

2023 ACI Student FRC Bowling Ball Competition Results

	Low	High	Units	Team ID >	DEVIL	AUFRC	BCIT1	Herky	CHICO
				Team # >	1	2	3	4	5
Specification Test	0	89		Submittal errors	69	33	26	52	45
				<i>Submittal Errors Note / Reason (original errors + additional errors)</i>	<i>missed submittal (24+45)</i>			<i>wrong info in cell (30+22)</i>	
	0	9		Registration errors	1	0	1	0	0
	0	2		Bowling escort errors	0	0	0	0	0
Mass Test	5,000	6,000	grams	Mass Ball 1	5890.988	4789.490	5364.989	5674.989	5429.989
				<i>Mass Check - Ball 1</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	5,000	6,000	grams	Mass Ball 2	5782.988	4751.990	5218.990	5800.488	5357.489
				<i>Mass Check - Ball 2</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Diameter Test	185	215	mm	Diameter 1 Ball 1	199.0	198.0	196.0	204.3	197.6
	185	215	mm	Diameter 2 Ball 1	198.1	194.3	196.3	203.2	196.7
	185	215	mm	Diameter 3 Ball 1	201.4	193.3	195.2	207.6	197.5
				<i>Average Diameter Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	185	215	mm	Diameter 1 Ball 2	200.4	194.2	195.6	200.4	197.8
	185	215	mm	Diameter 2 Ball 2	200.0	195.4	194.9	204.2	195.6
	185	215	mm	Diameter 3 Ball 2	199.5	194.1	195.9	205.0	196.0
				<i>Average Diameter Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Bowling Test	0	6		Frame 1	6	6	4	6	3
	0	6		Frame 2	6	6	6	6	5
	0	6		Frame 3	6	6	6	6	6
	0	6		Frame 4	6	4	6	0	6
	0	6		Frame 5	6	6	6	3	6
	0	6		Frame 6	6	6	6	0	6
	0	6		Frame 7	6	6	6	3	6
	0	6		Frame 8	6	4	6	0	6
	0	6		Frame 9	6	6	6	4	6
	0	6		Frame 10	6	6	6	4	6
Toughness Test	3,000	60,000	pounds	Load @ 5mm deflection	4,760	5,053	4,173	1,128	2,622
	3,000	60,000	pounds	Load @ 10mm deflection	7,343	2,508	8,793	2,004	1,136
	3,000	60,000	pounds	Load @ 15mm deflection	7,596	1,578	12,779	3,457	195
	3,000	60,000	pounds	Load @ 20mm deflection	8,113	1,120	5,651	6,319	204
	3,000	60,000	pounds	Load @ 25mm deflection	8,102	1,022	7,107	8,801	409
				<i>All Loads Min/Max Check</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Out of Range</i>
				<i>Load Average Min/Max Check</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Out of Range</i>
			%	COV	17.4	66.2	38.5	65.5	100.9
Team Predictions	Decimal Places Allowed	1	Mass Design Prediction	5.500	4.560	6.526	5.600	5.550	
			<i>Receive deduct for decimal error</i>		<i>x</i>	<i>x</i>		<i>x</i>	
		0	Diameter Design Prediction	200	203	198	202	200	
		0	Bowling Design Prediction	6	5	5	6	5	
		0	COV% Design Prediction	6.000	16.300	48.000	15.000	0.000	
			<i>Receive deduct for decimal error</i>		<i>x</i>				
DESIGN PREDICTION CATEGORY RESULTS Difference between Design Prediction and Analysis Test [ABS(DP-AT)]	Points								
	10	Specification Points		3.00	6.70	7.30	4.80	5.50	
	10	Mass Points		9.43	0.00	6.91	9.77	8.74	
	10	Diameter Points		9.81	3.68	8.17	8.34	7.55	
	30	Bowling Points		30.00	26.00	24.67	11.33	26.00	
	40	COV Points		32.94	0.00	34.10	0.00	0.00	
		Total Points		85.1738	36.3824	81.1488	34.2406	47.7870	
		Rank for Design Prediction		10	28	13	30	24	
ANALYSIS TEST CATEGORY RESULTS Difference between Target and Analysis Test [ABS(T-AT)]	Points								
	10	Specification Points		3.00	6.70	7.30	4.80	5.50	
	10	Mass Points		9.39	0.00	9.62	9.57	9.81	
	10	Diameter Points		9.77	5.28	5.99	6.19	7.10	
	30	Bowling Points		30.00	27.33	28.67	11.33	27.33	
	40	COV Points		24.28	0.00	5.12	0.00	0.00	
		Total Points		76.43	39.32	56.69	31.89	49.74	
		Rank for Analysis Test		8	25	20	30	22	

