Sandcasting Project

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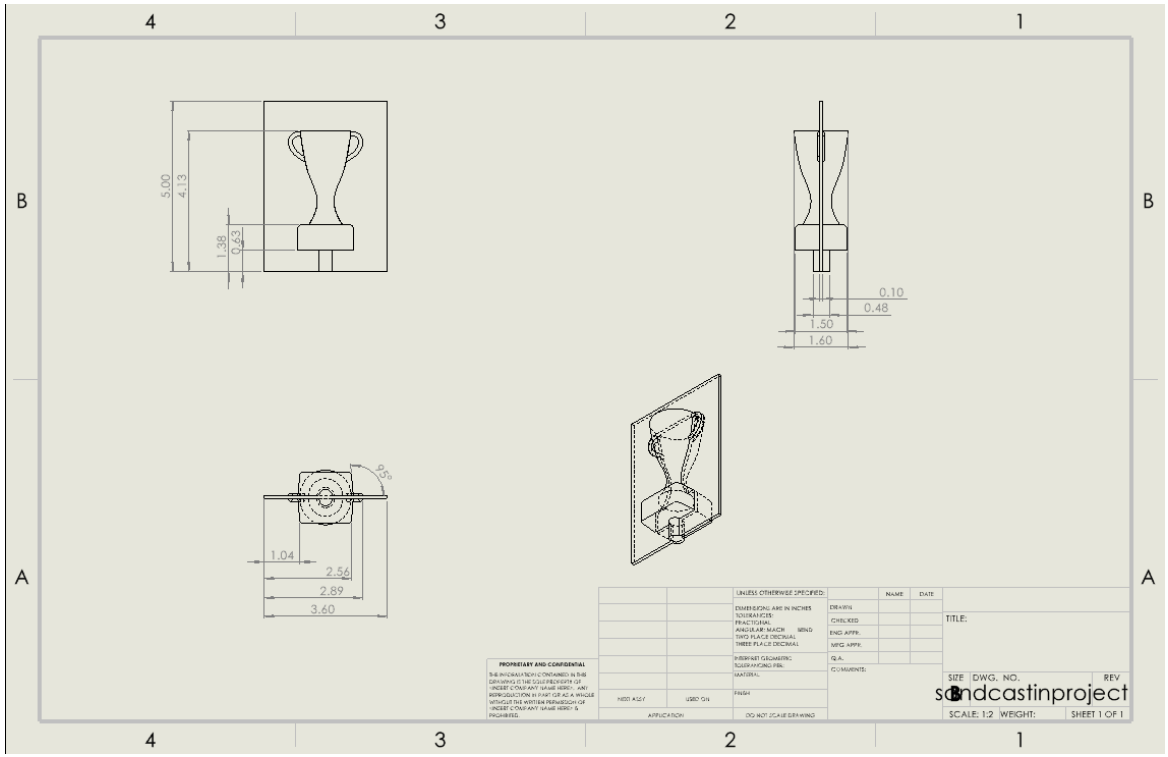
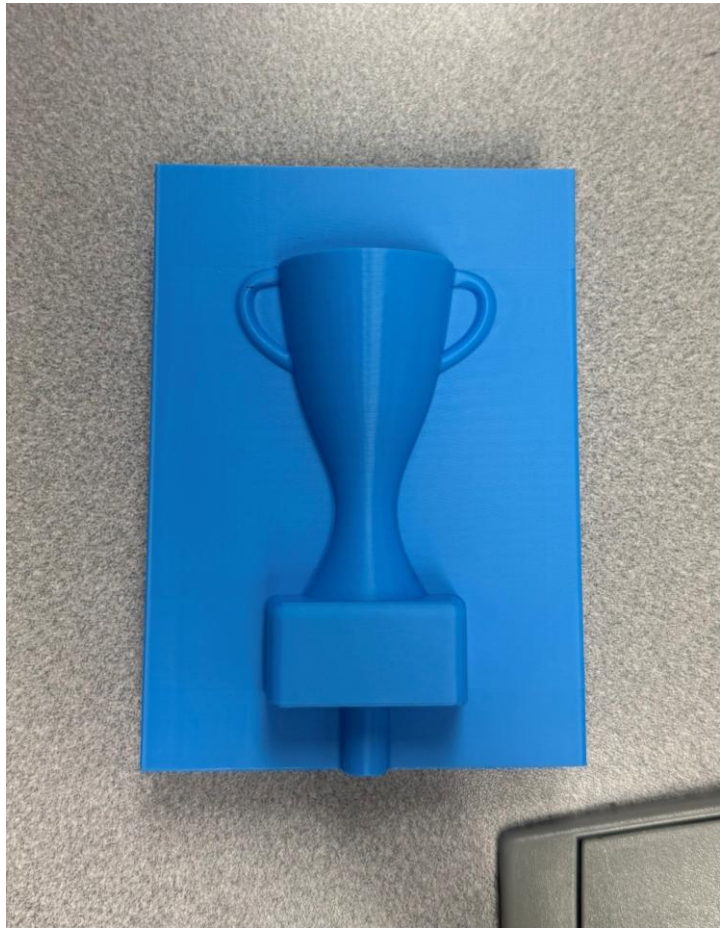
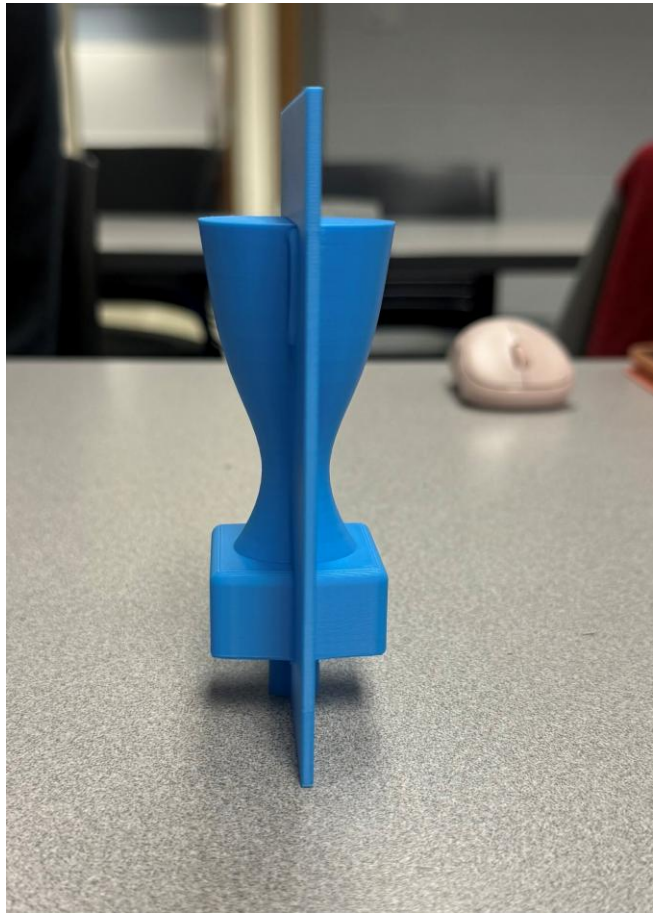
Engineering Drawings

