

Research Topic – MSC in Engineering (Mechanical) Mainly by Research

This course is restricted to a specific topic:

Life Cycle Assessment of Water Treatment and/or Renewable Energy Systems

Global warming and climate change are urgent drivers towards sustainable development. The Sustainable Development Goals (SDGs) set clear targets to stimulate economic growth and social advancement while decoupling progress from resource consumption and pollution. Specifically, Goals 6 and 7 focus on the availability and management of affordable clean water and energy, respectively. Water treatment and renewable energy generation provide alternatives to these vital resources. Desalination, rainwater harvesting, and wastewater reuse reduce the reliance on natural water resources. On the other hand, renewable energy systems such as solar photovoltaic, solar thermal, wind and biomass systems could reduce the environmental impacts of energy requirements and provide remote areas with an energy supply. However, to establish whether such water and energy systems are environmentally and financially viable, life cycle assessments (LCA) and life cycle cost analyses (LCCA) are required to evaluate the impacts covering all phases from raw material use to end-of-life. This research study, that will be conducted as part of an MSc in Engineering degree course at the University of Malta, seeks to assess the lifecycle impacts of renewable energy and/or water treatment systems.