

## 2025 Design, Build, Fly Competition Summary



Beechcraft

BY TEXTRON AVIATION



RTX

COLLINS AEROSPACE | PRATT & WHITNEY | RAYTHEON



The 2024-25 AIAA/Textron Aviation/RTX Design, Build, Fly Competition Flyoff was held at the Tucson International Modelplex Park Association in Tucson, AZ on the weekend of April 10-13, 2025. This was the 29<sup>th</sup> year of the competition. Of the 159 proposals submitted and judged, 112 teams were invited to submit a design report for the next phase of the competition. 111 teams submitted design reports and 96 teams attended the flyoff (22 international teams). Over 1200 students, faculty, and guests were present. This was a record year for the number of teams and students attending the fly-off. Of the 96 teams in attendance, 92 successfully completed tech inspection. The weather was hot and dusty but flying conditions were generally good, which allowed for non-stop flying. Of the 267 official flight attempts, 164 resulted in a successful score with 78 teams achieving at least one successful flight score and 24 teams successfully completing all missions (one ground and three flight missions). The quality of the teams, their readiness to compete, and the execution of the flights was exceptional.

The contest theme this year was an X-1 Supersonic Flight Test Program. The first mission was a Delivery Flight requiring the aircraft to complete three laps within five minutes. The second mission was a Captive Carry Flight including fuel tanks and an X-1 Flight Test vehicle, with score based on weight of the fuel tanks and time to fly three laps. The final mission included in-flight Launch of the X-1 Flight Test vehicle, with score based on number of laps flown prior to launch of the X-1 and the ability of the X-1 to release from the airplane and fly autonomously to a target area, with a bonus score base on the X-1 vehicle's weight and its landing position within the target area. Teams were also required to complete a ground mission demonstrating the efficiency of converting a production bomber airplane into a flight test platform. The team's final score is the product of the sum of the flight and ground mission scores and total report score plus participation score. More details on the mission requirements and scoring breakdown may be found at the competition website: <http://www.aiaa.org/dbf>.

First Place went to FH Joanneum, Second Place went to Royal Melbourne Institute of Technology, and Third Place went to Santa Clara University. A full listing of the results is included below. The Best Paper Award, sponsored by the Design Engineering TC for the highest design report score, went to the University of New South Wales with a score of 97.58.

For the fourth year, the Stan Powell Memorial Award recognized a team that exhibited the Most Meaningful Lessons Learned during the competition. This year, it was awarded to Virginia Polytechnic Institute and State University. Working through multiple issues that resulted in two failed flight missions, they rallied Sunday to post a very successful score for Mission 3.

We owe our thanks for the success of the DBF competition to the efforts of many volunteers from Textron Aviation, RTX, and the AIAA sponsoring technical committees: Applied Aerodynamics, Aircraft Design, Flight Test, and Design Engineering. These volunteers collectively set the rules, judge the proposals and reports, and execute the flyoff. Thanks also to the Premier Sponsors: Textron Aviation and RTX, and to the AIAA Foundation for their financial support as well as to our Gold sponsors this year – General Atomics, Mathworks, Stoke Space and The University of Arizona Aerospace and Mechanical Engineering. Special thanks go to RTX for hosting the flyoff this year.

Finally, this event would not be nearly as successful without the hard work and enthusiasm from all the students and advisors. If it weren't for you, we wouldn't keep doing it!!

