UNH SEDS is currently in the process of fulfilling a three-year plan to compete in the Spaceport America Cup competition located in Las Cruces, New Mexico in June 2020. The 2017-2018 school year was dedicated to developing a strong foundation of basic rocket mechanics. Using this knowledge, the members of the team this year were able to design, manufacture, and test a high-powered hybrid rocket engine. This engine will be passed on to the members of the club for the 2019-2020 school year to optimize and implement into a final rocket design for the competition. Since this team is working on its first ever design of a hybrid rocket engine, UNH SEDS has taken a “first principles” approach towards design. Once the fundamental mechanics of a hybrid rocket engine were understood, an engine was designed and manufactured for testing on a custom static test fire rig to obtain experimental thrust and combustion chamber temperature to optimize the engine’s performance. The team has also begun the design and manufacturing of a gimbal system which permits thrust vectoring providing controlled, in-flight stability. The trials and tribulations faced this year will be used in conjunction with basic rocket mechanics to design an award winning hybrid rocket for next years competition.

UNH SEDS is a multidisciplinary student organization consisting of students from all classes who have a love for space. Since its foundation in 2017, each year of UNH SEDS has been focused on a set of challenges. The 2017-2018 school year was dedicated to developing a strong foundation of basic rocket mechanics. Using this knowledge, the 2018-2019 team members were able to design, manufacture, and test a first iteration high-powered hybrid rocket engine. This engine was passed on to the members of the club for the 2019-2020 school year to optimize and implement into a final rocket design for competition. This year took UNH SEDS on its largest step yet. Avionics, Frame, Operations, and Propulsion teams all came together with hopes to build New Hampshire’s first undergraduate hybrid rocket. The trials and tribulations faced this year will assist UNH SEDS and its endeavor to compete in the Spaceport America Cup competition located in Las Cruces, New Mexico in June 2021.