Rubric for judging ASPE student competition

Pre-design grading scheme

Excluding figures you must submit a description (10 point font minimum, 1” margins all round and preferably less than two pages) of the mechanism.
Our goal is to judge and provide feedback. Upon request, teams will be sent a list of parts that can be used as well as basic requirements.

Grades will based on
Presentation. Use of informative, well labeled images to illustrate operating principles and assembly.

Innovative ideas.

Demonstrated ability to satisfy requirements using simple modeling ideas and error budget.

Team work

Overall grade for assessment of team organization and execution.

Lunchtime judging

Criteria for judging includes

Precision and clarity of presentation and explanation. Team collaboration.

Understanding of major influences that limit precision and other performance parameter of the design. Estimated values for performance limits.

Dynamic performance testing of active isolator

There will be three separate measures of performance

A first test will be the ability of the isolator to maintain the laser on target at a distance of 6 m. (no disturbance)

For the second test, a motor spinning an unbalanced mass will be attached to the underside of the breadboard, inducing a test vibration. The speed of the motor will then be increased while the laser is projected onto a circular target, again at distance of 6 m. The performance will be

assessed by the motor speed at which the pointer cannot stabilize the position of the spot within the circle.

A third measure will be the attenuation of the amplitude of open loop disturbances with set motor speeds (1 Hz, 4 Hz, 10 Hz) compared with active isolation activated.

The grades associated with each cycle of this competition are:

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	Value %	**Value %**
Pre-design grading scheme		**40**
Presentation	15	
Design/error budget	15	
Analysis/controls strategy	10	
Construction grading scheme		
Team Work (night 10/29)		**10**
Organization and execution	10	
Presentation (lunch 10/30)		**50**
Presentation, clarity, explanation and team collaboration	10	
Understanding and describing limitations	10	
Performance (lunch 10/30)		
Dynamic Performance of Isolator	30	
total:	**100**	