



# Internships in Brazil with AWARE

With RISE scholarships (DAAD)



*1) About Southern Brazil*

*2) Curitiba and the Lactec Institutes*

*3) Funding through RISE scholarships*



- Language: Portuguese
- Strong economic growth
- Lowest crime rate
- Automotive industry center of Brazil: Audi/VW, BMW, Mercedes, Renault, Volvo, etc.)
- 2nd biggest automotive production location outside Germany



# Curitiba and the Lactec Institutes

### Curitiba:

- Capital of Paraná State
- Inhabitants: 1,7 Mio
- 90km distance to the eastern coast
- One of Brazil's most modern cities and center for (German) automotive production (Audi, VW, Renault, Volvo, etc.)

### University (UFPR):

- 50.000 students
- All disciplines (Mechanical / Electrical / Production Engineering, Business Studies)

### Internship:

Research Institute Lactec



### About Lactec:

- Institute for Applied Research (analog Fraunhofer Institut)
- Enrollment at UFPR (university)
- More information:  
<http://www.institutoslactec.org.br/en/>
- 8 open places for internship in 2018:



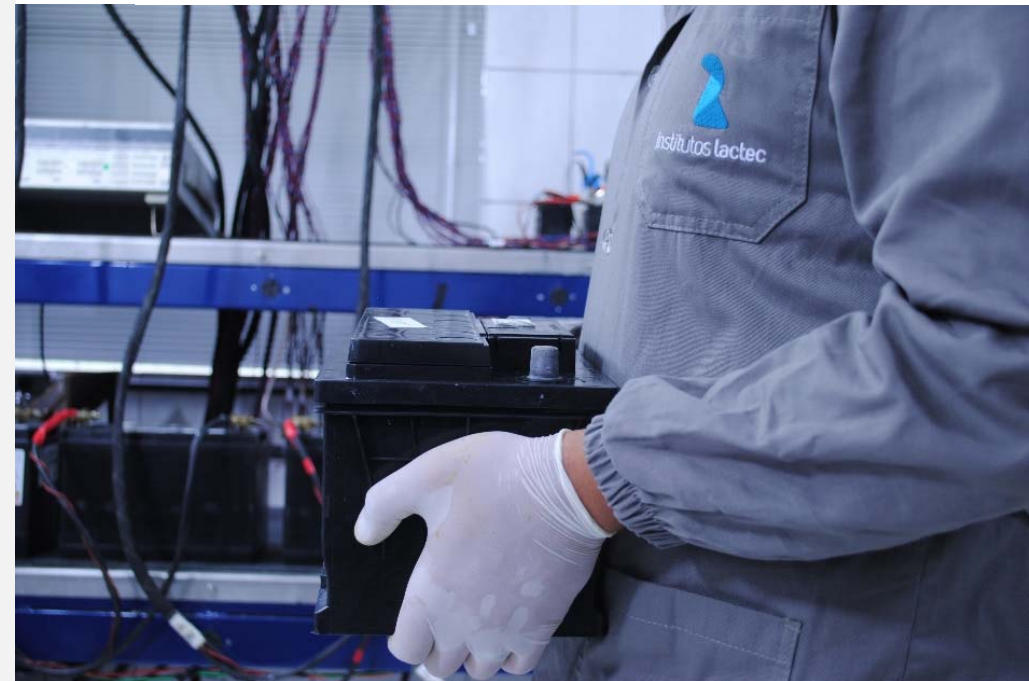


# Funding through RISE scholarships

- **Scholarship:**
  - 1.550€ (trip) +
  - 1.025€ (monthly, in total 3 months) +
  - Health- / accident- / liability insurance
- **Who** can apply: Bachelor students  
(all engineering programmes, from 2nd semester on)
- **Deadline** for application: 1/11-15/12/2017  
(internship during summer break, earliest start: 01/06/2017)
- (Online) **Application** procedure:
  1. First register at: <https://www.daad.de/rise/de/rise-weltweit/>
  2. Search for internship offers at Lactec
  3. Application: CV / letter of motivation / transcript of records / list of relevant subjects / English certificate B2-level / recommendation letter of THI-professor

