

# **SkillsUSA**

## **2010 Contest Projects**

### **Screen Printing Technology**

Click the “Print this Section” button above to automatically print the specifications for this contest. Make sure your printer is turned on before pressing the button.

SkillsUSA 2010  
Screen Printing Technology Performance Test Plan

Bartle Hall  
Level 3, Exhibit Hall  
Kansas City, Missouri

June 20-25, 2010

General Information  
For  
Technical Committee Members  
Judges  
State SkillsUSA Directors  
Screen Printing Instructors  
And  
Contestants

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# SkillsUSA 2010

## Screen Printing Technology

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**SkillsUSA 2010**  
**Screen Printing Technology**  
Organizational Structure

I. Performance Test Chair and Co-Chair Responsibilities

- A. Coordinates details of organization.
- B. Reviews floor plans for performance test.
- C. Coordinates acquisition of equipment and supplies.
- D. Identifies and appoints judges.
- E. Assigns local committee members a list of needed supplies to have on hand on the day of the performance test: staples, pencils, marking pens, paper, and other consumable items.
- F. Arrange for security of performance testing area the evening before the day of the competition.

II. Technical Committee Responsibilities

- A. Selects competencies to be tested.
- B. Develops rating sheets.
- C. Completes preliminary instructions (scenario) and information sheets.
- D. Determines number of judges needed.
- E. Obtains names and addresses of judges.
- F. Determines materials, supplies, tools, and equipment needs for the performance test and identifies probable sources.
- G. Prepares a complete set of instructions in the form of scenarios.
- H. Determines the layout for the performance test area.
- I. Sets a time schedule for contestants.

III. Education Committee Responsibilities

- A. Work with the technical committee to protect the validity of the performance test.
- B. Reviews performance test content for accuracy and relevancy.

IV. Judges Responsibilities

Judges must attend an orientation session prior to the start of the performance test.

Contestants should be allowed to become familiar with the competency testing station with regard to the instructions in the performance test scenario.

**SkillsUSA 2010**  
**Screen Printing Technology**

**Contacts:**

Jesse L. Hudson

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417 496 6585

620 231 0155

SkillsUSA Screen Printing Technology competition corporate contacts and confidential testing materials are listed in the appendices.

**SkillsUSA 2010**  
**Screen Printing Technology**  
**Judges and Timekeepers Directory**

**Chair**

Jesse L. Hudson  
Aero Travel  
2604 N. Free King Highway  
Pittsburg, KS 66762  
[j.hudson6@cox.net](mailto:j.hudson6@cox.net)  
417 496 6585  
620 231 0155

**Co-Chair**

Susan Major  
HIX Corporation  
1201 E. 27<sup>th</sup> Terrace  
Pittsburg, KS 66762  
[smajor@hixcorp.com](mailto:smajor@hixcorp.com)  
620 231 8568 Ext. 251  
620 231 1598 FAX

**Inspection and Tensioning Station Judge**

Betty Bassett  
Classic Designs Screen Printing  
160 E. Jackson Street  
Ridgeland, MS 39157  
[printwomen@aol.com](mailto:printwomen@aol.com)  
601 966 5166 Work and Cell

**Inspection and Tensioning Station Timekeeper**

Bryan Schaffner  
Education Comm. Member  
400 GW Lane  
Waynesville, MO 65583  
[bschaffner@waynesville.k12.mo.us](mailto:bschaffner@waynesville.k12.mo.us)  
573 774 6106 School **573 528 5002 Cell**

**Exposure & Washout Station Judge**

Chris Blancho  
HIX Corporation  
1201 E. 27<sup>th</sup> Terrace  
Pittsburg, KS 66762  
[cblancho@hixcorp.com](mailto:cblancho@hixcorp.com)  
620 231 8568 Ext. 263  
620 249 6816 Home

**Exposure & Washout Station Timekeeper**

Sabra Whittenburg  
Education Comm. Member  
30 N. Sandy  
Greenland, AR 72737  
[swhittenburg@greenland.k12.ar.us](mailto:swhittenburg@greenland.k12.ar.us)  
479 521 2366 Ext. 229  
479 643 3174 Home **479 601 2899 Cell**

**Registration Station Judge**

James Ortolani  
HIX Corporation  
1201 E. 27<sup>th</sup> Terrace  
Pittsburg, KS 66762  
[jortolani@hixcorp.com](mailto:jortolani@hixcorp.com)  
620 231 8568 Ext. 230 Work  
620 719 0883 Cell

**Registration Station Timekeeper**

Regina Gossett  
Education Comm. Member  
3203 Oak Grove Road  
Poplar Bluff, MO 63901  
[rgossett@pb.k12.mo.us](mailto:rgossett@pb.k12.mo.us)  
573 785 2248 School **Cell**  
573 785 4168 FAX

**Screen Coating Station Judge**

This Station will be inactive in 2010

**Screen Coating Station Timekeeper**

This Station will be inactive in 2010

**Block-Out Station Judge**

This Station will be inactive in 2010

**Block-Out Station Timekeeper**

This Station will be inactive in 2010

**Reclaiming Station Judge**

This Station will be inactive in 2010

**Reclaiming Station Timekeeper**

This Station will be inactive in 2010

**SkillsUSA 2010**  
**Screen Printing Technology**  
Judges and Time Keepers Information

**Shirt Printing Station Process Judge**

Harold Johnston  
NASMA, Exec. Director  
9800 N. Wayne Avenue.  
Kansas City, MO 64155  
[harold-johnston@att.net](mailto:harold-johnston@att.net)  
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**Shirt Printing Station Assistant**

Howard Bunnell  
NASMA  
TBA  
Kansas City, MO  
[hbunnell@kc.rr.com](mailto:hbunnell@kc.rr.com)  
TBA Cell  
816 734 5607

**Quality Control Problem Judge**

David Granschow  
Absolute Graphix  
98 Blue Declair  
Sparks, NV 89434  
No e-mail address  
775 770 0065 Cell

**Quality Control Problem Timekeeper**

Bryan Schaffner  
Education Comm. Member  
400 GW Lane  
Waynesville, MO 65583  
[bschaffner@waynesville.k12.mo.us](mailto:bschaffner@waynesville.k12.mo.us)  
573 774 6106 School **573 528 5002 Cell**

**Secondary Competition on Wed. June 23, 2010, 8:00 AM to 4:45 PM.**

**Oral Professional Assessment Judge**

Rick Hicks  
NazDar Consulting Services  
8501 Hedge Lane Terrace  
Shawnee, KS 66227  
[Rhicks@nazdar.com](mailto:Rhicks@nazdar.com)  
913 422 1888 Work Ext. 2363  
913 205 0571 Cell

**Test Scores Collector**

Bryan Schaffner  
Education Comm. Member  
400 GW Lane  
Waynesville, MO 65583  
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573 774 6106 School **573 528 5002 Cell**

**Post-Secondary Competition on Wed. June 23, 2010, 8:00 AM to 4:45 PM.**

**Oral Professional Assessment Judge**

Bruce Ridge  
NazDar Consulting Services  
8501 Hedge Lane Terrace  
Shawnee, KS 66227  
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573 774 6106 School **573 528 5002 Cell**

**SkillsUSA 2010**  
**Screen Printing Technology**  
Judges and Time Keepers Information

**Technical Knowledge Test Administrator**

Jesse L. Hudson  
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**Technical Knowledge Test Scorer**

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620 231 0155 Home  
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**Performance Test Scoring Auditor**

Rebecca S. Hudson  
Scoring Auditor  
2604 N. Free King Highway  
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620 231 0155 Home  
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**Test Scores Collector**

Vivian McCormick  
Director Emeritus Kansas SkillsUSA  
P. O. Box 53, Five Mile Road  
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918 541 9255 Home

**Timekeeper in Reserve**

Pat Hoover  
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2931 N. 69<sup>th</sup>  
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913 334 0224 Home  
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**Timekeeper in Reserve**

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816 863 6697 Cell  
913 724 1473 Home

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**SkillsUSA 2010**  
**Screen Printing Technology**  
Judges Information

1. Do not ask students their names or where they are from.
2. Information about performance test needs to be given to students at the orientation, which is usually given by the performance test chair or coordinator.
3. Be as consistent as possible and avoid being too generous or conservative when the testing first begins.
4. Judges should not see another judge's ratings. A scorekeeper should add up the total score for each competency being tested. Each contestant's score should be tallied after they complete their performance and the judge has rated their product.
5. If a problem should arise the judge should attempt to solve the problem with minimal disruption of the testing process. Avoid giving the appearance of being helpful to a contestant while attempting to solve a problem that would cost the contestant performance points.
6. Tools: If a contestant forgets tools, **judges** are not there to be the "helper". Bringing needed tools is the contestant and their school advisor's job. Do not stall the performance testing process because one contestant did not bring a needed tool.
7. Judges need to know the performance test rules. States are to follow the rules set forth in the SkillsUSA Technical Standards. If a state deviates from the SkillsUSA Technical Standards the contestants must be told, in advance of entering the competition, about the changes.
8. Judges are not permitted to answer cell phones or beepers during a timed performance test.
9. If a judge encounters a problem tell the performance test coordinator as soon as practicable.
10. Judges should wear a judge's badge.
11. Judges should try to put contestants at ease.
12. Judges should not laugh at a contestant's performance.
13. Judges should use appropriate language to contestants.
14. Judges should avoid coming in contact with a contestant's person. Hand shaking is permissible.
15. Judges must avoid telling contestants they are winning or losing.

16. Judges who observe cheating should report the cheating to the contest coordinator. Cheating cannot be permitted and the incident must be reported to the State SkillsUSA Director.
17. Judges are role models to contestants; therefore, every effort should be made to avoid visits with instructors or contestants who have an interest in the competition.
18. Judges are asked to complete a judge information sign-in log by listing their name, address, town, Zip, telephone number and company name. Please tell the contest coordinator if you know in advance that you will be able to judge in the succeeding year.
19. Judges are asked to submit their name and communication information. Personal data is to be used for such as thank you letters and certificates of appreciation. Please help by submitting your personal data to the contest coordinator.

**Thank you in advance for your selfless service as a judge of the SkillsUSA Screen Printing Technology Competition.**

**SkillsUSA 2010**  
**Screen Printing Technology**  
Contestant Information Sheet

A. Purpose

To rate a screen-printing contestant's preparation for employment and to recognize outstanding contestants for excellence and professionalism in the field of graphic imaging.

