Technische Hochschule Ingolstadt
Institute of new Energy Systems

Basic Data for internships and final year projects of students from international universities

Organisation name: Technische Hochschule Ingolstadt	**Contact:** internationalstudents_ines@thi.de
Department: Institute of new Energy Systems (InES)	**Website:** www.thi.de/go/energy
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- Provisional start date: **Any**
- Length of placement: From **minimum 16 weeks up to 12 months**
- Application method preferred: **per E-Mail including the following documents (in English):**
    - Covering letter (please indicate your earliest starting date)
    - CV
    - Certificates (of your academic and professional career, including e.g. transcript of results so far, Bachelor's & Master's Degree, language and IT certificates, work/internship certificates etc.)
    - 2 letters of reference (from your academic environment)
    - A short description of the tasks that you want to carry out during your internship
    - If applicable: Official confirmation letter from the home institution about the mandatory internship

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Institute of new Energy Systems

Basic description for internships and final year projects of students from international universities

Placement Job Title:	Internship Renewable Energy Research
Organisation:	Technische Hochschule Ingolstadt, Germany
Department:	Institute of new Energy Systems (InES)

Our main business activity

The *Institute of new Energy Systems* at Technische Hochschule Ingolstadt is a platform for applied research in the field of all renewable energy sources. In co-operation with renewable energy technology companies, applied research is currently carried out in the following fields of technology:

- Heating and cooling system technology (solar process heat, renewable district heating,…)
- Solar thermal systems (flat plate collector optimisation, in-situ-collector testing, absorber development,…)
- Innovative building technologies (optimal building control, CHP systems, heat pumps,…)
- Bioenergy (biogas upgrading technology, technical and economic optimisation of biogas plants, biogas grids,…)
- Renewable energy systems for energy access in the developing world

Next to adequate engineering software equipment, several laboratory facilities for component and system testing are available for the experimental support of the research work, such as a thermal system test stand, a solar simulator and a combined heat and power generation installation.

Main duties and responsibilities

Students will get the opportunity to actively contribute to our research projects within the field of renewable energy technology and thus experience how applied research is carried out in cooperation with renewable energy technology companies.

The internship will include (exemplary):

- Simulation work using specific simulation software,
- Laboratory work on the institute´s indoor and outdoor test stands including data processing and evaluation,
- Experimental work on the institute´s field test objects including data processing and evaluation,
- Literature research, evaluation and preparation of technical documentation.

Critical discussions of research methods and results with our researchers form an important part of the research-oriented internship.

Personal attributes, experience, knowledge and skills required	
Essential	**Desirable**

• Dependability and responsibility
• Interest in renewable energy technology
• Advanced office software skills
• Basic engineering knowledge in:
  ○ Heat transfer and thermodynamics
  ○ Mechanics
	• Possessing a positive attitude / take initiative
	• Basic programming and Matlab skills

Course-related experience that the post holder can expect to gain during the period of the placement
• Understand how renewable energy can be harnessed in domestic and industrial environments as well as local energy generation scenarios • Be able to undertake the simulation and modelling tasks that are essential for credible energy system design and analysis • Recognise the fundamentals of experimental research work in laboratory environment and in-situ • Be able to work creatively within a multi-national team

Computer hardware/software used:	
Simulation and laboratory software: • Matlab/ Simulink+CARNOT toolbox/ Simscape • ANSYS • Polysun • Labview **CAD software:** • CATIA	**Office software:** • Microsoft Word, Excel, PowerPoint • Microsoft Visio • Inkscape • OpenOffice