

國立臺北大學自然資源與環境管理研究所  
九十九學年度第一學期  
『環境工程科學概論』課程講義 (十四)

主題：空氣污染概論

- INTRODUCTION AND SOME HISTORIC REMARKS
  - Ambient Air Quality vs. Emission Source Control
  - Gaseous and Particulate Pollutants
  - Episodes of Air Pollution and Historical Disasters
- CRITERIA POLLUTANTS AND AIR QUALITY STANDARDS
  - Carbon monoxide CO: CO-Hb
  - Oxides of Nitrogen NO<sub>x</sub>; Oxides of Sulfur SO<sub>x</sub>
  - Photochemical Smog and Ozone => PAN and O<sub>3</sub>
  - Particulate Matter PM (PM<sub>10</sub> and PM<sub>2.5</sub>) and Lead
  - Volatile Organic Compounds (VOCs)
  - Toxic Air Pollutants (Air Toxins or Hazard Air Pollutants, HAPs)
  - Air Quality Standards: National Ambient Air Quality Standards (NAAQS)
  - Air Quality Index (AQI) vs. Pollutant Standard Index (PSI)
- MOBILE EMISSION SOURCES
  - Emission Standards vs. Fuel Standards
  - Gasoline Engines vs. Diesel Engines
  - Exhaust System Controls => Catalytic Converter (Precious Metals)
  - Alternative Fuels and Hybrid Vehicles
    - ⇒ Electric Scooters and (Plug-in) Hybrid Electric Vehicles (P-HEV)
    - ⇒ CNG Bus and LPG Taxi
    - ⇒ Fuel Cell and Fuel Cell Cars
- STATIONARY SOURCES
  - Control Strategies: Combustion, and Pre- or Post-combustion controls
  - Pollution Control Devices: Gaseous and Particulate Pollutants
    - ⇒ Scrubber, Bag-house, Electrostatic Precipitator (EP), FGD, SCR, SNCR...
- INDOOR AIR QUALITY
  - Tobacco Smoke, Asbestos, Radon, Formaldehyde, and Mold.
- HOMEWORK #7 (No hand-ins required): 請蒐集彙整我國空氣污染指標 (Pollutant Standard Index, PSI) 之計算與應用方式，並與美國修訂推行之 Air Quality Index (空氣品質指標) 制度比較探討其差異。