



SERIES: COMMERCIAL DESIGN B

CONTEST: 3-D VISUALIZATION & ANIMATION

Online
Resumé
Submission

Series Director: MARK LYONS • (978) 290-9015 • mlyons@aetlabs.com

Competition: Blackstone - Rooms 524 & 523 with Event Manager: Ryan McSweeney

REQUIREMENTS AND SCOPE OF CONTEST

Advisors will be sent log-on information for the **Learning Management System**, which will be open on April 10. Contestants must submit an electronic copy of their resumé to the **LMS** by April 26, by 5:00pm.

Clothing Requirements: avoid a clothing penalty

SkillsUSA attire:

- Red SkillsUSA blazer, windbreaker or sweater, or black or red SkillsUSA jacket.
- Button-up, collared, white dress shirt (accompanied by a plain, solid black tie), white blouse (collarless or small collard) or white turtleneck, with any collar to not extend to the lapel area of the blazer, sweater, windbreaker or jacket.
- Black dress slacks or black dress skirt (knee-length) Wearing socks or hose is no longer required. If worn, socks must be black dress socks and hose must be either black or skin-tone and seamless/non pattern.
- Black dress shoes

or Professional Business Attire

NO cell phones or SmartWatches allowed

Tool Requirements: Contestants must submit online a one-page type-written resume, failure to do so will result in a 50-point penalty

All teams MUST have their own workstations.

Each team is responsible for their own computer equipment with software installed and running.

Software Requirements:

1. 3D Software: Here are examples of acceptable 3D Animation programs
 - a. Maya, 3DS Max, LightWave, XSI, Houdini, Cinema 4D
 - b. Contestants are permitted to use more than one of the above to complete tasks.
2. 2D Image Editing Software: Photoshop or Equivalent
3. Examples of acceptable image sequence compositing programs are Adobe After Effects, Adobe Premiere, or equivalent.

Hardware Requirements:

1. Contestants may use any brand or type of personal computer from any source. Software must be pre-loaded and configured. The computer hardware must meet or exceed the minimum recommended system requirements from the manufacturer of the software of choice. We strongly recommend that the minimum requirements are exceeded.
2. User may use the following components with their systems: Wacom tablet, double monitors and Cintiq Pens.
3. Test the system carefully prior to competition. Make sure your computer is capable of saving to a USB storage device. Bring adapters as necessary.

Other Required Materials:

Pencils and erasers

Storyboard paper

8GB Empty Flash Drive or larger

State Skills:

Contestants are tested on their production skills as well as their technical understanding of 3D Visualization and Animation. Testing of production skills and quality is administered through a practical examination wherein the contestants will, from scratch: design, build, animate, texture, and render an object to be presented at the time of competition. Testing of technical acumen will be administered through a multiple-choice test.

Judging of the practical examination is based on the following criteria:

Planning, Storyboards, Methodology and Execution

Animation quality and Believable Motion Rendering

Textures and Lighting

Design and modeling

Contestants are required to plan an action sequence that must be storyboarded. Once the action sequence is defined contestants are required to then animate the pre-defined object to that storyboard sequence. The action sequence must consist of two parts: a slow and visually fluid movement and a fast and powerful movement.

If you have questions contact: Mark Lyons • AET Labs • EMAIL: mlyons@aetlabs.com



SERIES: COMMERCIAL DESIGN B CONTEST: ADDITIVE MANUFACTURING

Project File
Submission
by April 17

Online
Resumé
Submission

Series Director: MARK LYONS • (978) 290-9015 • mlyons@aetlabs.com
Competition: Blackstone - Room 165 with Event Manager: Matt Campbell

REQUIREMENTS AND SCOPE OF CONTEST

Advisors will be sent log-on information for the **Learning Management System**, which will be open on April 10. Contestants must submit an electronic copy of their resumé to the **LMS** by April 26, by 5:00pm. Retrieve contest assignment from the **LMS**, available on April 10. Complete and submit the assignment according to the details listed in the Procedure for Competition by **April 17**.