2023 ACI Student FRC Bowling Ball Competition Results

	Low	High	Units	Team ID >	KSUCC	MTSU	NTUST	NJIT1	NCSU1
				Team # >	6	7	8	9	10
Specification Test	0	89		Submittal errors	34	22	11	55	31
				<i>Submittal Errors Note / Reason (original errors + additional errors)</i>				<i>wrong info in cell (32+22)</i>	
	0	9		Registration errors	0	0	0	3	1
	0	2		Bowling escort errors	0	0	0	0	0
Mass Test	5,000	6,000	grams	Mass Ball 1	5932.988	5783.988	5518.489	7696.485	5287.489
				<i>Mass Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>
	5,000	6,000	grams	Mass Ball 2	5913.488	5835.488	5547.989	7930.984	5269.489
				<i>Mass Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>
Diameter Test	185	215	mm	Diameter 1 Ball 1	197.3	188.8	197.0	200.6	200.5
	185	215	mm	Diameter 2 Ball 1	200.2	189.6	196.5	200.6	200.1
	185	215	mm	Diameter 3 Ball 1	201.4	191.1	196.7	202.4	200.1
				<i>Average Diameter Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	185	215	mm	Diameter 1 Ball 2	201.8	191.5	196.8	200.6	200.2
	185	215	mm	Diameter 2 Ball 2	200.5	192.0	196.5	197.9	200.1
	185	215	mm	Diameter 3 Ball 2	201.3	192.7	195.9	198.5	199.8
				<i>Average Diameter Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Bowling Test	0	6		Frame 1	6	6	3	0	6
	0	6		Frame 2	1	5	6	0	6
	0	6		Frame 3	6	4	6	6	6
	0	6		Frame 4	6	6	6	6	6
	0	6		Frame 5	6	5	6	5	6
	0	6		Frame 6	6	6	6	3	6
	0	6		Frame 7	6	6	6	6	6
	0	6		Frame 8	6	4	6	6	6
	0	6		Frame 9	6	6	6	6	6
	0	6		Frame 10	6	6	6	6	6
Toughness Test	3,000	60,000	pounds	Load @ 5mm deflection	12,956	7,304	14,670	3,851	6,300
	3,000	60,000	pounds	Load @ 10mm deflection	17,078	8,793	23,197	2,555	13,944
	3,000	60,000	pounds	Load @ 15mm deflection	18,011	9,982	26,256	2,701	9,479
	3,000	60,000	pounds	Load @ 20mm deflection	20,174	8,036	21,422	4,204	11,411
	3,000	60,000	pounds	Load @ 25mm deflection	26,437	9,158	18,996	3,601	12,670
				<i>All Loads Min/Max Check</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>
				<i>Load Average Min/Max Check</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>
			%	COV	23.4	10.6	18.7	19.1	24.8
Team Predictions	Decimal Places Allowed	1	Mass Design Prediction	5.890	5.700	5.500	5.400	6.000	
			<i>Receive deduct for decimal error</i>	<i>x</i>					
		0	Diameter Design Prediction	200	190	200	200	203	
		0	Bowling Design Prediction	5	6	5	5	5	
		0	COV% Design Prediction	10.000	75.000	13.000	10.000	15.000	
			<i>Receive deduct for decimal error</i>						
DESIGN PREDICTION CATEGORY RESULTS Difference between Design Prediction and Analysis Test [ABS(DP-AT)]	Points								
	10	Specification Points	6.60	7.80	8.90	4.20	6.80		
	10	Mass Points	8.94	9.81	9.94	0.00	8.78		
	10	Diameter Points	9.68	9.26	7.34	9.93	7.77		
	30	Bowling Points	26.67	26.00	25.33	26.00	23.33		
	40	COV Points	31.69	0.00	36.44	0.00	33.88		
		Total Points	83.5782	52.8758	87.9578	40.1260	80.5660		
	Rank for Design Prediction	12	22	7	26	14			
ANALYSIS TEST CATEGORY RESULTS Difference between Target and Analysis Test [ABS(T-AT)]	Points								
	10	Specification Points	6.60	7.80	8.90	4.20	6.80		
	10	Mass Points	9.23	9.44	9.94	0.00	9.60		
	10	Diameter Points	9.62	1.65	6.85	9.91	9.87		
	30	Bowling Points	26.67	26.00	28.00	19.33	30.00		
	40	COV Points	18.83	30.36	23.04	0.00	17.50		
		Total Points	70.95	75.25	76.73	33.45	73.76		
	Rank for Analysis Test	15	10	7	27	11			

