

Techno-Economic Analysis of Low-Carbon fuel Production from Food Waste

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School/Institute: [Engineering and Built Environment](#)

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Project summary

The global increase in population has resulted in a heightened generation of waste. There are opportunities to leverage these wastes for the production of low-carbon future fuels, thereby contributing to the economic and environmental sustainability of industries and societies. This study will explore the feasibility of utilizing food waste as a sustainable feedstock for gasification and low carbon methanol production while optimizing process parameters for improved efficiency. Aspen Plus simulation software will be employed to model both the gasification and methanol synthesis processes, considering key operational factors to evaluate their impact on syngas composition. The model's accuracy will be validated by comparing its predictions with experimental data from literature sources. The proposed approach uniquely integrates waste management, green fuel production, and carbon capture. The developed methodology and models will not only analyze the potential of various other wastes and wastewaters for generating future fuels but also address the crucial aspects of carbon capture in the process.

Specific skills and experience required for this project

Please also refer to the advert on our jobs pages for the person specification for these internships

The project is simulation based. Specific skills required:

- Good understanding of chemical engineering concepts
- Good understanding of simulation software
- Ability to read and analyse simple journal papers

Project location

NCEFE/AFIC

Home working may be available

Project delivery

This project can be delivered on a full-time or part-time basis