

COURSE OUTLINE
CET 123 Building Systems & Critical Environments: Security
1 Credit Hour

Course Description: This course introduces security and access issues of industrial and critical environments along with currently used security systems. Students will apply problem solving and deductive reasoning to analyze and interpret these unique needs and their solutions.

Prerequisite(s): none

Purpose of Course: This course is designed to prepare new facility staff to work in and with security systems in both standard and critical environments. It includes a mixture of practical and classroom experiences related to security equipment and security practices in these facilities.

Required Materials: ATP Staff. 2008. *Building Automation: Control Devices & Application*.
ATP. ISBN: 978-0-8269-2000-3

Learning Outcomes and Competencies:

The intention is for the student to be able to:

1. Demonstrate an understanding of the purposes of critical environments such as containment labs, clean rooms, and data centers and their individual security needs.
 - a. List types of clean rooms and their security needs.
 - b. List types of containment rooms and their security needs.
 - c. Navigate through a mock BSL-3 lab, properly using doors through locks and identifying potential hazards related to security and access control.
 - d. Summarize several common security policies and procedures for critical environments.
 - e. Discuss how building automation systems can provide layers of security to various critical environments.
 - f. Examine the components of an emergency plan for a critical environment.
2. Demonstrate an understanding of the types and functions of security equipment used in facilities.
 - a. Identify and describe the function of various sensors used in security systems.
 - b. Identify and describe the function of various notification devices used in security systems.
 - c. List features of various types of security system circuits: nonsupervised, supervised, and advisory.
 - d. Describe the features of a control panel operation that reduces false alarms.
 - e. Describe a routine monitoring process of facility security systems. Include solutions to deviations from normal operations.
 - f. Describe different physical barriers that can be used to control access.
 - g. Describe how lighting, cameras, and Voice-Data-Video (VDV) systems can be integrated into a building security system.
 - h. Categorize the major components of a fire protection system.
 - i. Demonstrate internal communication equipment and methods for BSL3 and BSL4 labs.
 - j. Specify which equipment should be used to most effectively secure critical environments.
3. Create a security plan for monitoring unauthorized access.
 - a. Discuss the threats to security occasioned by public access and the primary function of an access control system.

- b. Define terms for common features of access control software: card holders, time zones, access levels, access groups, momentary unlock, anti-passback, supervisor first, and authentication.
 - c. Describe the advantages and disadvantages of different types of access control: human control, mechanical control, and intelligent electronics control.
 - d. Describe the purpose and use of credentials such as badges, biometrics, cards.
 - e. Describe pre-entry and exit verification procedures and issues.
 - f. Explain why a facility manager might want to monitor and control how personnel exit facilities as well as how they enter.
 - g. Suggest the programming needed for various system anomalies: holiday scheduling, alarm monitoring, extreme weather situations.
4. Demonstrate an understanding of how security and access systems can be integrated with larger Building Automation Systems.
- a. Describe the role of a supervisory controller in a building security system.
 - b. Describe a control sequence for the lock down of a building.

Learning Units

- I. Security Needs of Critical Environments
- II. Security Equipment
- III. Access Control Systems
- IV. Building Automation Systems and Security

Method of Delivery/Instruction

X Face-to-face X Blended ☐ Online

Method of Grading and Evaluation

The student will be graded on learning activities and assessment tasks. Grade determinants may include the following: daily work, quizzes, chapter or unit tests, comprehensive examinations, student projects, student presentations, class participation, and other methods of evaluation employed at the discretion of the instructor.