B. Clothing Requirements

Established by the SkillsUSA general contest requirements.

An apron or smock is optional.

Contestants should consider safety glasses with side shields, ear protection and latex gloves in some of the operational areas such as screen reclaiming.

C. Eligibility

Open to all active SkillsUSA members enrolled in technical education programs that teach graphic communications skills.

D. Tools

The technical committee will provide the tools needed at each competency testing station.

Contestants may use rulers, rags, optical devices, markers and other items that they feel will enhance their performance.

E. The SkillsUSA Screen Printing Technology Scorecard lists three items that will not be evaluated during the current competition.

These three items are as follows:

1. Screen Coating
2. Screen Blockout
3. Screen Reclaiming

Therefore, the points for each of these three evaluation items will be recorded on the Screen Printing Technology Scorecard for every Screen Printing Technology Contestant.

The Assignment and Rating Sheets for these three performance-testing areas are included in this Performance Test Plan. The sheets have been included in this plan because Graphics Communications Students and Instructors may wish to refer to these sheets at some **future** time when screen printing performance testing procedure are needed at a local, district, state or **National Competition**.

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## SkillsUSA 2010

### Screen Printing Technology

#### Scope of the Test

- I. Contestants will demonstrate their abilities to perform the duties and tasks that pertain to the following list of items that may be evaluated. The precise number of duties and tasks required for a competent performance of a screen-printing process will be determined by the Screen Printing Technology Technical Committee with **the level of skill** left to the professional judgment of the Screen Printing Technology Judges.
  - A. Screen Preparation (Inspection & Tensioning)
  - B. Screen Coating
  - C. Screen Exposure & Washout
  - D. Screen Blockout
  - E. Image Registration
  - F. Image Printing
  - G. Screen Reclaiming
  - H. Quality Control Problem
  - I. Written Knowledge Test
  - J. Oral Professional Assessment
- II. This list of items that may be evaluated is taken from the Screen Printing Technology Scorecard. As listed on the Screen Printing Technology Scorecard each of the ten evaluation items listed above have an attending number of possible points. Performance testing station checklists may generate points in more than one of the ten evaluation areas. (Example: Image Registration and Image Printing will test some of the same screen-printing skills. The testing of these identical skills will contribute points to a composite score on the Screen Printing Technology Scorecard.)
  - A. Screen Preparation, Inspection & Tensioning
    - Inspect screens entering production.
    - Check screen tension with a tension meter and retension if needed
  - B. Screen Coating
    - Evaluation of this item at the state level is optional. It will be not be evaluated at the national level in 2010.**
    - Select and prepare emulsion scoop
    - Fill emulsion scoop coater
    - Coat screen with emulsion
    - Evaluate screen for acceptable tolerances
    - Place coated screen in a screen dryer

C. Screen Exposure and Washout

Select the **black** film positive from an art file

Inspect the film positive for dirt and marks

Obtain a screen coated with emulsion from screen dryer

Inspect and protect screen from excess light

Center **black** film positive on screen **6 1/4** inches from frame bottom

Secure the film positive to the screen

Place screen and film positive on an exposure unit

Expose screen

Remove film positive

Washout the unexposed emulsion on a screen to create an image stencil

Remove excess water

Dry screen

D. Screen Blockout

**Evaluation of this item at the state level is optional. It will be not be evaluated at the national level in 2010.**

Use blockout fillers and tape to cover areas on the screen where plastisol could be printed on the image in an area that would produce a shirt that could not sold to a customer.

F. Image Registration

Place screen on the press

**Coarse register** to image printed at this press station (Note do not remove the blockout tape from the registration marks)

Check shirt boards for proper adhesion

Select adhesive by type

Apply adhesive to shirt boards for proper adhesion

Inspect contact side of screens for excess ink

Test screen off contact

Print test image on a rag or other substrate to check for correct registration

**Fine register** to image printed at this press station

Print proof image on two shirts

Place shirts in dryer

G. Image Printing

Check shirt boards for proper adhesion

Select adhesive by type

Apply adhesive to shirt boards for proper adhesion

Inspect contact side of screens for excess ink

Inspect all screens for off contact

Check ink supply on each screen

Check registration of all screens

Squeegee selection and inspection for hardness and damage

Print image on shirts

Place shirts in dryer

H. Screen Reclaiming

**Evaluation of this item at the state level is optional. It will be not be evaluated at the national level in 2010.**

Remove excess ink

Remove block-out filler and tape

Apply emulsion remover

Blow out emulsion with high pressure hot water

Use scrub brush where needed

Use environmentally safe chemicals and procedures

I. Quality Control Problem

Study technical specifications contained in the Tech Pack

Study the quality assurance worksheet scenario and inspection steps

Inspect a quality assurance sample of five garments

J. Written Test

Answer a minimum of 25 multiple-choice screen-printing technology questions.

Complete the test in the allotted fifteen (15) minutes

K. Oral Professional Assessment

Communicate in a job interview setting, which requires technical knowledge, career objective, professional judgment, and courtesy.

III. When a contestant has completed an assigned job the contestant is to be seated in the chair provided at that testing station to stop the time. After the judge and timekeeper have completed rating the contestant's performance and procedure the contestant will be notified. The judge will gather the completed project and rating form and submit it to the scorekeeper for tabulation and posting on a **Screen Printing Technology Scorecard.**

Each contestant will work independently without assistance from judges, instructors, fellow contestants, or observers. Such assistance may result in the contestant being disqualified.

IV. Contestants should perform minor testing station maintenance: such as clean up, tool and materials placement. Testing station maintenance is an item that will be evaluated by all testing station judges.

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**SkillsUSA 2010**  
**Screen Printing Technology**  
Screen Preparation

Screen Inspection and Tensioning Assignment

Objective:

Inspect and test three retentionable screens with stencils that are reentering production from storage. This inspection is made to determine if company production standards are being met. Special attention is to be given to screen tension. Tension tolerances are specified in the performance test scenario written at the top of the screen preparation (**tensioning**) station checklist. **Note: Screen mesh tension shall not vary by more than a plus or minus 5 Newtons at center of screen.**

**Caution: Do not continue to tighten screws that are crooked or jammed. A jammed screw on any frame corner will prevent completion of the tensioning process and result in zero (0) points for this portion of your Screen Printing Technology Performance Test.**

Screen inspection and tension testing instructions:

1. Obtain Screen Preparation (Inspection and Tension) Checklist from the station timekeeper.
2. Read the scenario written on the checklist.
3. Move to inspection and tension testing station.
4. Inspect and test screen # 1. Place a check mark to indicate either accept or reject.
5. Record the screen tension **number** as either accept or reject.
6. Move to screen # 2.
7. Inspect and test screen # 2. Place a check mark to indicate either accept or reject.
8. Record the screen tension **number** as either accept or reject.
9. Move to screen # 3.
10. Inspect and test screen # 3. Place a check mark to indicate either accept or reject.
11. Record the screen tension number as either accept or reject.
12. Submit your inspection report to the judge.
13. Move to screen # 4.
14. Tension and test screen # 4.
15. Place the tensioning tools back in their proper place on the workstation bench.
16. Return to the Inspection and Tension Station starting position.

Judging:

A screen printer will use the screen preparation (**inspection and tension**) checklist, reproduced on the following page, to judge the contestant's performance.

Time:

A timekeeper will control the time each contestant is allotted for the completion of the screen inspection and tension testing procedure. A maximum of fifteen (15) minutes is allocated to the procedure.

Points:

Contestants earn four (4) points for each inspection check mark that is recorded on the correct blank as an **accepted** or **rejected** inspection for items one (1) through four (4). Inspection item five (5), for each of the three (3) screens, requires the **number** of **Newtons** read from a tension meter be recorded as either **accepted** or **rejected**. A maximum of sixty (60) points may be given to contestants for the screen inspections. A maximum of forty (40) points may be given to contestants for the screen tensioning performance.

# Screen Preparation (Inspect and Tension) Checklist

**Contestant Identification:** \_\_\_\_\_ **Time Used:** \_\_\_\_\_.

**Scenario:** Inspect and test the tension on three (3) screens. The standard tension is 25 Newtons with a tolerance of + or - 5. Use the items listed on this checklist to inspect and determine if screens one (1), two (2) and three (3) meet production standards. **Do not retention screen that have stencils.** Then tension the fabric (mesh) on screen number four (4) to 25 Newtons at the screen's center.

## Instructions for Judge's Scoring

**Process Evaluation Criteria:** Evaluation of the process involves how accurately the contestant performed with each screen. Depending on the placement of check marks and tension measurements for each of three inspection screens, award points of zero or four for each correct check mark and zero to four for the tension readings. Judges shall deduct one (1) point for each one (1) Newton of difference from the tension reading listed on the judging KEY. Tensioning screen number four (4) will require the judge to award 0 to 4 points for each tensioning operation listed while the contestant is working. Four (4) points may be awarded to contestants on each of the 25 lines provided in the Judges Scoring Box.

