

Master Thesis Brief Description

Thesis Title	Design And Development of A Small Scale Biogas Reactor
Programme of Studies	MSc in Sustainable Energy Systems
Course	MES 580 MSc Thesis
Area of Study	Sustainable Energy Technologies – Biofuel
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Supervisory Committee	Dr Chris Christodoulou, Professor, Mechanical Engineering Department Dr. George Karagiorgis, Professor, Mechanical Engineering Department
Semester	Fall Semester 2021
Short Description	<p>This master thesis introduces a sustainable solution for organic waste management through the anaerobic digestion process, resulting in biogas production for electricity generation. The study focuses on investigating the biogas production potential using cow manure/waste as the feedstock. Experimental findings from the investigation of biogas production are presented, with a specific emphasis on achieving the highest possible amount of valuable biogas suitable for energy production and combustion. The study examines whether the required methane (CH₄) percentage, greater than 60%, can be attained during the anaerobic digestion process. A laboratory-scale reactor was established to facilitate the operational processes involved in biogas production. The research contributes valuable insights into the viability and efficiency of using anaerobic digestion for organic waste treatment and biogas generation, ultimately promoting sustainable practices for electricity production from renewable resources.</p>