

DEPARTMENT OF MECHANICAL ENGINEERING

WILLIAM MAXWELL REED SEMINAR SERIES

Digital Thread-enabled Multi-lifecycle Sustainable Product Configuration Design **Ridvan Aydin, Ph.D.** **University of Kentucky**

Abstract: End-of-life (EoL) product recovery strategies (i.e., reuse, remanufacturing, and recycling) need to be considered early during the product design phase to extend the product useful life, reduce total lifecycle cost, minimize environmental impact, promote corporate social responsibility, and enhance overall product sustainability. However, multi-lifecycle sustainable product configuration design optimization considering EoL strategies throughout the entire product lifecycle has not been well addressed in previous studies. In addition, current product data management tools are not sufficiently integrated to enable digital interfacing of systems across the product lifecycle. Therefore, information related to total product lifecycle need to be linked using a digital thread to access real-time data for multi-criteria decision making. In this talk, I will introduce the development of a digital thread-enabled multi-objective optimization model for multi-lifecycle sustainable product configuration design. The application of the digitally-enabled optimization tool to assess total lifecycle performance to determine low cost, environmentally friendly and socially responsible product configurations will be presented. The approach used to incorporate complexities, such as various EoL strategies, multiple lifecycles of a product, and the product demand cycle will be covered.

Bio: Ridvan Aydin received the B.Sc. degrees in Industrial Engineering and Energy Systems Engineering from Bahcesehir University, Istanbul, Turkey, in 2011 and 2012, respectively. He was awarded a scholarship through the European Erasmus Exchange Programme to study at the Linnaeus University, Sweden for a year in 2009. He received the Ph.D. degree in Industrial and Systems Engineering from the Hong Kong Polytechnic University, Hong Kong. He also conducted collaborative research as a visiting scholar in the Pennsylvania State University, USA in 2015. He is currently a Postdoctoral Researcher in the Institute for Sustainable Manufacturing, UK. His research interests include multi-lifecycle product configuration design, new product development, remanufacturing, closed-loop supply chain design, managing product returns and multi-objective optimization modeling.

Date: September 29, 2017
Place: CB 118

Time: 3:00 to 4:00p
Contact: Dr. Alexandre Martin 257-4462

Meet the speaker and have refreshments
Attendance open to all interested persons