### Judges Scoring Box

#### Contestants Rating for Performance of the Inspection Process:

##### Screen 1 Inspection and Tensioning Reports      **Accept**      **Reject**

1. Screen frame is free of damage. \_\_\_\_\_
2. Screen is free of cuts, splits or punctures. \_\_\_\_\_
3. Stencil is free of holes that could leak ink. \_\_\_\_\_
4. Screen mesh is not clogged in the image area. \_\_\_\_\_
5. Screen tension readings. (**Record Newtons**) \_\_\_\_\_

##### Screen 2 Inspection and Tensioning Reports      **Accept**      **Reject**

1. Screen frame is free of damage. \_\_\_\_\_
2. Screen is free of cuts, splits or punctures. \_\_\_\_\_
3. Stencil is free of holes that could leak ink. \_\_\_\_\_
4. Screen mesh is not clogged in the image area. \_\_\_\_\_
5. Screen tension readings. (**Record Newtons**) \_\_\_\_\_

##### Screen 3 Inspection and Tensioning Reports      **Accept**      **Reject**

1. Screen frame is free of damage. \_\_\_\_\_
2. Screen is free of cuts, splits or punctures. \_\_\_\_\_
3. Stencil is free of holes that could leak ink. \_\_\_\_\_
4. Screen mesh is not clogged in the image area. \_\_\_\_\_
5. Screen tension readings. (**Record Newtons**) \_\_\_\_\_

**Before proceeding with tensioning screen number four (4) submit your inspection report to the judge.**

#### Screen 4 Tensioning

1. Inserted tension jacks at screen frame bottom. \_\_\_\_\_
2. Loosened bottom frame screws. \_\_\_\_\_
3. Used tension jacks to tighten screen fabric. \_\_\_\_\_
4. Softened bottom screen corners. \_\_\_\_\_
5. Tightened frame bottom screws. \_\_\_\_\_
6. Repeated steps 2, 3, 4, and 5 at top and sides. \_\_\_\_\_
7. Checked screen frame corners for square. \_\_\_\_\_
8. Removed tension meter from protective case. \_\_\_\_\_
9. Tensioned screen center to 25 Newtons. \_\_\_\_\_
10. Replaced tension meter in protective case. \_\_\_\_\_

Judge's Signature \_\_\_\_\_

<b>60 Points Possible</b>
_____
_____
_____
_____
Sub Total _____
_____
_____
_____
Sub Total _____
_____
_____
Sub Total _____
<b>Inspection Total _____</b>
<b>40 Points Possible</b>
_____
_____
_____
_____
Sub Total _____
<b>Tensioning Total _____</b>
<b>Station Total _____</b>

**SkillsUSA 2010**  
**Screen Printing Technology**  
Screen Coating

Screen Coating Assignment

**The Screen Coating Station will not be part of the 2010 Screen Printing Technology Performance Test. All Contestants will automatically receive 50 points on the Screen Printing Technology Scorecard. This action is taken to afford more time for the testing of additional contestants.**

Objective:

Inspect five (5) screens and identify screens that best meet the needs of your company that are set forth in the screen-printing technology performance test scenario. The coated screens that you identify must meet the needs of the printing operations required to produce a saleable lot of garments, plus meet the standards established by the screen-printing industry.

Screen coating station procedure instructions:

1. Inspect screens for correct mesh count.
2. Inspect screen mesh and reject screens that are damaged.
3. Test the screens for proper tension.
4. Inspect the unexposed emulsion for defects that would render it unusable for your company's printing operation.
5. Inspect the unexposed screens emulsion for acceptable thickness.
6. Avoid excess light exposure to each screen's unexposed photosensitive emulsion.
7. Place a check mark to indicate, acceptance or rejection, by each of the ten criterion points on the screen coating worksheet for each of the five (5) screens.
8. Return each screen to the screen dryer after your inspection.
9. Place the screens in the screen dryer in the same place in which you found them.
10. Submit your screen coating worksheet to the judge for scoring.

Judging:

A screen printer will use the screen coating station worksheet, reproduced on the following page, to judge the contestant's performance, procedure and product.

Time:

A timekeeper will record the time each contestant needed to complete the inspection and selection procedure of five screens. A maximum of fifteen (15) minutes is allocated to the inspection and selection procedure.

Points:

A maximum of one hundred (100) points may be given to the contestant for a standard screen coating performance.

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# Screen Coating Inspection Worksheet

**Contestant Identification:** \_\_\_\_\_ **Time Started:** \_\_\_\_\_

**Scenario:** You have been given the task of inspecting five (5) screens and selecting screens that meet the needs of a screen-printing job for which a company has taken a contract. You have been instructed to use the ten (10) criterion points listed on this worksheet for each of five (5) screen to determine if any or all screens meet printing operational requirements to produce a saleable lot of garments and meet industry standards.

This screen coating inspection worksheet has a rating scale for each of five (5) direct emulsion coated screens. The rating given to each of the ten (10) criterion points will be earned by checking either **accept** or **reject** blank provided. Your decision to accept or reject a coated screen criterion point will be based on the standards set by your company's customer. If a screen receives a rejection on any one of the ten criterion points, that screen will be considered as not useable and should be reclaimed. The company's screen preparation department has five (5) screens that have been coated and are believed to be ready for exposure and washout to produce stencils for use on the company's manual rotary press. Screens must have a mesh count between 148 and 195 and tensioned between 23 and 27 Newtons. There may or may not be screens that could be used to produce high quality stencils.

After you have evaluated a screen place it back into the screen dryer in the same position from which the screen was taken.

**Evaluation Criteria: Depending on the degree of quality for each screen criterion point listed below award one or zero points.**

**Screen 1 Inspection Points**

1. Mesh count is between 148 and 195.
2. Screen mesh is not damaged.
3. Screen tension is between 23 and 27 Newtons.
4. Screen is coated with direct emulsion.
5. Emulsion coating is dry.
6. Emulsion thickness will not leave mesh marks.
7. Emulsion does not have pinholes.
8. Emulsion smooth and even on contact side
9. Emulsion smooth and even on squeegee side
10. Screen frame is not damaged or out of square.

**Total Points Possible (50)**

**Accept                      Reject**


**Screen 2 Inspection Points**

1. Mesh count is between 148 and 195.
2. Screen mesh is not damaged.
3. Screen tension is between 23 and 27 Newtons.
4. Screen is coated with direct emulsion.
5. Emulsion coating is dry.
6. Emulsion thickness will not leave mesh marks.
7. Emulsion does not have pinholes.
8. Emulsion smooth and even on contact side
9. Emulsion smooth and even on squeegee side
10. Screen frame is not damaged or out of square.

**Accept                      Reject**


**Worksheet continues on the back of this page.**

**Screen 3 Inspection Points**

1. Mesh count is between 148 and 195.
2. Screen mesh is not damaged.
3. Screen tension is between 23 and 27 Newtons.
4. Screen is coated with direct emulsion.
5. Emulsion coating is dry.
6. Emulsion thickness will not leave mesh marks.
7. Emulsion does not have pinholes.
8. Emulsion smooth and even on contact side
9. Emulsion smooth and even on squeegee side
10. Screen frame is not damaged or out of square.

**Accept**

**Reject**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**Screen 4 Inspection Points**

1. Mesh count is between 148 and 195.
2. Screen mesh is not damaged.
3. Screen tension is between 23 and 27 Newtons.
4. Screen is coated with direct emulsion.
5. Emulsion coating is dry.
6. Emulsion thickness will not leave mesh marks.
7. Emulsion does not have pinholes.
8. Emulsion smooth and even on contact side
9. Emulsion smooth and even on squeegee side
10. Screen frame is not damaged or out of square.

**Accept**

**Reject**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**Screen 5 Inspection Points**

1. Mesh count is between 148 and 195.
2. Screen mesh is not damaged.
3. Screen tension is between 23 and 27 Newtons.
4. Screen is coated with direct emulsion.
5. Emulsion coating is dry.
6. Emulsion thickness will not leave mesh marks.
7. Emulsion does not have pinholes.
8. Emulsion smooth and even on contact side
9. Emulsion smooth and even on squeegee side
10. Screen frame is not damaged or out of square.

**Accept**

**Reject**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**Contestant Identification:** \_\_\_\_\_ **Time Finished:** \_\_\_\_\_

**Judge's Score Tallied Below This Line**

	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5		
Contestant ID	Correct	Correct	Correct	Correct	Correct	Checks	Problem
Identification	Checks	Checks	Checks	Checks	Checks	Total	Score

**SkillsUSA 2010**  
**Screen Printing Technology**  
Screen Exposure and Washout

Screen Exposure and Washout Assignment

Objective: Create an image on a screen in accordance with the instructions given at the screen exposure and washout station.

Screen exposure and washout station instructions:

1. Select needed film positive from art file
2. Check film positive's unmarked properties, clean the film positive if needed
- 3. Position the black film positive on an unexposed emulsion coated screen with the registration marks (crosshairs) at the top and bottom center of the film positive on the screen's centerline. The registration mark (+) at the bottom of the film positive shall be positioned 6 1/4 inches from the outside edge of the frame at the bottom of the screen.**
4. Secure the film positive to the screen
5. Place the screen and film positive on the exposure unit
6. Expose the screen for approximately 3 1/2 minutes
7. Remove film positive and return it to the art file
8. Place the exposed screen in a washout booth
9. Wet both sides of the exposed screen with warm water
10. Allow the unexposed emulsion to soak for a few seconds
11. Spray the unexposed area of the image with a low-pressure sprayer.
12. Washout all of the unexposed emulsion from the stencil
13. Remove the excess water from the screen
14. Check for emulsion binder (scum) left on the screen's washout areas
15. Place screen in a screen dryer rack

Judging:

A screen printer will use the screen exposure and washout station checklist to judge the contestant's performance, procedure and product.

Time:

A timekeeper will record the time each contestant needed to complete the screen exposure and washout procedure. A maximum of fifteen (15) minutes is allocated for the screen exposure and washout procedure.

Points:

A maximum of one hundred (100) points may be given to the contestant for a screen-printing stencil procedure that meets industry standards.

# Screen Exposure and Washout Station Checklist

**Contestant Number:** \_\_\_\_\_ **Time:** \_\_\_\_\_

Directions: This is a performance evaluation sheet to rate a contestant on a scale of 0 to 4 and 0 to 5 for various items in relation to an occupational competency (skill). This instrument can be used for process, product, safety and time standard evaluations.

**Process Evaluation:** Evaluation of this process involves exposing a screen-printing screen with an ultra-violet exposure unit and washout of unexposed emulsion to create a stencil.

