**AGENDA**

**APTI 418**

***Control of $NO_X$ Emissions***

**January 27, 2014**

**7:45 AM – REGISTRATION OPENS**

**8:30 AM – INTRODUCTION AND ORGANIZATION OF THE COURSE**

**Pre-test**

**Chapter**

**1 Introduction to NOx Control**

Regulation of $NO_X$
Definition of $NO_X$
Origins of $NO_X$
$NO_X$ formation mechanisms in combustion processes
Anthropogenic sources
$NO_X$ emission trends
Ozone season emissions
Emissions projections

**2 $NO_X$ Regulatory Programs**

Introduction
$NO_2$ NAAQS
Ozone NAAQS
$PM_{10}$ and $PM_{2.5}$ NAAQS
Visibility impairment
Historic review of ozone control strategies
Acid rain
Other programs

**12:00 – PM LUNCH**

**3 Combustion Systems & NOx**

Diffusion and premixed flames
Flame temperatures
Boiler burners
Reciprocating engines
Combustion turbines

**5:00 PM – ADJOURN**

**AGENDA**

**APTI 418**

***Control of $NO_X$ Emissions***

**January 28, 2014**

**8:00 AM – CLASS BEGINS**

**Chapter**

**4 NOx Control by Reducing Temperature**

Flame temperature and NOx
Water Injection
Flue gas recirculation
Lean Premixed combustion
Summary

**5 Oxygen Based NOx Controls**

Combustion staging concepts
Reduced Excess Air
Stratified combustion in large furnaces
Low NOx burners
Reburning
Summary

**12:00 PM – LUNCH**

**6 Reciprocating Internal Combustion Engines**

Combustion control
Post-combustion control
Case study

**7 Gas Turbines**

Introduction
Combustion modification controls
Post combustion controls

**5:00 PM – ADJOURN**

**AGENDA**

**APTI 418**

***Control of $NO_X$ Emissions***

**January 29, 2014**

**8:00 AM – CLASS BEGINS**

**Chapter**

**8 Back End Controls**

Selective non-catalytic reduction (SNCR)
Selective catalytic reduction (SCR)
Non-selective catalytic reduction (NSCR)
Emerging Technologies
Summary

**12:00 PM – LUNCH**

**9 Emission Measurement, Monitoring & Reporting**

CEM regulatory program
Measurement techniques
CEM systems
Quality assurance and quality control
Oxygen concentration monitors
Emissions calculations

**10 Inspecting Permitted Emission Sources**

**Review of the Pre-test**

**Post-test**

**5:00 PM – ADJOURN**