2023 ACI Student FRC Bowling Ball Competition Results

	Low	High	Units	Team ID >	Pitt1	PUOPR	SIUE1	NCYU	TXCIM
				Team # >	11	12	14	15	17
Specification Test	0	89		Submittal errors	16	27	20	89	3
				<i>Submittal Errors Note / Reason (original errors + additional errors)</i>				<i>2 fiber lengths (0 specification points)</i>	
	0	9		Registration errors	0	0	0	9	0
	0	2		Bowling escort errors	0	0	0	2	0
Mass Test	5,000	6,000	grams	Mass Ball 1	5229.490	5247.989	5766.488	5600.489	5378.489
				<i>Mass Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	5,000	6,000	grams	Mass Ball 2	5085.990	5303.489	5194.490	5503.989	5491.989
				<i>Mass Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Diameter Test	185	215	mm	Diameter 1 Ball 1	200.0	201.4	190.7	199.9	199.0
	185	215	mm	Diameter 2 Ball 1	200.0	200.8	192.6	200.7	197.8
	185	215	mm	Diameter 3 Ball 1	199.8	201.3	190.4	200.1	197.5
				<i>Average Diameter Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	185	215	mm	Diameter 1 Ball 2	200.1	201.0	191.3	200.2	199.4
	185	215	mm	Diameter 2 Ball 2	200.0	200.7	191.1	200.3	197.7
	185	215	mm	Diameter 3 Ball 2	199.7	201.6	190.2	200.7	196.4
				<i>Average Diameter Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Bowling Test	0	6		Frame 1	6	6	0	6	6
	0	6		Frame 2	3	6	6	6	6
	0	6		Frame 3	4	6	4	6	6
	0	6		Frame 4	6	6	6	6	6
	0	6		Frame 5	6	6	5	6	6
	0	6		Frame 6	6	6	6	6	6
	0	6		Frame 7	6	6	6	6	6
	0	6		Frame 8	6	6	5	6	6
	0	6		Frame 9	6	6	6	6	6
	0	6		Frame 10	6	6	0	6	0
Toughness Test	3,000	60,000	pounds	Load @ 5mm deflection	8,550	3,145	8,672	10,140	3,216
	3,000	60,000	pounds	Load @ 10mm deflection	6,268	7,533	9,510	19,840	2,757
	3,000	60,000	pounds	Load @ 15mm deflection	7,324	6,714	6,267	24,919	2,169
	3,000	60,000	pounds	Load @ 20mm deflection	8,955	6,544	5,453	19,627	1,647
	3,000	60,000	pounds	Load @ 25mm deflection	6,681	7,245	5,638	22,240	1,379
				<i>All Loads Min/Max Check</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Out of Range</i>
				<i>Load Average Min/Max Check</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Out of Range</i>
			%	COV	13.8	25.4	23.4	25.8	30.5
Team Predictions	Decimal Places Allowed	1	Mass Design Prediction	5.520	5.500	5.200	5.500	5.550	
			<i>Receive deduct for decimal error</i>	<i>x</i>				<i>x</i>	
		0	Diameter Design Prediction	201	201	195	200	200	
		0	Bowling Design Prediction	5	6	4	3	4	
		0	COV% Design Prediction	7.000	12.000	5.000	19.500	15.000	
			<i>Receive deduct for decimal error</i>				<i>x</i>		
DESIGN PREDICTION CATEGORY RESULTS Difference between Design Prediction and Analysis Test [ABS(DP-AT)]	Points								
	10	Specification Points	8.40	7.30	8.00	0.00	9.70		
	10	Mass Points	8.39	9.62	9.52	9.91	8.81		
	10	Diameter Points	9.17	9.90	6.93	9.75	8.43		
	30	Bowling Points	26.67	30.00	27.33	10.00	20.67		
	40	COV Points	35.78	31.65	28.57	32.09	0.00		
		Total Points	88.4086	88.4742	80.3591	61.7559	47.6017		
		Rank for Design Prediction	6	5	15	19	25		
ANALYSIS TEST CATEGORY RESULTS Difference between Target and Analysis Test [ABS(T-AT)]	Points								
	10	Specification Points	8.40	7.30	8.00	0.00	9.70		
	10	Mass Points	9.38	9.59	9.96	9.91	9.88		
	10	Diameter Points	9.94	8.96	1.75	9.70	8.14		
	30	Bowling Points	26.67	30.00	19.33	30.00	26.00		
	40	COV Points	27.51	16.96	18.81	16.64	0.00		
		Total Points	81.90	72.82	57.86	66.25	53.72		
		Rank for Analysis Test	4	12	19	16	21		

