ENFP610 Advanced Special Hazard Suppression Systems

Credits: Three (3)

Contact hours: Two lectures per week, 75 minutes each.

Instructor: Isman

Textbook: N/A
Other supplemental materials:
- NFPA 10 – 2022
- NFPA 11 – 2021
- NFPA 12 – 2022
- NFPA 12A – 2022
- NFPA 13 – 2022
- NFPA 14 – 2019
- NFPA 17 – 2021
- NFPA 17A – 2021
- NFPA 30 – 2021
- NFPA 409 – 2022
- NFPA 750 – 2023
- NFPA 2001 – 2022

All provided on-line to students for free

Catalog description:
Analysis of application and theory of fire suppression systems. The key elements of fire suppression systems will be discussed along with how they interact for effective fire suppression design. Physical mechanisms for a variety of fire suppression approaches will be discussed including hose streams, sprinklers, water mist, foam, clean agents, and chemical agents. Suppression theory will be discussed along with determination of agent quantity necessary to achieve suppression given fire size at system activation.

Prerequisites and Corequisites:
Prerequisites: Permission of ENGR-Fire Protection Engineering department.

Specific outcomes of instruction:
Upon completion of this course, students should be able to:
- Determine discharge criteria and installation requirements for a wide variety of fire suppression systems designed to protect special hazards.
- Use computer software to design and analyze fire suppression systems.
- Use suppression theory to determine quantity of agent necessary to achieve fire suppression given the size of the fire at system activation.

Brief list of topics covered:
- Foam Systems
- Halon and Clean Agent Systems

- Water Mist Systems
- Carbon Dioxide Systems
- Dry-Wet Chemical Systems
- Preaction Sprinkler Systems
- Sprinkler Systems for Storage Occupancies
- Standpipe Systems
- Darcy-Weisbach Friction Loss
- Hardy Cross Loop Analysis
- Velocity Pressure Calculations
- Suppression Theory