DBF Organizing Committee

# 2025 Design, Build, Fly Competition Summary



COLLINS AEROSPACE | PRATT & WHITNEY | RAYTHEON



## 2025 Design/Build/Fly Competition Final Results

Rank	Team University	Part P	Mission Scores					Report			2025 DBF Score
			GM	M1	M2	M3	Total	Prop	Design	Total	
1	FH JOANNEUM	3	0.92	1.00	1.69	2.73	6.34	81	81.28	81.29	518.23
2	Royal Melbourne Institute of Technology	3	1.00	1.00	1.60	2.36	5.96	89	79.83	81.16	486.36
3	Santa Clara University	3	0.85	1.00	1.36	2.26	5.47	74	89.57	87.20	479.90
4	The University of Akron	3	0.42	1.00	1.97	2.51	5.89	64	83.50	80.55	477.78
5	Rensselaer Polytechnic Institute	3	0.08	1.00	1.93	3.00	6.01	87	75.07	76.80	464.60
6	The University of Texas at Austin	3	0.65	1.00	1.88	2.11	5.64	76	82.65	81.58	463.44
7	Virginia Polytechnic Institute and State University	3	0.63	1.00	1.42	2.35	5.40	70	87.80	85.19	463.16
8	University of Ljubljana	3	0.59	1.00	1.69	2.04	5.32	76	88.17	86.35	461.96
9	The University of Sydney	3	0.46	1.00	1.58	2.28	5.32	88	86.00	86.32	461.94
10	University of California, Los Angeles	3	0.17	1.00	1.42	2.22	4.82	84	92.43	91.13	441.97
11	University of Southern California	3	0.35	1.00	1.28	2.11	4.75	84	89.36	88.50	423.14
12	University at Buffalo	3	0.28	1.00	2.00	2.26	5.54	79	74.05	74.73	416.95
13	The University of Kansas	3	0.21	1.00	1.55	2.22	4.99	70	85.07	82.76	416.03
14	The Pennsylvania State University	3	0.08	1.00	1.55	2.15	4.78	79	85.07	84.16	405.19
15	Embry-Riddle Aeronautical University - Prescott	3	0.06	1.00	1.66	2.22	4.95	73	82.52	81.04	403.99
16	Columbia University	3	0.96	1.00	1.15	2.04	5.15	82	77.02	77.76	403.78
17	University of Illinois Urbana-Champaign	3	0.21	1.00	1.32	2.61	5.14	82	76.67	77.50	401.20
18	University of Maribor	3	0.22	1.00	1.48	2.57	5.27	68	75.87	74.65	396.62
19	The Hong Kong Polytechnic University	3	0.44	1.00	1.29	2.11	4.83	79	80.70	80.38	391.58
20	Universidad Pontificia Bolivariana	3	0.51	1.00	1.20	2.07	4.79	83	80.25	80.66	389.11
21	The University of Texas at Dallas	3	0.09	1.00	1.37	2.04	4.49	77	85.67	84.34	382.10
22	University of Oklahoma	3	0.20	1.00	1.34	2.22	4.76	74	80.47	79.49	381.73
23	Texas A&M University	3	0.24	1.00	1.21	2.11	4.56	66	71.30	70.50	324.53
24	University of Kentucky - Paducah	3	0.11	1.00	1.18	2.11	4.40	68	65.57	66.00	293.16
25	University of Michigan - Ann Arbor	3	0.88	1.00	1.23	0.00	3.11	77	90.42	88.44	278.48
26	University of Massachusetts Amherst	3	0.75	1.00	1.37	0.00	3.12	75	84.67	83.26	262.73
27	Georgia Institute of Technology	3	0.00	1.00	1.74	0.00	2.74	77	86.62	85.17	236.26
28	Universidade da Beira Interior Faculdade de Engenharia	3	0.22	1.00	1.36	0.00	2.58	66	86.02	82.98	217.18
29	Colorado State University	3	0.05	1.00	1.44	0.00	2.49	76	87.50	85.83	216.72
30	North Carolina State University	3	0.12	1.00	1.38	0.00	2.51	89	82.53	83.49	212.48
31	The Hong Kong University of Science and Technology	3	0.21	1.00	1.42	0.00	2.63	81	76.60	77.20	205.71
32	San Diego State University	3	0.22	1.00	1.71	0.00	2.93	71	67.98	68.49	203.73
33	University of Florida	3	0.16	1.00	1.22	0.00	2.38	84	81.72	82.08	198.59
34	San Jose State University	3	0.10	1.00	1.37	0.00	2.48	80	78.50	78.78	198.04
35	Washington University in St. Louis	3	0.13	1.00	1.11	0.00	2.24	83	83.17	83.09	188.75
36	Aviation and Aerospace University, Bangladesh	3	0.12	1.00	1.06	0.00	2.18	70	86.57	84.10	186.45
37	Khalifa University of Science and Technology	3	0.25	1.00	1.13	0.00	2.38	75	72.70	73.09	177.32
38	University of Notre Dame	3	0.17	1.00	1.09	0.00	2.27	78	74.50	74.98	172.88
39	Military Institute of Science and Technology	3	0.22	1.00	1.07	0.00	2.29	65	75.50	73.96	172.20
40	The University of Hong Kong	3	0.11	1.00	1.22	0.00	2.33	72	70.92	71.03	168.31
41	The Ohio State University	3	0.06	1.00	1.30	0.00	2.35	72	69.77	70.06	167.84
42	Utah State University	3	0.15	1.00	1.08	0.00	2.23	68	74.10	73.16	166.31
43	Trine University	3	0.06	1.00	1.16	0.00	2.23	63	75.05	73.25	166.24
44	Purdue University (Main Campus)	3	0.05	1.00	1.04	0.00	2.08	78	73.00	73.77	156.71
45	Missouri University of Science and Technology	3	0.00	1.00	1.30	0.00	2.30	73	65.17	66.29	155.32
46	Rowan University	3	0.12	1.00	1.12	0.00	2.24	72	66.33	67.21	153.25
47	University of Colorado Boulder	3	0.13	1.00	1.14	0.00	2.27	77	63.58	65.53	151.44
48	Clarkson University	3	0.77	1.00	0.00	0.00	1.77	77	79.13	78.87	142.50
49	Johns Hopkins University	3	0.07	1.00	1.01	0.00	2.08	78	58.03	60.98	129.83
50	California State University, Long Beach	3	0.04	1.00	1.00	0.00	2.05	68	60.03	61.27	128.47
51	University of Washington-Seattle	3	0.34	1.00	0.00	0.00	1.34	85	89.50	88.83	122.25
52	University of New South Wales	3	0.13	1.00	0.00	0.00	1.13	86	97.58	95.83	110.95
53	The University of Alabama	3	0.28	1.00	0.00	0.00	1.28	74	85.30	83.67	110.01
54	University of Maryland, College Park (UMCP)	3	0.38	1.00	0.00	0.00	1.38	88	73.92	76.09	107.65
55	Rutgers University - New Brunswick	3	0.24	1.00	0.00	0.00	1.24	76	85.87	84.34	107.61
56	Alexandria University	3	0.27	1.00	0.00	0.00	1.27	73	81.75	80.45	105.01

