ME 519: Decision based Design

Prof Hoyle, Spring 2020

Project Proposal

Assigned: 4/21/2020

Discuss: Week of 4/27/2020

Provide a proposal for a project based upon concepts from the course. Parameters are as follows:

1. Can be done individually or in a team of two (I will expect a broader scope and clear separation of duties if it is a team of 2).
2. Uses at least one concept from the course, for example:
    a. Uncertainty quantification (e.g. Monte Carlo simulation, FORM algorithm)
    b. Utility theory (a method for handling uncertainty in an objective function)
    c. Decision making in design (e.g., exploring alternative decision making principles or ideas to those presented in class)
    d. Using random utility theory to estimate user or consumer utility (not covered yet in class but it is a way of estimation demand for a product by potential users from a data set).
    e. Use of optimization methods from ME 517 with uncertainty included to explore *optimization under uncertainty.*

We will discuss the project in a 1 on 1 meeting the week of 4/27 and I will help you formulate the problem. Things you should be prepared to discuss:

- Team members (if applicable)
- Problem description:
    - Purpose of doing the project
    - Methods you think you might use
    - Sources for an underlying simulation model, uncertainty quantification, or data
    - Potential issues
    - Expected outcomes