<b>Contestants Rating for Performance of the Process:</b>	<b>80 Points Possible</b>				
	<b>Zero</b>	<b>One</b>	<b>Two</b>	<b>Three</b>	<b>Four</b>
1. Selected needed film positive from art file.	_____	_____	_____	_____	_____
2. Inspected film positive for dirt or marks.	_____	_____	_____	_____	_____
3. Cleaned film positive and exposure unit glass, if needed.	_____	_____	_____	_____	_____
4. Took an unexposed screen from screen dryer.	_____	_____	_____	_____	_____
5. Placed and aligned the film positive on the screen.	_____	_____	_____	_____	_____
6. Taped the film positive to the screen.	_____	_____	_____	_____	_____
7. Checked exposure unit for correct exposure time.	_____	_____	_____	_____	_____
8. Placed screen and film positive on the exposure unit.	_____	_____	_____	_____	_____
9. Placed bleeder cord on screen and closed exposure unit lid.	_____	_____	_____	_____	_____
10. Checked exposure unit timer for correct preset time.	_____	_____	_____	_____	_____
11. Turned on exposure unit and vacuum pump power.	_____	_____	_____	_____	_____
12. Checked exposure unit for proper blanket vacuum.	_____	_____	_____	_____	_____
13. Exposed the screen.	_____	_____	_____	_____	_____
14. Turned off exposure unit to allow vacuum release.	_____	_____	_____	_____	_____
15. Opened the exposure unit lid.	_____	_____	_____	_____	_____
16. Transferred screen to washout booth and wet both sides.	_____	_____	_____	_____	_____
17. Washed out the unexposed emulsion to create a stencil.	_____	_____	_____	_____	_____
18. Blotted excess water from stencil and inspected for scum.	_____	_____	_____	_____	_____
19. Placed screen in screen dryer rack.	_____	_____	_____	_____	_____
20. Cleaned up the testing station.	_____	_____	_____	_____	_____

**Product Evaluation:** Evaluation of the dried screen in accordance with the following points scale;  
 0 – reject, 1 -- very poor, 2 -- fair, 3 -- good, 4 -- very good, 5 – excellent

<b>Contestants Product Points (20 Possible).</b>	<b>Zero</b>	<b>One</b>	<b>Two</b>	<b>Three</b>	<b>Four</b>	<b>Five</b>
1. Image was centered and not crooked.	_____	_____	_____	_____	_____	_____
2. Image could be registered.	_____	_____	_____	_____	_____	_____
3. Screen was properly exposed.	_____	_____	_____	_____	_____	_____
4. Screen was properly washed out and dried.	_____	_____	_____	_____	_____	_____

**Total Points Earned** \_\_\_\_\_

Judge's Signature \_\_\_\_\_

**SkillsUSA 2010**  
**Screen Printing Technology**  
Screen Block Out

Screen Block Out Assignment

**The Screen Block Out Station will be not be part of the 2010 Screen Printing Technology Performance Test. All Contestants will automatically receive 50 points on the Screen Printing Technology Scorecard. This action is taken to afford more time for the testing of additional contestants.**

Objective:

Block out portions of a test screen where direct emulsion did not coat the screen fabric, or where the cured emulsion has a flaw such as a pin hole, scratch, cut or other defect that would allow plastisol to be applied to incorrect areas on a substrate during the printing process.

Screen Block Out station instructions:

1. Remove the test screen from the screen dryer.
2. Compare the number on the test screen to Contestant I D number.
3. Inspect Block Out station table for cleanliness and objects that could damage the test screen.
4. Place the test screen on the blackout station table.
5. Use block out tape to tape off the sides of the screen where emulsion is missing.
6. Use black out tape to tape off the top and bottom of the screen where emulsion is missing.
7. Create corner dams to prevent ink leaks.
8. Inspect test screen stencil for flaws, scum and orientation.
9. Use block out tape to tape off flaws such as pinholes.
10. Present test screen to the Block Out Judge for final check and evaluation.

Judging:

A screen printer will use the screen block out station checklist, reproduced on the following page, to judge the contestant's performance, procedure and product.

Time:

A timekeeper will record the time each contestant needed to complete the screen block out procedure. A maximum of fifteen (15) minutes is allocated to the screen block out procedure.

Points:

A maximum of fifty (50) points may be given to the contestant for a screen block out that meets industry standards.

# Screen Block Out Station Checklist

**Contestant Number:** \_\_\_\_\_ **Time:** \_\_\_\_\_

Directions: This is a performance evaluation sheet to rate a contestant on a scale of 0 to 4 and 0 to 5 for various items in relation to an occupational competency (skill). This instrument can be used for process, product, safety and time standard evaluations.

**Process Evaluation:** Evaluation of the process involved with blocking out portions of a test screen where direct emulsion does not coat the screen fabric.

### 40 Points Possible

Contestants Rating for Performance of the Process:	Zero	One	Two	Three	Four
1. Removed the test screen from the screen dryer.	_____	_____	_____	_____	_____
2. Compared test screen number to Contestant I D number.	_____	_____	_____	_____	_____
3. Inspected station table for cleanliness and foreign objects.	_____	_____	_____	_____	_____
4. Placed the test screen on the block-out station table.	_____	_____	_____	_____	_____
5. Used block-out tape to tape off the sides of the screen.	_____	_____	_____	_____	_____
6. Used block-out tape to tape off top and bottom of screen.	_____	_____	_____	_____	_____
7. Created corner dams to prevent ink leaks.	_____	_____	_____	_____	_____
8. Inspected test screen stencil for flaws, scum and orientation.	_____	_____	_____	_____	_____
9. Used block-out tape to tape off flaws such as pinholes.	_____	_____	_____	_____	_____
10. Presented screen to judge for final check and evaluation.	_____	_____	_____	_____	_____

**Product Evaluation:** Evaluation of the dried screen in accordance with the following points scale;  
 0 – reject, 1 -- very poor, 2 -- fair, 3 -- good, 4 -- very good, 5 – excellent

Contestants Product Points (10 Possible).	Zero	One	Two	Three	Four	Five
1. Tape around frame is smooth and will not leak.	_____	_____	_____	_____	_____	_____
2. Flaws such as pinholes taped over and will not leak.	_____	_____	_____	_____	_____	_____

**Total Points Earned** \_\_\_\_\_

Judge's Signature \_\_\_\_\_

**SkillsUSA 2010**  
**Screen Printing Technology**  
Image Registration

Image Registration Assignment

Objective:

Place a screen on a screen press and register the stencil image to screen stencils that have been registered and used to print an image on a substrate.

Image registration station instructions:

1. Remove the test screen from the reclaim area.
2. Do not remove block-out tape from the registration marks.
3. Print an image using the screen with darkest ink on a substrate.
4. Spot cure the dark image that is to be the registration reference.
5. Register the screen to an image that is being printed on the press.
6. Ink the screen.
7. Test the newly registered image by printing the multicolor image on the substrate provided.
8. Remove the test image from the press and place it on the conveyer dryer belt.
9. Print two (2) T-shirts.
10. Remove the T-shirts from the press and place them on the conveyer dryer belt.
11. Remove the test screen and place it by the reclaim sign on the worktable.

Judging:

A screen printer will use the image registration station checklist, reproduced on the following page, to judge the contestant's performance, procedure and product.

Time:

A timekeeper will record the time each contestant needed to complete the image registration procedure. A maximum of fifteen (15) minutes is allocated to the image registration procedure.

Points:

A maximum of one hundred (100) points may be given to the contestant for an image registration that meets industry standards.

# Image Registration Station Checklist

**Contestant Number:** \_\_\_\_\_ **Time:** \_\_\_\_\_

Directions: This is a performance evaluation sheet to rate a contestant on a scale of 0 to 4 and 0 to 5 for various items in relation to an occupational competency (skill). This instrument can be used for process, product, safety and time standard evaluations.

**Process Evaluation:** Evaluation of the process involved with registering a screen-printing screen on a rotary press.

	<b>80 Points Possible</b>				
<b>Contestants Rating for Performance of the Process:</b>	<b>Zero</b>	<b>One</b>	<b>Two</b>	<b>Three</b>	<b>Four</b>
1. Took screen from reclaim area and attached it to the press.	_____	_____	_____	_____	_____
2. Checked the rotary press head for zeroed out position.	_____	_____	_____	_____	_____
3. Cleaned ink from mesh to allow view of printed images.	_____	_____	_____	_____	_____
4. Registered to an image being printed at this station.	_____	_____	_____	_____	_____
5. Checked screen for off contact and level.	_____	_____	_____	_____	_____
6. Checked all screens and screen frames for unwanted ink.	_____	_____	_____	_____	_____
7. Applied ink to screen being registered.	_____	_____	_____	_____	_____
8. Selected appropriate squeegee.	_____	_____	_____	_____	_____
9. Applied proper adhesive and amount to the platen.	_____	_____	_____	_____	_____
10. Spot cure dark image that is the registration reference.	_____	_____	_____	_____	_____
11. Flooded the newly registered screen with ink.	_____	_____	_____	_____	_____
12. Printed registered image to a test image on substrate.	_____	_____	_____	_____	_____
13. Checked test image for ink smears, pin holes, etc.	_____	_____	_____	_____	_____
14. Cured the image in the conveyor dryer.	_____	_____	_____	_____	_____
15. Printed two T-shirts with the multicolor image.	_____	_____	_____	_____	_____
16. Dried the T-shirts in a conveyor dryer.	_____	_____	_____	_____	_____
17. Removed test screen and placed it in reclaim area.	_____	_____	_____	_____	_____
18. Cleaned work area of spills and drips. (If needed)	_____	_____	_____	_____	_____
19. Submitted test image and T-shirts to the judge.	_____	_____	_____	_____	_____
20. Completed registration procedure in allotted time.	_____	_____	_____	_____	_____

**Product Evaluation:** Evaluation of the registered image in accordance with the following points scale;  
 0 – reject, 1 -- very poor, 2 -- fair, 3 -- good, 4 -- very good, 5 – excellent

<b>Contestants Product Points (20 Possible).</b>	<b>Zero</b>	<b>One</b>	<b>Two</b>	<b>Three</b>	<b>Four</b>	<b>Five</b>
1. Test image was in registration.	_____	_____	_____	_____	_____	_____
2. All parts of the image printed.	_____	_____	_____	_____	_____	_____
3. Image was not blurred.	_____	_____	_____	_____	_____	_____
4. Ink smears do not appear in the image.	_____	_____	_____	_____	_____	_____

**Total Points Earned** \_\_\_\_\_

Judge's Signature \_\_\_\_\_

# Image specifications (Tech Pack Page 1)

COMMENTS:	SUPPORT FILES (spc/ai): None Needed	TECHNIQUE: 3 color flat print	SEASON/GROUP: SKILLSUSA DIVISION: TEES NATIONALS	DATE: 3/20/09 OR.DESIGNER: Chris Huitt
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# Image specifications (Tech Pack Page 2)

PRINT ORDER

1 PANTONE 541 2 PANTONE 485 3 BLACK



**SkillsUSA 2010**  
**Screen Printing Technology**  
Image Printing

Image Printing Assignment

Objective:

Print and dry at least five (5) shirts within seven (7) minutes that are of salable quality.

Image printing station instructions:

1. Check the ink level in each screen.
2. Check the press shirt boards for proper adhesion.
3. Operate the printing press to print a multicolor image on shirts.
4. Spot cure after each image color **where printing wet on wet is not desirable.**
5. Place the shirts on the belt of a conveyor dryer.
6. Stack the printed shirts and give them to the judge
7. Remove ink smears from press, screens, squeegees, tools and image printing station area.

