Thesis Title	**Numerical assessment of a pyrolysis reactor for lignocellulosic biomass**
Programme of Studies	MSc in Oil and Gas and Offshore Engineering
Course	MOE 518 Master Thesis
Area of Study	Processes Modelling and Simulation
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Short Description	Although several pyrolysis experimental test facilities as well as commercial plants, pyrolysis can still not be considered as an established concept for the thermochemical conversion of biomass to biofuels. The scientific community must still provide tools and methodologies which will allow the flexibility in the design of pyrolysis plants, as well as for decision making for planners and engineers. In this effort the role of simulation schemes and numerical tools which will enable the flexible and time-efficient parametric assessment of different pyrolysis plants design is essential.
	This study aims to present a solid and consistent simulation process for pyrolysis, applicable for research and technical purposes .In terms of this study the steady-state, continuous pyrolysis of a lignocellulosic biomass feedstock via Aspen Plus® is delivered. Following the introductory section, a comprehensive description of the state of the art in pyrolysis, as well as the advancements in numerical simulation of pyrolysis process is presented and discussed. The simulation process, as well as the main assumptions of the applied model are given in the Methodology section. The proposed model is applied for several test cases, which are presented in the fourth section of this study. Additionally, the model is assessed through the performance of experimental plants and results retrieved by experimental studies. The main findings of this study are concluded in the last section.