CIU offers sustainability related full degrees where one of the most notable one is Energy systems engineering.


https://www.ciu.edu.tr/en/programs/undergraduate/energy-systems-engineering

CIU Also offers Sustainability related courses such as ENRE402 (Environmental of energy systems) which provides knowledge on environmental impacts and environmental impact assessment. Some of the other example courses are Wind energy technology (ENRE312), Solar energy technology (ENRE311), Conventional and alternative energy resources (PNGE412), and Energy auditing (ENRE315).

**ENVIRONMENTAL OF ENERGY SYSTEMS**

| Course code | Credit | Theoretical | Practical | Ects |
|---|---|---|---|---|
| ENRE402 | 3 | 3 | 0 | 6 |

The objective of this course is to provide knowledge on environmental impacts and environmental impact assessment. The course content includes history and basics of environmental impact assessment; framework and legal considerations for impact assessment; predictions of impacts on air, soil and water quality, noise level, and the biological environment; methods of impact analysis; public participation in the environmental impact assessment process; environmental impact assessment reports. Examples of previously used environmental impact assessment reports of various engineering projects are studied as cases studies in the lectures. The course uses lecture notes and discussions for the theoretical information and a term project practicing on how to conduct an environmental impact assessment on an imaginary project learning to use the theory in practice.

## WIND ENERGY TECHNOLOGY

| Course code | Credit | Theoretical | Practical | Ects |
|---|---|---|---|---|
| ENRE312 | 3 | 3 | 0 | |

The main objective of the course is to present an overview of wind energy, covering all aspects from operation of a wind turbine to planning a wind farm. The course introduces the facts governing the availability and exploitation of wind power, the reasons for wind energy utilization, and, instructs the students to conduct a wind resource estimation. The fundamental concepts of wind turbine design and operation, types of wind turbines, the economic, technical and environmental factors affecting wind turbines and respective type selection are covered. Planning, installation, commissioning and economic analysis of wind farms are also discussed within the scope of this course.

## SOLAR ENERGY TECHNOLOGY

| Course code | Credit | Theoretical | Practical | Ects |
|---|---|---|---|---|
| ENRE311 | 3 | 3 | 0 | |

The aim of this course is to introduce students the fundamental technology associated with photovoltaic systems including semi-conductor physics, cells and modules. Environmental characteristics such as solar angles, sun path diagrams, solar radiation, thermal radiation and the radiation on tilted surfaces are examined. PV cell types including crystalline solar cells, c-Si, thin film and multi-junction solar cells are discussed. PV system component are introduced. Planning and sizing grid-connected and stand-alone PV systems are also involved in the course. The course aims to teach the students how to design a PV system using simulation software. Students also learns about solar thermal systems, their types and technologies, efficiency and costs.

## CONVENTIONAL AND ALTERNATIVE ENERGY RESOURCES

| Course code | Credit | Theoretical | Practical | Ects |
|---|---|---|---|---|
| PNGE452 | 3 | 3 | 0 | 0 |

The potential problems surrounding the use of fossil fuels, particularly in terms of climate change, contributing to global warming became a real concern for the humanity and the eco-system. Today, there is a growing shift towards environmental awareness and the the current energy-mix is coming under closer scrutiny leading to the rise of cleaner alternative energy sources. While the viability of each can be argued, they all contribute something positive when compared to fossil fuels..Lower emissions, lower fuel prices and the reduction of pollution are all advantages that the use of alternative fuels can often provide. Understanding the basic characteristics as well as pros and cons of both the conventional and alternative sources is a prerequisite for a sustainable future.

## ENERGY AUDITING

| Course code | Credit | Theoretical | Practical | Ects |
|---|---|---|---|---|
| ENRE315 | 3 | 3 | 0 | |

Students learn how to conduct an entire house and a small business audits that effectively targets to reduce the energy waste. The course includes the lighting, appliances, electronics, building envelope, machinery, motors, HVAC systems and water conservation. The students will also learn about alternative energy solutions that can help your client’s transition to wind and solar power. In addition calculation of Energy Use Intensity (EUI) and performing energy analysis are included in the course. The students learn to use the worksheets for calculating the performance assessment studies of energy systems.