Judging:

A screen printer will use the image printing station checklist, reproduced on the following page, to judge the contestant's performance, procedure and product. Contestants may earn extra points by printing more than five (5) shirts within seven (7) minutes.

Time:

A timekeeper will record the time each contestant needed to complete the image printing procedure. A maximum of fifteen (15) minutes is allocated to the total image printing station procedure. Time stops when the contestant is seated.

Points:

A maximum of two hundred (200) points may be given to the contestant for a high quality image printing performance.

# Image Printing Station Checklist

**Contestant Number:** \_\_\_\_\_ **Time:** \_\_\_\_\_

Directions: This is a performance evaluation sheet to rate a contestant on a scale of 0 to 8 and 0 to 20 for various items in relation to an occupational competency (skill). This instrument can be used for process, product, safety and time standard evaluations.

**Process Evaluation:** Evaluation of the process involves assessing how well a contestant can print shirts as well as how fast the shirts were printed on a rotary press.

<b>Contestants Rating for Performance of the Process:</b>	<b>120 Points Possible</b>				
	<b>Zero</b>	<b>Two</b>	<b>Four</b>	<b>Six</b>	<b>Eight</b>
1. Checked the ink level in each screen.	_____	_____	_____	_____	_____
2. Checked shirt board for proper fabric adhesion.	_____	_____	_____	_____	_____
3. Chose and applied proper adhesive type and amount.	_____	_____	_____	_____	_____
4. Inspected all screens for off contact and cleanliness.	_____	_____	_____	_____	_____
5. <b>Spot cured when printing wet on wet.</b>	_____	_____	_____	_____	_____
6. Printed three salable T-shirts, 1 thru 3.	_____	_____	_____	_____	_____
7. Skillfully placed each shirt in dryer.	_____	_____	_____	_____	_____
8. Printed T-shirts, salable 4 thru 6.	_____	_____	_____	_____	_____
9. Skillfully placed each shirt in dryer.	_____	_____	_____	_____	_____
10. Printed T-shirts, salable 7 or more.	_____	_____	_____	_____	_____
11. Skillfully placed each of the shirts in dryer.	_____	_____	_____	_____	_____
12. Stopped printing when seven (7) minutes had elapsed.	_____	_____	_____	_____	_____
13. Collected the printed shirts from the dryer basket.	_____	_____	_____	_____	_____
14. Stacked printed shirts with the image up for judging.	_____	_____	_____	_____	_____
15. Completed printing procedure in allotted time safely.	_____	_____	_____	_____	_____

**Product Evaluation:** Using the printing technical specifications found in the customer's technical packet (Tech.-Pack) evaluate the printed garments in accordance with the following zero to twenty point scale.

**Deduct five points for each error found on the garments!**

0 – reject, 5 -- fair, 10 -- good, 15 -- very good, 20 – excellent

<b>Contestants Product Points (80 Possible)</b>	<b>Zero</b>	<b>Five</b>	<b>Ten</b>	<b>Fifteen</b>	<b>Twenty</b>
1. Images were printed at correct height.	_____	_____	_____	_____	_____
2. Images were printed on center.	_____	_____	_____	_____	_____
3. Images were not crooked.	_____	_____	_____	_____	_____
4. Ink smudges do not appear on shirts.	_____	_____	_____	_____	_____

**Total Points Earned** \_\_\_\_\_

Judge's Signature \_\_\_\_\_

# Image Printing Station Design

COMPANY	PROJECT FILE NAME	VERSION	PROJECT	DATE
	28 Br 2010 Folder	5 Color Flat Platt sol	SkillsUSA Nationals	04/09/2010 Chris Hultt





# I BELIEVE.

*In the American way of life.*

*In education. In fair play.*

*Satisfaction is achieved by good work.*

*In high moral and spiritual standards.*

**"SkillsUSA: Champions at Work."**

46th Annual National Leadership and Skills Conference, Kansas City June 20-June 25, 2010

---

**Print Order**

1 GREY 431

2 YELLOW 123

3 BROWN 469

4 HIGHLIGHT WHITE

5 BLACK

Artwork shown not actual size.

Actual width = 10.85"

**SkillsUSA 2010**  
**Screen Printing Technology**  
Screen Reclaiming

Screen Reclaiming Assignment

**The Screen Reclaiming Station will be not be part of the 2010 Screen Printing Technology Performance Test. All Contestants will automatically receive 100 points on the Screen Printing Technology Scorecard. This action is taken to afford more time for the testing of additional contestants.**

Objective:

Reclaim a screen that has been used to print an image on a shirt in accordance with the instructions given at the screen reclaiming station.

Screen reclaiming station instructions:

1. Remove a used screen from a storage rack.
2. Place screen in a cleanup rack that compares to a press with side clamps
3. Remove ink
4. Remove block-out tape (If present)
5. Remove emulsion
6. Secure high-pressure sprayer
7. Place screen in a storage rack
8. Clean up the workstation

Judging:

A screen printer will use the screen reclaiming station checklist, reproduced on the following page, to judge the contestant's performance, procedure and product.

Time:

A timekeeper will record the time each contestant needed to complete the screen reclaiming procedure. A maximum of fifteen (15) minutes is allocated to the screen reclaiming procedure. Time stops when the contestant is seated.

Points:

A maximum of one hundred (100) points may be given to the contestant for a screen reclaiming procedure that meets industry standards.

# Screen Reclaiming Station Checklist

**This station will not be in operation during the 2010 Competition**

**Contestant Number:** \_\_\_\_\_ **Time:** \_\_\_\_\_

Directions: This is a performance evaluation sheet to rate a contestant on a scale of 0 to 4 and 0 to 5 for various items in relation to an occupational competency (skill).

This instrument can be used for process, product, safety and time standard evaluations.

**Process Evaluation:** Evaluation of the process involved with reclaiming a screen.

<b>Contestants Rating for Performance of the Process:</b>	<b>Total Points Possible 80</b>				
	<b>Zero</b>	<b>One</b>	<b>Two</b>	<b>Three</b>	<b>Four</b>
1. Donned apron and safety glasses.	_____	_____	_____	_____	_____
2. Used ear protection and gloves.	_____	_____	_____	_____	_____
3. Removed screen from storage rack.	_____	_____	_____	_____	_____
4. Placed screen on clean up rack.	_____	_____	_____	_____	_____
5. Removed excess ink.	_____	_____	_____	_____	_____
6. Removed block out tape. (If Present)	_____	_____	_____	_____	_____
7. Used towels and solvent to remove remaining ink.	_____	_____	_____	_____	_____
8. Disposed of the dirty towel.	_____	_____	_____	_____	_____
9. Placed screen in the washout booth.	_____	_____	_____	_____	_____
10. Turned the washout booth backlight on.	_____	_____	_____	_____	_____
11. Applied emulsion remover.	_____	_____	_____	_____	_____
12. Allowed time for the stencil emulsion to soften.	_____	_____	_____	_____	_____
13. Used high-pressure washer to remove emulsion.	_____	_____	_____	_____	_____
14. Used brush to help loosen emulsion hard spots.	_____	_____	_____	_____	_____
15. Blotted or vacuumed excess water from the screen.	_____	_____	_____	_____	_____
16. Placed the reclaimed screen in the screen dryer.	_____	_____	_____	_____	_____
17. Cleaned the washout booth.	_____	_____	_____	_____	_____
18. Stowed the high-pressure washer hose and nozzle.	_____	_____	_____	_____	_____
19. Used safe procedures.	_____	_____	_____	_____	_____
20. Completed reclaiming procedure in allotted time.	_____	_____	_____	_____	_____

**Product Evaluation:** Evaluation of the reclaimed screen in accordance with the following points scale;  
0 – reject, 1 -- very poor, 2 -- fair, 3 -- good, 4 -- very good, 5 – excellent

<b>Contestants Product Points (20 Possible).</b>	<b>Zero</b>	<b>One</b>	<b>Two</b>	<b>Three</b>	<b>Four</b>	<b>Five</b>
1. Screen is free of block out tape.	_____	_____	_____	_____	_____	_____
2. Screen is free of ink residue.	_____	_____	_____	_____	_____	_____
3. Screen is free of emulsion residue.	_____	_____	_____	_____	_____	_____
4. Frame is clean and dry.	_____	_____	_____	_____	_____	_____

Total Points Earned \_\_\_\_\_

Judge's Signature \_\_\_\_\_

**SkillsUSA 2010**  
**Screen Printing Technology**  
Quality Control Problem

Quality Control Problem Assignment

Objective:

Judge quality levels of five (5) garments that have been reject by a quality assurance auditor before the auditor negotiates a new price for your company's customer.

Quality control station instructions:

1. Study technical specifications contained in the Tech Pack.
2. Obtain the Q. C. problem worksheet from the Q. C. station timekeeper
3. Study the quality assurance worksheet scenario and inspection steps.
4. Move to garment quality assessment station inspection pedestal.
5. Select garment number one (1) and spread it out on the inspection pedestal.
6. Inspect both sides of the garment number one (1).
7. Rate the degree of defect garment one (1) on the quality control inspection worksheet.
8. Place garment one (1) in box marked for either none, minor or major rejects.
9. Inspect the remaining four (4) garments according to steps 5, 6, 7 and 8.
10. Return to the judge or timekeeper and submit your completed report that is recorded on the quality control problem worksheet.

Judging:

A screen printer will use the quality control problem worksheet, reproduced on the following two pages, to judge and score the contestant's performance.

Time:

A timekeeper will record the time each contestant needed to complete the quality control problem procedure. A maximum of fifteen (15) minutes is allocated to the quality control problem procedure. Time stops when the contestant is seated.

Points:

A maximum of one hundred (100) points may be given to the contestant for the quality assurance audit that meets industry standards.

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# Quality Control Problem Worksheet

Contestant Identification: \_\_\_\_\_ Time Finished: \_\_\_\_\_

**Scenario:** As a quality control inspector for New Era Screen Printing Company you have been given the task of assessing the validity of a recent quality assurance audit performed by one of your company's customers. The quality assurance auditor rejected five (5) garments. You have been instructed to use the criterion lists printed on the back of this worksheet to determine if each rejected garment was accurately evaluated and record the degree of each defect.

