Internship in Chemical Engineering

Supervisor	Profª Drª Janice da Silva Profª Drª Suse Botelho da Silva Profª Drª Bethania Brochier Prof Dr Everton Hansen Prof Dr Paulo Ricardo Santos da Silva
Project	**Ozonation Technology in Chemical Engineering: Advanced technologies in the treatment of tannery wastewater (ozonation and adsorption)**
Description	Leather processing consists of a sequence of physical-chemical and mechanical operations applied to raw hides, using water and organic and inorganic chemicals. These chemicals are applied in an aqueous medium, requiring from 12 to 37 m^3 of water per ton of leather, and around 90% of this volume is discharged as wastewater. The literature highlights the low efficiencies for removal of recalcitrant compounds as a vulnerability of the conventional treatment of tannery wastewater, and advanced treatment technologies have been studied to increase the efficiency of this process. Among the technologies adopted for wastewater treatment are advanced oxidative processes, which are versatile and capable of degrading refractory pollutants, and adsorption, which has a low initial investment and high efficiency compared to conventional processes. Thus, this research aims to evaluate the application of advanced technologies (ozonation and adsorption) in tannery wastewater to remove refractory compounds such as dyes, oils and tannins, improving the quality of treated wastewater and contributing to sustainability of the leather industry.
Tasks	- Degradation tests of tannins, dyes, and fatliquoring oils using ozonation. - Adsorption tests in tannery wastewater using solid wastes from the leather industry and agro-industrial wastes. - Analysis of color, COD, and BOD (among others) in water and wastewater. - Study of process parameters to increase wastewater treatment efficiency.
Requirements	Students of chemical engineering, food engineering, biology, agronomy, environmental engineering and other related areas. General knowledge of chemistry laboratory
Language Skills	English (Portuguese would be nice, but is not necessary).
Duration	4-6 months
Possible Beginning	February/March or July/August.
Credits	According to agreement
Payment	None