2023 ACI Student FRC Bowling Ball Competition Results

	Low	High	Units	Team ID >	UANLA	UCPK2	UPRM	BUHOS	UDA23
				Team # >	18	19	20	21	22
Specification Test	0	89		Submittal errors	24	0	24	32	17
				<i>Submittal Errors Note / Reason (original errors + additional errors)</i>		<i>Perfect!</i>			
	0	9		Registration errors	0	0	0	1	0
	0	2		Bowling escort errors	0	0	0	0	0
Mass Test	5,000	6,000	grams	Mass Ball 1	5518.989	5480.989	5530.489	5594.489	5367.989
				<i>Mass Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	5,000	6,000	grams	Mass Ball 2	5544.989	5492.489	5602.989	5920.988	5344.489
				<i>Mass Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Diameter Test	185	215	mm	Diameter 1 Ball 1	191.4	201.8	199.3	201.6	199.8
	185	215	mm	Diameter 2 Ball 1	191.3	198.9	199.3	201.2	204.4
	185	215	mm	Diameter 3 Ball 1	189.1	198.9	205.1	200.7	199.9
				<i>Average Diameter Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	185	215	mm	Diameter 1 Ball 2	191.3	199.4	199.5	201.1	199.0
	185	215	mm	Diameter 2 Ball 2	190.9	202.3	199.1	201.4	202.3
	185	215	mm	Diameter 3 Ball 2	190.5	202.5	203.0	201.6	200.9
				<i>Average Diameter Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Bowling Test	0	6		Frame 1	4	6	6	6	6
	0	6		Frame 2	6	6	6	6	6
	0	6		Frame 3	6	6	6	6	6
	0	6		Frame 4	6	6	6	6	6
	0	6		Frame 5	6	6	6	6	6
	0	6		Frame 6	6	6	6	6	6
	0	6		Frame 7	6	6	6	6	6
	0	6		Frame 8	6	6	6	6	6
	0	6		Frame 9	6	6	6	6	6
	0	6		Frame 10	6	4	6	6	6
Toughness Test	3,000	60,000	pounds	Load @ 5mm deflection	27,833	3,871	8,271	3,865	4,577
	3,000	60,000	pounds	Load @ 10mm deflection	35,880	7,201	10,522	7,726	6,679
	3,000	60,000	pounds	Load @ 15mm deflection	37,714	11,589	11,437	13,055	5,611
	3,000	60,000	pounds	Load @ 20mm deflection	32,825	14,958	12,093	14,843	5,008
	3,000	60,000	pounds	Load @ 25mm deflection	35,858	16,887	11,495	14,255	3,403
				<i>All Loads Min/Max Check</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
				<i>Load Average Min/Max Check</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
			%	COV	10.2	44.2	12.5	39.7	21.5
Team Predictions	Decimal Places Allowed	1	Mass Design Prediction	5.500	5.500	5.500	5.500	5.400	
			<i>Receive deduct for decimal error</i>						
		0	Diameter Design Prediction	191	203	200	190	200	
		0	Bowling Design Prediction	6	5	6	5	6	
		0	COV% Design Prediction	9.250	34.000	4.250	20.000	28.000	
			<i>Receive deduct for decimal error</i>	<i>x</i>		<i>x</i>			
DESIGN PREDICTION CATEGORY RESULTS Difference between Design Prediction and Analysis Test [ABS(DP-AT)]	Points	10	Specification Points	7.60	10.00	7.60	6.70	8.30	
		10	Mass Points	9.95	9.98	9.89	9.56	9.93	
		10	Diameter Points	9.80	8.17	9.32	1.22	9.20	
		30	Bowling Points	28.67	24.67	30.00	23.33	30.00	
		40	COV Points	35.41	33.68	30.88	27.78	35.96	
			Total Points	91.4267	86.4978	87.6882	68.5961	93.3835	
			Rank for Design Prediction	2	9	8	18	1	
ANALYSIS TEST CATEGORY RESULTS Difference between Target and Analysis Test [ABS(T-AT)]	Points	10	Specification Points	7.60	10.00	7.60	6.70	8.30	
		10	Mass Points	9.94	9.98	9.88	9.53	9.74	
		10	Diameter Points	1.46	9.40	9.19	8.83	9.05	
		30	Bowling Points	28.67	28.67	30.00	30.00	30.00	
		40	COV Points	30.76	0.00	28.69	4.07	20.53	
			Total Points	78.44	58.04	85.36	59.13	77.62	
			Rank for Analysis Test	5	18	2	17	6	

