



Sandia National Laboratories

2022 Sandia Engineering Design Award Rubric

How to use this rubric: Judges will evaluate the 5 page (not including appendix/references) report, and assign raw scores (i.e. 3, 2, 1, 0) to each category except for Oral Communication (evaluated in a separate rubric). The teams with the highest Report Score will advance to an oral presentation round. After the oral presentation, judges will assign an oral communication score to the project and the Overall Score will be calculated. The project with the highest Overall Score wins!

	Exceeds (3)	Meets (2)	Approaches (1)	Does Not Meet (0)
Demonstrate competency with the engineering design process	<ul style="list-style-type: none"> • Clear problem statement with all relevant contextual factors • Identifies multiple approaches to solving problem • Down selects to a single concept and identifies reasoning • Evaluate solution via modeling, prototyping, and/or testing • Verification that design meets requirements • Identifies areas of improvement 	<ul style="list-style-type: none"> • Contains all elements but does not elucidate it clearly and logically <p>OR</p> <ul style="list-style-type: none"> • Missing one major element but thorough discussion of other categories 	<ul style="list-style-type: none"> • Missing a few major elements 	<ul style="list-style-type: none"> • Missing multiple major elements and fails to elucidate completely
Illustrate connection to/impact on a Sandia mission area and NAE grand challenge (e.g. natural resources, economic security, energy security, cyber defense)	<ul style="list-style-type: none"> • Clearly shows connection to a Sandia mission area and/or NAE grand challenge and shows design consideration efforts made towards it • Demonstrates potential impact of project as a solution 	<ul style="list-style-type: none"> • Shallow connection to mission area but shows strong impact 	<ul style="list-style-type: none"> • Shallow connection to mission area/grand challenges 	<ul style="list-style-type: none"> • No mention or consideration taken for Sandia mission areas/NAE grand challenges

Illustrate consideration for or impact on diverse communities	Provides a statement that: <ul style="list-style-type: none"> • Frames problem from the perspective of more than one worldview • Describes how solution reflects multiple cultural perspectives • Articulates how your project or team initiates and develops interactions with culturally different others 	Provides a statement that: <ul style="list-style-type: none"> • Recognizes multiple worldviews • Articulates how your project or team initiates and develops interactions with culturally different others 	Provides a statement that: <ul style="list-style-type: none"> • Identifies own cultural rules and biases • Identifies components of other cultural perspectives but responds in all situations with own worldview 	Provides a statement that: <ul style="list-style-type: none"> • Provides minimal awareness for other worldviews • Project or team does not develop interactions with culturally different others
Demonstrate creativity and innovation	<ul style="list-style-type: none"> • Breakthrough • Represents a meaningful change over the methods presented in the problem statement that would result in a substantial competitive edge between the current state of the art and the proposed solution. As measured through quality, speed, cost, or complexity 	<ul style="list-style-type: none"> • Incremental improvement • Represents an improvement over the method provided in the problem statement • Fundamentally relies on the current standard as a baseline 	<ul style="list-style-type: none"> • Alternative • Presents an alternative to the methods provided in the problem statement but does not clearly represent a discernable improvement on quality, speed, cost, or complexity 	<ul style="list-style-type: none"> • Not innovative • Is a rehashing of the methods provided in the problem statement with no discernable improvement on quality, speed, cost, or complexity
Written communication	<ul style="list-style-type: none"> • Writing style is clear, logical, and concise • Contains meaningful figures • Work is cited when appropriate • Report is organized logically and flows • Contains no grammatical errors 	<ul style="list-style-type: none"> • Writing style is clear and logical • Contains meaningful figures • Most work is cited when appropriate • Report is organized logically • Contains few grammatical errors 	<ul style="list-style-type: none"> • Writing style is generally readable • Most work is cited when appropriate • Some ideas are not presented in a logical order • Report contains several grammatical errors 	<ul style="list-style-type: none"> • Writing style is difficult to read or illogical • Work is not cited when appropriate • Report contains many grammatical errors

Section	Raw score	Weighting factor	Total = Raw score x weight
Demonstrate competency with the engineering design process		4	
Illustrate connection to/impact on a Sandia mission area and NAE grand challenge		1	
Illustrate consideration for or impact on diverse communities		2	
Demonstrate creativity and innovation		3	
Written communication		2	
Oral communication (evaluated in a separate rubric)		4	

Report Score (total first 5 categories): _____

Overall Score (total all categories): _____

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