

## Renewable Energies

### Profile and Objective

The lab deals with teaching and practical education of students in the fields of renewable energy and energy management. The prospective engineers should be empowered to review, consolidate and extend their basic knowledge gained in various lectures on these subjects through practical applications. From experiments on fuel cell technology, photovoltaics to wind energy, the laboratory offers a wide range of practical applications in power generation and their conversion in a wide variety of systems.

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### + Research Subjects

Energy production, transformation and evaluation through experiments on the topics:

- Wind energy
- Fuel cell technology
- Photovoltaics
- Heat pump
- Geothermal energy and heat transfer
- Greenhouse effect
- Thermography

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### + Equipment

- Stirling engine (incl. educational software) – company 3B-Scyentific
- Fuel Cell Case (company Maphy)
- Fuel Cell Trainer and professional demo (incl. educational software) - company Heliocentris
- Heat pump (incl. educational software) – company 3B-Scyentific
- Wind Energy – Experimental System – company IKS Photovoltaik
- Photovoltaic stand-alone and grid-parallel technology (incl. Wind Power Panel) – company Hera
- Greenhouse effect – company 3B-Scyentific
- Heat exchanger with supply unit (incl. Double tube, plate and tube bundle and double jacket heat exchanger as well as educational software) – company Gunt
- Thermal imager – company Flir
- Various metrological devices (multimeters, energy and power meters, etc.) and

additional electrotechnical accessories

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### **+ Application of the Laboratory in Lectures and Workshops**

- Laboratory for renewable energies (Master study programme)
  - Energy industry (Master study programme)
  - Theses
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