Minor in Resource and Energy Engineering

About This Program

The Resource and Energy Engineering minor provides students with a strong foundation in the principles and technologies that drive modern energy systems. This program emphasizes sustainable energy systems, petroleum and gas engineering, thermodynamics,and advanced analytical methods for energy applications. Designed for students in engineering and related fields, the REE minor equips graduates with the skills to model and analyze energy systems while addressing global challenges in resource efficiency and sustainability.

Competencies

1. Students will be able to analyze energy resources and systems across the full spectrum (sustainable, conventional, and emerging) to evaluate tradeoffs involving performance, cost, safety, and environmental impact.
2. Students will demonstrate the ability to apply thermodynamics and engineering principles to evaluate and solve real-world energy engineering problems.
3. Students will develop proficiency in modeling, simulation, and data analytics techniques to interpret energy system performance, visualize data, and support decision-making in energy project management.

Admissions Criteria

Admission to a College of Engineering major or permission of Program Director.

Curriculum

Required (12 hours)		
Resource and Energy Engineering (6 hours)		6
REE 3302	SUSTAINABLE ENERGY SYSTEMS	
REE 3303	PETROLEUM & GAS ENGINEERING	
Advanced Math (3 hours)		3
Choose 1 of the following:		
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	
EE 2301	MODELING AND ANALYSIS METHODS IN ELECTRICAL ENGINEERING	
MAE 3360	ENGINEERING ANALYSIS	
Engineering Thermodynamics / Thermal Engineering (3 hours)		3
Choose 1 of the following:		
REE 2301	THERMAL ENGINEERING	
REE 3301	PRINCIPLES OF ENERGY ENGINEERING	
AREN 4309	THERMODYNAMICS FOR ARCHITECTURAL ENGINEERS	
MAE 3309	THERMAL ENGINEERING	
MAE 3310	THERMODYNAMICS I	
Electives (6 hours)		**6**
Choose 2 of the following:		
REE 3304	ENERGY STORAGE TECHNOLOGIES	
REE 3305	SYSTEMS AND CONTROLS FOR ENERGY APPLICATIONS	
REE 3310	DATA ANALYTICS AND VISUALIZATION FOR ENERGY SYSTEMS	
REE 4301	ENERGY SYSTEMS MODELING	
REE 4302	SMART GRID	
REE 4305	ENERGY GOVERNANCE	
REE 4390	SPECIAL TOPICS IN ENERGY ENGINEERING	
Thermo / Thermal		
MAE 3314	HEAT TRANSFER	
MAE 3311	THERMODYNAMICS II	
Nuclear		
NE 3301	INTRODUCTION TO NUCLEAR ENGINEERING	
NE 4302	NUCLEAR REACTOR THEORY AND TECHNOLOGY OF THE NUCLEAR POWER PLANT	
NE 4303	NUCLEAR POWER PLANT ENGINEERING	

NE 4391	SPECIAL TOPICS IN NUCLEAR ENGINEERING
Renewable Energy	
MAE 4382	RESEARCH TRENDS IN RENEWABLE ENERGY TECHNOLOGIES
MAE 4386	WIND & OCEAN CURRENT ENERGY HARVESTING FUNDAMENTALS
Thermal Power Plants	
MAE 4324	POWER PLANT ENGINEERING
MAE 4325	COMBUSTION
Pipeline Fuel Distribution	
CE 3305	BASIC FLUID MECHANICS
MAE 3313	FLUID MECHANICS
AREN 4326	GIS/HYDROLOGIC & HYDRAULIC MODELING
Construction & Project Engineering	
CE 4303	CONSTRUCTION PROJECT ADMINISTRATION
CE 4304	CONSTRUCTION CONTRACTS, SPECIFICATIONS, & ADMINISTRATION
CE 4306	INFRASTRUCTURE ASSET MANAGEMENT
CE 4307	CONSTRUCTION SUSTAINABILITY
Electric Grid Operation	
EE 3302	FUNDAMENTALS OF POWER SYSTEMS
EE 4301	POWER SYSTEMS ANALYSIS AND CONTROL
EE 4308	POWER SYSTEM MODELING AND ANALYSIS
Others	
CE 3300	INTRODUCTION TO SUSTAINABLE ENGINEERING
Total Hours	**18**

Program Completion

To receive a minor in Resource and Energy Engineering (REE), a student must not be receiving his/her major degree in REE and must complete 6 courses (18 credit hours), chosen according to the requirements listed, with a grade of C or better in each course. Any substitutions must be approved in advance by the Program Director.

Advising Resources

First time in college students meet with engineering advisors in the UAEC (UAECengineering@uta.edu). Transfer students are advised prior to New Maverick Orientation by the department. Students, please read all student emails carefully and consult the department advising webpage for additional contact information and answers to common questions.

ELECTRICAL ENGINEERING

Location:

NH 501

Email:

ee_ug_advising@uta.edu

Phone:

817-272-2671

Web:

Schedule Advising (https://outlook.office365.com/owa/calendar/EEAdvising@bookings.uta.edu/bookings/)

RESOURCE AND ENERGY ENGINEERING

Location:

NH 513

Email:

ree_ug_advising@uta.edu

Phone:

817-272-6514

Web:

Schedule Advising (https://outlook.office365.com/book/EEAdvising@bookings.uta.edu/)