# 2025 Design, Build, Fly Competition Summary



BY TEXTRON AVIATION



COLLINS AEROSPACE | PRATT & WHITNEY | RAYTHEON



## 2025 Design/Build Fly Competition Final Results (cont)

Rank	Team	Part	Mission Scores					Report			2025 DBF	
	University		P	GM	M1	M2	M3	Total	Prop	Design	Total	Score
57	Embry-Riddle Aeronautical University, Daytona Beach	3	0.14	1.00	0.00	0.00	0.00	1.14	74	90.70	88.22	103.42
58	Universidad de Antioquia	3	0.13	1.00	0.00	0.00	0.00	1.13	73	88.73	86.31	100.15
59	University of California, Irvine	3	0.22	1.00	0.00	0.00	0.00	1.22	62	82.10	79.10	99.46
60	Auburn University at Auburn	3	0.10	1.00	0.00	0.00	0.00	1.10	81	83.90	83.50	94.91
61	University of Maine	3	0.21	1.00	0.00	0.00	0.00	1.21	64	74.37	72.80	90.82
62	National University of Science and Technology POLITEHNICA Bucharest	3	0.06	1.00	0.00	0.00	0.00	1.06	67	81.60	79.37	86.90
63	DAYANANDA SAGAR COLLEGE OF ENGINEERING	3	0.00	1.00	0.00	0.00	0.00	1.00	78	84.50	83.53	86.53
64	George Washington University	3	0.07	1.00	0.00	0.00	0.00	1.07	63	77.92	75.61	84.10
65	VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE	3	0.10	1.00	0.00	0.00	0.00	1.10	73	73.12	73.05	83.61
66	West Virginia University	3	0.03	1.00	0.00	0.00	0.00	1.03	71	78.75	77.66	83.11
67	Stanford University	3	0.00	1.00	0.00	0.00	0.00	1.00	66	81.73	79.32	82.32
68	Case Western Reserve University	3	0.09	1.00	0.00	0.00	0.00	1.09	64	68.17	67.50	76.85
69	John Brown University	3	0.04	1.00	0.00	0.00	0.00	1.04	66	70.37	69.64	75.35
70	North Dakota State University	3	0.00	1.00	0.00	0.00	0.00	1.00	72	67.30	68.01	71.01
71	The City College of New York	3	0.23	1.00	0.00	0.00	0.00	1.23	65	50.92	53.07	68.27
72	Saint Louis University	3	0.08	1.00	0.00	0.00	0.00	1.08	66	59.57	60.50	68.05
73	University of Arkansas	2	0.76	0.00	0.00	0.00	0.00	0.76	84	84.03	84.06	66.28
74	Massachusetts Institute of Technology	3	0.16	1.00	0.00	0.00	0.00	1.16	76	43.67	48.52	59.32
75	University of California, San Diego	3	0.06	1.00	0.00	0.00	0.00	1.06	61	47.23	49.29	55.16
76	University of Nebraska Lincoln	3	0.05	1.00	0.00	0.00	0.00	1.05	61	45.08	47.41	52.84
77	University of Georgia	3	0.00	1.00	0.00	0.00	0.00	1.00	62	47.47	49.64	52.64
78	Texas Tech University	3	0.00	1.00	0.00	0.00	0.00	1.00	64	44.68	47.56	50.56
79	University of Tennessee Knoxville	3	0.13	1.00	0.00	0.00	0.00	1.13	65	28.33	33.84	41.13
80	National University of Singapore	3	0.44	0.00	0.00	0.00	0.00	0.44	72	87.90	85.58	40.58
81	Seoul National University	3	0.17	0.00	0.00	0.00	0.00	0.17	75	84.95	83.46	17.47
82	Cornell University	3	0.16	0.00	0.00	0.00	0.00	0.16	84	77.58	78.47	15.20
