**Brief Outline**

**Background**

* Cover VTMS and DFMA as software and how VTMS is not perfect during it’s contact analysis
* Discuss Interpenetrations (varying types, i.e. contained node, edge-edge, etc.) with Figures
* Discuss why we need to fix interpenetrations (FEA)

**General Approach**

* First we need to properly identify the interpenetrations (for varying types)
* Then we need to develop a method to remove surface interpenetrations without overly affecting the surface geometry

**Identifying Interpenetrations**

* Discuss how method evolved due to more complex methods being needed to properly identify all interpenetrations
* Discuss each identification method in detail so that method is understood. Also discuss pros/cons for each method
* End with conclusion on which method we chose and why

**Removing Interpenetrations**

* Discuss methods for fixing interpenetrations and how they are related to identification methods
* Discuss the pros/cons to each method
* Add conclusion on which method is chosen as the best method for our purposes and why

**Conclusions**

* Summarize the accomplishments (proper identification of interpenetrations, collection of required data to fix interpenetrations at a later date, re-meshing of surface meshes for compatibility along boundary curve)
* Recommendations/thoughts on methods to actually fix interpenetration regions (i.e. contact analysis, Boolean mesh operations, etc.)

