

## **Graduate Certificate in Sustainability with Emphasis in Electric Energy Systems**

This program provides for students to gain expertise in sustainability planning and design of electrical systems. This is achieved through courses that emphasize design projects in three central aspects to sustainability engineering:

- Business processes and methods
- Analysis and planning of engineering projects with sustainability practices
- Design and operation of renewable electrical energy circuits and systems

Students who complete the certificate will have a broad set of skills and knowledge for planning and implementation of engineering projects for meeting sustainability objectives. In addition, students will acquire advanced skills in designing electrical circuits and systems that can be applied to a variety of sustainability projects.

### **Admission Requirements**

- 3.0 minimum cumulative GPA, or 3.0 minimum GPA on last 60 hours of B.S. in engineering degree program.
- B.S.E.E. recommended; deficiency courses (such as ELEG 3903) may be required for non-B.S.E.E. students.
- GRE verbal and quantitative combined minimum score of 302.

### **Certificate Requirements**

15 credit hours required for completion of the certificate per the following:  
Required Course (3 credits):

- WCOB 5023 Sustainability in Business (or an approved substitute)

Elective Courses (12 Credits):

- Students choose 12 hours from the two thematic areas identified below.
- At least 9 hours must be chosen from courses numbered 5000 or above.

#### **1. Environmental Engineering (select one course)**

- BENG 5623 – Life Cycle Assessment
- BENG 5933 – Environmental & Ecological Risk Assessment
- CVEG 4203 – Environmental Regulations and Permits
- MEEG 4453 – Industrial Waste and Energy Management
- MEEG 4473 – Indoor Environmental Control
- INEG 5313 – Engineering Applications of Probability Theory
- INEG 5323 – Engineering Applications of Stochastic Processes (pre-requisite: INEG 5313)
- INEG 5433 – Cost Estimation Models
- INEG 5443 – Decision Models
- INEG 5613 – Introduction to Optimization Theory
- OMGT 5003 – Introduction to Operations Management
- OMGT 5123 – Finance
- OMGT 5373 – Quality Management
- OMGT 5433 – Cost Estimation Models
- OMGT 5463 – Economic Decision Making
- OMGT 5783 – Project Management for Operations Managers

2. Electrical Engineering (select three courses)

- ELEG 5403 – Control Systems
- ELEG 5413 – Modern Control Systems
- ELEG 5423 – Optimal Control Systems
- ELEG 5473 – Control of Electric Power Systems
- ELEG 5503 – Design of Advanced Electric Power Distribution Systems
- ELEG 5513 – Power Systems Analysis
- ELEG 5523 – Electric Power Quality
- ELEG 5533 – Power Electronics & Motor Drives
- ELEG 5693 – Wireless Communications