers this course but truncates it to 3 days and classroom instruction caters toward the compliance inspection and enforcement audience.

TECHNOLOGY-SPECIFIC COURSES¹³

Course Type/Name	Course Delivery Mechanism			
	Self-Instructional	Classroom	Web-cast	Satellite
Biofiltration				

References/Website

AIR courses are AWMA courses and are available at <http://www.awma.org/education/images/ProfDevCatalogFinal.pdf>

APTI course information is available at http://www.epa.gov/air/oaqps/eog/course_topic.html

CARB course information is available at <http://www.arb.ca.gov/training/courses.htm>

CST courses are National Enforcement Training Institute courses and are available at www.netionline.com

EMGM courses are AWMA courses and are available at <http://www.awma.org/education/images/ProfDevCatalogFinal.pdf>

GEN and GENAQ courses are AWMA courses and are available at <http://www.awma.org/education/images/ProfDevCatalogFinal.pdf>

NETIAIR courses are National Enforcement Training Institute courses and are available at www.netionline.com

OEJ courses are National Enforcement Training Institute courses and are available at www.netionline.com

RACC courses are Rutgers Air Compliance Center (RACC) courses and are available at <http://www.envsci.rutgers.edu/org/racc/>

SI courses are available at http://www.epa.gov/air/oaqps/eog/course_topic.html

T courses are EPA satellite courses and are available at <http://www.epa.gov/air/oaqps/eog/schedule.html>

The University of Tennessee material is available at <http://www.cis.utk.edu/EPAMACT/>