Still questions? Ask us: [Anne-Sophie.Lohmeier@thi.de](mailto:Anne-Sophie.Lohmeier@thi.de)

DAAD RISE  WORLDWIDE





## Search for internship offers at Lactec

DAAD-scholarship „RISE“ for interships at Lactec Institutes



Search for intership offers at Lactec in DAAD-Portal (<https://www.daad.de/app-rise-ww/rise-ww/index>)

- After your registration, click: [Praktikumsangebote ansehen:](#)

Bewerber - Angebote Ihre gemerkten Projektangebote ▾ Logg

« Zurück zur Übersicht

Subject area

Country

Search term

8 offers for 2018:



Ref. Code	Projekttitel	Land
AU-BI-3312	Nanomedicine Based Drug Delivery Vehicles for Brain Tumours	AUSTRALIA
AU-BI-3418	Development of Novel Biomarkers for Alcohol-related Tissue Injury	AUSTRALIA



## ***Application procedure***

*DAAD-scholarship „RISE“ for internships at Lactec Institutes*

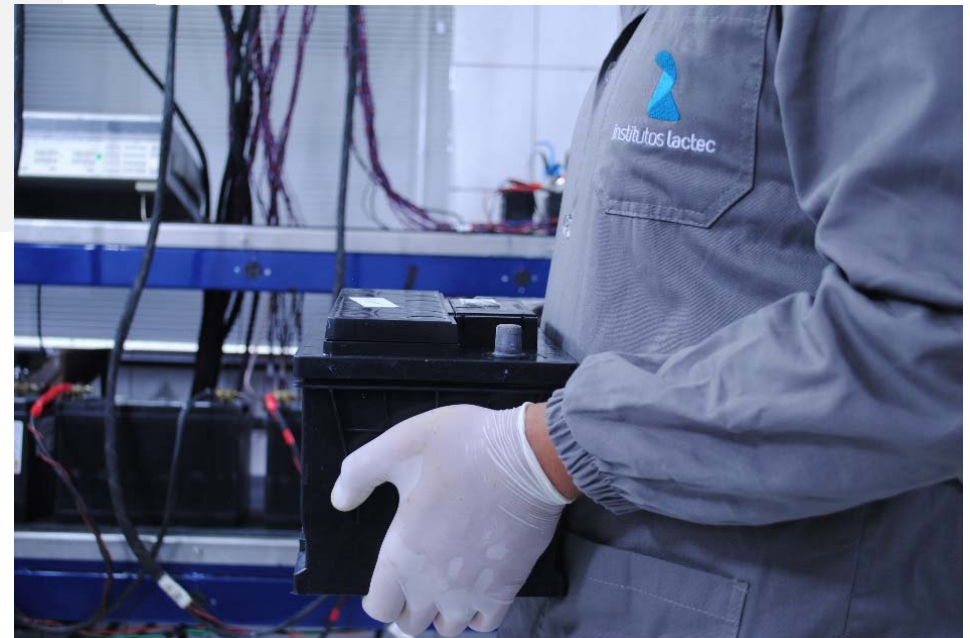


Uploading the following documents into the portal:

- CV
- Letter of motivation
- Transcript of records
- List of relevant subjects
- English certificate B2-level
- Recommendation letter of THI-professor

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**DAAD RISE**  **WORLDWIDE**





**Open internship places for 2018**



## Project I

### Solar Energy on Water Reservoir



BR-EN	Description	Requirements
3597	<ul style="list-style-type: none"><li>• Help to design structures and parts.</li><li>• Help simulate structure strength resistance.</li></ul>	<ul style="list-style-type: none"><li>• Experience with CAD software</li><li>• Experience with Numeric Simulation for structure</li></ul>

**Summary:** Typical environmental problems associated with the implementation of solar photovoltaic systems for the generation of peak electric energy, on a larger scale, such as on the order of 1 MWp, are in the area it covers, usually greater than 3 km<sup>2</sup>. This negative aspect can be minimized by the use of water reservoirs or water dams, large dams of hydroelectric plants and small hydroelectric plants. Land system can be impacted by both, land and water systems.

