

Flexible Energy Technology

The transition from traditional power generation to renewable energy sources requires an increase in the operational flexibility of the network. Renewable energy sources, such as wind or photovoltaic are either cyclical, or they have a fluctuating power level. In order to guarantee a sufficient and reliable electricity supply, this supply needs to be matched to the demand at all time. Energy sources are changing from large centralized sources to local integrated sources with, or without, storage facilities. As a result, the requirements with respect to the operational flexibility of all components in the grid become more demanding. Therefore, new energy network concepts with respect to transmission (AC or DC), conversion and storage need to be further developed.

The minor focusses on generation, transport, distribution and the control of electrical networks for modern grids. Both low voltage and high voltage grids are studied. Everything is approached from the perspective of an electrical engineer.

Programme content

The program consists of a project and four courses: Power System Design, Power System Components, Renewable Energy and Power Conversion & Power Quality.

The first two courses put emphasis on "classic" electrical grids, power generation and calculation methods, while the other two are giving in depth knowledge about renewable systems and the power quality aspects that come with modern electrical grids.

With guest lectures, excursions, theoretical and practical assignments you will get in depth knowledge of the subject. Throughout the semester the students will work in groups on a project in designing (components of) a modern grid.

Course outline

Would you like to know which courses are part of this programme? Take a look at the ECTS course catalogue (please look at 'exchange programmes') for detailed information.

Language

English

Location

All activities, except the excursions, are located in Groningen. Lectures and labs take mostly place in the Energy Academy Europe. Incidentally lectures are scheduled at EnTranCe or other facilities at Zernike, Groningen.

Duration

One semester (30 ECTS credits).

Students who apply for this programme are expected to do the whole programme of 30 ECTS credits.

Course period

Autumn semester (September - February)

Tuition fees

Exchange students

Exchange students (students from partner universities) don't need to pay tuition fees.

Certificate students

Costs for certificate students (students not from partner universities) can be found under hanze.nl/tuitionfees

Admission requirements

Non-hanze (international) students: have a background in engineering and at least have finished courses with the following topics:

- Theory of electrical networks, AC and DC
- Basic theory of electrical machines and transformers
- Basics of electronics

Language requirements

Exchange students need to have a good level of English, comparable to IELTS 6.0, TOEFL 550 or CEFRL B2.

Certificate students need to give proof of English proficiency: IELTS 6.0 or TOEFL 550.

Application (deadline)

Application deadline

1 June (Autumn Semester)

Students from Bangladesh, Pakistan and Nepal need to apply before 1 May

For more information regarding practical matters (application, housing, tuition fees), you can contact the **International Service Desk**.

Notes

The schedule for this programme may vary from week to week. The programme is intensive and students who apply for this programme are expected to be available and present for the whole duration of the programme.