

WHAT IS SUSTAINABLE ENERGY?

Sustainable energy is energy that meets the needs of the present generations without compromising the ability of future generations to meet their own needs. Sustainable energy is about finding clean, renewable sources of energy—sources that renew themselves, rather than sources that can be depleted.

Some Examples of Sustainable Energy

- Solar heating and electricity
- Wind energy
- Hydropower
- Geothermal energy
- Biomass energy
- Tidal energy

WHY STUDY SUSTAINABLE ENERGY?

Work on sustainable energy is to improve access to affordable and clean energy for all, and also to help reduce greenhouse gas emissions and the carbon footprint of the energy sector in the region. It involves various stakeholders such as energy industries, cooperation among governments and international policy dialogue. Sustainable energy strategies generally have two dimensions: cleaner methods of producing energy and energy conservation. Though considerable progress is being made in the energy transition from fossil fuels to ecologically sustainable systems, the need of technology and strategy for sustainable energy will ever increase in foreseeable future.

WHY YEDITEPE UNIVERSITY?

- Yeditepe University has been established with 13 faculties and 77 undergraduate programs, including 10 engineering departments. This allows MSc. candidates to study truly multidisciplinary program in sustainable energy.
- The Sustainable Energy Program at Yeditepe University is designed for both fulltime students and professionals working at companies.
- Yeditepe University has many human resources as well as some infrastructure including a solar energy system in the campus with the capacity of 1 MW and a wind turbine system with the capacity of 350 kW.
- The class environment encourages students to work together, learn from each other, and establish network among themselves.
- Students will learn from the experience and opinions of experts in energy sector.

Solar & Wind Energy at Yeditepe University



Solar energy system on the roofs of buildings in Yeditepe University campus with the capacity of 1 MW using 3850 Axitec solar panels with Huawei inverters



Wind energy system at a place in Şile belonging to Yeditepe University with the capacity of 350 kW



Multidisciplinary Graduate Study Program on Sustainable Energy

Yeditepe University

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MSc Program on Sustainable Energy at Yeditepe University

Sustainable Energy (SE) program is one of multidisciplinary programs offered at Graduate School of Natural and Applied Sciences (GSNAS) in Yeditepe University. The program encompasses various disciplines in engineering, science and management such as thermodynamics, fluid mechanics, heat transfer, smart grids, photovoltaic solar system, energy conversion and storage, material science, optimization in energy systems, geophysics, energy management, market and trade, environments. Though truly multidisciplinary from technology to management in the subject of sustainable energy, the program at Yeditepe University may take more technology approaches.

The program is offered in two options: one with thesis and the other without thesis. Course work includes two mandatory department electives, several area electives, and some free electives which are designed to meet the specific needs of students' desired concentration. Two mandatory courses should be taken from Sustainable Energy Program Courses. Area electives can be taken from any course in Graduate School of Natural and Applied Sciences. Free electives give freedom for students to take any courses (including some undergraduate upper class courses) with permission of advisor and SE department.

APPLICATION**Who Can Apply?**

Candidates should have completed a bachelor's degree from one of the following programs: Computer Engineering or Computer Science, Biomedical Engineering, Chemical Engineering, Civil Engineering, Electrical and Electronics Engineering, Environmental Engineering, Food Engineering, Genetics and Bioengineering, Industrial and System Engineering, Materials Science / Nanotechnology, Mechanical Engineering, Physics.

NUMBER OF CREDITS REQUIRED FOR GRADUATION**MSc Program With Thesis**

Dept.	Code	Course Name	CR.	ECTS
SE		Departmental Elective I	3	10
SE		Departmental Elective II	3	10
		Area Elective I	3	10
		Area Elective II	3	10
		Area Elective III	3	10
		Free Elective I	3	10
		Free Elective II	3	10
SE	590	Research Seminar	NC	2
SE	600	MSc Thesis	NC	60
		TOTAL	21	132

MSc Program Without Thesis

Dept.	Code	Course Name	CR.	ECTS
SE		Departmental Elective I	3	10
SE		Departmental Elective II	3	10
		Area Elective I	3	10
		Area Elective II	3	10
		Area Elective III	3	10
		Area Elective IV	3	10
		Free Elective I	3	10
		Free Elective II	3	10
		Free Elective III	3	10
		Free Elective IV	3	10
SE	599	Term Project	NC	10
		TOTAL	30	110

Course Group Description

Course Group	Description
Departmental Elective I	SE 501 or SE 502
Departmental Elective II	Sustainable Energy Program courses under the GSNAS
Area Elective	All GSNAS courses in the elective pool offered by all departments with the approval of the course advisor
Free Elective	Unrestricted, by approval of advisor and SE department.
Extra/Non-degree	Optional non-credit (NC) courses that are not part of the program.

Sustainable Energy Program Courses

Course Code	Course Name
SE 501	Sustainable Energy
SE 502	Energy, Environment and Sustainability
SE 511	Introduction to Thermal Systems and Their Exergy Analysis
SE 512	Application of Heat Transfer Principles to Energy and Environmental Sustainability
SE 521	Energy Markets and Trade
SE 522	Energy Management
SE 523	Frontiers in Sustainable Energy Utilization
SE 532	Optimization Methods for Energy Systems
SE 534	Fundamentals of Nuclear Fission & Fusion Technology
SE 513	Photovoltaic Solar Energy Systems
SE 535	Smart Grids and Sustainable Energy Systems
SE 514	Geothermal Energy
SE 524	The Environmental Dimension
SE 525	Sustainable Energy Management
SE 541	Urban Waste Management
SE 542	Hydropower Engineering
SE 543	Power Plant Technologies
MSN533	Nanomaterials for Energy Conversion and Storage
CE 565	Sustainable Cities
CE 564	Sustainability Management and Legal Framework
CE 570	Mechanics of Water Waves
CE 571	Wind Energy
CHBE 552	Pollution and Control
CHBE 591	Climate Change and Sustainable Development
ARCH 573	Ecology and Sustainability

Please visit fbe.yeditepe.edu.tr for more information.