

Project 1 - W.L. Gore & Associates Senior Capstone Project Proposal

Spring 2019-Fall 2019

Client - William Reilly

Scope of Work:

The scope of this project is to design, build, and test a replicable model of an aneurysm in the iliac bifurcation for deployments of peripheral endovascular interventional devices under simulated use conditions, using non-biologic materials.

Overall Requirements:

1. Safe per ANSI, OSHA, or other related safety standards.
2. Design system to mimic anatomical fluid flow conditions (recommended but not limited to):
 - Flow Rate
 - Pressure
3. Develop, justify, and characterize the following attributes (recommended but not limited to):
 - Aneurysm Durometer
 - Aneurysm Compliance
 - Aneurysm Length
 - Aneurysm Thickness
 - Degree of arotic vessel growth (Creep)
4. Allow Visualization of device deployment
5. Document Repeatable Manufacturing Processes
6. Desired but not required: A Graphic User Interface (GUI) outputting the following data to the user (recommended but not limited to):
 - Pressure in the Aneurysm
 - Flow (or leak) rate from the simulated graft to the aneurysm
 - Volume change rate of Aneurysm
 - General Control of the model
 - Power Off
 - Flow Rate

Desired Engineering Majors: Mechanical

Budget:

\$3,000¹ to cover the cost of:

- Documentation (reports, presentation boards, etc.)
- Materials for testing and prototyping
- Construction of multiple working models.

Deliverables: Detailed literature review, project proposal, and final report, all engineering analysis, cost estimate to duplicate, bill of materials, drawing package (if applicable), software files (if applicable), detailed procedure for repeatable manufacturing, all receipts for purchase/expenses, and 12 additional functional models for testing.

Onsite Gore Presentation: The team will be invited to visit a W.L. Gore facility and present their project to the technical community at W.L. Gore.

¹Other resources may be provided as needed/justified