AIR QUALITY ENGINEERING SHORT COURSE

CENTER FOR AGRICULTURAL AIR QUALITY ENGINEERING AND SCIENCE
TEXAS A&M UNIVERSITY
COLLEGE STATION, TEXAS

DESCRIPTION

This three-day workshop will provide in-depth instruction associated with air quality engineering. Instructors include leading air quality engineers from the Center for Agricultural Air Quality and Engineering Science at Texas A&M University. Attendees will learn the air pollution regulatory process and several practical applications in order to relate to real world air quality issues.

OBJECTIVE

This is designed to be a refresher course for engineers and for those working in engineering fields, who would benefit of a review of the essential elements of air quality engineering.

SCOPE

Topics include Federal Clean Air Act, National Ambient Air Quality Standards, and all criteria pollutants and their abatement methods. Classroom instruction also covers current events where industries seek to comply with stringent air quality requirements. Instruction will address basic science and engineering, sample calculations for engineers, and real world application. Attendees gain "hands-on" experience by participating in class discussions, working engineering calculations, analyzing recent case studies, and completing worksheets/exams covering each topic.

Intent is to facilitate arrival on a Monday afternoon, and departure Thursday evening if desired. The course will be conducted Tuesday, Wednesday, and Thursday from 8am to 5 pm, with a one hour break for lunch.

DELIVERABLES

The Center for Agricultural Air Quality Engineering and Science (CAAQES) will provide:

- Instruction on air quality regulation and engineering and cutting-edge research and technology;
- Refreshments, snacks,
- Lunch daily and one evening meal (if course is conducted in College Station);
- Textbooks, courseware, and materials to assist students with understanding the course content and applying the concepts learned;
- Certificate of Completion

TUITION

$1500 per student

Dates: By appointment

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OVERVIEW

Day One (8 hours)

Program Overview and Objectives

Air Quality Familiarization

Attendees will be introduced to air quality common terminology and acronyms. Instructors will illustrate common misconceptions that the public hold toward agriculture and air quality conservation. Attendees will become familiar with the course workbook and other handouts.

Air Pollution Regulatory Process

Attendees will be given an introduction to the various regulatory issues facing agricultural operations. Instructors will discuss thresholds, permitting requirements, control requirements, and multimedia concerns.

- Federal Regulations
- State Regulations
- Recent and Pending Regulations

Basic Science & Engineering

Attendees will learn about mass balance calculations, unit operations and conversion, properties of air, and psychrometrics.

Day Two (8 hours)

Particulate Matter

Attendees will learn about particulate matter classification and particle size distribution, samplers and inherent sampler bias, dispersion modeling, determination of emission rates and emission factors, and understand the assumptions and associated errors. Also apply basic calculations and abatement strategies.

Gases, Odors, and RVOCs

Attendees will learn about the properties of criteria pollutant gases such as SO2, NOx, Ozone and Reactive VOCs, equipment used for sampling gases, abatement measures, controls, and current issues. Calculations include mass balance and control of gaseous emissions.

Day Three (6 Hours)

Greenhouse Gas Emissions

Attendees will learn about and discuss current issues regarding greenhouse gases, especially carbon dioxide and methane, as well as current trends in biofuels. Mass balance calculations and possible regulation of CO2 and management across the country.

Open Discussion

Instructors will provide short presentations related to regulation, current events, and course material. Attendees and panel will have a chance to ask questions and discuss the topics.

Evaluation & Feedback

Final Exam & Course Critique

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GENERAL SCHEDULE

Day One	Day Two	Day Three
Overview • Setting the Stage • Concepts and Terms **Air Pollution Regulatory Process** • Federal Regulations and Standards • NAAQS/NSPS/HAPS • The Permitting Process • Permitting at TCEQ • Quiz	**Open Discussion** • Discuss previous material **Particulate Matter** • Basics: MMD/AED/PSD • Samplers//Protocols/Bias • Emission Rate/Emission Factor • Abatement equipment • Calculations • Case Study • Quiz	**Open Discussion** • Discuss previous material **Greenhouse Gas Emissions** • Basics: Sources of GHG • Mobile Sources • CO2 and Methane • Abatement Strategies/Impacts • Biofuel use and emissions • Calculations • Case Study • Quiz
Lunch	Lunch	Lunch
Basic Science and Engineering • Unit Operations/Conversions • Mass Balance Calculations • Properties of Air • Psychrometrics • Quiz	**Gases, Odors, and RVOCs** • SO2 • NOx • Odors • RVOCs and Ozone • Abatement techniques • Calculations • Case Study • Quiz	**Panel Discussion** • Future Regulation • Current Issues **Exam** **Course Critique** **Wrap Up**