CSU Course Syllabus

ENGR/ECE 530 – Overview of Systems Engineering Processes

Instructor: Dr. Peter M. Young, Engr B114, Ext. 1-5406, pmy@engr.colostate.edu
Office Hours: Tues 2:00pm - 3:30pm

Book: Systems Engineering and Analysis, Blanchard and Fabrycky

Grading and Exams:

Midterm Exam 20%
Final Exam 30%
Projects 25%
Homework Assignments 25%

Course Schedule: Homework will usually be assigned every other week (due two weeks later). In addition there will be a number projects. You are expected to work on all these problems yourself (or within your team), but reasonable collaboration is allowed (use of solution sets is not allowed). Class presentations for the projects will be required.

Course Description: Develop a conceptual understanding of the systems engineering life-cycle process and familiarity with analysis techniques used in that process. Introduce concepts of reliability and robustness, and rigorous tools for analysis and design with them in mind. Real-world experience and case studies working with a system through all phases of the system design process.

Student Learning Objective: Successful students will develop a conceptual understanding of the systems engineering life-cycle process. They will develop analysis skills utilizing robust control and design techniques via optimization-based tools. They will also broaden their perspective with the real-world experience of working with a system through all phases of the system design process.

Main Topics:

1) Introduction and Background (1 week)
2) Conceptual System Design (1 week)
3) Detail Design and System Integration (2 weeks)
4) Review Optimization Theory Concepts (1 week)
5) Review Control Theory Concepts (1 week)
6) Design for Reliability (1 week)
7) Design for Maintainability (1 week)
8) Design for Usability (1 week)
9) Robustness Analysis (2 weeks)
10) Design for Robustness (2 weeks)
11) Case Studies and Presentations (2 weeks)