The *asbe Foundation*

High School Design Challenge 2015- 16

Rules and Guidelines for the
Engineering Design Category

The *Engineering Design Category* challenges drafting students to develop a functional working drawing to satisfy a given automotive based design problem taking into consideration its functionality, material, and manufacturing processes. The design must be submitted on paper as a properly made engineering drawing (orthographic projection). The purpose of the Engineering Design Category is to encourage creative thinking in the solution to an automotive based problem utilizing drafting/CAD skills.

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 this early stage; however the design and submission must be the creation of the contestant. Only one entry per student is permitted. Each school may enroll as many students as they wish.

The *Engineering Design Category* problem:

The *Engineering Design Category* is to create a practical design of a fender appliqué for the front fender of a pickup truck and to present the design in the form of a proper orthographic drawing. This fender appliqué is decorative and need not be functional, but must fit into the opening that is shown in the CAD model we will provide as both a stp and iges file. The student will begin with this CAD model to build their design in any CAD program your school is using.

The rules, guidelines, and CAD files and are available for download from the *asbe Foundation* website: www.asbeFound.org/events
**** You will be sent an email with a link to the downloads ****

Format and Presentation requirements:

- Only the fender appliqué on the driver's (left hand) side of the vehicle is to be designed.
- The design must be comprised of at least two parts as part of the whole assembly not including fasteners.
- The design in the fender appliqué must not include the name of the school, school logo or otherwise identify the school or the school district.
- Best engineering practices should be considered with; assembly, cost, serviceability, manufacture.
- If necessary, up to five holes with a maximum diameter of 3mm, including the two existing holes may be used in the body panel for attachment purposes.

- Each part of the fender appliqué must be shown in orthographic projection using at least two views and one section view; auxiliary views as needed. In addition to the orthographic views, a pictorial view may be shown.
- The drawing must show any needed auxiliary or section views to show the relationship of the fender appliqué to the body panel.
- Fasteners and other such devices must also be shown in their proper assembled position.
- No dimensions need to be shown on the drawing.
- A reduced scale exploded pictorial assembly view may be used, but is not required.
- All views need to be carefully, correctly, and logically arranged and spaced on the sheet.
- Supporting written documentation supporting material choice, cost considerations, any unique design features, etc. is encouraged.
- The design must be on a single sheet and be no larger than 24 x 36 inch, D size sheet.
- A title block in the lower right hand corner of the sheet must be fully filled out with the student's proper name, which will be masked during judging.

Entries will be judged on:

- Originality of the design
- Ability to be manufactured
- Ability to be assembled
- Principles of proper engineering drawing; necessary views shown, overall drawing appearance etc.
- Materials selected
- Cost
- Fastening and joining methods
- Functionality
- Structural integrity

Teachers: To ensure you and your students receive all the latest updates and reminders for the 2016 Design Challenge, register now at www.asbeFound.org/events and download the *Design Challenge* materials.

Students: Inform us of your intention to enter the Design Challenge Competition by January 8, 2016 to be eligible for the competition. Student registrations will be taken starting December 7, 2015 at www.asbefound.org/events

Due Date: Entries must be received by 3pm Friday, February 19, 2016.
Submissions can be mailed or delivered to:

asbe Foundation Design Challenge
Clare Keenan
Consultant Services Dept.
Macomb Intermediate School District
44001 Garfield Rd.
Clinton Twp, MI 48038
Ph: 586-228-3493
eMail: ckeenan@misd.net

Student design checklist:

- ❑ Read carefully and understand the requirements and parameters of the part to be designed
- ❑ Verify that you have the required number and types of views
- ❑ Be aware of the requirements for sheet size of the drawing
- ❑ Refer to the list of considerations of how your design will be judged
- ❑ Individual students must indicate their intent to enter the Design Challenge Competition between December 7, 2015 and by Friday, January 9, 2016 at: www.asbeFound.org/events
- ❑ Drawings must be submitted for judging on or before Friday February 19, 2016

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, March 22, 2016. Photos of past winners and Awards Dinner speakers are posted on our website.

Awards:

1st place $400 + "Jennings Award" Plaque
2nd place $300 + Certificate of Honor
3rd place $200 + Certificate of Honor
4th up to 10th $100 + Certificate of Honor
Best in School, $50 + Certificate of Merit

Questions and Assistance:

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