

Title: Lab 8 Plane Trusses: Design and Optimization
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Introduction:

This experiment requires the use of different sized packets of truss members and connectors, protractor, metric ruler, weights, and the weight holders. The point of this lab is to understand how a truss is made, and then how all the members of the truss support each other through tension and compression as not to collapse when supporting weight as well.

We created our truss with thirteen members which ultimately created one large triangle as seen in the picture on the next page. We then connected a weight of about 2kg, which includes the weight holder, to the right bottom member of our truss. We hooked up our calibration instruments as to make sure the tension and compression forces were in the correct sequence to make sure our truss was stable. We took our measurements and scales and then drew it on to paper so that we could then solve for the members. Those calculations are on the next page.

Calculations found on the next page:

Conclusion:

Once finished with this lab, the flaws and qualities of the truss were more noticable. The flaws were, although the member amount was small compared to other trusses, it left the measurements by using mainly method of joints. It was hard to determine the best spot to use the method of sections without cutting more than three members. The good quality though was that with the method of joints it made it easier to see the symmetry in the truss, which was interesting to find. This truss definitely helped study for the midterm as well, due to it being complex and needing both methods to find the forces on the members.