

# Getting Situated with Ansys Electronics

## Desktop for EEMAGS

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### I. INTRODUCTION & METHODS

The primary goals of this lab were to get situated with the *Ansys Electronics Desktop* software and the Rowan Virtual Desktop environment as a whole. Within the *Ansys Electronics Desktop* software, the primary goal was to learn the placements of specific tool bars and widgets by constructing objects in the primary view port and analyzing the electric field around some primitive objects.

The lab consisted of two parts, with the first acting as a guide to using the basic features of the software, and the second allowing for further exploration into different object primitives and the electrical interactions between them.

### II. RESULTS & ANALYSIS

In part one, a perfectly conducting cylinder was charged and centered in a square-based rectangular prism with the same height. The electric field inside the rectangular prism was then analyzed. Since there were no reference voltages, the field lines were un-ordered and fairly chaotic. To resolve this, one of the vertical faces of the prism was defined as 0V. Then, electric field intensity and direction were analyzed inside the rectangular prism. The resulting electric field, in accordance with predictions, extended from the cylinder to the grounded side of the rectangular prism. On the side of the rectangular prism opposing the grounded side, however, the electric field lines still exhibited some chaotic behavior, similar to the analysis before grounding. While quite simple in theory, this part of the lab still proved to be moderately challenging since some parts of the software were quite unintuitive. After completing part one, however, creating and analyzing objects should be much more straightforward in the future.

While part one was a guided exercise, part two was much more open-ended. A similar process was to be followed with some other shape. For this we created a sheath-ground coaxial cable. By making a hollow copper cylinder defined as 0V, and a much skinnier concentric solid copper core with charge 1000C, the electric field in and around the coaxial cable could be measured.

### III. CONCLUSIONS

While parts of this lab did not directly align with the course material, it definitely served its purpose as a crash course in the basic features of *Ansys Electronics Desktop*. Going forward, using the software will require much less direction, and hopefully less fiddling around with. We found the software to be quite unintuitive to use at times, but we could not find any real suitable alternatives online. While it can be difficult to use at times, using visualization software at all is better than relying on calculations and analogy alone.

### IV. FURTHER COMMENTS

Unfortunately, I was unable to access Ansys to take screenshots for this lab. I have an IRT ticket and they are working it out. Thank you for understanding.