Structures Technology Development Plan

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Version 1	3/24/2019	Initial Release

Structures Technology Development Plan

1.0 Overview:

This semester, we are starting our composites team from scratch by using leftover composite materials from other teams to begin developing fabrication techniques. We plan to continue developing the Phoenix II rocket as we develop these fabrication techniques, replacing the “blue-tube” cardboard with carbon fiber composite tubes with the goal of decreasing weight and increasing structural stability. If this is achieved quickly, we will aim to create a set of carbon composite fairings for Phoenix II, further achieving the previously mentioned goals.

2.0 Technology Readiness Level Timeline:

TRL Level	Technology Status	Date in Program
1	Principles Observed	Done
2	Application Validated	Done
3	Proof-of-Concept Demonstrated	3/11/2019
4	Flight Hardware Demonstrated	After spring break
5	Flight Hardware Demonstrated in Simulated Environment	After spring break
6	Demonstration in tandem with other subsystems	Early Spring 2020
7	Flight Validated	IREC 2020

3.0 TRL Gateways:

TRL Level Achieved	Test to be Performed
1	N/A
2	N/A
3	First 1.5” Phoenix II carbon body tubes produced, and tested for stiffness and weight in Olin College MatSci Lab
4	Test flight of Phoenix II with carbon body tubes
5	Fabrication techniques adapted to full size body tubes
6	Full size body tubes tested for strength, stiffness, and integration
7	Mission flown