ME 410 Day 1

Topics

- Introductions
- Course content & policy handout
- IC engine operating cycle
- Types of Engines

1. Getting to know each other. State your name and why you are interested in taking this course.

2. Handout. Discuss.

    A. importance of IC engines is undisputed.
    B. some of you -- automotive; others -- interested; others easy elective. should all go away satisfied.
    C. content. First 2/3. Some basic concepts on performance, combustion and thermodynamics. Last 1/3. Combustion, Emissions, Performance, Societal Issues.
    D. Conversation topics. Explain. Example at end of class. Sign up tomorrow.

3. Operating Cycles: 4 stroke and 2 stroke. See

    www.howstuffworks.com

4. Types of Engines

    - 2 stroke vs. 4 stroke
    - SI vs. CI
    - applications: cars, trucks, off-road, construction, marine, aviation, others

5. Conversation about Emissions

What comes out the tailpipe of an IC engine?

What are the main categories of emissions?

How do CI and SI engines differ as far as these emissions are concerned?

(Refer to Table 1.2)

The major categories are:

- NO_x. Oxides of N_2. Combine with unburned hydrocarbons (HC) to produce smog. Problem for both SI and CI, worse in CI.
- CO. Carbon monoxide. Toxic. SI only.
- HC. Unburned hydrocarbons. May be carcinogenic, produce smog. Problem for both SI and CI, worse in SI.
- Particulates. Soot and absorbed HC. CI only.

The most controversial emission is CO_2. Why?