83	Rochester Institute of Technology	3	0.08	0.00	0.00	0.00	0.00	0.08	81	75.83	76.62	9.09
84	University of North Carolina at Charlotte	3	0.06	0.00	0.00	0.00	0.00	0.06	74	79.63	78.79	7.66
85	University of Missouri - Columbia	2	0.06	0.00	0.00	0.00	0.00	0.06	72	69.92	70.28	5.91
86	University of California Merced	2	0.05	0.00	0.00	0.00	0.00	0.05	68	36.90	41.52	3.98
87	Birla Institute of Technology and Science , Pilani, KK Birla Goa Campus	3	0.00	0.00	0.00	0.00	0.00	0.00	77	75.57	75.78	3.00
88	University of South Alabama	3	0.00	0.00	0.00	0.00	0.00	0.00	68	55.15	57.00	3.00
89	University of Hartford	3	0.00	0.00	0.00	0.00	0.00	0.00	69	51.45	54.04	3.00
90	California State Polytechnic University Pomona	2	0.00	0.00	0.00	0.00	0.00	0.00	67	63.33	63.85	2.00
91	University of Vermont	2	0.00	0.00	0.00	0.00	0.00	0.00	70	25.18	31.89	2.00
92	Vaughn College of Aeronautics and Technology	2	0.00	0.00	0.00	0.00	0.00	0.00	62	22.73	28.62	2.00
93	Boston University	1	0.00	0.00	0.00	0.00	0.00	0.00	79	59.00	62.06	1.00
94	University of South Carolina	1	0.00	0.00	0.00	0.00	0.00	0.00	70	59.37	60.95	1.00
95	University of Missouri - Kansas City	1	0.00	0.00	0.00	0.00	0.00	0.00	67	53.07	55.10	1.00
96	University of Idaho	1	0.00	0.00	0.00	0.00	0.00	0.00	62	45.00	47.55	1.00
97	University of Arizona	0	0.00	0.00	0.00	0.00	0.00	0.00	67	32.03	37.30	0.00
98	Yıldız Teknik Üniversitesi	0	0.00	0.00	0.00	0.00	0.00	0.00	66	78.33	76.49	0.00
99	Iowa State University	0	0.00	0.00	0.00	0.00	0.00	0.00	69	74.33	73.52	0.00
100	Mukesh Patel School Of Technology Management and Engineering (Mumbai)	0	0.00	0.00	0.00	0.00	0.00	0.00	78	67.10	68.80	0.00
101	Ghulam Ishaq Khan Institute of Engineering Sciences and Technology	0	0.00	0.00	0.00	0.00	0.00	0.00	64	68.83	68.12	0.00
102	Cairo University	0	0.00	0.00	0.00	0.00	0.00	0.00	82	60.87	63.99	0.00
103	University of California, Davis	0	0.00	0.00	0.00	0.00	0.00	0.00	74	59.58	61.68	0.00
104	Gonzaga University	0	0.00	0.00	0.00	0.00	0.00	0.00	67	60.22	61.25	0.00
105	Colorado School of Mines	0	0.00	0.00	0.00	0.00	0.00	0.00	68	56.58	58.29	0.00
106	The University of Tennessee Chattanooga	0	0.00	0.00	0.00	0.00	0.00	0.00	68	53.97	56.12	0.00
107	Western Michigan University	0	0.00	0.00	0.00	0.00	0.00	0.00	61	46.33	48.53	0.00
108	Tribhuvan University	0	0.00	0.00	0.00	0.00	0.00	0.00	75	43.83	48.44	0.00
109	Clemson University	0	0.00	0.00	0.00	0.00	0.00	0.00	75	39.25	44.62	0.00
110	National Autonomous University of Mexico	0	0.00	0.00	0.00	0.00	0.00	0.00	61	34.13	38.11	0.00
111	University of Pennsylvania	0	0.00	0.00	0.00	0.00	0.00	0.00	65	22.33	28.74	0.00
112	James Madison University	0	0.00	0.00	0.00	0.00	0.00	0.00	61	0.00	9.17	0.00





