



## Renewable Energy Systems

TU Wien | Energiepark Bruck/Leitha



Postgraduate MSc Program  
Master of Science (MSc)  
4 semesters, part-time



## Become AN EXPERT for the most important topic of your generation

The global economic challenge for the next decades will be the question in availability of energy resources. The dependability of supply and acceptable costs will be of vital importance for all of us – in both industrialized and developing countries.

Never before has the demand for employees in this field been so high. You are required to contribute in-depth knowledge, as well as ensure your own ongoing education to stay abreast of technological progress. In the part-time MSc Program “Renewable Energy Systems” participants will receive the very best preparation for the demands of sustainable energy economics. It will provide them with an opportunity to specialist roles in the challenging and rapidly expanding field of renewable energies and energy efficiency systems.

Our graduates will be able to add impetus to the energy rethink currently underway in different positions in business and society:

- It takes project implementation specialists to plan and operate alternative energy production facilities;
- Financing institutions and governmental agencies will face the challenge of having to competently assess such projects more and more frequently;
- Even conventional energy providers see good business opportunities in this field in the future.

In this growing sector, the demand for well-founded know-how has increased. The complementary strengths of the TU Wien and Energiepark Bruck/Leitha partnership make this MSc Program an outstanding opportunity to satisfy the market demand worldwide.

The interdisciplinary part-time MSc Program is offered by TU Wien in cooperation with Energiepark Bruck/Leitha.

### TU WIEN

#### **Technology for People - Developing Scientific Excellence and Enhancing Comprehensive Competence**

The TU Wien – located in the heart of Europe and Vienna - is the largest Austrian institution in research and education within the areas of technology and natural sciences. Even though the beginnings of TU Wien reach back more than 200 years research, teaching, and learning are state-of-the-art.

### ENERGIEPARK BRUCK/LEITHA

#### **Think Globally, Act Locally – more than 20 years of experience in the field of renewable energy and regional development.**

The association Energiepark Bruck/Leitha was established in 1995 and acts as an innovation center for renewable energy, energy efficiency, climate protection and regional development. Since then a wide range of renewable energy projects have been realized. Based on Energiepark's activities the region already reached energy autonomy in the field of power.

### FURTHER PARTNERS

Tailor-made country modules are offered to gain in-depth knowledge on energy markets in selected European countries. Contributions will be made by: AGH-University of Science and Technology (Krakow), Czech Technical University (Prague), Ege University (Izmir), Hamburg University of Technology (Hamburg), University of West Hungary (Sopron), ApE-Agencija za prestrukturiranje energetike (Ljubljana), BGWEA Bulgarian Wind Energy Association (Sofia), and Energetski Institut Hrvoje Pozar (Zagreb).



*Renewable energy and energy-efficiency improvements are the cornerstones in heading toward sustainable energy systems. In recent years, electricity production from renewable energy sources has increased significantly in many countries world-wide. Currently, in the EU renewables have become No. 1 in electricity generation. The next challenge is to switch to fully renewable energy systems. The core objective of this post graduate Master's program is to create experts who will be able to cope with this challenge.*