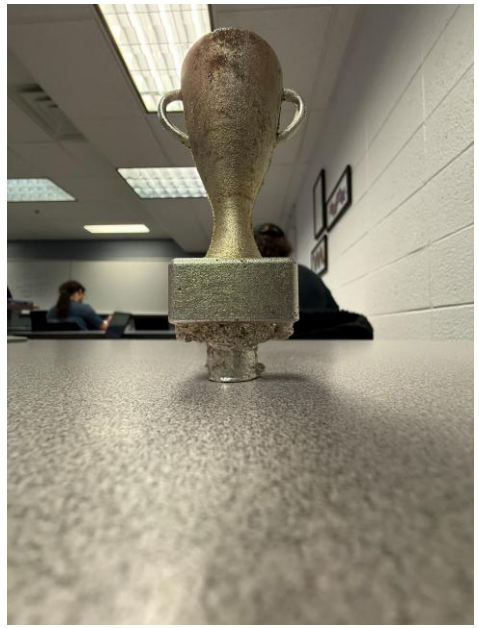


Images of 3D Printed Part





Pictures of Part



Question 1: Lessons Learned during Design and Casting Process?

- Design:
  - Have to reduce design complexity to accommodate available drag/cope dimensions and limitations of sandcasting
- Casting:
  - The edges of the trophy base were too sharp, so we had a lot of lumpiness at the bottom.
  - When pouring the molten tin, pouring more slowly would have prevented the porosity that the part exhibited
  - Making sure no distractions are around could have allowed for a more precise sand casting.

Question 2: Biggest Challenges?

1. We had to change the dimensions and look of both the handles and the trophy base for the part to be cast. Originally, we had the handles more looped and fancier looking, but after breaking down the design and thinking about how it would be best to pour, we changed the handles to be connected to the trophy at the top and bottom. Along with simplifying the original base as it was twisted that made it too complicated.
2. Another challenge that we had was making sure that the size of our trophy was big enough to be successfully poured, but still be within the limits of the given dimensions.
3. A third challenge that we faced was where our sprue on the trophy was going to be located. When deciding, we had to keep in mind the design of our handles and determine from which direction the handles would fill easier. Through this we decided to fill from the base of our trophy as it will give our handles the best chance to fill, and there will be a large heat sink to pull material from.