This laboratory project challenges students to engage in an iterative empirical process to explore structural behavior and structural design. Students are to design, construct and develop a structural element that spans horizontally and supports two concentrated vertical loads. Each structure is to be considered a composite of four interdependent conceptual criteria: force, form, material and connection. These criteria were selected because all static structures can be explained through them and they are terms that have significance in the greater realm of architecture. This project consists of four iterations: Naivete, Concept, Specificity and Efficiency. Each stage consists of a team component and an individual component. Each student participates in a team of three for the design, construction and development of the project. Each individual student is required to analyze, draw and diagram all iterations. The multiple iterations afford students the opportunity to develop incrementally and explore a diversity strategies and techniques to solve a single multi-faceted problem. Student teams select or are assigned one of two sets of structural conditions defined by the allowable bearing surfaces; option 1 permits the use of upper bearing surfaces and option 2 permits the use of lower bearing surfaces. The conditions of the project are carefully conceived to serve as negotiable constraints, when approached with pragmatic obedience they limit the structural design, when challenged through interpretation they reveal opportunities for structural efficiency and expression. Projects are tested in a collective forum where concepts, performance, force diagrams and details are sketched and reviewed on a chalkboard. The diversity of projects ensures that every static structural phenomenon is demonstrated. The projects are subsequently reviewed in a lecture forum through photographs and high-speed video.

Objectives: following the completion of this project students should be able to
- Understand, generate and develop an abstract structural concept
- Understand structure in terms of force, form, material and connection
- Utilize an empirical methodology to transform intuition into a critical understanding and knowledge of structures
- Engage in an iterative process for the development of structural design
- Analyze and Diagram structural conditions
- Engage in structural discourse

Course Context:
The Force Form Material Connection exercise is administered concurrently with lectures on the fundamentals of structural principles and phenomena including static forces, stresses, and structural diagramming; and structural precedents of fundamental structural systems including cables, columns, beams, trusses, space frames, walls, arches, vaults and domes. It is also administered concurrently with lectures on structural geometry and computational exercises utilizing the method of joints to analyze simple trusses; limited to trusses that are structurally legible, expressive and parallel the conditions of the laboratory project.

"There can be no difference anywhere that doesn't make a difference elsewhere."
- William James
Example Option 1 Sequence - Iteration 1

*nai vete*

Example Option 1 Sequence - Iteration 1
concept
concept

Example Option 2 Sequence - Iteration 2
Diverse Option 2 Examples