NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
ENE 208 – CRITICAL SITE OPERATIONS (3 CR.)

Course Description

Provides a complete overview of a data center such as power systems, communications systems, cooling systems and fire and intrusion detection systems. Introduces commissioning and decommissioning concepts as they apply to data centers. Provides hands-on experience through laboratory exercises.
Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

General Course Purpose

This course is designed to teach students the major subsystems and operations of a data center. Students will learn the operations of six major sub-systems in a data center. Systems covered in this course are power distribution, fiber, and copper cabling, BMS systems, HVAC controls, water treatment, security and access systems, IP based systems and motor controls. Students will learn these systems in theory and by performing hands-on exercises.

Course Prerequisites/Corequisites

Prerequisite: ENE 108.

Course Objectives

- Identify the differences between different sub systems of a data center
- Utilize resources to terminate copper and fiber cables
- Utilize IP based systems to configure Building Management Systems (BMS systems)
- Explain role of water treatment in data centers
- Illustrate the differences between two types of fiber cables
- Discuss Heating, Ventilation, and Air Conditioning (HVAC) Controls
- Explain role of power distribution as it applies to data centers
- Experiment with different type of motor control circuits
- Explain programmable logic controllers (PLCs) and their use in data centers
- Design cabling layout for data centers
- Explain Environmental Protection Agency (EPA) reporting
- Explain security, access control and Fire detection systems for data centers
- Utilize spreadsheets as reporting and compution tool

Major Topics to be Included

a) Various systems and sub systems of a data center
b) Types of cables, cable layout, and cable termination
c) Water treatment for data centers
d) HVAC and programmable logic controls
e) Power distribution, motor control circuits
f) Required reporting and reporting tools
g) Security, access control and fire detection system