



Textron Aviation

Raytheon Missile Systems

AIAA Foundation

The 2016 Textron Aviation/Raytheon Missile Systems/AIAA Design/Build/Fly Competition Flyoff was held at Cessna East Field in Wichita, KS on the weekend of April 15-17, 2016. This was the 20th anniversary year since the original competition was held at Ragged Island, MD, in 1997. A total of 145 entries were received, and a new requirement was implemented to write a proposal for review. 137 proposals were submitted and 93 teams were selected for the next phase. 80 teams submitted written reports to be judged, and 69 teams attended the flyoff (25 international). Over 625 students, faculty, and guests were present.

The Missions this year simulated a Distributed Manufacturing system, where the students were required to design two aircraft:

- The Production Aircraft, which carried a payload of a 32oz bottle of Gatorade.
- The Manufacturing Support Aircraft, which is designed to carry the Production Airplane internally.

The Mission Score was the product of the three Flight Scores, and a Bonus mission was added with a timed assembly of the Production Airplane. As in the past, the Final Score is the product of the Mission Score and written Report Score, divided by airplane RAC (airplane and battery weights). More details can be found at the competition website: <http://www.aiaadbf.org>

The mission requirements this year were very challenging, and furthermore strong winds prevailed for the first two days and it rained much of the third day. Still, there were 217 flight attempts, of which 83 resulted in a valid flight score. 38 teams had successful flight scores and 12 teams completed all three flight missions. The quality of the teams, readiness to compete, and execution of the flights was outstanding.

First place went to San Jose State University with a score of 1300.64, second place to Georgia Tech University at 801.32 and third to University of California Irvine at 610.49. A full listing of the results is shown below. The best paper award, sponsored by the Design Engineering TC for the highest report score, went to Georgia Tech University with a score of 97.00.

We owe our thanks for the success of the DBF competition to the efforts of many volunteers from Textron Aviation, Raytheon Missile Systems, and the AIAA sponsoring technical committees (Applied Aerodynamics, Aircraft Design, Flight Test, and Design Engineering). These volunteers collectively set the rules for the contest, publicize the event, gather entries, judge the written reports, and organize the flyoff. Thanks also go to the Corporate Sponsors: Textron Aviation, Raytheon Missile Systems, and the AIAA Foundation for their financial and logistical support. Special thanks to Textron Aviation for hosting the flyoff this year.

The growth of the DBF since it was initiated has been phenomenal, and the Organizing Committee is committed to make this educational opportunity available to as many students as possible.

Finally, this flyoff marks the final year of my tenure on the DBF Organizing Committee. I am grateful for this opportunity to have served you - the students - and the Aerospace Community at large.

