

# AIAA Design Competition Rules

## I. Eligibility Requirements

- All AIAA Student members are eligible and encouraged to participate. Membership with AIAA must be current to submit a report and to receive any prizes.
- Students must submit their letter of intent and final report via the online submission to be eligible to participate. **No extensions will be granted.**
- More than one design may be submitted from students at any one school.
- If a design group withdraws their final report from the competition, the team leader must notify AIAA Headquarters immediately.
- Design projects that are used as part of an organized classroom requirement are eligible and encouraged for competition.

## II. Schedule

- Letter of Intent submitted via [online submission site](#) — 9 February 2020 (2359 hrs Eastern Time)
- Proposal submitted via [online submission site](#) — 8 May 2020 (2359 hrs Eastern Time)
- Announcement of Winners (*via email*)— 31 August 2020 (2359 hrs Eastern Time)
  - Engine Design Competition dates
    - Letter of Intent submitted via [online submission site](#) – 14 February 2020 (2359 hrs Eastern Time)
    - Proposal submitted via [online submission site](#) to AIAA Headquarters – 14 May 2020 (2359 hrs Eastern Time)
    - Round 1 evaluations completed – 30 June 2020 (2359 hrs Eastern Time)
    - Round 2 presentations at [AIAA Propulsion and Energy Forum 2020](#)

## III. Categories/Submissions

- Team\_Submissions
  - Team competitions will be groups of not more than ten AIAA Student Members per entry.
- Individual\_Submissions
  - Individual competitions will consist of only one AIAA Student member per entry.
- Graduate
  - Graduate students may participate in the graduate categories only.
- Undergraduate
  - Undergraduate students may participate in the undergraduate categories only.
- Letter of Intent (LOI)
  - A Letter of Intent indicating interest in participating in the design competitions is required before submitting a final report.
  - All Letters of Intent must be submitted through the online submission system.
  - Letter of Intent must include student's names, emails, AIAA membership numbers, faculty advisor(s) names, emails, and project advisor(s) names and emails. Incomplete LOI's will result in the Team or Individual being ineligible to compete in the competition.

- **Submission of Final Design Report**

Each team or individual must provide an electronic copy their design report as outlined below to the online Submission site

- An electronic copy of the report in Adobe PDF format must be submitted to AIAA using the online submission site. Total size of the file cannot exceed 20 MB.
- Electronic report files must be named: "2020\_[university]\_DESIGN\_REPORT.pdf"
- A "Signature" page must be included in the report and indicate all participants, including faculty and project advisors, along with students' AIAA member numbers and signatures.
- All electronic reports, including Engine Design Reports, must be no more than 100 pages, double-spaced, and in Times New Roman 10-point font. This includes all graphs, drawings, photographs, references, and appendices. The limit of 100 pages is a strict limit. Any reports submitted longer than 100 pages will be rejected and will not be submitted for review.

#### **IV. Copyright**

All submissions to the competition shall be the original work of the team members.

Authors retain copyright ownership of all written works submitted to the competition. By virtue of participating in the competition, team members and report authors grant AIAA non-exclusive license to reproduce submissions, in whole or in part, for all of AIAA's current and future print and electronic uses. Appropriate acknowledgment will accompany any reuse of materials.

#### **V. Conflict of Interest**

It should be noted that it shall be considered a conflict of interest for a design professor to write or assist in writing RFPs and/or judging proposals submitted if (s)he will have students participating in, or that can be expected to participate in those competitions. A design professor with such a conflict must refrain from participating in the development of such competition RFPs and/or judging any proposals submitted in such competitions.

#### **VI. Awards**

The prize money provided for the competitions is funded through the AIAA Foundation. The monetary awards may differ for each competition, with a maximum award of \$1,000. The award amounts are listed below.

The top three design teams will be awarded certificates. One representative from the first place team *may be* invited by the Technical Committee responsible for the RFP to make a presentation of their design at an AIAA forum. A travel stipend *may be* available for some competitions, with a travel stipend that may be used to help with costs for flight, hotel, or conference registration to attend an AIAA forum.

### **Aircraft Design Competitions**

- Graduate Team Aircraft
  - 1<sup>st</sup> Place: \$500; 2<sup>nd</sup> Place: \$250; 3<sup>rd</sup> Place: \$125
- Undergraduate Team Aircraft
  - 1<sup>st</sup> Place: \$500; 2<sup>nd</sup> Place: \$250; 3<sup>rd</sup> Place: \$125

### **Gas Turbine (Engine) Design Competition**

- Undergraduate Team Engine
  - 1<sup>st</sup> Place: \$1000; 2<sup>nd</sup> Place: \$600; 3<sup>rd</sup> Place \$500

### **Space Systems Competition**

- Undergraduate Team Space Transportation
  - 1<sup>st</sup> Place: \$500; 2<sup>nd</sup> Place: \$300; 3<sup>rd</sup> Place: \$250

### **Missile Systems Design Competitions**

- Graduate Team Missile Systems Design Competition
  - 1<sup>st</sup> Place: \$500; 2<sup>nd</sup> Place: \$250; 3<sup>rd</sup> Place: \$125

## **VII. Proposal Requirements**

The technical proposal is the most important factor in the award of a contract. It should be specific and complete. While it is realized that all of the technical factors cannot be included in advance, the following should be included:

- Demonstrate a thorough understanding of the Request for Proposal (RFP) requirements.
- Describe the proposed technical approaches to comply with each of the requirements specified in the RFP, including phasing of tasks. Legibility, clarity, and completeness of the technical approach are primary factors in evaluation of the proposals.
- Particular emphasis should be directed at identification of critical, technical problem areas. Descriptions, sketches, drawings, systems analysis, method of attack, and discussions of new techniques should be presented in sufficient detail to permit engineering evaluation of the proposal. Exceptions to proposed technical requirements should be identified and explained.
- Include tradeoff studies performed to arrive at the final design.
- Provide a description of automated design tools used to develop the design.

## **VIII. Basis for Judging**

The AIAA Technical Committee that developed the RFP will serve as the judges of the final reports. They will evaluate the reports using the categories and scoring listed below. The judges reserve the right to not award all three places. Judges' decisions are final.

### **1. Technical Content (35 points)**

This concerns the correctness of theory, validity of reasoning used, apparent understanding and grasp of the subject, etc. Are all major factors considered and a reasonably accurate evaluation of these factors presented?

### **2. Organization and Presentation (20 points)**

The description of the design as an instrument of communication is a strong factor on judging. Organization of written design, clarity, and inclusion of pertinent information are major factors.

### **3. Originality (20 points)**

The design proposal should avoid standard textbook information, and should show the independence of thinking or a fresh approach to the project. Does the method and treatment of the problem show imagination? Does the method show an adaptation or creation of automated design tools?

### **4. Practical Application and Feasibility (25 points)**

The proposal should present conclusions or recommendations that are feasible and practical, and not merely lead the evaluators into further difficult or insolvable problems.

*\*For more information about Design Competitions, please contact Michael Lagana ([designcompetitions@aiaa.org](mailto:designcompetitions@aiaa.org)).\**