**Univ.Prof.Dr.techn. Reinhard Haas**

Academic Director

## CURRICULUM



<b>MODULE 1</b> <b>Introduction on Renewable Energy</b>	Non-conventional energy production, energy mix, energy trade, international and European programs and conventions in the sector of renewable energy • Economic aspects of renewable energy, basic economics, basic management, introduction on risk evaluation and risk management • Structural planning • Distribution networks (electric, thermal, gas), feeding-in and control of distribution networks • Practical examples of network interaction
<b>MODULE 2</b> <b>Biomass, Biofuels &amp; Biogas</b>	Principles of energetic use of biomass (physical, chemical), available raw material resources, and ecological resource management • Plant engineering for the energetic use of biomass (electric, thermal, gas, liquid) • Planning, construction, implementation, operation, and maintenance • Economic evaluation, risk, and cost aspects • Practical examples, field trips to existing plants
<b>MODULE 3</b> <b>Solar Energy – Solar Heating &amp; Photovoltaics</b>	Physical principles of the use of solar energy • Potentials • Plant engineering for the use of solar energy (electric, thermal) • Planning, construction, implementation, operation, and maintenance • Economic evaluation, risk, and cost aspects • Practical examples, field trips to existing plants
<b>MODULE 4</b> <b>Geothermal Energy, Wind Power &amp; Small Hydro Power</b>	Physical principles of energy usage • Available resources, potentials • Plant engineering for energy generation (electric, thermal) • Planning, construction, implementation, operation, and maintenance • Economic evaluation, risk, and cost aspects • Practical examples, field trips to existing plants
<b>MODULE 5</b> <b>Efficient Energy Use &amp; Thermal Building Optimization</b>	Physical principles, energy demand of buildings, building services engineering • Optimized building concepts, potentials, opportunities • Energy efficiency in the public sector and in companies • Outsourcing of energy supply services • Economic evaluation, risk, and cost aspects • Analysis of practical examples
<b>MODULE 6</b> <b>General Legal &amp; Economical Frameworks</b>	Legal aspects of renewable energy according to the EU regulatory system • Basics of European Community Law • Austrian national legal basis of renewable energy • Valuation and financing of energy projects • Business plans for energy projects • Financial planning for energy projects • Principles of accounting • Tax law • Investment law / licensing procedure
<b>MODULE 7</b> <b>Integration of Renewable Energy Sources into the Energy System</b>	Fundamentals of electricity markets and CO2 emissions trading • Basics of electricity grids • Future role and responsibilities of transmission grids • Grid integration of renewables and the concept of smart grids • Market integration of renewables and storages • Direct marketing of green electricity • Example for integrating RES-E into the grid • Market overviews on renewable energy in Europe, currently in Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Poland, Romania, Slovakia, and Slovenia.
<b>MODULE 8</b> <b>Management &amp; Soft Skills</b>	Operative organization, team building • Self management, conflict management • Information work and opinion forming, media relations • Civic participation • Presentation, moderation
<b>MODULE 9</b> <b>Perspectives on the Use of Renewable Energy</b>	Developments in world energy consumption • Future technologies • Technology assessment • Environmental protection and environment-related issues
<b>MODULE 10</b> <b>Master's Thesis</b>	A Master's Thesis is written relating to the student's occupational activity and focussing on the feasibility of practical implementation.

Subject to modification

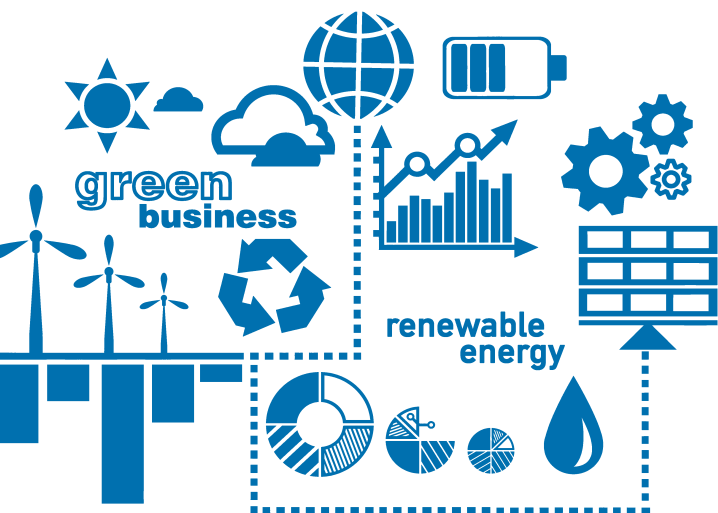


*Long-term, sustainable development would be unthinkable without renewable energy sources and efficient use thereof. Europe is world leader in terms of environmental technology and use of renewable energy, and should strive to defend this position. In this quest, the MSc Program can render a valuable contribution by integrating our neighbours in partnership towards joint European action.*

### Dr. Franz Fischler

President of European Forum Alpbach

Honorary President of Ecosocial Forum Europe and Ecosocial Forum Austria / Former EU Commissioner



### PROGRAM OBJECTIVES/GOALS

With the MSc Program the participants acquire knowledge and competence for

- the design of plants for the use of renewable energy sources from economic and legal point-of-view,
- the operation of plants for the use of renewable energy sources,
- the future assessment of environmental, technical and economic developments of renewable energy systems.