The first one, by the required earthwork, extensive green area suppression and new transmission network. The second, despite the fact that a flat surface is already used and without the need for new civil procedures for its installation and of being able to take advantage of the power transmission networks of the hydroelectric plant itself, may cause changes in the reservoir environment.

Due to these facts, it was proposed the present research project whose main objective was to investigate, parametrize and tropicalize an electric power generation system based on floating silicon photovoltaic cell panels installed in the reservoir of the Santa Clara UHE dam, considering peak power, durability, aspects and environmental impacts. Also to be considered a dynamic structured for a solar tracking system to improve design and reduce the shadow impact issue.



## Project II & III

New techniques for efficiency improvement for gas thermal power plants: Acoustic Emission



BR-EN	Description	Requirements
3596	<ul style="list-style-type: none"> <li>Development of a PCB project design, prototyping and testing.</li> <li>Office/Lab work in a Research &amp; Development environment.</li> </ul>	<ul style="list-style-type: none"> <li>3rd Semester of Engineering in the field of Electronic, Electric, Mechatronic or Control &amp; Automation.</li> <li>Trainee should have previous knowledge of PCB Design or had some experience in automation with Labview or PLC programming.</li> </ul>
3599	<ul style="list-style-type: none"> <li>Develop of Labview or PLC programming.</li> <li>Office/Lab work in a Research &amp; Development environment.</li> </ul>	<ul style="list-style-type: none"> <li>3rd Semester of Engineering in the field of Electronic, Electric, Mechatronic or Control &amp; Automation.</li> <li>Trainee should have previous knowledge of PCB Design or had some experience in automation with Labview or PLC programming.</li> </ul>

**Project objective:** Evaluation of structural safety of production and transport system steam based on the monitoring of operating parameters.

**How:** Development and implementation and instrumentation (hardware) and program (software) for the identification of correlations between Phenomena and signs to support failures identification.





## Project IV

### New techniques for efficiency improvement for gas thermal power plants: Combustion Dynamics



BR-EN	Description	Requirements
3598	<ul style="list-style-type: none"> <li>• Study of phenomena resulting from combustion in gas turbines;</li> <li>• Application of Computational Intelligence techniques in the identification of models in a black box of turbine subsystems;</li> <li>• Application of mono and multi objective to optimize algorithms;</li> <li>• Writing of technical reports and articles for publication in congresses and journals.</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge in mechanical systems, gas turbines, combustion;</li> <li>• Intermediate knowledge in programming (preferably MATLAB);</li> <li>• Basic knowledge in Computational Intelligence.</li> </ul>

**Project objective:** Develop analytical methodology and selection of operating point relating Combustion Dynamics and emissions of legislated gases.

**How:** Pulsation Monitoring of the combustion chamber avoiding excessive vibration;  
 Characterization of the direct relationship between the combustion  $\text{NO}_x$  vs. Efficiency;  
 Measurement uncertainties' chain analysis;  
 Computer system development.





## Project V

### CO<sub>2</sub> and NO<sub>x</sub> removal from flue gas via microalgae cultivation



BR-EN	Description	Requirements
3603	<ul style="list-style-type: none"><li>Develop systems of polluting removal and greenhouse effect gas mitigation of thermoelectric plants;</li><li>Study of technologies and systems;</li><li>Evaluate physicochemical samples; assisting on the elaboration of projects and reports; control of the material and equipment used in samples; samples analysis report.</li></ul>	<ul style="list-style-type: none"><li>Basic Knowledge of Cultivation and Characterization of Microorganisms</li></ul>

**Project objective:** Quantify the efficiency of microalgae-based carbon and nitrogen sequestration at industrial scale and determine under which conditions this capture and sequestration by microalgae photosynthesis is economically attractive when compared with other means.

