

## Master Thesis Brief Description

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<b>Thesis Title</b>	<b>Simulation Of The Effect Of Certain Parameters On Biogas Production By Anaerobic Digestion</b>
<b>Programme of Studies</b>	MSc in Sustainable Energy Systems
<b>Course</b>	MES 580 Master Thesis
<b>Area of Study</b>	Sustainable Energy Technologies – Biofuels Assessment
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<b>Semester</b>	Fall Semester 2019
<b>Short Description</b>	An anaerobic digestion simulation model was used for this study, as a means to predict BP (biogas production) from CM (Cattle Manure) inside a CSTR (Continuous Stirred Tank Reactor) being operated at thermophilic conditions (55°C). The model consists of 46 reactions in total, implemented accordingly into the four anaerobic stages (Hydrolysis, Acidogenesis, Acetogenesis, Methanogenesis) which include Inhibitions, Rate-Kinetics, PH, Ammonia, Volume, Loading Rate and Retention Time. Hydrolysis reaction took place inside the RSTOIC (Stoichiometric reactor) reactor, while amino acid degradation, acidogenic and acetogenic reactions were simulated inside the CSTR. A sensitivity analysis was also developed to study the effect of parameters such as HRT (Hydraulic Retention Time), Volume, Temperature and substrate to water ratio on BP.