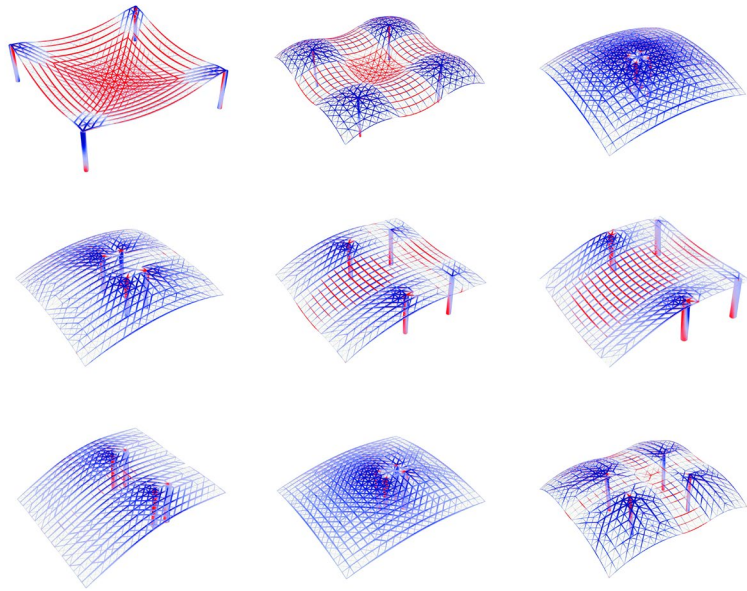


CARNEGIE MELLON —ARCHITECTURE



Karamaba 3D

48-638: Structural Design 2: Materials & Analysis

Units: 9

Instructor: Juney Lee

This course introduces fundamentals of strength of materials, computational modeling of structures and basic Finite Element (FE) analysis. This is a hands-on, skill-building course about learning how to translate a conceptual design intent into a computational structural model, then applying material and boundary condition constraints to analyze and understand structural behavior. These learning goals are achieved through three components: lab exercises, workshops and group design projects. Through a series of lab exercises, students will learn the fundamental structural properties of standard construction materials (steel, timber and reinforced concrete), and learn how to perform basic calculations to understand the behavior of simple structures made of those materials under various loading conditions. Lab exercises are accompanied by hands-on workshops, where the students learn a specific computational tool or skill that will enable them to translate the lessons learned from the lab exercises into a computational design environment. The knowledge learned from the labs, together with the skills gained from the workshops, are then synthesized into group projects where students will have an opportunity to apply and test what they have learned. Basic knowledge of statics and structural design is expected, and students are assumed to have taken Structural Design 1 at CMU or an equivalent introductory structural design course from another institution. Structural Design 2 is the second of three courses of the Structural Design curriculum offered at Carnegie Mellon Architecture.