=====

The quality assurance audit criterion lists printed on the back of this worksheet has a rating scale for each of the ten possible defects that might be observed on each of the five sample garments that are being inspected for the second time. Rate each of the defect criterion factors listed by placing a check mark in the blank that indicates you found either no defect (**NONE**), minor defect (**MINOR**), or a major defect (**MAJOR**). Your evaluation of each of the five possible defects will be supported in part by the image specifications included in the technical packet (Tech-Pack) that lists quality standards set by your company's customer. As you evaluate each of the five (5) garments against the ten (10) possible defects it will be your responsible to determine if the garments should have been rejected on the basis of a garment being considered **not saleable**.

**Minor** defects may be acceptable if the garment is considered as **saleable**.  
A minor defect example could be a small pinhole ink deposit.

**Major** defects will render a garment as **not saleable**.  
A major defect example would be a large smear of ink, or image printed out of dimension tolerance.

**Judge's Evaluation Criteria:** Depending on where the contestant placed a check mark to indicate the degree of quality defect for each criterion factor listed below award one or zero points. Judging will be accomplished by comparing the contestants rating to the judge's rating key.

Contestant Identification: \_\_\_\_\_ Time Finished: \_\_\_\_\_

Judge's Score Talled Below This Line

	Shirt 1	Shirt 2	Shirt 3	Shirt 4	Shirt 5	Correct		Q. C.
Contestant ID	Correct	Correct	Correct	Correct	Correct	Checks	Multiply	Problem
Identification	Checks	Checks	Checks	Checks	Checks	Total		Score
							X 2 =	

**A quality control inspector report form is printed on the back of this page.**

## Quality Control Inspector Report Form

<b>Garment 1-Type of Inspection Defect or Defects Found</b>	<b>None</b>	<b>Minor</b>	<b>Major</b>
1. Image printed on correct vertical dimension.	_____	_____	_____
2. Image printed on center.	_____	_____	_____
3. Image crooked.	_____	_____	_____
4. Ink smudges on sample garment.	_____	_____	_____
5. Color density varies across the image.	_____	_____	_____
6. Ink printed in non-image area due to pinhole.	_____	_____	_____
7. Last color covers previous colors.	_____	_____	_____
8. Missed register between colors.	_____	_____	_____
9. Garment fabric damage.	_____	_____	_____
10. Colors match the customer's standard.	_____	_____	_____

<b>Garment 2-Type of Inspection Defect or Defects Found</b>	<b>None</b>	<b>Minor</b>	<b>Major</b>
1. Image printed on correct vertical dimension.	_____	_____	_____
2. Image printed on center.	_____	_____	_____
3. Image crooked.	_____	_____	_____
4. Ink smudges on sample garment.	_____	_____	_____
5. Color density varies across the image.	_____	_____	_____
6. Ink printed in non-image area due to pinhole.	_____	_____	_____
7. Last color covers previous colors.	_____	_____	_____
8. Missed register between colors.	_____	_____	_____
9. Garment fabric damage.	_____	_____	_____
10. Colors match the customer's standard.	_____	_____	_____

<b>Garment 3-Type of Inspection Defect or Defects Found</b>	<b>None</b>	<b>Minor</b>	<b>Major</b>
1. Image printed on correct vertical dimension.	_____	_____	_____
2. Image printed on center.	_____	_____	_____
3. Image crooked.	_____	_____	_____
4. Ink smudges on sample garment.	_____	_____	_____
5. Color density varies across the image.	_____	_____	_____
6. Ink printed in non-image area due to pinhole.	_____	_____	_____
7. Last color covers previous colors.	_____	_____	_____
8. Missed register between colors.	_____	_____	_____
9. Garment fabric damage.	_____	_____	_____
10. Colors match the customer's standard.	_____	_____	_____

<b>Garment 4-Type of Inspection Defect or Defects Found</b>	<b>None</b>	<b>Minor</b>	<b>Major</b>
1. Image printed on correct vertical dimension.	_____	_____	_____
2. Image printed on center.	_____	_____	_____
3. Image crooked.	_____	_____	_____
4. Ink smudges on sample garment.	_____	_____	_____
5. Color density varies across the image.	_____	_____	_____
6. Ink printed in non-image area due to pinhole.	_____	_____	_____
7. Last color covers previous colors.	_____	_____	_____
8. Missed register between colors.	_____	_____	_____
9. Garment fabric damage.	_____	_____	_____
10. Colors match the customer's standard.	_____	_____	_____

<b>Garment 5-Type of Inspection Defect or Defects Found</b>	<b>None</b>	<b>Minor</b>	<b>Major</b>
1. Image printed on correct vertical dimension.	_____	_____	_____
2. Image printed on center.	_____	_____	_____
3. Image crooked.	_____	_____	_____
4. Ink smudges on sample garment.	_____	_____	_____
5. Color density varies across the image.	_____	_____	_____
6. Ink printed in non-image area due to pinhole.	_____	_____	_____
7. Last color covers previous colors.	_____	_____	_____
8. Missed register between colors.	_____	_____	_____
9. Garment fabric damage.	_____	_____	_____
10. Colors match the customer's standard.	_____	_____	_____

**SkillsUSA 2010**  
**Screen Printing Technology**  
Written Test

Written Test Assignment

Objective:

Correctly answer twenty-five (25) multiple choice test questions. (Questions will relate to graphic imaging and screen-printing processes)

Technical knowledge test station instructions:

1. Read instructions on the test book
2. Use number 2 lead pencil to mark the correct response
3. Give the testing administrator notice when the test has been completed
4. Remain seated until dismissed by the test administrator

Judging:

A technical knowledge test administrator will administer and score the technical knowledge test. Scoring will be accomplished by comparing a contestant's responses to an answer key prepared by the screen-printing technical committee.

Time:

The technical knowledge test administrator will record the time each contestant uses to complete the technical knowledge test. A maximum of fifteen (15) minutes is allocated to the technical knowledge testing procedure.

Points:

A maximum of one hundred (100) points may be given to the contestant who scores 100 percent on the technical knowledge written test.

# Skills USA

## Screen Printing Technology

### Technical Knowledge Examination

**Directions:**

1. You will have 15 minutes to complete this 25-question multiple-choice test.
2. Write your contestant number on the Scantron Answer Sheet.
3. Use a No. 2 lead pencil to mark your responses to the questions on the Scantron Answer Sheet.
4. Do not mark on this test booklet.
5. When you have completed answering the 25 test questions, place both the answer sheet and test booklet face down on the table and wait for instructions from the testing monitor.

**SkillsUSA 2010**  
**Screen Printing Technology**  
Oral Professional Assessment

Oral Professional Assessment Assignment

Objective:

Participate in an oral professional assessment in a role-playing job interview setting related to a screen-printing career choice.

Oral professional assessment station instructions:

1. Introduce yourself
2. Take the seat indicated by the interviewer
3. Answer questions
4. Ask questions that you deem appropriate

Judging:

A human resources interviewer with basic knowledge of the screen printing industry will use the oral professional assessment station checklist, reproduced on the following page, to judge the contestant's screen printing knowledge and preparation needed for employment in a screen printing occupation.

Time:

The human resources interviewer will record the time each contestant participated in a job interview. A maximum of fifteen (15) minutes is allocated to the oral professional assessment.

Points:

A maximum of one hundred (100) points may be given to the contestant for an oral professional assessment that meets Equal Employment Opportunity (EEO) standards.

# Oral Professional Assessment Station Checklist

**Contestant Number:** \_\_\_\_\_ **Time:** \_\_\_\_\_

Directions: This oral professional assessment checklist is designed to rate a contestant's responses to questions on a scale of 0 to 20. Five question areas or problems should be posed that are related to the contestant's occupational goals in the field of graphic imaging. This instrument should be used to record indications of person's readiness for employment as a screen printer.

---

**Process Evaluation:** Evaluation of the process involves interviewing a person who has applied for a job with a company that produces products requiring screen-printing processes. Questions will be related to a performance test that might be given to the applicant by a company's production personnel.

## **Questions to be developed by the screen-printing technical committee prior to the day of the state level screen-printing performance test.**

Questions related to the following areas:

1. Ability to handle assignments
2. Ability to answer questions asked in technical terms
3. Situation handled in a professional manner
4. Demonstration of critical thinking throughout the job interview scenario
5. Realistic self concept

**The following page is a copy of the Oral Professional Assessment Station Checklist related to the five areas listed above with the attending rating scale for each question area. Note: The specific questions have been removed and will be revised annually by technical committee members.**

# Oral Professional Assessment Station Checklist

**Contestant Number:** \_\_\_\_\_ **Start Time:** \_\_\_\_\_ **End Time:** \_\_\_\_\_

**1. Ability to handle work assignments. Question Area Score: 0 to 20 Points** \_\_\_\_\_

**2. Answered questions using technical terms. Question Area Score: 0 to 20 Points** \_\_\_\_\_

**3. Situation handled in a professional manner. Question Area Score: 0 to 20 Points** \_\_\_\_\_

**4. Used critical thinking during the interview. Question Area Score: 0 to 20 Points** \_\_\_\_\_

**5. Demonstrated a realistic self-concept. Question Area Score: 0 to 20 Points** \_\_\_\_\_

**Total Points Out of Possible 100** \_\_\_\_\_

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**SkillsUSA 2010**  
**Screen Printing Technology**  
Helpful Hints

Prior to Performance Test

1. Contact people to donate supplies for the performance test
  - a. Shirts
  - b. Ink
  - c. Cleaning solvents
  - d. Screen fabric
  - e. Etc.
2. Contact suppliers to donate prizes for contestants (3 Secondary/3Post Secondary)
  - a. First prize – Tools plus registration for the National Conference
  - b. Second prize – Tools
  - c. Third prize – Tools
3. Make sure that the contestants can complete their assignments at each testing station in the time allotted
  - A. Screen Preparation (Tensioning)
  - B. Screen Coating (**Inactive in 2010**)
  - C. Screen Exposure and Washout
  - D. Screen Blockout (**Inactive in 2010**)
  - E. Image Registration
  - F. Image Printing
  - G. Screen Reclaiming (**Inactive in 2010**)
  - H. Quality Control Problem
  - I. Written Knowledge Test
  - J. Oral Professional Assessment
4. Contact screen printers to judge contests
5. Contact people to keep time

During the Performance Test

1. Check Contestant Number against the Testing Schedule
2. Announcements
3. Special instructions
4. Dismiss with a Good Luck Wish

After the Performance Test

1. Report the results

## SkillsUSA 2010

### Screen Printing Technology

Meeting Agenda for Contestant Orientation at **2:00 P. M.** on Tuesday, June 22, 2010.

