



The asbe Foundation
67th Annual
High School Design Challenge,
Rules and Guidelines for the 2022
Creative Engineering Category

The *Engineering Design Category* challenges drafting students to develop a design solution to a given automotive-based problem. Consideration is given to the design's innovation, functionality, appearance, mounting and/or attachments. The *Creative Engineering Category* utilizes drafting/CAD skills and must be submitted on paper as a properly made engineering drawing using orthographic projection.

Eligibility:

The *Design Challenge* is open to all high school students, grades 9 through 12, who have a background in drafting and CAD. All student contestants are encouraged to research the project before beginning and may seek out advice during the early stage; however, the design and submission must be the creation of the contestant. Only one entry per student is permitted. Each school may enter as many students as it wishes.

The *Engineering Design Category* Problem:

The task for the *Creative Engineering Design Category* is to create a functional design of a rear deck air spoiler. A digital model of a portion of the rear deck will be provided in the form of an STP file from which to build the design using any CAD system available to you.

Specifications, Format, and Presentation Requirements:

Design an air spoiler integrated into the deck lid of a passenger car, including the supporting posts or brackets and attachments

- The air spoiler must be a separate assembly consisting of the wing and at least two or more attaching posts or brackets and attached with some form of fastening system. The fastening methods must be fully defined
- A portion of the deck lid inner panel is included in the STP file to facilitate the fastening method.
- The spoiler must consist of at least three pieces, The wing and at least two attaching posts or brackets. The spoiler system needs to be clearly defined using necessary auxiliary views and sections.
- The fastening system, using screws, clips or other forms of attachments must be clearly defined by necessary views and sections along with any seals or gaskets

- The design of the air spoiler system must not include the name of the student, school, school logo, or otherwise identify the student, school, or the school district.
- Each part of the air spoiler assembly must be shown in orthographic projection using at least two views. Section, auxiliary; iso views can be used as needed to fully describe the wing and post or bracket assembly to clearly show how they fit together and are assembled.
- Each component of the design must be labeled with part name and material.
- Fasteners and other such devices must also be shown in their proper assembled position.
- All views need to be carefully, correctly, and logically arranged and spaced on the sheet.
- No dimensions need to be shown on the drawing.
- An exploded pictorial assembly view may be used, but is not required.
- Supporting written documentation describing the design, choice of materials, cost considerations, and any unique design features, etc. is encouraged but not required. If separate, the documentation should be firmly attached to the drawing
- Note: The clear and complete depiction of all necessary views to define the spoiler and any assemblies and fasteners are a critical consideration in the judging of your entry.
- The design must be on a single sheet or display board and be no larger than 24 x 36 inches (D size). *Folding display boards must be no larger than 24 x 36 when open.*
- A physical model of the spoiler system may be submitted with the drawing and must be less than full scale. Maximum of five pounds
- The entry is to be identified with the “Student Information Block” that is included with the Contest materials. The “student Information Block is supplied under two file formats of your choosing. This “Student Information Block” is to be included or attached to the lower right hand corner of the sheet, or printed and attached to physical models. Enter the information requested including the student ***proper*** first and last name. *Please do not change the scale of the Block; it should appear 3.5” x 3.5” on the drawing. **No other title block or identifier should be used.*** Student and school information will be masked during judging.

Entries will be Judged On:

- Creativity of the design
- Clearly defined functionality of the design
- Ability to be assembled
- Serviceability
- Clearly defined fastening and joining methods
- Principles of proper engineering drawing; necessary views shown, overall drawing appearance.
- Decision of the judges is final

Teachers: To ensure you receive all the latest updates and reminders for the 2022 Design Challenge, register now at www.asbeFoundation.org and download the *Design Challenge* materials.

Students: Register Early Inform us of your interest to enter the Design Challenge Competition by registering on our website today. *All registrations must be received no later than Friday, April 8, 2022;* you must be registered to be eligible for the competition. Student registrations will be taken at www.asbeFoundation.org where Design Challenge materials can be downloaded as well.

Due Date: Entries must be received by *on or before* 3 pm, April 8, 2022.

Submissions can be mailed or delivered to:

asbe Foundation Design Challenge
Kendra Rosemeck
Macomb Intermediate School District
44001 Garfield Rd.
Clinton Twp, MI 48038
eMail: krOSEmeck@misd.net

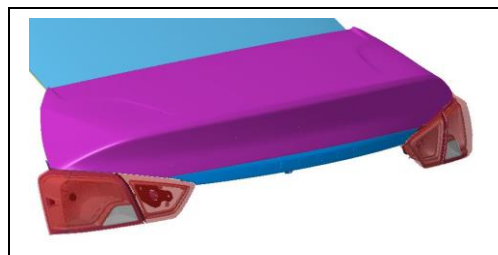
Student Design Checklist:

- Individual students must be Registered on the *asbe* website by April 8, 2022 to indicate their intent to enter the Design Challenge Competition: www.asbeFoundation.org
- Carefully read and understand the requirements and parameters of the part to be designed.
- Students are encouraged to research existing air spoilers in order to obtain ideas for their design.
- Verify that you have the required number and types of views.
- Be aware of the requirements for sheet size of the drawing.
- Entry must have the *asbe* Student Information Block included digitally or attached to models, hand drawn renderings etc.
- Refer to the list of considerations of how your design will be judged.
- Drawings must be submitted for judging *on or before* 3:00 PM, April 8, 2022**

Awards Dinner: Winners of the Design Challenge and their teachers will be invited to attend the annual Awards Dinner celebration as our guests. This event will be held on Tuesday April 26, 2022. Photos of past winners and Awards Dinner speakers are posted on our website.

Awards Made for Each Category:

1 st place	\$400 + “Jennings Award” Plaque
2 nd place	\$300 + Certificate of Honor
3 rd place	\$200 + Certificate of Honor
4 th up to 8 th	\$100 + Certificate of Honor
Best in School,	\$50 + Certificate of Merit



Questions and Assistance:

DesignChallenge@asbeFoundation.org