January 22, 2024

Q and A regarding the 2023-2024 Space Grant Midwest High-Power Rocketry Competition (based on questions raised during the informational videocons and by e-mail – substantive clarifications have been added to the handbook – most-recent copy always posted at https://dept.aem.umn.edu/msgc/Space_Grant_Midwest_Rocketry_Competition_2023_2024/

Note from Gary Stroick: Due to supply chain issues, Cesaroni is currently only producing motors using Green, Skidmark, Smoky Sam, and White Thunder propellants. This will limit your choice of I-class motors, if you go with Cesaroni. Aerotech, on the other hand, has very long delivery times and their motors (besides their limited DMS line) are much more complicated to assemble. Talk to your mentor about which way to go then get your motor orders in asap.

Q: When will the "informal" written L1 tests be administered and can students build and fly L1 certification rockets before taking the test?
A: The L1 test will be available the evening before the competition, like the L2 test, for students seeking to certify at the competition. Students that want to do L1 certification flights in advance of the competition should contact Prof. Flaten about when to take their L1 written test. Students may fly their L1 rocket before taking the test since, unlike L2 certification, you do not have to pass a written test before doing an L1 cert attempt (unless you are a minor, in which case different rules apply).

Q: How should students prepare for the L1 (and the L2) written tests?
A: Students seeking L2 certification should study Tripoli L2 certification materials <https://www.tripoli.org/content.aspx?page_id=22&club_id=795696&module_id=468687>. Students seeking L1 certification could study that too, or else look at Tripoli Mentoring Program (TMP) study materials <https://www.tripoli.org/TMP>.

Q: Can we expel gas or fluid or have an internal (fluid) internal roll-dampener to try to minimize roll?
A: No – that would be considered "moving parts" (i.e. moving mass). We recommend you just try to build (and ground test, if possible) a rocket that inherently doesn't tend to roll.

Q: Can we send sensor data to the ground, where we have more computational power, and to the apogee calculation there?
A: Yes. In fact, you get bonus points for sending data to the ground if you use a non-commercial (i.e. not-designed-for-rocketry) radio system. Be sure to timestamp all telemetry data received, as evidence of when it was received, and also all calculations completed, as evidence of whether or not they were completed within 3 seconds of motor burnout.

Q: Can we at least get partial credit if we do a good apogee prediction, but not within 3 seconds of motor burnout?
A: Yes, but it must only use sensor data collected within 3 seconds of motor burnout. Be sure you can sense motor burnout and timestamp all data, as evidence that your apogee calculation only used data collected within 3 seconds of motor burnout.

Q: Will our apogee altitude be compared to the actual altitude in percentage terms or absolute terms?
A (*see handbook – this was mis-answered orally during the informational videocon*): As described in the scoring formula in the handbook, your apogee altitude estimation will be compared to the measured apogee altitude in <u>absolute</u> terms, not percentage terms.

Q: Can we do test flights on motors other than the competition motors, including non-high-power motors?
A: Yes, but we expect at least one test flight will be done on a high-power motor.