EMAE/EMAC+ 463 Fire Dynamics (3 credits) Syllabus

Class Time & Location: TuTh 12:45PM – 2:00PM, Glennan 400

Instructor: Professor Ya-Ting Liao; yating.liao@case.edu; (216) 368-0048

Office Hours: TBD

Course Description: This course introduces the burning behavior of materials and the underlying thermo-fluid dynamics. Topics include: pre-mixed flames, diffusion flames, steady burning of condensed fuels, ignition, extinction, flame spread over surfaces, fire plume, compartment fire, flashover, and smoke movement. A Computational Fluid Dynamics simulation code, Fire Dynamic Simulator (FDS) will also be introduced in the class.


Prerequisite: Fundamentals of Thermal Fluids (e.g. EMAE325).

Grading Policy:

Class Participation (10%)
Students are expected to attend the class regularly. Participations in the lectures are encouraged. Up to 10 points will be given to the students who actively participate in classroom discussions.

Homework (30%)
Homework assignments will be given after each topic is completed. Each assignment will be weighted equally and sum up to 30 points. While team studying is encouraged, all submitted work must be generated individually. The solutions should be prepared on letter-sized paper in clear, legible writing or typing. The solutions should be submitted before or during the class. Late homework will not be accepted.

Midterm and Final Exams (60%)
Midterm and final exams will each be worth 30 points. If a student is absent on days when an exam is scheduled, he or she is required to notify the instructor in advance and provide necessary supporting documents (e.g. documentation of the illness, signed by a health care professional) in a timely manner.

Communications:
Course documents, homework assignments, and all grades will be posted on the course Blackboard (https://blackboard.case.edu).