### TARGET GROUP

Individuals within companies, organizations, and authorities who are engaged in planning, operating or evaluation of renewable energy projects or who are involved in financing, promotion, legal licensing of facilities for the use of renewable energy or environmental issues.

### FINAL DEGREE

The MSc Program is concluded by writing a Master's Thesis. Achievement of the final degree **"Master of Science (MSc)"** granted by the TU Wien.

### ADMISSION REQUIREMENTS

Admission requirements are: completion of a subject-related study program in technical and natural sciences, economics or law at a recognized Austrian or foreign post-secondary institution of education and a minimum of 2 years of professional experience. Persons holding an equivalent educational and professional qualification may also be admitted.

### ACCREDITATION

Accredited by **ASIIN** (Accreditation Agency for Study Programs in Engineering, Informatics, Natural Sciences and Mathematics).

### LANGUAGE OF INSTRUCTION

English

### DURATION

The part-time program is presented in modules and takes four semesters.

### COUNTRY MODULES

To provide the participants with in-depth knowledge on energy markets in Europe, tailor-made country modules are an essential part of this MSc Program. Within the scope of these country modules currently these countries are offered alternating: Bulgaria, Croatia, Czech Republic, Germany, Hungary, Poland, Romania, Slovakia, Slovenia, and Turkey. The schedule will include lectures in these countries as well as excursions.

### FACULTY

Internationally recognized scientists and professional experts are members of this top-class faculty, based on their sound interdisciplinary specialized knowledge or on their extensive practical experience in the field of renewable energy sources. As a result, the faculty is diverse and extremely dynamic preparing our graduates to face future challenges.

*I had the pleasure to participate in this unique program in its first matriculation year 2005. From the very beginning this program was highly valuable while also improving permanently due to maturity, most recently honored by the ASIIN accreditation.*



**Dr. Günter Maier, MSc**  
Alumnus

MSc Program

# Renewable Energy Systems

TU Wien | Energiepark Bruck/Leitha

Class 2018–2020



## PROGRAM START

**November 15, 2018**

## DURATION AND TIME SCHEDULE

The part-time program is presented in modules and takes four semesters.

## LOCATIONS

The MSc Program is held on several locations in different countries: Vienna, Bruck/Leitha and at the sites of the country modules of selected European countries: e.g. Bratislava (Slovakia), Bucharest (Romania), Hamburg (Germany), Izmir (Turkey), Krakow (Poland), Ljubljana (Slovenia), Mosonmagyaróvár (Hungary), Prague (Czech Republic), Varna (Bulgaria), and Zagreb (Croatia).

