



MIE1715F: Life Cycle Engineering

Fall 2019

Instructor: Payam Rahimi, PhD, PEng

Course Description:

This course introduces the fundamentals of both product and process engineering with an emphasis on life cycle models. A mixture of practical and theoretical topics, methodologies, principles, and techniques are covered such as Life Cycle Analysis, Design For Assembly (DFA), Design For Manufacturing (DFM), Design For Environment (DFE), etc. Students develop an understanding of the performance, cost, quality and environment implications of both product design and manufacture and become capable of translating these into engineering “cradle-to-grave” responsibility requirements, goals, and specifications in order to maximize the values of products and the effectiveness of supply chain management while containing the costs to manufacturer, the user, and the society.

Course Topics

1. What is Life Cycle Engineering
2. Life Cycle Assessment
3. Streamlined Life Cycle Assessment
4. How to design products
5. Life Cycle Design:
 - a. Design for Environment
 - b. Design for Recycling
 - c. Design for Manufacturing
 - d. Design for Assembly
 - e. Design for Disassembly
6. Student Life Cycle Projects
 - a. Student LCA

Course Content Breakdown (CEAB Categories):

Mathematics:	10%
Basic Science:	10%
Engineering Science:	30%
Engineering Design:	20%
<u>Complementary Studies:</u>	<u>30%</u>
Total:	100%