Clothing Requirements: avoid a clothing penalty

SkillsUSA attire:

- Red SkillsUSA blazer, windbreaker or sweater, or black or red SkillsUSA jacket.
- Button-up, collared, white dress shirt (accompanied by a plain, solid black tie), white blouse (collarless or small collard) or white turtleneck, with any collar to not extend to the lapel area of the blazer, sweater, windbreaker or jacket.
- Black dress slacks or black dress skirt (knee-length) Wearing socks or hose is no longer required. If worn, socks must be black dress socks and hose must be either black or skin-tone and seamless/non pattern.
- Black dress shoes

or Professional Business Attire

NO cell phones or SmartWatches allowed

Tool Requirements: Contestants must submit online a one-page type-written resume, failure to do so will result in a 50-point penalty

1. Supplied by the technical committee:
 - a. All additive manufacturing equipment and material.
2. Supplied by the contestant:
 - a. Computer system (laptop) with computer design system capable of rendering files in STL format.
 - b. Any tools required to provide finished part.

Self-Presentation Requirements:

You must supply a completed resumé outlining your education, experience and skill set. Resumes will be judged on effectiveness and clarity.

Purpose:

To evaluate each team's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of Digital and Additive Manufacturing. Additive manufacturing embraces a wide range of materials and derivative processes building parts suitable for end-use service. The virtually unlimited design freedom enabled by additive manufacturing allows the creation of shapes and the integration of feature and function that previously required subassemblies. Employment opportunities for creative individuals are growing while industry adopts AM methods. Ready access to workstations and service providers makes the Internet a growing marketplace for public AM gadgets.

Skill Performance:

This contest will be a team-oriented event. Teams will consist of two contestants from the same school. This contest includes two elements to evaluate teams for employment in additive manufacturing fields. This contest contains a design challenge using an FDM 3D printer to produce the designed part(s).

Element One:

Each team will keep an engineering notebook that will demonstrate the design history and intent of the original design. Design considerations:

1. Build time must be no longer than 5 hours and 30 minutes.
2. All parts must be submitted to be printed by the committee in a CMB format.
3. No other parts will be allowed.
4. Assembly will take place the day of the competition.
5. Designs should minimize material usage for both model and support.

CONTEST: ADDITIVE MANUFACTURING CONTINUED

Procedure for Competition:

1. Retrieve contest assignment from the **Learning Management System**, available on April 10
2. Complete assignment by April 21
3. Upload .CMB file and any assembly instructions to the designated dropbox in the **LMS** on or before the posted deadline.
4. AET Labs will print your design
5. Login information for software to virtually estimate print time will be made available to contestants. Moving parts that rotate freely must be part of the design. The design will show the benefits of additive manufacturing by incorporating complex geometric shapes.

Process considerations:

1. Self-supporting angles are 45 degrees.
2. More support means longer build time because the machine takes time to switch from model to support on each layer.
3. Air gap for freedom of movement in parts >0.023”.
4. How the file is oriented to be built will affect the amount of support material being built and the overall time of the build.
5. The processing software has 3 different internal fill patterns the will affect material usage and time of build.
6. See <http://www.stratasys.com/3d-printers/technologies/fdm-technology/faqs> for additional information about the printers.
7. Models will be printed on a Stratasys F120 (see specifications: <http://www.stratasys.com/en/F123/3D-Printers>)

Element Two:

For the second element, COMPLETED ONSITE at the SkillsUSA competition, teams will receive a challenge to perform within a set timeframe involving a design change. Each team member will be required to participate in the design challenge to demonstrate design program competencies. The printed design and design changes in software will be presented to the judges along with the engineering notebook updated with design change notes from the day of the competition.