2023 ACI Student FRC Bowling Ball Competition Results

	Low	High	Units	Team ID >	UMGQT	UNIPL	UPGDL	TUIUC	UNCPH
				Team # >	23	24	25	27	28
Specification Test	0	89		Submittal errors	45	89	26	37	17
				<i>Submittal Errors Note / Reason (original errors + additional errors)</i>	<i>wrong info in cell (23+22)</i>	<i>added rows (full submittal errors)</i>			
	0	9		Registration errors	1	0	0	1	0
	0	2		Bowling escort errors	0	0	0	0	0
Mass Test	5,000	6,000	grams	Mass Ball 1	5669.489	5646.989	5621.989	5590.989	5579.989
				<i>Mass Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	5,000	6,000	grams	Mass Ball 2	5593.489	5771.988	5745.988	5650.489	5550.989
				<i>Mass Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Diameter Test	185	215	mm	Diameter 1 Ball 1	205.8	210.1	200.2	199.3	198.5
	185	215	mm	Diameter 2 Ball 1	204.2	209.4	202.0	199.2	198.4
	185	215	mm	Diameter 3 Ball 1	203.5	211.7	201.9	200.5	199.1
				<i>Average Diameter Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	185	215	mm	Diameter 1 Ball 2	206.3	208.1	201.9	197.4	199.2
	185	215	mm	Diameter 2 Ball 2	200.7	207.6	199.4	200.1	199.8
	185	215	mm	Diameter 3 Ball 2	205.4	207.4	199.7	199.4	198.8
				<i>Average Diameter Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Bowling Test	0	6		Frame 1	6	6	3	6	6
	0	6		Frame 2	6	6	6	6	6
	0	6		Frame 3	6	4	6	6	6
	0	6		Frame 4	6	6	6	6	6
	0	6		Frame 5	6	6	6	6	6
	0	6		Frame 6	6	6	6	6	6
	0	6		Frame 7	6	6	6	6	6
	0	6		Frame 8	6	6	6	6	6
	0	6		Frame 9	6	6	6	6	6
	0	6		Frame 10	6	6	6	6	4
Toughness Test	3,000	60,000	pounds	Load @ 5mm deflection	5,878	2,523	9,756	8,094	9,323
	3,000	60,000	pounds	Load @ 10mm deflection	11,739	6,168	19,985	9,576	18,966
	3,000	60,000	pounds	Load @ 15mm deflection	9,866	5,226	12,081	8,661	14,667
	3,000	60,000	pounds	Load @ 20mm deflection	10,358	5,979	13,729	10,124	16,241
	3,000	60,000	pounds	Load @ 25mm deflection	10,853	6,808	17,180	11,509	12,978
				<i>All Loads Min/Max Check</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
				<i>Load Average Min/Max Check</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
			%	COV	20.8	28.0	25.0	12.4	22.4
Team Predictions	Decimal Places Allowed	1	Mass Design Prediction	5.500	5.700	5.750	5.460	5.500	
			<i>Receive deduct for decimal error</i>			<i>x</i>	<i>x</i>		
		0	Diameter Design Prediction	200	209	200	200	200	
		0	Bowling Design Prediction	6	6	6	5	6	
		0	COV% Design Prediction	3.500	5.280	10.000	25.000	14.000	
			<i>Receive deduct for decimal error</i>	<i>x</i>	<i>x</i>				
DESIGN PREDICTION CATEGORY RESULTS Difference between Design Prediction and Analysis Test [ABS(DP-AT)]	Points								
	10	Specification Points		5.40	1.10	7.40	6.20	8.30	
	10	Mass Points		9.78	9.98	8.89	8.73	9.89	
	10	Diameter Points		6.63	9.97	9.35	9.47	9.20	
	30	Bowling Points		30.00	28.67	28.00	23.33	28.67	
	40	COV Points		25.24	0.00	30.67	32.16	34.80	
		Total Points		77.0469	49.7188	84.3077	79.8920	90.8576	
		Rank for Design Prediction		17	23	11	16	4	
ANALYSIS TEST CATEGORY RESULTS Difference between Target and Analysis Test [ABS(T-AT)]	Points								
	10	Specification Points		5.40	1.10	7.40	6.20	8.30	
	10	Mass Points		9.76	9.62	9.67	9.78	9.88	
	10	Diameter Points		6.01	1.66	9.23	9.37	9.05	
	30	Bowling Points		30.00	28.67	28.00	30.00	28.67	
	40	COV Points		21.15	0.00	17.34	28.77	19.74	
		Total Points		72.32	41.05	71.64	84.12	75.64	
		Rank for Analysis Test		13	23	14	3	9	

