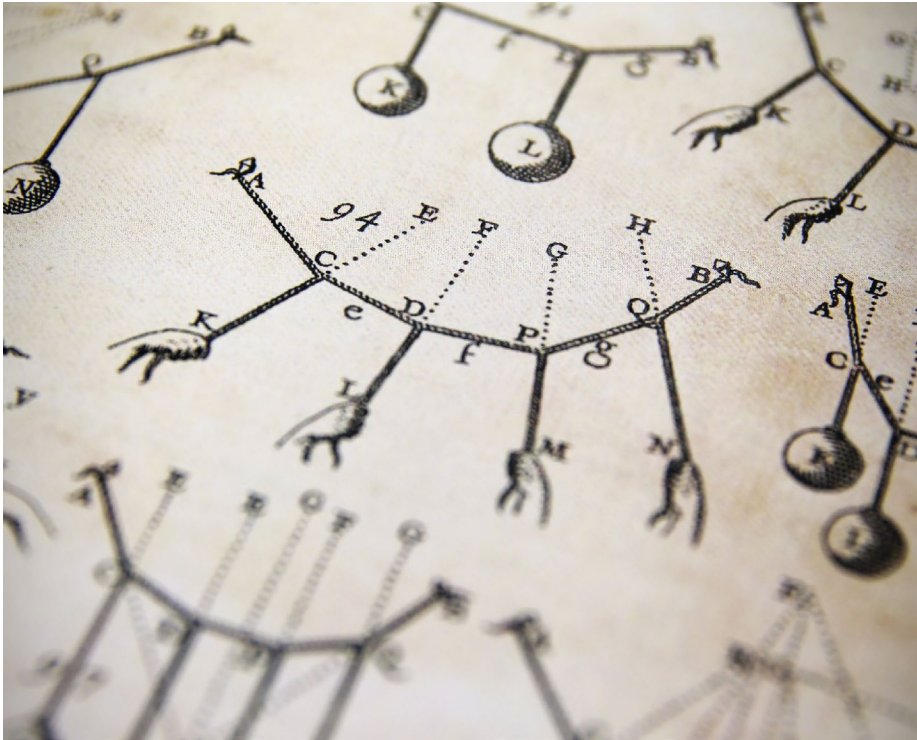


CARNEGIE MELLON —ARCHITECTURE



"Nouvelle mécanique ou Statique" - Varignon (1725)

48-324: Structural Design 1: Form and Forces

Units: 6

Instructor: Juney Lee

This course introduces fundamental concepts of static equilibrium and stability of structures. In contrast to conventional methods of learning structures that are based on numerical calculation and analysis of stresses in materials, this course explores a new approach to understanding the relationship between form and forces of structures through graphic statics, a graphical method of visualizing, designing and analyzing equilibrium. By using geometry as the common language between architecture and structure, students will explore new ways of shaping structural form by drawing and manipulating the geometry of forces.

Through a series of lab exercises, students will learn how to construct form and force diagrams used in graphic statics and learn how the behavior of basic structural systems can be understood through such representations. The lab exercises are complemented by group design projects, where students have the opportunity to apply the concepts and principles learned in the lab to design and build physical structural models that will be loaded to failure. No prior knowledge is required for this course. Structural Design 1 is the first of three courses of the Structural Design curriculum offered at Carnegie Mellon Architecture.

