



## **Program Description**

### **1. Master of Science in Renewable Energies**

The Master of Science programme in “Renewable Energy” is offered in cooperation with the Polytechnic University of Tirana and aims to prepare specialists capable of analyzing, designing and managing sustainable energy systems. The programme focuses on the use and integration of clean energy technologies, with relevance to agriculture, the environment, the agri-food industry and sustainable rural development.

The programme is based on an interdisciplinary approach, combining knowledge from engineering, energy systems, agriculture, natural sciences, environmental studies and economics. Its content reflects the current needs of the energy transition, the objectives of sustainable development, and the orientations of European policies in the fields of climate, energy and resource efficiency.

Through this study programme, students develop competencies in assessing the potential of renewable energy sources, applying clean energy technologies, managing energy projects and designing practical solutions for the rational use of energy in agricultural, environmental and industrial contexts.

### **2. Why a Master’s Programme in “Renewable Energy”?**

- To prepare specialists with advanced knowledge in production, integration and management of energy from renewable sources.
- To train professionals capable of analyzing and evaluating the technical, economic and environmental aspects of different energy sources.
- To prepare specialists able to assess the economic and environmental efficiency of renewable energy technologies.
- To respond to labour market needs for experts in the fields of energy transition, energy efficiency and sustainable development.
- To develop students’ advanced research competencies, required for further studies, scientific projects and applied solutions in the energy sector.
- To support the wider use of clean technologies in sectors such as agriculture, the environment, the agri-food industry and rural development.

### **3. Competencies of Graduates**

Graduates of the Master of Science programme in “**Renewable Energy**” acquire competencies to:

- Assess the potential for energy production from renewable sources, such as bioenergy, solar energy, wind energy, geothermal energy and hydropower, and propose the most efficient ways of using them.
- Design, analyze and optimize renewable energy systems, including photovoltaic systems, solar thermal collectors, wind energy systems, biomass treatment technologies for bioenergy production, as well as grid-connected and off-grid hybrid systems.
- Implement strategies for integrating renewable energy sources into the energy system, considering energy storage technologies, distribution, grid stability and energy demand management.
- Conduct scientific and applied research to address current and emerging challenges in production, integration and use of energy from renewable sources.
- Analyze and assess the economic, environmental and regulatory aspects of energy systems, including energy policies, technology costs, environmental impacts and long-term sustainability.
- Use analytical tools and assessment models, such as Life Cycle Assessment LCA, energy planning models such as LEAP, and other instruments for the techno-economic and environmental analysis of energy projects.

#### **4. Potential Employers and/or Career Pathways**

Graduates of the Master of Science programme in “Renewable Energy” may be employed in:

- Energy production, transmission and distribution companies, including public and private operators that develop or manage energy systems.
- Companies operating in the renewable energy sector, including solar energy, wind energy, bioenergy, hydropower and hybrid energy systems.
- Companies involved in the design, installation and maintenance of renewable energy systems, including photovoltaic systems, solar thermal collectors, biomass systems and energy storage solutions.
- Supporting activities in the energy sector, such as trade in energy equipment, technical services, plant maintenance, energy auditing and techno-economic consultancy.
- Public institutions and regulatory agencies dealing with energy policy, energy efficiency, climate, the environment and sustainable development.
- Research institutions, universities and study centres, where graduates may be involved in scientific research, development projects and energy system analysis.
- Non-governmental organisations and international organisations working in the fields of clean energy, rural development, environmental protection, climate and sustainability.

- The agri-food and rural sectors, where graduates may contribute to the use of renewable energy, energy efficiency, energy valorization of biomass and the sustainable management of resources.

## **5. Alumni and their experiences**

- Anduel Çekrezi - Founder & CEO of AI Energy X, working in energy trading, renewable energy and innovative energy systems in the Western Balkans.
- Sidorela Kaci - Expert in a Solar energy production company
- Evadiola Gjata - Renewable Energy and E-Mobility Engineer with over 10 years of experience in solar energy, electric vehicle infrastructure and climate solutions, self-employed
- Albert Vrapı - Sector head of State Energy distribution company
- Donald Muçaj - Institute of Geo sciences

## **6. The interdisciplinary nature of the program (this is pretty much the same for each, but may vary a little bit)**

- ECTS in Natural Science      30%
- ECTS in Technical Science    45%
- ECTS in Social Science        25%

## **7. Which Bachelor's Program is suggested**

- Bachelors in AUT: Agricultural Sciences and Food Safety, Environmental and Water Engineering, Information Technology in Agriculture and Environment, Landscape Planning and Architecture, Economics, Business Management, Forest Engineering
- Bachelor's degree in Natural Sciences
- Bachelor's in engineering sciences
- With supplementary modules, the programme may also be attended by students from other Bachelor's study programmes.