2023 ACI Student FRC Bowling Ball Competition Results

	Low	High	Units	Team ID >	UoTOL	UVICJ	UWACI	USU	WPU23
				Team # >	29	30	31	32	33
Specification Test	0	89		Submittal errors	45	89	41	89	0
				<i>Submittal Errors Note / Reason (original errors + additional errors)</i>	<i>re-submitted (23+22)</i>	<i>2 fiber lengths (0 specification points)</i>	<i>wrong info in cell (19+22)</i>	<i>added rows (full submittal errors)</i>	<i>Perfect!</i>
	0	9		Registration errors	0	9	0	0	0
	0	2		Bowling escort errors	0	2	0	0	0
Mass Test	5,000	6,000	grams	Mass Ball 1	5395.489	5602.489	5671.489	4589.991	5589.489
				<i>Mass Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>
	5,000	6,000	grams	Mass Ball 2	5141.490	5575.489	5491.989	5176.990	5507.489
				<i>Mass Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Diameter Test	185	215	mm	Diameter 1 Ball 1	199.1	201.1	189.0	194.8	205.2
	185	215	mm	Diameter 2 Ball 1	198.5	201.3	185.9	192.2	201.0
	185	215	mm	Diameter 3 Ball 1	201.0	197.5	185.0	189.1	204.7
				<i>Average Diameter Check - Ball 1</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
	185	215	mm	Diameter 1 Ball 2	199.1	202.3	192.2	193.9	198.6
	185	215	mm	Diameter 2 Ball 2	199.6	200.2	191.1	197.2	198.1
	185	215	mm	Diameter 3 Ball 2	198.7	199.9	191.8	191.7	198.1
				<i>Average Diameter Check - Ball 2</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>	<i>Okay</i>
Bowling Test	0	6		Frame 1	4	6	1	6	6
	0	6		Frame 2	6	0	1	1	6
	0	6		Frame 3	0	0	5	0	6
	0	6		Frame 4	0	1	4	6	6
	0	6		Frame 5	6	1	4	5	6
	0	6		Frame 6	6	0	0	4	6
	0	6		Frame 7	6	0	0	5	6
	0	6		Frame 8	4	4	0	6	6
	0	6		Frame 9	4	0	0	6	6
	0	6		Frame 10	3	6	0	6	4
Toughness Test	3,000	60,000	pounds	Load @ 5mm deflection	653	10,484	14,996	1,054	13,034
	3,000	60,000	pounds	Load @ 10mm deflection	744	8,524	7,840	667	15,772
	3,000	60,000	pounds	Load @ 15mm deflection	1,520	4,541	11,379	391	16,292
	3,000	60,000	pounds	Load @ 20mm deflection	2,213	4,928	13,254	250	15,189
	3,000	60,000	pounds	Load @ 25mm deflection	1,065	4,408	14,470	174	16,485
				<i>All Loads Min/Max Check</i>	<i>Out of Range</i>	<i>Okay</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>
				<i>Load Average Min/Max Check</i>	<i>Out of Range</i>	<i>Okay</i>	<i>Okay</i>	<i>Out of Range</i>	<i>Okay</i>
			%	COV	46.3	37.6	20.9	63.2	8.1
Team Predictions	Decimal Places Allowed	1	Mass Design Prediction	5.700	5.300	5.580	5.900	5.500	
			<i>Receive deduct for decimal error</i>			x			
		0	Diameter Design Prediction	200	200	202	200	199	
		0	Bowling Design Prediction	4	6	6	8	5	
		0	COV% Design Prediction	18.000	30.000	1.500	13.000	11.000	
			<i>Receive deduct for decimal error</i>			x			
DESIGN PREDICTION CATEGORY RESULTS Difference between Design Prediction and Analysis Test [ABS(DP-AT)]	Points								
	10	Specification Points		5.50	0.00	5.90	1.10	10.00	
	10	Mass Points		9.27	9.51	9.00	0.00	9.92	
	10	Diameter Points		9.49	9.71	0.00	4.67	8.46	
	30	Bowling Points		29.33	2.00	0.00	6.67	24.67	
	40	COV Points		0.00	35.26	23.93	0.00	38.20	
		Total Points		53.5906	56.4730	38.8255	12.4362	91.2427	
	Rank for Design Prediction		21	20	27	12	3		
ANALYSIS TEST CATEGORY RESULTS Difference between Target and Analysis Test [ABS(T-AT)]	Points								
	10	Specification Points		5.50	0.00	5.90	1.10	10.00	
	10	Mass Points		9.58	9.84	9.85	0.00	9.91	
	10	Diameter Points		9.39	9.65	0.00	3.69	9.10	
	30	Bowling Points		16.00	2.00	0.00	20.00	28.67	
	40	COV Points		0.00	5.91	21.05	0.00	32.66	
		Total Points		40.47	27.40	36.80	24.79	90.33	
	Rank for Analysis Test		24	27	26	25	1		

