

## **ENFP410 Special Hazard Suppression Systems**

*Credits:* Three (3)

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

*Table 5-1 category:* Engineering topic with significant design component

*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.

*Prerequisites and Corequisites:*

Prerequisites: ENFP310 and ENFP312. Restriction: Permission of ENGR-Fire Protection Engineering department.

Credit only granted for: ENFP410, ENFP610 or ENFP653.

*Table 5-1 Course Type:* Required

*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 design software to design and analyze fire suppression systems.

*Student outcomes assessed:* SO2.2, SO4.3, SO6.1

*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