ASEN 5519

Design Optimization of Aerospace Structures Spring 2020

- Instructors: Jorge Luis Barrera Cruz, Kurt Maute Office: 350-N Phone: (303) 735-2103 e-mail: jorge.barreracruz@colorado.edu, maute@colorado.edu Office Hours: Fr 2:00 -3:00 pm
- Lectures: T/Th: 11:30- 12:45 pm, AERO 232.
- Class Web Site: log on to <u>https://canvas.colorado.edu/</u> to find ASEN5519 – Design Optimization of Aerospace Structures.
- Class e-mail list: This is automatically done through CANVAS.

Textbooks:

General textbooks on design optimization (mostly in the context of solid mechanics):

- 1. Introduction to Optimum Design by J.S. Arora
- 2. Structural Optimization: Fundamentals and Applications by U. Kirsch
- 3. Elements of Structural Optimization by R.T. Haftka, Z. Gurdal
- 4. Foundations of Structural Optimization: A Unified Approach by A. J. Morris (*)
- 5. Introduction to Optimization of Structures by N.V. Banichuk
- 6. Numerical Optimization Techniques for Engineering Design G.N. Vanderplaats (*)

Useful textbooks on special topics

- 1. Parameter Sensitivity in Nonlinear Mechanics by M. Kleiber, et al. (*)
- 2. Design Sensitivity A nalysis of Structural Systems by E.J. Haug, et al.
- 3. Optimization of structural topology, shape, and material by Martin P. Bendsøe and O. Sigmund

(*) Only physical copy available.

Course Objectives: Introduce the fundamentals of design optimization of problems in solid and fluid mechanics, and heat transfer with a focus on problems in aerospace engineering.

deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, students must let the instructors know of any such conflicts within the first two weeks of the semester so that reasonable arrangements can be worked out. See <u>campus policy</u> regarding religious observances for full details.

7. Students and faculty each have responsibility for maintaining an appropriate learning