

# ENGR 531

## ENGINEERING RISK ANALYSIS

Every Spring; Fall of even years; Summer of odd years

*Prereqs: STAT301 or equivalent*

### DESCRIPTION

Successful engineering project management includes estimation and proactive risk identification and development of mitigation techniques. System uncertainty is reduced when project risks are identified, quantified, and mitigation strategies implemented. Tools, techniques, and methodologies used by successful project managers will be examined.

### 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

System uncertainty quantification, inherent in every endeavor, is reduced using risk analysis, risk attitudes, risk modeling, quantitative risk management, probabilities and impacts, and engineering tools.

Students successfully completing this course will be able to:

- Identify, analyze, quantify, and mitigate risks
- Apply tools, techniques, and methodologies to implement risk management
- Assess discrete and continuous probability events, commonly used probability distributions, and calculate functions of random variables
- Understand the use of Bayes' rule, Markov chains, fault tree analysis, decision programming

