2023 INDIANA SkillsUSA CHAMPIONSHIPS
TASK AND MATERIALS LIST

SKILL OR LEADERSHIP AREA: **ADDITIVE MANUFACTURING**

CONTEST LOCATION:
Indiana State Fairgrounds West Pavilion
1202 E. 38th St.
Indianapolis, IN 46205

DATE: April 15, 2023
TIME: 7:00 am- set up at West Pavilion (Can set up on Friday April 14 if needed)
7:45 am- be in contest area
8:00 am -12:00 pm contest

PURPOSE
To evaluate each contestant's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of Digital and Additive Manufacturing.

CLOTHING REQUIREMENTS:
NO SCHOOL LOGO OR SCHOOL AFFILIATION ANYWHERE ON CLOTHING or IT MUST BE COVERED COMPLETELY

- Men: White polo shirt with black dress pants, black socks and black leather shoes
- Women: White polo shirt with black dress pants or skirt (no higher than knee), black socks or black or skin-tone seamless hose with black leather shoes (no open toe).
- Safety glasses with side shields or goggles. (Prescription glasses can be used only if they are equipped with side shields. If not, they must be covered with goggles.)

AWARDS CEREMONY DRESS CODE

A Dress Code will be enforced during the Awards Ceremony. To accept an award "on-stage", the student must wear the "Official SkillsUSA Uniform", State T-Shirt or the competition attire. NO SHORTS OR HATS!!!

EACH COMPETITORS MUST PROVIDE A 1 PAGE RESUME' AT THE BEGINNING OF THE CONTEST, THERE IS A 10 PT. DEDUCTION IF ONE IS NOT TURNED IN AT THIS TIME.

EQUIPMENT:

Supplied by technical committee:

Supplied by contestants:

- Laptop with computer design system capable of rendering files in STL format.
- USB Drive for transferring STL or CMB files clearly labeled with team ID number
- **Must Bring 3D printer and filament to print (see contest below)**