2023 ACI Student FRC Bowling Ball Competition

Scoring Information

The following explains some, but not all, of the reasons why a team may have received a score of zero (0), or a much lower score than expected, in any of the competition tests.

Specification Test (10 points)

The majority of the score in the Specification Test is from the team's submittal with the remainder coming from the day of the competition. Remember that for the Specification Test, each team starts with the full 10 points, and only loses points when there are errors. For the submittal, the worksheet and its individual cells are analyzed for errors that are categorized and described below. Multiple errors are possible for a single cell. Errors happen by not following the directions or Rules or not following the example sheet provided. This explanation is not exhaustive for every possible error determined during scoring.

Worksheet or Tab Errors

1. Not changing the Tab name
2. Not matching the Team Acronym and Tab name
3. Inserting or deleting a row or column

Text Errors

1. Not keeping the TEXT format
2. Not filling the cell (no cell should be blank)
3. Not filling the cell properly/with the appropriate information

Decimal Errors

1. Incorrect number of digits after the decimal as compared to the example submittal provided
2. Incorrect use of comma or decimal
3. Adding symbols such as %

Math Errors

1. Incorrect unit conversions
2. Incorrect volume calculations
3. Incorrect sums for volume or values

Competition Errors

1. Checking in early or late to the competition
2. Incorrect number of items brought to competition (balls, submittals, fiber/UHPC samples, fiber/UHPC data sheets)
3. Balls not uniquely identified
4. Not completing surveys at end of competition
5. Unsafe or unprofessional behavior - depending on severity may result in disqualification from prizes and/or from future competitions

Additional Errors

1. Not following the correct significant digits in team predictions – deduct 10% of possible test points for that test
2. Incorrect information in cell (listing mix design as either core or distributed materials, etc.) - normal scoring of submittal plus an additional 22 errors
3. Submittal schedule date missed – normal scoring of submittal plus an additional 45 errors
4. Re-submit – normal scoring of submittal plus an additional 22 errors
5. Altering the worksheet LAYOUT (adding/deleting rows or columns) – submittal receives 89 errors
6. Material changes (2 fiber lengths, non-commercially available materials, actual materials used do not match submittal, etc.) - receive zero (0) Specification Test points

Mass Test (10 points)

If the mass of either ball was outside the stated range of 5,500 +/-500 g, the team received zero (0) Mass Test points (Rules line 182).

Diameter Test (10 points)

If the average diameter of either ball was outside the stated range of 200 +/- 15 mm, the team received zero (0) Diameter Test points (Rules lines 191-192).

Toughness Test (40 points)

If any displacement load was outside the stated range of 3,000 to 60,000 lb or if the average of the five (5) loads was outside the stated range of 5,000 to 50,000 lb, the team received zero (0) Toughness Test points (Rules lines 235-237).

For ALL Tests

If your team had the highest difference compared to all other teams in any of the tests (for a given category), your team received zero (0) points for that test due to the forced ranking.