# 2025 Design, Build, Fly Competition Summary



COLLINS AEROSPACE | PRATT & WHITNEY | RAYTHEON



## First Place – FH Joanneum



## Second Place – Royal Melbourne Institute of Technology





## 2025 Design, Build, Fly Competition Summary



**RTX**

COLLINS AEROSPACE | PRATT & WHITNEY | RAYTHEON



### Third Place – Santa Clara University



### Best Paper Award – University of New South Wales







## 2025 Design, Build, Fly Competition Summary



Beechcraft



COLLINS AEROSPACE | PRATT & WHITNEY | RAYTHEON



### Stan Powell Award - Virginia Polytechnic Institute and State University





## 2025 Design, Build, Fly Competition Summary



Beechcraft

BY TEXTRON AVIATION



RTX

COLLINS AEROSPACE | PRATT & WHITNEY | RAYTHEON



### Past Winners

Year	Team
2025	FH JOANNEUM
2024	Embry-Riddle Aeronautical University Daytona Beach
2023	RWTH Aachen University
2022	Georgia Institute of Technology
2021	Dayananda Sagar College of Engineering
2020	University of Southern California
2019	University of Ljubljana
2018	Clarkson University
2017	University of Southern California
2016	San Jose State University
2015	University of Ljubljana
2014	University of Southern California
2013	University of California, Irvine
2012	San Jose State University
2011	Georgia Institute of Technology
2010	Oklahoma State University Team Orange
2009	Oklahoma State University Team Black
2008	Oklahoma State University Team Black
2007	Massachusetts Institute of Technology
2006	Oklahoma State University Team Black
2005	Oklahoma State University Team Black
2004	Oklahoma State University Team Black
2003	San Diego State University
2002	University of California San Diego
2001	Oklahoma State University Team Orange
2000	Utah State University
1999	Utah State University
1998	University of Southern California
1997	University of Illinois at Urbana-Champaign



# 2025 Design, Build, Fly Competition Summary



BY TEXTRON AVIATION



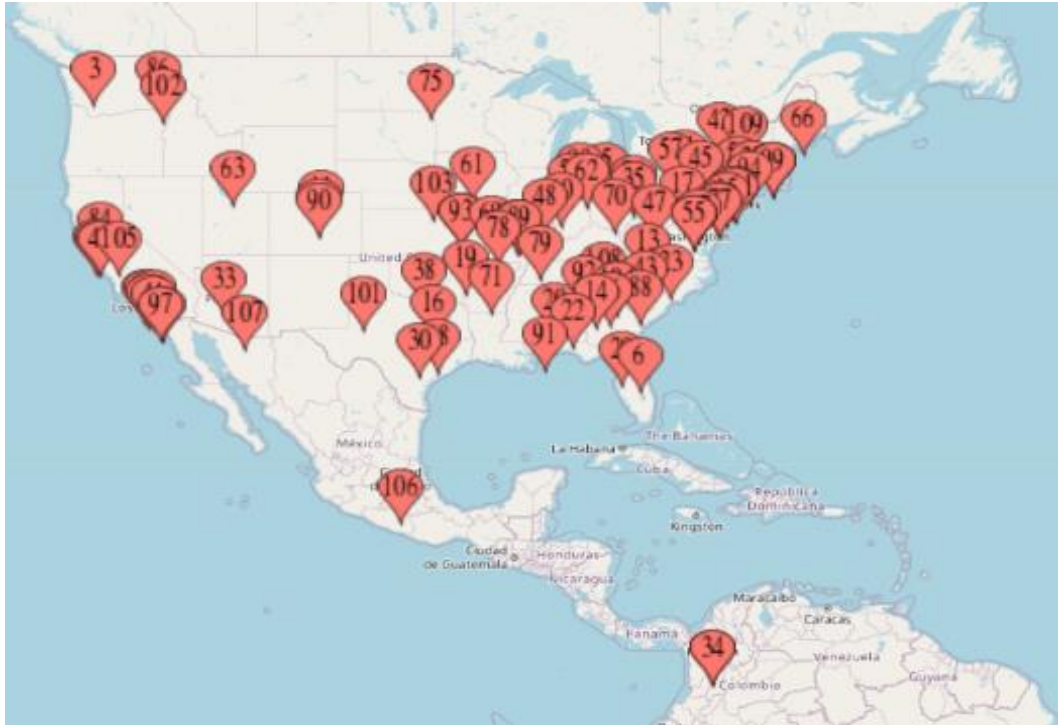
RTX

COLLINS AEROSPACE | PRATT & WHITNEY | RAYTHEON



## Team Locations

### The Americas



### International