If you have questions contact: Mark Lyons • AET Labs • EMAIL: mlyons@aetlabs.com



SERIES: COMMERCIAL DESIGN B
CONTEST: ARCHITECTURAL DRAFTING



Series Director: MARK LYONS • (978) 290-9015 • mlyons@aetlabs.com
 Competition: Blackstone - Room 139D with Event Manager: Mike Rannikko

REQUIREMENTS AND SCOPE OF CONTEST

Advisors will be sent log-on information for the **Learning Management System**, which will be open on April 10. Contestants must submit an electronic copy of their resumé to the **LMS** by April 26, by 5:00pm.

Clothing Requirements: avoid a clothing penalty

SkillsUSA attire:

- Red SkillsUSA blazer, windbreaker or sweater, or black or red SkillsUSA jacket.
- Button-up, collared, white dress shirt (accompanied by a plain, solid black tie), white blouse (collarless or small collard) or white turtleneck, with any collar to not extend to the lapel area of the blazer, sweater, windbreaker or jacket.
- Black dress slacks or black dress skirt (knee-length) Wearing socks or hose is no longer required. If worn, socks must be black dress socks and hose must be either black or skin-tone and seamless/non pattern.
- Black dress shoes

or Professional Business Attire NO cell phones or SmartWatches allowed

Tool Requirements: Contestants must submit online a one-page type-written resume, failure to do so will result in a 50-point penalty
 Contestants may use any brand or type of personal computer from any source. Software must be pre-loaded and configured. Test the system carefully prior to competition. Make sure your computer is able to write to a USB storage device. Be sure to test your computer to ensure it will print to a PDF.

Each competitor is responsible for their own computer equipment with their choice of CAD software installed and running. All computers must have Adobe PDF Printer Driver installed. All files will be printed to PDF format and uploaded to the Flash Drive.

- | | | | |
|------------------------------------|----------------------|---------------------------------|-------------------------------|
| 1 cubic foot of reference material | Graph paper | Architect’s scale | Erasers |
| Hand held calculator | Pencils (mechanical) | 8GB Empty Flash Drive or larger | HDMI connector/adaptor |

National Skills:

Contestants will use their drafting skills to solve an Architectural problem. The problem includes a hand sketch and drawings. The contest tests the contestants’ problem solving abilities, not simply their CAD skills.

State Skills:

Today’s industry requires proficiency in both manual and electronic output of technical documents. It is therefore the scope and intent of the contest to test the student’s proficiency in their electronic (CAD) skills, as well as their manual ability to produce a drawing (sketching).

If you have questions contact: Mark Lyons • AET Labs • EMAIL: mlyons@aetlabs.com



SERIES: COMMERCIAL DESIGN B CONTEST: PRECISION LASER IMAGING



Series Director: MARK LYONS • (978) 290-9015 • mlyons@aetlabs.com

Competition: Blackstone - P&D Shop Related Room 060 with Event Manager: Adam Zelny

REQUIREMENTS AND SCOPE OF CONTEST

Advisors will be sent log-on information for the **Learning Management System**, which will be open on April 10.

Contestants must submit an electronic copy of their resumé to the **LMS** by April 26, by 5:00pm.

Employability tests were already taken during District Competition and are NOT part of State Competition.

Clothing Requirements: avoid a clothing penalty

SkillsUSA attire:

- Red SkillsUSA blazer, windbreaker or sweater, or black or red SkillsUSA jacket.
- Button-up, collared, white dress shirt (accompanied by a plain, solid black tie), white blouse (collarless or small collard) or white turtleneck, with any collar to not extend to the lapel area of the blazer, sweater, windbreaker or jacket.
- Black dress slacks or black dress skirt (knee-length) Wearing socks or hose is no longer required. If worn, socks must be black dress socks and hose must be either black or skin-tone and seamless/non pattern.
- Black dress shoes

or Professional Business Attire

NO cell phones or SmartWatches allowed

Tool Requirements: Contestants must submit online a one-page type-written resume, failure to do so will result in a 50-point penalty

Computer with Adobe Illustrator or CorelDraw Software

Pens, Pencils, Markers for sketching

Notebook

Ruler

8GB Empty Flash Drive or larger

Purpose:

