**ME 755 Senior Design**

**Spring 2018**

**Project Statement and Design Criteria**

**Team 13**

**Project Name:** SEDS University Student Rocketry Competition

**Team Members:** Reilly Webb

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**Faculty Advisor:** Todd Gross

**Project Statement:** The goal of this project is to research, analyze, design, manufacture, and launch a reusable, multistage rocket to the highest possible altitude for a collegiate competition. In addition, we will need to design and build a launch pad durable enough to withstand multiple launches and a static test fire rig to measure specific engine capabilities.

**Design Criteria:**

* Total combined engine impulse must not exceed 640 Newton-Seconds
* Launches must abide by local, state, and federal laws and regulations
* Must reach at least 3000 ft above ground level
* Must safely house an altimeter provided by SEDS
* Must be at least two stages, with a recovery system for both stages
* No part of the rocket can have a velocity of more than 5m/s during the landing process
* Must be easily manufacturable for rapid prototyping
* Must be lightweight, to have a high thrust to weight ratio
* Thrust vector will be controlled using a micro controller, accelerometer, and servo motors