Sustainable Energy Technology

MSc Programme

Sustainable Energy Technology includes renewable energy sources (such as solar energy, wind energy, and energy from biomass) and technologies designed to improve energy efficiency. A transition to Sustainable Energy is necessary to meet the growing global demand for energy and to address the threat of climate change caused by greenhouse gas emissions. This transition will require fundamental innovations affecting the world's energy landscape.

Degree	Master of Science
Starts	September
Type	full-time
Credits	120 ECTS, 24 months
Language	English
Application deadline	1 April 2019
Tuition fee	€ 18.750 (non-EU) € 2.083 (EU)
Scholarships	scholarships.tudelft.nl

Engineers in Sustainable Energy Technology have a broad knowledge of the field and can act as the system integrators of the energy transition. They can bring different energy subsystems together into one system. Their engineering skills include renewable energy generation, distribution systems, and storage. In addition they can integrate systems that can manage the fluctuating energy supply and demand. They are also aware of the challenges of the energy market and innovation management.

Programme

The Master's programme in Sustainable Energy Technology offers students in the first quarter an overview of the sustainable energy field, followed by in-depth courses in three out of six profiles. These profiles are:

Wind Energy: Assessing wind resources. Adapting wind turbines to their environment and applying wind turbines in an (offshore) wind energy system.

Solar Energy: Researching and developing photovoltaic devices. Designing and integrating photovoltaic systems in a variety of applications.

Biomass Energy: Understanding the pros and cons of using biomass as an energy source. Designing and analysing biomass-based energy processes.

TU Delft

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First Year (60 EC)			
1st quarter	2nd quarter	3rd quarter	4th quarter
Renewable Energy	Profile course level 1	Profile course level 2	Profile course level 3
Technical Writing	Profile course level 1	Profile course level 2	Profile course level 3
Energy System Optimization	Profile course level 1	Profile course level 2	Profile course level 3
Economics and Regulations of Sustainable Energy Systems	Presentation skills System Integration Project		
Second Year (60 EC)			
1st quarter	2nd quarter	3rd quarter	4th quarter
Electives	Graduation Project		

For more information on all courses, please visit: www.studyguide.tudelft.nl

Power: Integrating renewable energy sources in DC and AC systems and grids. Connecting storage and e-mobility to electricity grid.

Storage: Assessing the potential of various storage technologies like batteries, hydrogen, and their applications.

Economics & Society: Integrating economic and societal aspects in sustainable energy projects, innovation processes, policies, and transitions.

Profile Clusters

In the programme students can choose one out of six Profile Clusters, each consisting of three profiles:

- **Autonomous systems**: Wind Energy/ Solar Energy/ Storage;
- **Solar systems**: Solar Energy/ Power/ Storage;
- **Solar & Economics**: Solar Energy/ Power/ Economics;
- **Wind & Economics**: Wind Energy/ Power/ Economics;
- **Bio/solar Systems**: Biomass/ Solar Energy/ Storage;
- **Biomass & Economics**: Biomass/ Storage/ Economics.

In addition to the Profile Clusters, students work in their first year in groups on a System Integration Project designing a Sustainable Energy System for a specific situation that includes multiple renewable energy sources, energy transport, etc. In the second year students can follow electives or do an internship. They work on their Graduation Project in one or a combination of the profiles of their cluster.

Graduation examples

During the last three quarters of the second year you will join one of the research groups for your thesis project. Some examples of graduation projects are:

- Infield Cable Topology Optimization of Offshore Wind Farms
- A new method for calculating solar irradiance on PV systems facing reflective surfaces
- Sustainability analysis of a new biomass gasification system to produce substitute natural gas based on manure
- Demand Response and Storage Operation in DC Distribution Grids
- The Battolyzer Combined short-and longterm energy storage
- Global Decision-Making For Carbon Capture & Storage

58th

THE World University Rankings 2019

Career perspective

Companies

Eneco, ECN, Apex, Sunraid, XEMC Darwind, Shell, Siemens, Dutch Railways, Ernst & Young

Positions

Product Development Manager, Investment Analyst, Solar Designer, Dynamics & Loads Engineer, Consultant Energy & Sustainability, Market Analyst