1st SEMESTER		2nd SEMESTER		3rd SEMESTER		4th SEMESTER	
Thu	Nov 15, 2018	<b>Country Module</b>		Thu	Oct 10, 2019	<b>Country Module</b>	
Fri	Nov 16, 2018	Thu	Mar 14, 2019	Fri	Oct 11, 2019	Thu	Mar 12, 2020
Sat	Nov 17, 2018	Fri	Mar 15, 2019	Sat	Oct 12, 2019	Fri	Mar 13, 2020
Sun	Nov 18, 2018	Sat	Mar 16, 2019	Sun	Oct 13, 2019	Sat	Mar 14, 2020
		Sun	Mar 17, 2019			Sun	Mar 15, 2020
Thu	Dec 13, 2018	Thu	Apr 11, 2019	Thu	Nov 07, 2019	<b>Master's Thesis</b>	
Fri	Dec 14, 2018	Fri	Apr 12, 2019	Fri	Nov 08, 2019	<b>Graduation</b>	
Sat	Dec 15, 2018	Sat	Apr 13, 2019	Sat	Nov 09, 2019	November/December	
Sun	Dec 16, 2018	Sun	Apr 14, 2019	Sun	Nov 10, 2019	2020	
Mon	Jan 14, 2019	Thu	May 23, 2019	Mon	Jan 13, 2020		
Tue	Jan 15, 2019	Fri	May 24, 2019	Tue	Jan 14, 2020		
Wed	Jan 16, 2019	Sat	May 25, 2019	Wed	Jan 15, 2020		
Thu	Jan 17, 2019	Sun	May 26, 2019	Thu	Jan 16, 2020		
Fri	Jan 18, 2019	Thu	Jul 04, 2019	Fri	Jan 17, 2020		
Sat	Jan 19, 2019	Fri	Jul 05, 2019	Sat	Jan 18, 2020		
Thu	Feb 07, 2019	Sat	Jul 06, 2019	Thu	Feb 13, 2020		
Fri	Feb 08, 2019	Sun	Jul 07, 2019	Fri	Feb 14, 2020		
Sat	Feb 09, 2019	Mon	Sep 02, 2019	Sat	Feb 15, 2020		
Sun	Feb 10, 2019	Tue	Sep 03, 2019	Sun	Feb 16, 2020		
		Wed	Sep 04, 2019				
		Thu	Sep 05, 2019				
		Fri	Sep 06, 2019				
		Sat	Sep 07, 2019				



Subject to modification

**Renewables make sense ...  
Energize your future!**



## TUITION FEE

The tuition fee for the MSc Program is **EUR 19,500** (VAT-free), excluding travel expenses and cost of room and board.

## INFO SESSIONS

Presentations of the MSc Program will be held in the form of info sessions. During these info sessions the Academic Director, program managers and alumni provide you with in-depth information on the program and look forward to answering your questions.

Mon Feb 19, 2018 6.00 pm (online)  
Tue Mar 20, 2018 6.00 pm (Vienna)  
Mon May 07, 2018 6.00 pm (online)  
Tue Jun 19, 2018 6.00 pm (Vienna)

Please register at [newenergy@tuwien.ac.at](mailto:newenergy@tuwien.ac.at)

## ADMISSION/APPLICATION

### Application Deadline

Sat Jun 30, 2018

### Start Online Application

<https://newenergy.tuwien.ac.at>

After receiving your complete application, an individual admission interview with the Academic Director and the Program Management is planned. Admission interviews will take place after individual appointment.

