Post-Baccalaureate Certificate in Sustainable Engineering & Renewable Energy

About This Program

The Sustainable Engineering and Renewable Energy (SERE) Graduate Certificate equips students to generate and evaluate sustainable engineering design alternatives, with a particular focus on renewable energy systems and their integration in buildings and infrastructure.

Competencies

1. Upon completion, students will be able to explain general sustainability concepts and analyze sustainability situations/issues.
2. Upon completion, students will be able to generate creative and innovative sustainable engineering design alternatives.
3. Upon completion, students will be able to use life cycle assessment tools to analyze environmental, economic, and social impacts of various design alternatives.
4. Upon completion, students will be able to incorporate life cycle assessment into alternatives evaluation.

Admissions Criteria

For students in a College of Engineering master's or PhD program at the time of enrollment for the SERE Certificate, the admission requirement will be to be in good standing, as defined by their department/program, which includes having a GPA of 3.0 or higher. Existing students can earn this certificate by completing the required courses and submitting a Request for Certificate to the UTA Office of Records.

Unconditional Admission is granted if all the following conditions are met:

- A bachelor's degree in an engineering with a minimum GPA of 3.0 or a current enrollment in an engineering master's program at UTA with a minimum GPA of 3.0.
- Those who desire the certificate program without enrolling in graduate degree program must be admitted to UTA as a non#degree certificate-seeking student.
- If English is not the applicant's native language, he/she should meet the CE admission requirement on TOEFL iBT, or IELTS. International applicants who have successfully completed a BS or MS from an institution in the United States and are not seeking funding as a Graduate Teaching Assistant, are not required to meet this requirement.

Remedial work may be required for the applicant without an engineering or science background.

Non-degree seeking students must satisfy the admission requirements established by the Graduate School for special non-degree-seeking and graduate certificate applicants (https://catalog.uta.edu/academicregulations/admissions/graduate/#text).

Curriculum

Foundations		
CE 5323	SUSTAINABLE ENGINEERING	3
MSE 5353	FUNDAMENTALS OF SUSTAINABLE ENERGY	3
Electives		
Select a course from each of two different areas below in consultation with the program manager or graduate advisor.		6
Environmental Impacts		
ARCH 5361	ARCHITECTURE AND ENVIRONMENT	
BIOL 6303	ECOLOGICAL AND EVOLUTIONARY ANALYSIS	
CE 5321	ENGINEERING FOR ENVIRONMENTAL SCIENTISTS	
CE 5328	FUNDAMENTALS OF AIR POLLUTION	
CE 5329	CIVIL ENGINEERING INFORMATICS	
CE 5358	SOLID WASTE ENGINEERING	
CE 5382	CONSTRUCTION SUSTAINABILITY	
ENVR 4313	ENVIRONMENTAL REGULATION OF CHEMICAL HAZARDS	
or EVSE 5313	ENVIRONMENTAL REGULATION OF CHEMICAL HAZARDS	
ENVR 4315/GEOL 4323	INTRODUCTION TO ENVIRONMENTAL STUDIES	
or EVSE 5323	ISSUES IN ENVIRONMENTAL HEALTH	
EVSE 5309	ENVIRONMENTAL SYSTEMS-BIOLOGICAL ASPECTS	

EVSE 5310	ENVIRONMENTAL SYSTEMS-CHEMICAL ASPECTS
EVSE 5311	ENVIRONMENTAL SYSTEMS-GEOLOGICAL ASPECTS
EVSE 5312	ENVIRONMENTAL RISK BASED ACTION
EVSE 5320	TOXICOLOGY
EVSE 5323	ISSUES IN ENVIRONMENTAL HEALTH
EVSE 5456	ENVIRONMENTAL RISK ASSESSMENT
EVSE 5457	ENVIRONMENTAL ANALYTICAL CHEMISTRY
ME 5362	INTRODUCTION TO MICRO AND NANOFLUIDICS
PLAN 5327	GREEN CITIES AND TRANSPORTATION
PLAN 5340	GIS AND SUITABILITY ANALYSIS
PLAN 5352	ENVIRONMENT ASSESSMENT POLICY & PRACTICE
Economic Impacts	
CE 5341	PAVEMENT EVALUATION, REHABILITATION AND MANAGEMENT SYSTEMS
CE 5377	CONSTRUCTION FINANCE
CE 5380	MANAGEMENT OF INFRASTRUCTURE ASSETS
CE 5387	CONSTRUCTION PRODUCTIVITY
IE 5304	ADVANCED ENGINEERING ECONOMY
MANA 5333	INNOVATION, CREATIVITY AND ENTREPRENEURSHIP
Social Impacts	
BE 5331	POLYMERS AND BIOCOMPATIBILITY
BE 5373	FORMULATION AND CHARACTERIZATION OF DRUG DELIVERY SYSTEMS
CE 5316	MACHINE LEARNING FOR CIVIL ENGINEERING
CE 5359	HUMAN INTERACTION IN THE BUILT ENVIRONMENT
CE 5360	BUILDING SCIENCE II
CE 5387	CONSTRUCTION PRODUCTIVITY
IE 5314	SAFETY ENGINEERING
IE 5338	HUMAN ENGINEERING AND COMPLEX SYSTEMS
MANA 5345	SOCIAL ENTREPRENEURSHIP
SOCW 5301	HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT
Renewable Energy & Renewable Energy Technologies	
ARCH 5332	ENERGY USE AND CONSERVATION IN ARCHITECTURE
EE 5308	POWER SYSTEM MODELING AND ANALYSIS
EE 5371	POWER SYSTEM PLANNING, OPERATION, AND CONTROL IN A DEREGULATED ENVIRONMENT
EE 5374	POWER SYSTEM PROTECTIVE RELAYING
EE 5375	POWER SYSTEM DISTRIBUTION
EE 5378	POWER QUALITY
EE 6373	RENEWABLE ENERGY SYSTEMS
ME 5366	FUEL CELLS AND APPLICATIONS
ME 5382	RESEARCH TRENDS IN RENEWABLE ENERGY TECHNOLOGIES
ME 5386	WIND & OCEAN CURRENT ENERGY HARVESTING FUNDAMENTALS
MSE 5355	MATERIALS FOR ENERGY
Decision Analysis	
BE 5388	MEDICAL PRODUCT DESIGN AND DEVELOPMENT
CE 5338	SYSTEM EVALUATION
CE 5345	INFRASTRUCTURE EVALUATION, MAINTENANCE, AND RENEWAL
CE 5381	ADVANCED MATERIALS MECHANICAL TESTING AND CHARACTERIZATION
IE 5301	INTRODUCTION TO OPERATIONS RESEARCH
IE 5311	DECISION ANALYSIS
IE 5351	INTRODUCTION TO SYSTEMS ENGINEERING
Total Hours	**12**

Courses completed as part of a Sustainable Engineering and Renewable Energy Graduate Certificate will also satisfy requirements for master's or PhD programs in various engineering and other departments. Courses in addition to those listed above can be used to fulfill certificate requirements with approval of the program manager.

Program Completion

Students must earn at least a C in all courses and have a cumulative 3.0 GPA to obtain the certificate. The certificate will be posted to the student's transcript upon completion. The time limit for completion of the certificate is 6 years.

Advising Resources

Location:

Nedderman Hall 425

Email:

cegradadvising@uta.edu

Phone:

817-272-2201

Web:

Advisor Information & Scheduling an Appointment