



## Assignment internship background student Chemical Engineering

### Living Lab Biobased Brazil

The Living Lab Biobased Brazil is a transnational Living Lab in the field of Biobased Economy, created in 2014 by a consortium of Dutch Universities of Applied Sciences in collaboration with several Brazilian universities. The Living Lab helps students with internships and graduation projects in Brazil with the focus on Biobased Economy. We also help students finding accommodation, and offer buddy support, Portuguese classes, a bye-bye meeting and an introduction weekend in Brazil

In return the Living Lab expects you contribute to the Living Lab blog. You have to blog about your personal and internship experiences during your stay in Brazil. We also expect you to participate in the mini symposium at the end of each semester.

These events help you to increase your personal network and is focused on your personal development! For more information please visit <https://www.biobasedbrazil.org/student/brazil/>.

### Company/University information:

Universidade Federal de Viçosa (UFV). The Federal University of Viçosa (UFV; Portuguese: Universidade Federal de Viçosa, spelled with a c-cedilla) is a federal university in the city of Viçosa, state of Minas Gerais, Brazil. In 2010 enrollment was over 15,000 students. Viçosa is a technical university and offers courses in engineering, agronomy, veterinary medicine, animal husbandry, and other areas related to science.

UFV remains among the **best universities in the world** in agricultural and forestry sciences (QS World University Rankings).

<https://www.youtube.com/watch?v=INckSwCllr0&t=64s> - Overview of research and graduate studies at Universidade Federal de Viçosa (Viçosa Federal University), Brazil. English.

### Research Project:

Simulation and economic evaluation of levulinic acid production from biomass.

### General background:

Chemical Process, simulation.

### Goal of internship:

Training Aspen Plus

### The Project involves:

The process simulation and modeling will be executed while using the ASPEN+ computer tools. Both the biomass conversion step and the production levulinic acid process from biomass simulated using Aspen Plus TM process engineering software. The simulation done in Aspen will be validated using experimental data and also results published in the open literature. Once the simulation is validated, several plant configurations of the reaction and separation sections will be evaluated.



**Deliverable:**

Economical report, ASPEN+ models, plant configurations (PFD).

The design of the two processes will result in estimates of the characteristic dimensions of the various unit operations involved, consumption of utilities and use of auxiliary chemicals. Aspen Plus Economic Analyzer will be used to perform the economic analysis in Brazilian and European prices. A sensitivity analysis will be performed in which the influence of variation of process conditions, raw material composition and prices on the economic performance will be studied.

**Starting date**

February 2019.

The intern will be part of a research team lead by the adviser and supervised by Professor Fábio de Ávila Rodrigues.

**Desirable skills/qualities of the student**

- Good knowledge of the English (and preferably Portuguese) language is required.

**Information of the company:**

Contact person concerning this assignment	: Erik Lammers
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**Interested?**

Please send your CV and motivation letter to Erik Lammers (Coordinator Living Lab Biobased Brazil). For further questions you can contact: +316 101 83 092 or [ekf.lammers@avans.nl](mailto:ekf.lammers@avans.nl).

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