Over the past 5 years the applications for laser engravers had grown substantially. Initially a technology that was primarily used for awards and trophies has grown with applications including:

Fab/Labs and Innovation Centers

Medical Equipment Marking

Packaging

Prototyping

Applications

Engraving

Sign Making

Marking

Medical Production Applications

Graphic Design

Others



The use of lasers of all types in industry is experiencing rapid growth. The need for skilled operators, product designers and creators is growing. Laser engraving systems are being used in advanced manufacturing programs, graphic design programs, and engineering programs. The purpose of this contest is to assess the knowledge and performance skills of the contestants.

Contest Guidelines:

This competition will be a team of two (2), one student focusing on Design and the other focusing on Imaging.

The Design Team Member would need to use either Adobe Illustrator or CorelDraw and design the file.

The Imaging Team Member who runs the laser would manipulate the files and cut the image.

The Design Team Member needs to do the creative design work, and the Imaging Team Member needs to take the file and laser engrave the image and laser cut the shape.



Proposed Design Challenge:

The Precision Laser Imaging competition will be comprised of two phases.

Phase one: 1.5 hours – Machine orientation. All teams will be given an orientation on the use of the on-site laser. Once the orientation is complete each team will be allowed to send a test job to the laser in order to understand the necessary workflow for the Epilog laser being used.

Phase two: 3 hours - Students will be given the material and the project scope. Teams will create a design with their graphics design software and produce their product on the laser engraver. In this competition, only an Epilog laser will be used. As stated, all students will have the opportunity to use and become familiar with the laser on site.



SERIES: COMMERCIAL DESIGN B CONTEST: TECHNICAL DRAFTING



Series Director: MARK LYONS • (978) 290-9015 • mlyons@aetlabs.com
Competition: Blackstone - Room 139 with Event Manager: Justin Turski

REQUIREMENTS AND SCOPE OF CONTEST

Advisors will be sent log-on information for the **Learning Management System**, which will be open on April 10. Contestants must submit an electronic copy of their resumé to the **LMS** by April 26, by 5:00pm.

Clothing Requirements: **avoid a clothing penalty**

SkillsUSA attire:

- Red SkillsUSA blazer, windbreaker or sweater, or black or red SkillsUSA jacket.
- Button-up, collared, white dress shirt (accompanied by a plain, solid black tie), white blouse (collarless or small collard) or white turtleneck, with any collar to not extend to the lapel area of the blazer, sweater, windbreaker or jacket.
- Black dress slacks or black dress skirt (knee-length) Wearing socks or hose is no longer required. If worn, socks must be black dress socks and hose must be either black or skin-tone and seamless/non pattern.
- Black dress shoes

or Professional Business Attire

NO cell phones or SmartWatches allowed

Tool Requirements: **Contestants must submit online a one-page type-written resume, failure to do so will result in a 50-point penalty**

Contestants may use any brand or type of personal computer from any source. Software must be pre-loaded and configured. Test the system carefully prior to competition. Make sure your computer is able to write to a USB storage device. Be sure to test your computer to ensure it will print to a PDF.

Each competitor is responsible for their own computer equipment with their choice of CAD software installed and running. All computers must have Adobe PDF Printer Driver installed. All files will be printed to PDF format and uploaded to the Flash Drive.

1 cubic foot of reference material

Graph paper

Engineer's scale

Erasers

Hand held calculator

Pencils (mechanical)

8GB Empty Flash Drive or larger

HDMI connector/adaptor

National Skills:

Contestants will use their drafting skills to solve an Engineering problem. The contest tests the contestants' problem solving abilities, not simply their CAD skills.

State Skills:

Today's industry requires proficiency in both manual and electronic output of technical documents. It is therefore the scope and intent of the contest to test the student's proficiency in their electronic (CAD) skills, as well as their manual ability to produce a drawing (sketching).

If you have questions contact: Mark Lyons • AET Labs • EMAIL: mlyons@aetlabs.com