

## Course: Sustainable Fuel Systems Design

credits: 5

<b>Course code</b>	ZVWH19SFSD	<b>Modes of delivery</b>	Tutorial
<b>Name</b>	Sustainable Fuel Systems Design	<b>Assessments</b>	Assignment 1 - Assignment
<b>Study year</b>	2021-2022		Assignment 2 - Assignment
<b>ECTS credits</b>	5		
<b>Language</b>	English		
<b>Coordinator</b>	J. Bekkering		

### Learning outcomes

By completing the module the student demonstrates knowledge and understanding of:

- E2.1.a.1. problem definition in supply chain analysis*  
*E2.1.b.1 critical analysis of relevant literature and empirical background materials*

And is able to:

- E2.3.a.1 formulate models of energy systems, using methods and techniques for energy systems*  
*E2.3.d.1 select an appropriate technique for modelling given energy problems, such as Linear Programming (LP) and Mixed Integer Linear Programming techniques (MILP)*  
*E2.3.d.2 explain the underlying assumptions and limitations*  
*E2.4.a.1 implement these models*  
*E1.1.c.1 systematic report research question, methods, results, discussion and conclusions*

### Content

- Supply chain concepts: Material Flow Analysis, Life Cycle Cost of Energy
- Sustainability: concepts, Primary Energy Input Output Ratio, greenhouse gas emission saving, well-to- wheel analysis (WTT, TTW, WTW)
- Theory on LP, MILP, sensitivity analysis, Monte Carlo
- MATLAB modeling

### Included in programme(s)

European Master in Renewable Energy

### School(s)

Institute of Engineering