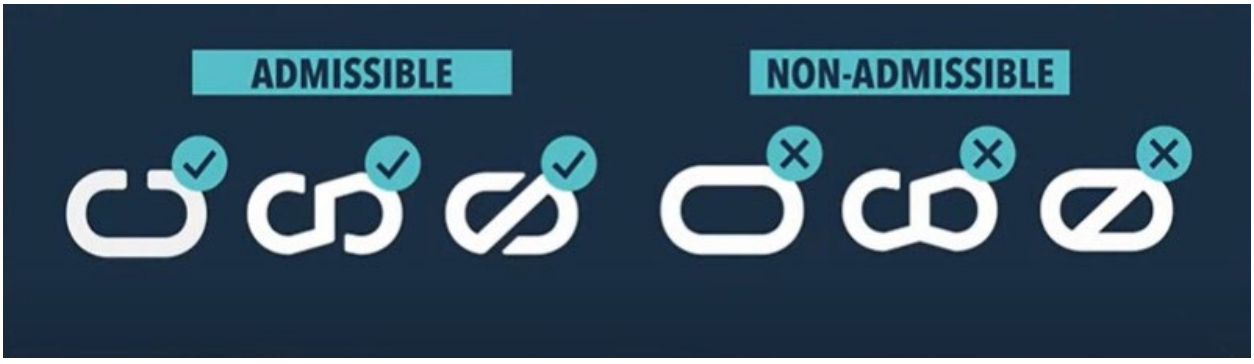
STATE CONTEST IS BELOW

Indiana SkillsUSA 2023 – Additive Manufacturing (3D Printing) Challenge

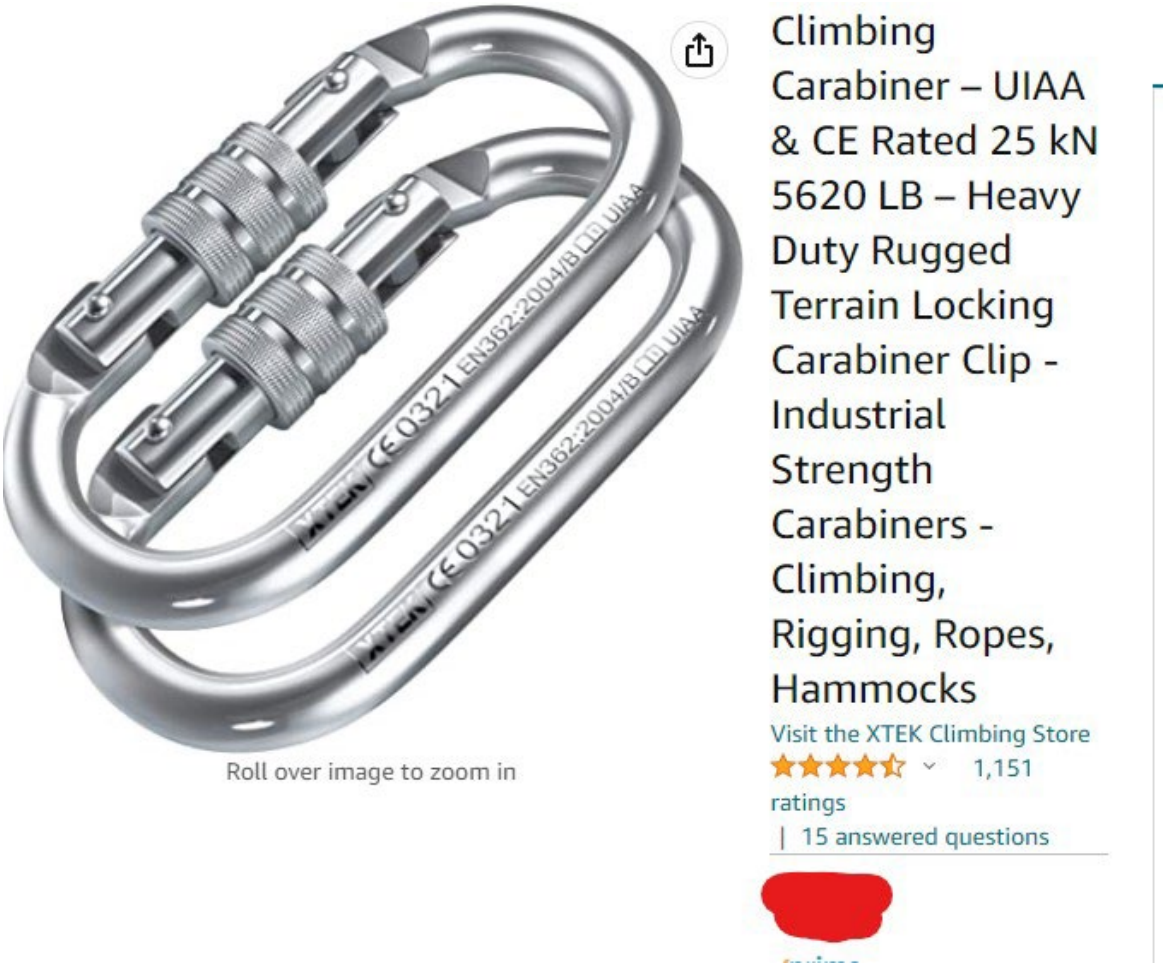
The Challenge:

Your team is tasked with creating a hook capable of holding the most weight. The hook that has the highest tensile strength will win the contest. Each team will have 5 **days to plan, design, test, and refine the designs of their hooks. Printing of each team's hook design must be printed onsite at the competition during the 4hr window provided by SkillsUSA. Testing of the hooks' tensile strength will happen onsite at the Indiana State Fairgrounds the morning of April 15th, 2023. EACH TEAM MUST BRING THEIR OWN PRINTER** AND FILLAMENT **FOR THIS COMPETITION. Printers will not be provided.**

Rules:

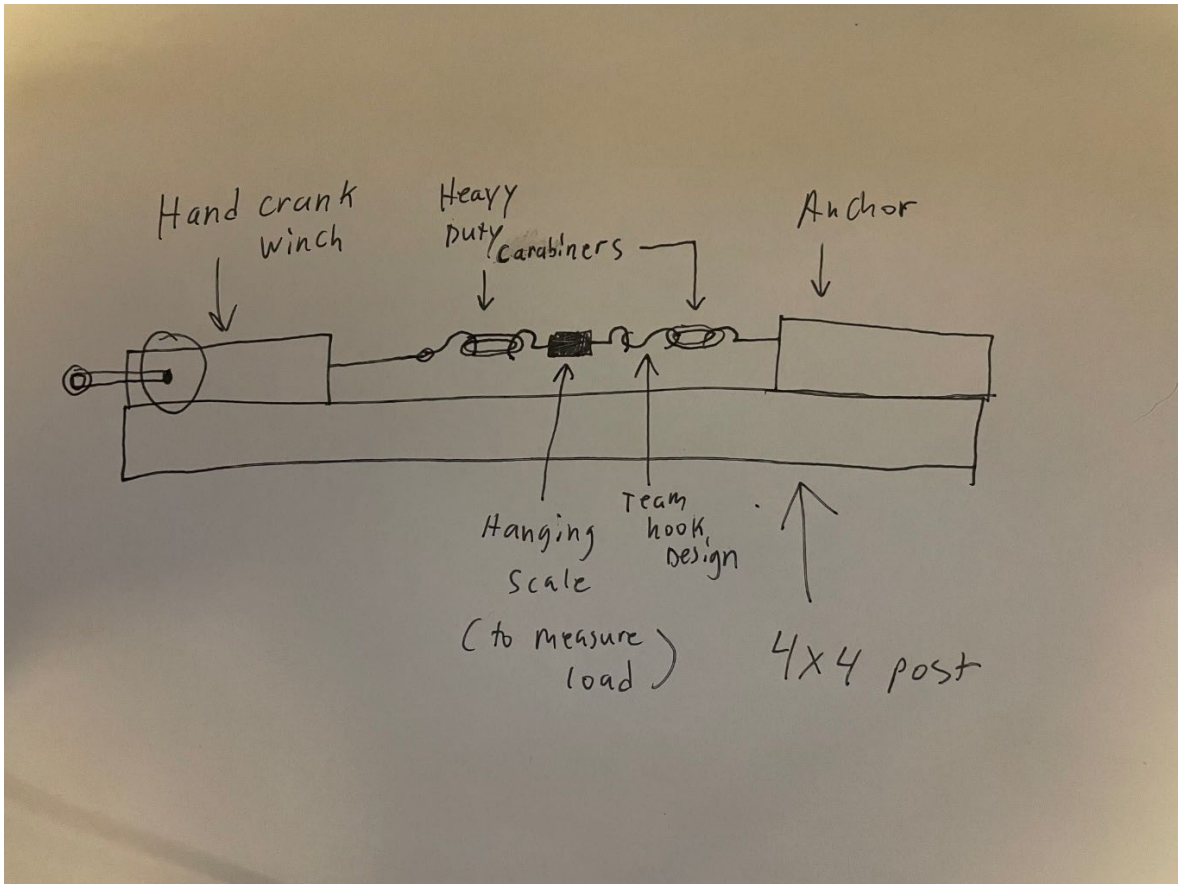
- Each team must print their design onsite within the 4hr window.
- Each team must print their design using PLA plastic only. NO OTHER MATERIALS MAY BE USED.
- The designs must utilize 3D printing ONLY for their manufacture. No additional manufacturing processes may be used for the design. Heat treating, etc. are prohibited.
- All design files, drawings, 3D models, engineering notes, etc. must be provided along with finished parts.
- Each design must weigh no greater than 50 grams. Designs will be weighed prior to tensile strength testing during competition.
- Each design must be original. No pirating, purchasing, or using other open-source designs.
- Each design must be one piece. No assemblies.
- Each design must be an open loop design. Designs with closed loops are prohibited.
- 

- Each design must accommodate (2) heavy duty carabiners (one on each side).



- Each team must present their 3D print, design, and all additional materials to judges and explain their design process. This is a formal presentation and will be factored into scoring. Presentation order will be selected at random during printing.

Tensile Strength Testing Details:
The hooks will be evaluated and scored based on their tensile strength. The tensile strength test will be conducted as follows:



Judging Criteria:

Points	1	2	3	4	5
Load of Hook (lbs)	0 – 50lbs	51 – 100lbs	101 – 200lbs	201 – 300lbs	301lbs or greater

Rev 3/22