#### Introductions

Roll call of contestants

Give contestants a number

Review the testing schedules **with contestants numbers listed on the schedules**

Review the areas to be tested (Pass out the Assignment and Checklist Booklets)

A. Screen Preparation (Inspection and Tensioning)

B. Screen Coating **will not be evaluated in 2010 points will be posted on the scorecard!**

C. Screen Exposure & Washout

D. Screen Blockout **will not be evaluated in 2010 points will be posted on the scorecard!**

E. Image Registration

F. Image Printing

G. Screen Reclaiming **will not be evaluated in 2010 points will be posted on the scorecard!**

H. Quality Control Problem

I. Written Knowledge Test

J. Oral Professional Assessment

#### Special instructions:

- a. Performance test flow from station to station **Setting in station chair controls time.**
- b. The judging team will not give instruction during the performance test on Wed. or Thur.
- c. Pass out the equipment operation manuals
- d. Screen Tensioning Demonstration
  1. **James Ortolani, Demonstration**
- e. SkillsUSA Competition Rules and Regulations Revision
- f. Optional Tools and Equipment. (Safety Glasses, Ear Protection, Apron, and Vinyl Gloves)
- g. Questions and Answers

**ADMINISTER THE WRITTEN KNOWLEDGE TEST  
FIFTEEN (15) MINUTE TIME LIMIT**

Dismiss

## SkillsUSA 2010

### Screen Printing Technology

#### Industry Awards and Prizes

Awards and prizes presented to the Screen Printing Technology performance test winners should be related to the skills being developed in the contestants technical education program. Awards and prizes may be in the form of scholarships, tools, books, manuals, or educational travel. Awards must be equal in value for both secondary and post secondary contestants. Awards and prizes are needed for the first, second, and third place winners.

#### Secondary

##### 1<sup>st</sup> Place

Items: 1 Hooded Sweat Shirt, 2 T Shirts with Competition Design, 1 Lap Top Carrying Case with Leather Organizer .

Winner's School will receive a \$750.00 Certificate for purchase of HIX Corporation Equipment .  
Equipment must be purchased through Hearily .

The school will also receive a complete set of the HIX Corporation Screen Printing Curriculum .

Donors: Hix, Hearlihy, and Hanes Corporation .

##### 2<sup>nd</sup> Place

Items: 1 Hooded Sweat Shirt, 2 T Shirts with Competition Design, 1 Lap Top Carrying Case with Leather Organizer .

Winner's School will receive a \$500.00 Certificate for purchase of HIX Corporation Equipment .  
Equipment must be purchased through Hearily .

The school will also receive a complete set of the HIX Corporation Screen Printing Curriculum .

Donors: Hix, Hearlihy, and Hanes Corporation .

##### 3<sup>rd</sup> Place

Items: 1 Hooded Sweat Shirt, 2 T Shirts with Competition Design, 1 Lap Top Carrying Case with Leather Organizer .

Winner's School will receive a \$250.00 Certificate for purchase of HIX Corporation Equipment .  
Equipment must be purchased through Hearily .

The school will also receive a complete set of the HIX Corporation Screen Printing Curriculum .

Donors: Hix, Hearlihy, and Hanes Corporation .

#### Post Secondary

##### 1<sup>st</sup> Place

Items: 1 Hooded Sweat Shirt, 2 T Shirts with Competition Design, 1 Lap Top Carrying Case with Leather Organizer .

Winner's School will receive a \$750.00 Certificate for purchase of HIX Corporation Equipment .  
Equipment must be purchased through Hearily .

The school will also receive a complete set of the HIX Corporation Screen Printing Curriculum .

Donors: Hix, Hearlihy, and Hanes Corporation .

##### 2<sup>nd</sup> Place

Items: 1 Hooded Sweat Shirt, 2 T Shirts with Competition Design, 1 Lap Top Carrying Case with Leather Organizer .

Donors: Hix, Hearlihy, and Hanes Corporation .

##### 3<sup>rd</sup> Place

Items: 1 Hooded Sweat Shirt, 2 T Shirts with Competition Design, 1 Lap Top Carrying Case with Leather Organizer .

Donors: Hix, Hearlihy, and Hanes Corporation .

**Screen Printing Schedule for Wednesday June 23, 2010**

Time	Minutes	H. S. Oral Interview	P. S. Oral Interview	Q. C. . Problem	Inspection Tension	Exposure Washout	Image Registering	Image Printing
8:00	Test 15	HS 1						
8:15	Rotation 5							
8:20	Test 15	HS 2						
8:35	Rotation 5							
8:40	Test 15	HS 3						
8:55	Rotation 5							
9:00	Test 15	HS 4						
9:15	Rotation 5							
9:20	Test 15	HS 5						
9:35	Rotation 5							
9:40	Test 15	HS 6	PS 1	PS2	PS3	PS 4	PS5	PS6
9:55	Rotation 5							
10:00	Test 15	HS 7	PS 6	PS 1	PS2	PS3	PS 4	PS5
10:15	Rotation 5							
10:20	Test 15	HS 8	PS5	PS6	PS 1	PS2	PS3	PS 4
10:35	Rotation 5							
10:40	Test 15	HS 9	PS 4	PS5	PS6	PS 1	PS2	PS3
10:55	Rotation 5							
11:00	Test 15	HS 10	PS3	PS 4	PS5	PS6	PS 1	PS2
11:15	Rotation 5							
11:20	Test 15	HS 11	PS2	PS3	PS 4	PS5	PS6	PS 1
11:35	Rotation 5							
<b>11:40</b>	<b>Break 30</b>	<b>Lunch</b>	<b>Lunch</b>	<b>Lunch</b>	<b>Lunch</b>	<b>Lunch</b>	<b>Lunch</b>	<b>Lunch</b>
12:10	Test 15	HS 12			<b>SkillsUSA</b>	<b>University</b>	<b>Session 1</b>	<b>12:00</b>
12:25	Rotation 5							
12:30	Test 15	HS 13						
12:45	Rotation 5				<b>Instructors</b>	<b>Participants</b>	<b>Twelve</b>	
12:50	Test 15	HS 14						
1:05	Rotation 5				<b>Contestants</b>	<b>Participants</b>	<b>Zero</b>	
1:10	Test 15	HS 15						
1:25	Rotation 5							
1:30	Test 15	HS 16			<b>SkillsUSA</b>	<b>University</b>	<b>Session 2</b>	<b>1:30</b>
1:45	Rotation 5							
1:50	Test 15	HS 17						
2:05	Rotation 5				<b>Instructors</b>	<b>Participants</b>	<b>Twelve</b>	
2:10	Test 15	HS 18						
2:25	Rotation 5				<b>Contestants</b>	<b>Participants</b>	<b>Zero</b>	
2:30	Test 15	HS 19						
2:45	Rotation 5							
2:50	Test 15	HS 20						
3:05	Rotation 5							
3:10	Test 15	HS 21			<b>SkillsUSA</b>	<b>University</b>	<b>Session 3</b>	<b>3:00</b>
3:25	Rotation 5							
3:30	Test 15	HS 22			<b>Instructors</b>	<b>Participants</b>	<b>Twelve</b>	
3:45	Rotation 5							
3:50	Test 15	HS 23			<b>Contestants</b>	<b>Participants</b>	<b>Zero</b>	
4:05	Rotation 5							
4:10	Test 15	HS 24						
4:25	Rotation 5							
4:30	Test 15	HS25						
4:45	<b>Finish</b>							



**Screen Printing Schedule for Thursday June 24, 2010**

Time	Minutes	Inspection Tensioning	Exposure Washout	Q. C. . Problem	Image Registering	Image Printing
8:00	Test 15	1	2	3	4	5
8:15	Rotation 5					
8:20	Test 15	5	1	2	3	4
8:35	Rotation 5					
8:40	Test 15	4	5	1	2	3
8:55	Rotation 5					
9:00	Test 15	3	4	5	1	2
9:15	Rotation 5					
9:20	Test 15	2	3	4	5	1
9:35	Rotation 5					
9:40	Test 15	6	7	8	9	10
9:55	Rotation 5					
10:00	Test 15	10	6	7	8	9
10:15	Rotation 5					
10:20	Test 15	9	10	6	7	8
10:35	Rotation 5					
10:40	Test 15	8	9	10	6	7
10:55	Rotation 5					
11:00	Test 15	7	8	9	10	6
11:15	Rotation 5					
11:25	Test 15	11	12	13	14	15
11:40	Rotation 5					
11:45	Test 15	15	11	12	13	14
<b>12:00</b>	<b>Break 40</b>	<b>Lunch</b>	<b>Lunch</b>	<b>Lunch</b>	<b>Lunch</b>	<b>Lunch</b>
12:40	Test 15	14	15	11	12	13
12:55	Rotation 5					
1:00	Test 15	13	14	15	11	12
1:15	Rotation 5					
1:20	Test 15	12	13	14	15	11
1:35	Rotation 5					
1:40	Test 15	16	17	18	19	20
1:55	Rotation 5					
2:00	Test 15	20	16	17	18	19
2:15	Rotation 5					
2:20	Test 15	19	20	16	17	18
2:35	Rotation 5					
2:40	Test 15	18	19	20	16	17
2:55	Rotation 5					
3:00	Test 15	17	18	19	20	16
3:15	Rotation 5					
3:20	Test 15	21	22	23	24	25
3:35	Rotation 5					
3:40	Test 15	25	21	22	23	24
3:55	Rotation 5					
4:00	Test 15	24	25	21	22	23
4:15	Rotation 5					
4:20	Test 15	23	24	25	21	22
4:35	Rotation 5					
4:40	Test 15	22	23	24	25	21
<b>4:55</b>	<b>Finish</b>					



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**SkillsUSA 2010  
Appendices**

**Technical Committee Members**

## **SkillsUSA 2010**

### **Performance Test Inventories**

#### **Screen Printing Technology**

##### **A. Performance Test Inventories for 30 Contestants at the 2010 Competition:**

1. Major Screen Printing Equipment
2. Tools
3. Materials

##### **B. Major Screen Printing Equipment Inventory**

- 1 - HIX NP 4-color / 1 Station Manual Rotary Screen Printer (WRAPPED FOR SHIPPING)
- 1 - HIX NP 6-color / 4 Station Manual Rotary Screen Printer (WRAPPED FOR SHIPPING)
- 1 - HIX E-2408 Electric Conveyor Dryer 220 Volt (INSTALL WHEELS WITH NO CRATE)
- 1 - HIX TT- 180 Table Top Fluorescent UV Screen Exposure Unit (BOXED)
- 1 - Washout Booth (BOXED)
- 2 - HIX SH - 1818 Automatic 18"X18" Spot Heater (BOXED FOR SHIPMENT BY TRUCK)
- 2 - HIX SD-2632 Screen Dryer 26"X32" 120 Volt (UNBOXED)
- 1 - HIX Model 750 Tension Meter (from 7 to 50 Newtons/cm)
- 1 - Reten Field Demo Kit

##### **1 – Tension Jack Kit (16789)**

- 30 - HIX 21"X23" Reten Manual Screen Frame that hold a polyester screen. (Screen will be either 140 or 154 mesh count) Each contestant will need one screen.

