



# 2022 IEEE/AIAA ITEC+EATS STUDENT DESIGN CHALLENGE

CALL FOR PROPOSALS

## Introduction

The IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium (ITEC+EATS) invites you to participate in the 2022 ITEC+EATS Student Design Challenge. Stimulated by ambitious emission reduction goals established by our modern society due to the climate, radical technologies and revolutionary design approaches are required for the future aviation sector. One way to achieve these goals resides in increased electrification of aircraft. As one future promising technology, advanced battery systems have been identified as one of the solutions for this electrification. However, the aviation sector has requirements for large amounts of electrical power at high voltage (up to megawatts) for such airborne applications. Because of the severe weight and volume constraints imposed on any aircraft design and stringent reliability and safety requirements, the design of a high-voltage/high power distribution propulsion system for zero-emission aircraft needs a careful examination. Such skills are now essential to engineers who design aircraft of the future.

**Challenge:** The aim of the Student Design Challenge 2022 is to trigger increased awareness in design towards managing phenomena linked to high voltage. The main goal is to design a high-voltage/high-power distribution propulsion system for a 4 E-motor full-electric aircraft. The entry into service (EIS) is 2040 for a 9 PAX + 1 crew + luggage aircraft with a 260km range including a 50 km backup. The challenge includes electric distribution optimization, component sizing, safety considerations, and risks mitigation linked to phenomena like discharges or electric arcs. The objective is to have energy storage to supplement take off, climb, go-around, and emergencies via batteries and the 4 E-motors.

**Complete information on Requirements, Report and Design Data Requirements, and Expectations and Ranking are provided in detail on the Competition website.**

### Schedule:

- Submission Opens: October 2021
- Teams submit a Letter of Intent (LoI) to participate: No later than February 28, 2022
- Teams submit Requests for Information (RFI)/Clarification: Continuously, but no later than February 28, 2022
- Teams Submit Final Proposals: No later than May 15, 2022
- Winning Teams announced at ITEC/EATS 2022– June 15-17, 2022

### Eligibility:

More than one design may be submitted from students at any one school. Teams can consist of the following:

- Undergraduate students
- Graduate students
- Combine Undergrad and Graduate students

### Contact:

All information including any updates will be posted on the Competition website: <https://tec.ieee.org/conferences-workshops/2022-aiaa-ieee-eats-student-design-competition>

All questions related to this RFP should be addressed to:  
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