David Levy
For the DBF Organizing Committee

2016 AIAA Design/Build/Fly Competition Final Results

| RANK | TEAM | | Report | MISSION SCORES | | | | | RAC | 2016 DBF Score |
|------|---------|--|--------|----------------|------|------|-------|-------|-------|----------------|
| | Queue # | Name | | MF1 | MF2 | PF1 | Bonus | Total | | |
| 1 | 30 | San Jose State University | 86.33 | 2.00 | 4.00 | 2.00 | 2.00 | 18.00 | 1.19 | 1300.64 |
| 2 | 1 | Georgia Institute of Technology | 97.00 | 2.00 | 4.00 | 1.00 | 0.00 | 8.00 | 0.97 | 801.32 |
| 3 | 14 | University of California, Irvine | 91.17 | 2.00 | 4.00 | 2.00 | 2.00 | 18.00 | 2.69 | 610.49 |
| 4 | 3 | Virginia Tech | 95.25 | 2.00 | 4.00 | 2.00 | 2.00 | 18.00 | 5.17 | 331.86 |
| 5 | 21 | University of Oklahoma | 89.00 | 2.00 | 4.00 | 2.00 | 0.00 | 16.00 | 4.60 | 309.51 |
| 6 | 34 | Oregon State University | 85.67 | 2.00 | 4.00 | 2.00 | 2.00 | 18.00 | 5.73 | 269.13 |
| 7 | 15 | FH JOANNEUM | 91.00 | 2.00 | 4.00 | 2.00 | 2.00 | 18.00 | 8.39 | 195.16 |
| 8 | 19 | Cornell University | 89.00 | 2.00 | 4.00 | 2.00 | 0.00 | 16.00 | 8.55 | 166.50 |
| 9 | 58 | Hebei U. of Science & Technology | 72.33 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 0.49 | 118.77 |
| 10 | 12 | Università di Roma "La Sapienza" | 92.33 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 0.65 | 113.15 |
| 11 | 40 | Embry-Riddle Aeronautical University - Daytona Beach | 84.50 | 2.00 | 4.00 | 2.00 | 2.00 | 18.00 | 14.33 | 106.17 |
| 12 | 44 | Embry-Riddle Aeronautical University-Prescott | 83.83 | 2.00 | 4.00 | 2.00 | 2.00 | 18.00 | 15.56 | 97.01 |
| 13 | 10 | The University of Texas at Austin | 92.33 | 2.00 | 4.00 | 2.00 | 2.00 | 18.00 | 18.46 | 90.05 |
| 14 | 26 | Arizona State University | 88.33 | 2.00 | 4.00 | 2.00 | 2.00 | 18.00 | 23.20 | 68.52 |
| 15 | 7 | California Polytechnic State University, San Luis Obispo | 94.00 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 1.34 | 55.95 |
| 16 | 4 | University of Southern California | 94.75 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 1.49 | 50.94 |
| 17 | 18 | TEL AVIV UNIVERSITY | 89.33 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 2.13 | 33.53 |
| 18 | 9 | University of Strathclyde | 93.43 | 2.00 | 4.00 | 2.00 | 0.00 | 16.00 | 51.66 | 28.94 |
| 19 | 17 | Colorado School of Mines | 89.67 | 2.00 | 4.00 | 1.00 | 0.00 | 8.00 | 27.70 | 25.89 |
| 20 | 29 | Massachusetts Institute of Tech | 86.97 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 5.11 | 13.61 |
| 21 | 23 | University of Glasgow | 88.67 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 5.46 | 12.98 |
| 22 | 65 | University of Central Florida | 67.25 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 6.05 | 8.89 |
| 23 | 67 | University of California, Los Angeles | 65.00 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 8.06 | 6.45 |
| 24 | 22 | The Hong Kong University of Science and Technology | 88.83 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 11.19 | 6.35 |
| 25 | 35 | University of Washington | 85.33 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 13.17 | 5.18 |
| 26 | 37 | Istanbul Technical University | 85.30 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 13.61 | 5.01 |
| 27 | 13 | University of California San Diego | 92.00 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 14.96 | 4.92 |
| 28 | 24 | University of Tennessee, Knoxville | 88.67 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 19.96 | 3.55 |
| 29 | 33 | University of Notre Dame | 86.00 | 2.00 | 4.00 | 0.10 | 0.00 | 0.80 | 30.69 | 2.24 |
| 30 | 43 | University of Ljubljana, Faculty of Mechanical Engineering | 84.33 | 2.00 | 0.10 | 0.10 | 0.00 | 0.02 | 0.94 | 1.79 |
| 31 | 8 | Wichita State University | 93.67 | 2.00 | 0.10 | 0.10 | 0.00 | 0.02 | 1.15 | 1.63 |
| 32 | 39 | National University of Singapore | 84.67 | 2.00 | 1.00 | 0.10 | 0.00 | 0.20 | 21.28 | 0.80 |
| 33 | 5 | Universtiy of Colorado Boulder | 94.50 | 2.00 | 0.10 | 0.10 | 0.00 | 0.02 | 11.89 | 0.16 |
| 34 | 62 | The Pennsylvania State University | 67.33 | 2.00 | 0.10 | 0.10 | 0.00 | 0.02 | 8.52 | 0.16 |
| 35 | 27 | Saint Louis University | 87.00 | 2.00 | 0.10 | 0.10 | 0.00 | 0.02 | 25.46 | 0.07 |
| 36 | 28 | UNIVERSIDAD DE SAN BUENAVENTURA BOGOTA | 87.00 | 2.00 | 0.10 | 0.10 | 0.00 | 0.02 | 26.77 | 0.06 |
| 37 | 16 | University of Maryland, College Park | 90.67 | 2.00 | 0.10 | 0.10 | 0.00 | 0.02 | 36.84 | 0.05 |
| 38 | 46 | Ghulam Ishaq Khan Institute of Engineering Sciences and Technology | 82.93 | 2.00 | 0.10 | 0.10 | 0.00 | 0.02 | 36.30 | 0.05 |