**How:** Selection and adaptation of microalgae to growth in natural gas-fired flue gas;  
Lab-scale and Pilot experiments;  
Evaluation of microalgae-based bioproducts.



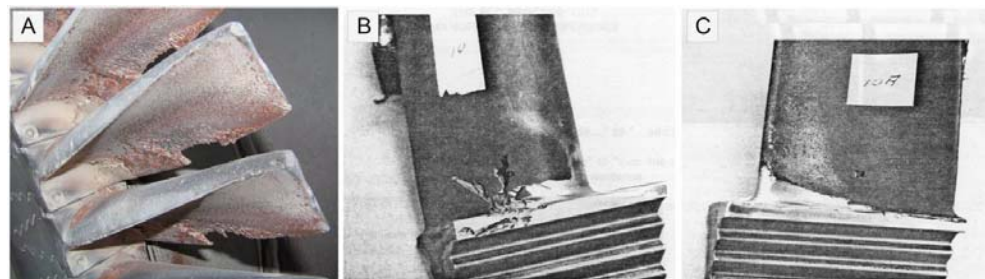


## Project VI

Exploratory study of application of coatings on turbine blades of FCC, by thermal spray and surface treatments to increase the resistance to erosion and corrosion



BR-EN	Description	Requirements
3600	<ul style="list-style-type: none"><li>• Characterization of aluminum coatings deposited by Thermal Spray Process;</li><li>• Evaluation of mechanical properties of aluminum coatings;</li><li>• Evaluation corrosion behavior of aluminum coatings.</li></ul>	<p>Knowledge in</p> <ul style="list-style-type: none"><li>• welding process;</li><li>• coatings;</li><li>• thermal spray process;</li><li>• materials characterization;</li><li>• Metallography.</li></ul>



**Summary:** We are working to understand, why these blades have premature degradation and how to improve their lives and operation time.

To do this we study the degradation process, characterizing old blades and test new coatings deposited by thermal spray process.





## Project VII & VIII

### Development of National Equipment for Small Boiler Piping Inspection



BR-EN	Description	Requirements
3601	<ul style="list-style-type: none"> <li>Development of 3D mechanical design (SolidWorks, Inventor, Catia).</li> <li>Development of numerical computational simulation (MATLAB, ANSYS, COMSOL, STAR-CCM+).</li> <li>Office/Lab work in a Research &amp; Development environment.</li> </ul>	<ul style="list-style-type: none"> <li>3rd Semester of Engineering in the field of Mechanical, Mechatronic or Control &amp; Automation</li> <li>Trainee should have previous knowledge of mechanical design and numerical computational simulation</li> <li>Intermediate knowledge in programming (preferably MATLAB)</li> </ul>
3602	<ul style="list-style-type: none"> <li>Development of a PCB project design, prototyping and testing.</li> <li>Develop of Labview or PLC programming.</li> <li>Programming in C language.</li> <li>Development of algorithms in Matlab.</li> <li>Office/Lab work in a Research &amp; Development environment.</li> </ul>	<ul style="list-style-type: none"> <li>3rd Semester of Engineering in the field of Electronic, Electric, Mechatronic or Control &amp; Automation.</li> <li>Trainee should have previous knowledge of PCB Design or had some experience in automation with Labview or PLC programming.</li> <li>Knowledge in design and analysis of electrical circuits applied to instrumentation.</li> </ul>

**Project objective:** Development of a hybrid equipment capable of performing the visual analysis in the inner part of small diameter pipes, besides non-destructive testing for pipe characterization and thickness measurement under severe conditions.

**How:** Through the development of a system of mechanical movement and vertical launch of inspector module controlled remotely, for application in places of restricted access and severe environmental conditions, like for example, elevated temperatures, presence of steam and water



# Still questions?

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