**Structure Super-Combo**

Summer 2021

Design and Construction Society

**END TERM REPORT**

Submitted by: Mentors:

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**INTRODUCTION**

Structure Super-Combo is a project related to SAP2000 software. We learned about trusses, ILD, FEM, etc. Apart from this we learnt to solve big truss problems in the software instead of doing it manually.

**WEEK WISE DESCRIPTION**

**Week 1:** In the first week, our mentors made us familiar with trusses. Video links were given to have a better understanding of them. Topics we learned were Shear forces, Bending moment diagram, Fixed end moment, Influence line diagram.

 After this an assignment was also there to practice the things, we learned.

**Week 2:** In this week, we were guided to install our SAP2000 software in which our further project was going to be done.

Moving forward this week, we became familiar with SAP2000 software and made a model same as shown in the tutorial video. We also learned to model the truss problems which were given to us in the previous week.

**Week 3:** In this third week, we learnt to design and analyse the truss bridges and we also found out the reason for instability in one of the bridges. We also learnt to change the material properties.

**Week 4:** Now, it was the midterm week, so we learnt to design a 100m long railway station shed. It was totally our imagination so we learnt a lot. We also calculated the cost it would incur if we made it in reality. We came to know the market rate of the materials we used in our structure and learnt how to make a stable structure within a reasonable price range.

-------------------------------MID TERM BREAK------------------------------------

**Week 5:** After the break, we were given some video links, which helped us to design and analyze a stable residential three-stories building. We learnt to give live loads, dead loads and earthquake loads to the building.

**Week 6:** In the end-term week, we designed two buildings 100 ft apart and made a railway bridge above them. It was the best part of the project. We learnt how we can think out of the box and know if it is really possible or not. This can be done only by designing it in the software and analyzing it.

**CONCLUSION**

We became familiar with SAP2000 software and learnt to design and analyze various bridges, buildings and a combination of that using different materials and various sections all having different types of stability and importance.

LINK-https://docs.google.com/presentation/d/1yK4Aj919vfid3yguLfGr6k1nDhxEls1weRZsp8jqu7k/edit#slide=id.g13e84724320\_0\_1265