

Faculty of Engineering

ASPIRE Summer Research Program 2026-2027

Project Title: Evaluation of Biomass Oxidation Technologies Through Process Simulation

Supervisor(s): Marzieh Namdari

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Objective

This project aims to use process simulation to evaluate biomass oxidation technologies through a holistic comparison of their technical performance, efficiency, and limitations.

Project Details

Biomass is a renewable feedstock for the production of chemicals, fuels, and energy. Oxidation processes play a key role in converting biomass into valuable products. In this project, the student will investigate biomass oxidation reaction pathways and process technologies, develop process simulation models using a software such as Aspen Plus, and evaluate process performance in terms of efficiency, product yields, energy consumption, and emissions. The project will identify key factors influencing biomass conversion and provide a holistic comparison of different oxidation approaches, highlighting their advantages and limitations for sustainable applications. The student will gain valuable experience in process simulation, process analysis, and the design of sustainable chemical processes.

Project Timeline

[illegible]

Prerequisites

Chemical engineering student

Prerequisite units: CHE2164, CHE2162, CHE2163, CHE3164, CHE3166, Outline any prerequisite units,

Student Placement Agreement

A student placement agreement must be signed by the project supervisor and the student prior to commencement of the ASPIRE program.

[LV0554-72741 ASPIRE Program Co-Curricular-Student-Placement-Agreement-Short-term.docx](#)

Additional Information

NA

Submit as a word document - no more than one page long.