

Master Thesis Brief Description

Thesis Title	Comparison in performance between segmental, and helical baffles; on a single pass- shell and tube heat exchanger, set to operate within a crude oil refinement environment
Programme of Studies	MSc in Sustainable Energy Systems
Course	MES 580 MSc Thesis
Area of Study	Process Engineering
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Students Reg. Number	19257
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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	This master thesis provides an overview of the constituents and methodology adopted for the dissertation as part of MEE530. The focus of the study is on the design and analysis of a shell and core heat exchanger for applications in the oil and gas industry. The paper begins by introducing the topic and highlighting the fundamental operating principles of such a heat exchanger. The subsequent sections elucidate the process of developing the mechanism, starting with the resolution of a mathematical model using software such as Matlab, Excel, or Aspen Plus. This mathematical model is then translated into a 3D model using parametric design software (Solidworks), which facilitates performance analysis. The thesis is divided into several phases, each comprising specific activities that contribute to the final design and analysis of the heat exchanger.