PRGR 646 Energy Management System of Buildings

Catalog description: (2 credits)

The objective of the course is to provide students the necessary tools to control, monitor and optimize the building's facilities, mechanical and electrical equipment for comfort, safety, and efficiency. It starts with the fundamentals of electric power systems and building electric wiring and then works through building automation systems (BAS) principles. The course allows students to acquaint applying BAS to commercial HVAC equipment, lighting systems, fire systems and security/observation systems.

Textbook: TBA

References: Textbook; class notes and handouts; the library; the web.

Coordinator: TBA

Educational Objectives/Learning Outcomes:

On successful completion of the course, students will be able to:

1- Apprise the key issues of building mechanical and electrical devices and controls.
2- Acquaint Direct Digital Control hardware for building automation systems.
3- Design a simple building automation system based on control routines for energy efficiency.

Topics covered:

- Power Systems and Building Electrical Wiring
- Direct Digital Controls (DDC) for Building Automation Systems
- BMS Applications: HVAC Control Systems, Lightening systems, Security and Surveillance Systems, fire and alarm systems
- Control Routine for Energy Efficiency

Assessment and grades:

Term paper:	10%
Term presentation:	10%
Midterm:	35%
Final Exam:	45%

Computer usage: MS Office.