## FACULTY

DI Dr. **Amela Ajanovic** TU Wien  
Dr. **Horst Brandlmaier**, MBA OeMag – Abwicklungsstelle für Ökostrom AGUniv.  
Univ.Prof.Dr. **Anton Burger** Catholic University Eichstätt-Ingolstadt  
MR Dr. **Gerhard Burian** formerly Federal Ministry of Science, Research and Economy  
Dr. **Benedikt Ennser** Federal Ministry of Science, Research and Economy  
**Tara Esterl**, MSc AIT – Austrian Institute of Technology GmbH  
FH-Prof. DI **Hubert Fechner** MAS, FH Technikum Wien  
ao.Univ.Prof. Dr. **Anton Friedl** TU Wien  
Univ.Prof.Dr.-Ing. **Wolfgang Gawlik** TU Wien  
Univ.Prof. DI Dr. **Reinhard Haas** TU Wien  
Dr. **Julia Hall** TU Wien  
Dr. **Martina Handler** Austrian Society for Environment & Technology  
Ass.Prof. DI Dr. **Michael Harasek** TU Wien  
Mag. Dr. **Michael Hartner** TU Wien  
Priv.-Doz. DI Dr. **Christoph Hauer** Vienna University of Natural Resources and Applied Life Sciences  
Mag. **Edith Hofer**, LL.M. Energy-Control GmbH  
DI **Marcus Hummel** e-think – Zentrum für Energiewirtschaft und Umwelt  
**Johannes Kathan**, MSc AIT – Austrian Institute of Technology GmbH  
Dr. **Marek Kobialka** Vienna Insurance Group  
DI Dr. **Lukas Kranzl** TU Wien  
DI **Andreas Krenn** Energiewerkstatt  
Dr. **Volker Krey** IIASA  
DI **Martin Krill** Profes – Professional Energy Services GmbH  
Mag. **Robert Maier** Raiffeisenlandesbank Niederösterreich Wien AG  
DI **Michael Mandl** tbw research GesmbH  
Dr. **Gábor Milics**, MSc University of West Hungary  
Univ.Prof.Dr. **Martin Mittelbach** Graz University of Technology  
Univ.Prof.Dr. **Nebojsa Nakicenovic** i.R. TU Wien  
Univ.Prof.Dr. **Miklós Neményi** Ph.D, DSc University of West Hungary  
DI Dr. **Mario Ortner** ic-Projekte Projektentwicklung & Management GmbH  
DI Dr. **Christian Panzer** CPE-Thinktank e.U.  
Univ.Prof.Dr. **Bernhard Pelikan** Vienna University of Natural Resources and Applied Life Sciences  
DI Dr. **Reinhard Rauch** Karlsruher Institut für Technologie (KIT)  
DI **Georg W. Reinberg** Architekturbüro Reinberg ZT GmbH  
DI Dr. **Gustav Resch** TU Wien  
Dr. **Rusbeh Rezanja** Wien Energie GmbH  
Dr. **Fabian Schipfer** TU Wien  
Dr. **Friedrich Stastny** Freelancer  
Ass.Prof. DI Dr. **Karin Stieldorf** TU Wien  
Mag. **Hannes Taubinger** Anton Kittel Mühle Plaika GmbH  
Prof.Dr. **Páll Valdimarsson** Pvald ehf  
Dipl.-Päd.Ing. **Werner Weiss** AEE INTEC  
DI **Lukas Weißensteiner** RP Global Austria  
Dr.(ETH) **Arthur Wellinger** Triple E&M

This represents a selection of the faculty of class 2017–2019.

## PERSONAL ADVISORY SERVICE & APPLICATION

**Energiepark Bruck/Leitha**  
**Christina Drochter**

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**MMag. Elisabeth Haslinger**

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## STUDENT PROFILE



**44**  
Nationalities

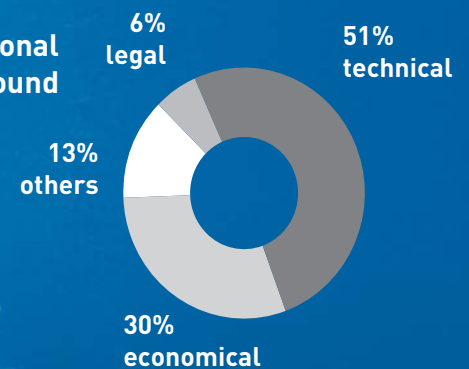


**265**  
Students & Alumni

**65%**  
International students

**37** years  
Average age

Educational & professional  
background



**Renewables make sense ...  
Energize your future!**

Best University  
of Technology  
in Austria –  
TU Wien

Experienced  
international  
renewable  
energy experts

Austria  
as center of  
renewable energy  
in the EU

International  
program with  
unique worldwide  
network

Practical and  
technology-  
oriented  
program



*This master program is an outstanding opportunity to become part of an international, enthusiastic and extraordinary group of people, sharing the same interests for such a challenging topic. The experiences of this course enable us to contribute to the common goal of securing the supply of green energy at affordable prices in order to maintain our standards of living and reducing dependence on fossil fuels at the same time.*

**Mag. Anna Katharina Gollob, MSc**  
Alumna

# *Study in the most liveable city of the world: Vienna*

(Source: 2016 Quality of Living Ranking, Mercer)



## **Energiepark Bruck/Leitha**

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