

Assignment internship background student Environmental 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:

Removal of bioactive substances during wastewater treatment

General background:

There is a trend in Brazil to favor anaerobic treatment processes for treatment of domestic wastewaters. However, preliminary surveys based on treatment plant monitoring have shown that anaerobically treated wastewaters have lower efficiencies, with regard to standard physicochemical characteristics as well as toxicity. This study is therefore being undertaken to determine if anaerobic treatment is inherently less capable of removing toxicity than aerobic treatment, or if the differences observed in the field arise from poorer operational control of anaerobic systems. The project involves control and monitoring of bench-scale anaerobic and aerobic reactors for optimization of COD removal, by varying hydraulic retention time and sludge age. Comparisons will be made of results of physical and chemical parameters (BOD, COD, TOC, SST, pH, etc.), acute and chronic toxicity assays (fish, *Daphnia*, *Ceriodaphnia*), estrogenicity assays (YES, fish) and sludge bioadsorption and toxicity assays under anaerobic and aerobic conditions. The results will be used to suggest improvements in field operating conditions to minimize



discharge of biologically active wastewaters to receiving waters. The intern will be part of a research team lead by the adviser and supervised by a doctoral candidate in the Environmental and Sanitary Engineering research area of the Civil Engineering Graduate Program.

Goal of internship:

Learn how to perform and interpret results of physical, chemical and ecotoxicological analyses of domestic sewage and operate and monitor bench-scale biological reactors.

Activities:

The Project involves:

Sewage sample collection and characterization – physical, chemical and ecotoxicological analyses

Operation of bench-scale biological reactors under different conditions – hydraulic retention time, sludge age, etc.

Organization and statistical analysis of data

Starting date

September 2019.

The intern will be part of a research team lead by the adviser and supervised by masters/doctoral students – still to be defined.

Desirable skills/qualities of the student

- Good knowledge of English (and Portuguese, if possible) is required.

Information of the company:

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Interested?

Please send your CV and motivation letter to Guilherme de Souza Reis

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