**Abstract:**

This report shows the team’s journey through the planning, designing, constructing, and testing of a truss bridge. Given 72” of 1/8” tubular square brass, the goal was to build a truss no higher than 4” and 15” in length. Other requirements included the truss being able to hold a minimum of 325 lbs without being able to hold more than 500 lbs while maintaining a strength to length ratio greater than 5. Using the program Truss Analyzer, the team created 3 individual truss designs. After, the 3 designs were examined to see which fitted requirements the best. The team decided to combine the techniques used in two designs, one that used the least amount of brass and another that held the most weight. The final design had an estimated max load of 346.2 lbs and length of 56.06”. This meant the strength to length ratio was a 6.18. During the soldering of the pieces together, there were a few complications that could have impacted the strength of the truss. When cutting pieces originally, corrections were not made to make sure all pieces fit together, so pieces had to be shaved down which may have impacted weight distribution. Another issue was determining how to make bottom pieces double gusseted. After testing, the truss bridge held a max load of 300.2 lbs giving it a strength to length ratio of 5.35. In this report, the full analysis of the design process and results can be found.