

Fire Safety Program - ME 672 Advanced Fire Dynamics

Course Objectives

This course briefly reviews the material covered in ME 671 and then introduces the student to advanced concepts related to all stages of compartment fire development, from ignition and early fire growth to the fully developed or post flashover fire. Related topics such as flame spread, design fire specification, rapid fire growth, ventilation and smoke control are also covered.

Examples, case studies and class discussions are used to illustrate the applications and issues encountered with use of advanced fire dynamics principles for performance based building design and in other fire safety applications. Finally, students gain experience in the use of various computer fire modeling tools during their assignments and projects for the course.

Course Outline

- Ignition
- Materials Flammability
- Flame Spread
- Design Fires
- Room Fire Growth
- Fire Plumes
- Rapid Fire Growth
- Ventilation and Smoke Control

Recommended References

- Dougal Drysdale, "An Introduction to Fire Dynamics", Third edition, John Wiley and Sons, Toronto (or second edition).
- Karlsson, B. and Quintiere, J., Enclosure Fire Dynamics, CRC Press, 1999.
- Quintiere, J., Fundamentals of Fire Phenomena, Wiley, 2006 and Principles of Fire Behaviour, Cengage Delmar, 1997.
- Gorbet, G.E., Pharr, J.L. and Rockwell, S.R., Fire Dynamics, Pearson, 2016 or original version of text.

Contact Us

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