MECH 513

SIMULATION MODELING AND EXPERIMENTATION

Prereqs: STAT301 or equivalent

DESCRIPTION

Fundamental concepts of integrated modeling, simulation, and experimentation as a component of the systems engineering process. Practical processes for improving the defensibility, cost and capabilities of your simulations. Emphases on verification and validation of computational models, on quantification and propagation of uncertainty, on multi-disiciplinary analysis and optimization, and on synthesis and decision making. Tools: MATLAB, Excel, ModelCenter, Simulink and SimEvents

BENEFITS

Systems engineering is an interdisciplinary approach and means to enable successful systems. By focusing on what the customer needs, how it should function, defining the requirements, and then design synthesis, validation, and verification, real solutions to complex problems can impact every type of system.

COURSE OBJECTIVES

This course will introduce fundamental concepts of integrated modeling, simulation, and experimentation as a component of the systems engineering process. You will learn practical processes for improving the defensibility, cost and capabilities of your simulations.

This course places emphases on:

- Verification and validation of computational models
- Quantification and propagation of uncertainty
- Multi-disciplinary analysis and optimization
- Synthesis and decision making