2016 AIAA Design/Build/Fly Competition Final Results (Continued)

| RANK | TEAM | | Report | MISSION SCORES | | | | | RAC | 2016 DBF Score |
|------|---------|--|--------|----------------|------|------|-------|-------|------|------------------------|
| | Queue # | Name | | MF1 | MF2 | PF1 | Bonus | Total | | |
| 39 | 2 | Veerмата Jijabai Tech Institute | 95.50 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | Passed Tech Inspection |
| 40 | 6 | Rashtreeeya Vidyalaya College Of Engineering | 94.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 41 | 11 | The State University of New York at Buffalo | 92.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 42 | 20 | Universidad Pontificia Bolivariana | 89.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 43 | 32 | Khalifa University | 86.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 44 | 36 | Rice University | 85.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 45 | 41 | University of Mass Lowell | 84.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 46 | 42 | Columbia University in the City of New York | 84.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 47 | 45 | Concordia University | 82.93 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 48 | 49 | University of South Carolina | 82.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 49 | 50 | Uludag University | 80.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 50 | 52 | University of Arkansas | 78.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 51 | 55 | University of South Alabama | 76.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 52 | 59 | PES University | 70.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 53 | 63 | Cairo University | 67.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 54 | 66 | Colorado State University | 66.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 55 | 72 | University of California, Merced | 60.40 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 56 | 73 | Sakarya University | 59.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 57 | 76 | Brno University of Technology | 57.83 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 58 | 77 | ATATÜRK UNIVERSITY | 57.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 59 | 38 | Florida Institute of Technology | 85.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | At Flyoff |
| 60 | 47 | North Dakota State University | 82.63 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 61 | 48 | Worcester Polytechnic Institute | 82.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 62 | 56 | Marmara University | 74.67 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 63 | 64 | DHA SUFFA UNIVERSITY | 67.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 64 | 69 | Rensselaer Polytechnic Institute | 62.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 65 | 75 | California State University, Long Beach | 58.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 66 | 78 | University of Wisconsin-Madison | 55.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 67 | 25 | University of Florida | 88.67 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | Submitted Report |
| 68 | 31 | University of California, Berkeley | 86.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 69 | 51 | Karabuk University | 78.67 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 70 | 53 | Rose-Hulman Inst. of Technology | 78.17 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 71 | 54 | Purdue University | 78.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 72 | 57 | Trine University | 74.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 73 | 60 | College of Aeronautical Engineering, NUST | 69.67 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 74 | 61 | University Of Alaska Fairbanks | 69.00 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 75 | 68 | Stanford University | 63.33 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 76 | 70 | Johns Hopkins University | 61.60 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 77 | 71 | Wentworth Inst. of Technology | 61.25 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 78 | 74 | SRM UNIVERSITY | 58.75 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 79 | 79 | American University of Sharjah | 53.67 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |
| 80 | 80 | The Hong Kong Polytechnic University | 32.50 | 0.10 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | |

First Place Winner: San Jose State University.



Second Place Winner: Georgia Tech University.



Third Place Winner: University of California at Irvine.

