

## Programme

### Qualification awarded

Master of Science

### Length of the programme

16 months

### ECTS credits

90

### Level of qualification

Master

### Mode

Full-time

### Language

English

### School

Institute of Engineering

### Locations

Groningen

## European Master in Renewable Energy

### Profile of the programme

European Master in Renewable Energy comprises 90 ECTS. The content and structure of the EUREC Master is predetermined by the EUREC university consortium and comprises:

1. a core semester of 30 ECTS;
2. a specialisation semester at Hanze UAS or a partner university of 30 ECTS; and
3. a thesis project of 30 ECTS

The programme offers the following specialisations:

- Photovoltaics (taught at the University of Northumbria, UK)
- Wind Energy (taught at the National Technical University of Athens, Greece)
- Solar Thermal Energy (taught at the University of Perpignan, France)
- Grid Integration (taught at the University of Zaragoza, Spain)
- Ocean Energy (taught at the Instituto Superior Tecnico, Portugal)
- Sustainable Fuel Systems for Mobility (taught at Hanze UAS, Netherlands)

### Learning outcomes

The student has the ability to:

- carry out tasks in a project environment
- participate effectively in an international multidisciplinary team
- communicate effectively orally, visually, written at an appropriate level (english) to clients and stakeholders
- communicate the link between technological projects and strategic objectives to the management and other stakeholders
- staying abreast of relevant (inter) national developments, trends, ideas in society, policy and professional practice, translating, developing and introducing these in an innovative manner to improve professional practice
- manage his/her own learning process and sharing expertise with peers and other experts in professional practice
- formulate a problem definition, employ specific research and analysis methods to collect relevant data, conduct research on real-life non routine problem
- translate a practical problem into questions forming a conceptual problem, collect relevant data, translate outcomes of the model into answers to the original problem
- apply appropriate scientific methods and techniques, mathematics, economics and other sciences in energy system design
- communicate scientific findings in both written and oral form in English to the problem owner and other relevant stakeholders
- display a reflective attitude towards the possibilities and limitations of the scientific method used, contribute to the development of the body of knowledge, make meaningful contributions to the energy debate.
- apply knowledge and insights of the principles of a range of renewable energy systems for optimal energy conversion
- design a range of renewable energy systems for optimal energy conversion at a given location and for particular applications
- critically appraise codes of practice and regulatory frameworks relevant to renewable energy systems
- analyse economic and planning aspects of renewable energy systems as well as technological considerations
- statistically assess renewable energy sources at a specific location given appropriate data
- multiple renewable energy technologies and – depending on the specialisation chosen by the student – specialist in at least one renewable energy technology.
- integrating renewable energy sources (wind, solar [photovoltaic, thermal], water, biomass energy) into a flexible, distributed energy system.
- applying the principles of integrated storage techniques.
- analysing and improving the energy efficiency of production chains (implementing innovations).

## Programme

### European Master in Renewable Energy

Core Semester

- RWVM23ETF - Energy Technical Foundation
- RWVM23ETP - Energy Transition Project
- RWVM23BME - BioMass Energy
- RWVM23WHE - Wind and Marine Energy

### credits

30

5

5

5

5

▫ RWVM24SLE - Solar Energy	5
▫ RWVM23ETDS - Energy Transport, Distribution & Storage	5
Specialisation Semester	30
<i>one of following courses</i>	
▫ Specialisation Grid Integration (Zaragoza)	30
▫ RWVM23SGI - Specialisation Grid Integration (Zaragoza)	30
▫ Specialisation Wind Energy (Athens)	30
▫ RWVM23WE - Specialisation Wind Energy (Athens)	30
▫ Specialisation Photovoltaics (Northumbria)	30
▫ RWVM23SPV - Specialisation Photovoltaics (Northumbria)	30
▫ Specialisation Solar Thermal (Perpignan)	30
▫ RWVM23SST - Specialisation Solar Thermal (Perpignan)	30
▫ Specialisation Ocean Energy (Lisbon)	30
▫ RWVM23SOE - Specialisation Ocean Energy (Lisbon)	30
▫ Specialisation Sustainable Fuel Systems	30
▫ RWVM23PAF - Physics and Fuels	5
▫ RWVM23BEC - Bio Energy Conversion	10
▫ RWVM23P2U - Power2Hydrogen	5
▫ RWVM23SFSD - Sustainable Fuel Systems Design	5
▫ RWVM23NBD - New Business Development	5
Thesis Semester	30
▫ RWVM23THP - Thesis Research Project	30

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