

Project proposal template

Graduate School studentships

March 2015

<i>Project title</i>	<input style="width: 100%;" type="text" value="Enhancing the sustainability of anaerobic digestion using integrated kinetic and multi-objective optimisation models"/>	
<i>First Supervisor</i>	<input style="width: 15%;" type="text" value="Dr"/> ▼	<input style="width: 60%;" type="text" value="Jonathan Nixon"/>
<i>Second Supervisor</i>	<input style="width: 100%;" type="text" value="Prof. Jian Wang"/>	
<i>School</i>	<input style="width: 100%;" type="text" value="Aerospace and Aircraft Engineering"/> ▼	
<i>Other member of supervisory team (no more than three KU supervisors in total)</i>	<input style="width: 100%;" type="text"/>	
<i>Specific requirements beyond 2:1 degree</i>	<input style="width: 100%;" type="text"/>	

Project summary
(max 4,000 characters)

Anaerobic Digestion (AD) has great potential as a method for converting waste biomass into valuable energy and agricultural products. However, there are many options regarding technology types, feedstock mixtures and operating conditions. As a result, the optimal solutions for the sustainable utilisation of AD in developed and developing countries are unclear and poorly understood. This project aims to address this challenge by investigating the integrated use of kinetic models and multi-objective algorithms to optimise techno-socio-economic parameters for a range of AD application scenarios. The intended output is a model capable of guiding decision makers on implementing AD systems that will need to operate within the technical, economic, environmental and political constraints of different global bioenergy markets. Applicants would benefit from having experience in conducting energy simulation modelling, economic analyses and life cycle assessment, and applicants should be willing to spend time abroad for data gathering purposes.