- 1 - Screen Coater
- 10 - HIX 21"X23" Screens with Stencils (**Stored at PSU Screen Print Lab**)
- 8 - HIX 21"X23" Screens with Stencils (**Stored at Hix Plant**)<sup>3</sup>
- 3- Inspection Screens with Stencils (**Supplied by PSU Screen Print Lab**)
- 3- Tensioning Screens with 154 Mesh Screen Fabric (Supplied by PSU Screen Print Lab)

##### **C. Tools Inventory**

- 24 - Eight foot tables (**Supplied by Bartle Hall**)
- 20 - Chairs (**Supplied by Bartle Hall**)
- 1- Stool for Quality Control Station (Optional)**
- 7 - 20 Minute Timer
- 10 - Ink Knives
- 10- Squeegees
- 2 - ½" Masking Tape Dispenser
- 2 - Basket (Hanes Shirt Case)
- 1 - High Pressure Washer (**Supplied by Jess Hudson**)
- 1 - Garden Hose with Nozzle (**Supplied by Jess Hudson**)
- 1 - Wet Dry Vacuum (**Supplied by Jess Hudson**)
- 6 - Pair Safety Glasses
- 3 - Dozen Ear Plugs
- 3 - Box of Latex Gloves, Large Size
- 6 - Clip boards (**Supplied by Jess Hudson**)
- 6 - 12 Inch Metal Rulers (**Supplied by Jess Hudson**)
- 1 - T Square
- 1 - 24 or 36 Inch Ruler
- 1 - Pantone Color Matching Guides (**Supplied by PSU**)
- 1 - Assorted Hand Tools Kit
- 1 - 4 Wheel Dolly
- 1 - Exposure Booth Ceiling
- 1 - Assortment of Extension Cords

## Materials Inventory

- 6 - Cases **Khaki** Hanes Tee Shirts (L or XL)
- 4 - Cases **White** Hanes Tee Shirts (L or XL)
- 30- 4C/1S Rotary Press Operation Manuals
- 30 - SH16 X16 Automatic Spot Heater Operation Manuals
- 30 - 2410 NP II Conveyor Dryer Operation Manuals
- 30 - TT- 180 Screen Exposure Unit Operation Manuals
- 30 - SD-2632 Screen Dryer 26"X32" 120 Volt Manuals
- 30 - Reten Frame Tensioning Assembly Instructions
- 30 - Reten Frame Demonstration CD/DVD's**
- 30 - Reten Frame Tensioning Instruction Sheets for orientation (**Supplied by Jess Hudson**)
- 6 - Rolls of Block Out Tape
- 1 - Gallon Ulano Emulsion
- 1 - Gallon Emulsion Remover
- 1 - Gallon Screen Wash
- 1 - Gallon Mineral Spirits
- 1 - Emulsion Remover Spray Bottle
- 3 - Emulsion Screen Wash Spray Bottle
- 3 - Cans of **Heat Resistant** Shirt Board Adhesive
- 1 - Quart of Black Plastisol (**Supplied by National Mills and PSU**)
- 1 - Quart of White Plastisol (**Supplied by National Mills and PSU**)
- 1 - Quart of Blue Plastisol (**Supplied by National Mills and PSU**)
- 1 - Quart of Red Plastisol (**Supplied by National Mills and PSU**)
- 1 - Quart of Yellow Plastisol (**Supplied by National Mills and PSU**)
- 1 - Quart of Brown Plastisol (**Supplied by National Mills and PSU**)
- 1 - Art File (**Supplied by PSU**)
- 3 - Sets of 5 shirts with the registration design all with printing defects (**Supplied by PSU**)
- 1 - Production Specification Packet (Tech Pack) (**Supplied by PSU**)
- 12 - Rolls of Paper Towels
- 2 - Wet Task Towel Dispensers (**Supplied by OTC**)
- 4 - Rolls of Wet Task Towel (**Supplied by OTC**)
- 2 - Rolls of ½" Masking Tape
- 3 - ½" Cellophane Tape Dispenser
- 48 - Number 2 Lead Pencils
- 6 - Black Sharpie Permanent Marker
- 3 - Stapler and Staples
- 3 - Small Trash Receptacle (**4 - Trash Barrels Supplied by Rubber Maid at K. C.**)
- 50 - Contestant Orientation Manuals (**Supplied by OTC**)
- 30 - Written Test Booklets and 1 - Written Test Answer Key (**Supplied by Jess Hudson**)
- 30 - Written Test Scantron Sheets (**Supplied by PSU**)
- 30 - Oral Assessment Station Rating Sheets (**Supplied by OTC**)
- 30 - Printing Station Checklists (**Supplied by Jess Hudson**)
- 30 - Exposure Station Checklists (**Supplied by Jess Hudson**)
- 30 - Exposure Checklists (**Supplied by Jess Hudson**)
- 30 - Reclaiming Checklists (**Supplied by Jess Hudson**)
- 30 - Quality Control Problem Worksheets with Checklist (**Supplied by Jess Hudson**)
- 30 - Tensioning & Inspection Station Worksheets with Checklist (**Supplied by Jess Hudson**)
- 1 - Material Safety Data Sheets Manual

**SCREEN PRINTING TECHNOLOGY**  
**Chairman's Report**  
**2010 SkillsUSA Championships**

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The 2010 National SkillsUSA Screen Printing Technology Championships were held on June 23 and June 24, 2010 at Bartle Hall in downtown Kansas City, Missouri.

A total of 20 secondary and 2 post-secondary Screen Printing contestants met for orientation on Tuesday, June 22. Instructors, Advisors, Technical Committee Members and Judges also attended the meeting. Contestants were given general and specific information for the 7 performance testing stations included in the 2010 contest. A 25 question multiple choice written knowledge examination was given at the end of the orientation session.

**Station 1 – SCREEN PREPARATION – INSPECTION and TENSIONING**

Each contestant was given 15 minutes to inspect 3 screens that were coming out of storage and being returned to production. They were required to test the tensions on the 3 retensionable screens and inspect the stencils to determine if they were acceptable for printing an order of garments for a customer. Each contestant was expected to tension a screen that had new screen mesh installed to 25 newtons with a tolerance of + or – 5 newtons at the screen stencil's center.

Contestants recorded the inspection results and tension readings on blank lines on the inspection and tensioning report as either *accept* or *reject*. Contestants were scored on the accuracy of the readings and the accuracy of the number of screens accepted or rejected. The tension meter and screens were provided by **HIX Corporation**. **Saati Print** provided screen mesh. Betty Bassett of **Classic Designs Screen Printing** served as judge.

**Station 2 – SCREEN EXPOSURE AND WASHOUT**

Each contestant was given 15 minutes to expose and washout a screen image. Using information given in a written assignment, contestants were instructed to locate the correct film positive in an art file; place the art work on an emulsion-coated screen in the correct position; expose the screen; wash out the image; and place the screen in a screen dryer. Points were awarded for performance of the process and for the quality of the washed out stencil. Of the 22 total contestants most produced a stencil that could be registered at the registration station. The artwork and film positives for this station were prepared and provided by Chris Hewitt of **Pittsburg State University Graphics Imaging Department**. The screen dryer, exposure unit, washout booth and screens were provided by **HIX Corporation**. Chris Blancho of **HIX Corporation** served as judge.

### Station 3 – SCREEN REGISTRATION

Contestants were given 15 minutes to register a screen image to the image being printed on a 4 Color/1 Station Rotary Table Top Press. Each contestant inked the screen, printed test images as needed to produce a salable image, then printed and cured 2 t-shirts. All test images and t-shirts were cured (dried) in a conveyor dryer. Each contestant completed this testing station by removing the screen that was registered from the press and returning it to the reclaim area. A total of 22 contestants were able to register the image. During future competitions all contestants can expect to be issued a usable screen image at the screen registration station. The screen to be registered will have plastisol ink removed from the screen to be registered to the image being printed with the two screens that are still mounted on the rotary press. Contestants were and will continue to be judged on performance of the process and the quality of their finished product. **HIX Corporation** provided the 4 Color/1 Station Rotary Table Top Press and a Conveyor Dryer. James Ortolani of **HIX Corporation** served as the Post Secondary Judge and Chris Hewitt of **Pittsburg State University Graphics Imaging Department** served as Secondary Contestant Judge.

### Station 4 – IMAGE PRINTING

Each contestant was given 15 minutes to complete the image printing station. The contestants were given 7 minutes to actually print and place t-shirts on the conveyor dryer. No contestant printed more than 6 shirts at this station; five contestants printed 6 shirts which is an increase of 1 shirt over 2009 record. Points for printing preparation included checking the ink level of each screen, checking the shirt board for adhesion, and inspecting all screens for off contact and cleanliness. The finished shirts were judged using the *Image Printing Station Checklist* and five-color image that was given to each contestant in the **2010 Screen Printing Technology Performance Test Plan**. (See pages 33 and 34 of the attached plan.) Chris Hewitt of **Pittsburg State University Graphics Imaging Department** used *Adobe Illustrator* to prepare the image used at this performance test station. Harold Johnston, Executive Director of **North American Specialty Printing Manufacturers Association (NASMA)** served as judge for the image printing station. James Ortolani of **HIX Corporation** served as a time keeper for Secondary Contestant performances

### Station 5 – QUALITY CONTROL

Each contestant was given 15 minutes to examine 5 printed t-shirts according to specifications set forth in a technical packet (Tech-Pack, pages 29 and 30 of the attached plan). Each garment was judged as to correct vertical dimension, printed on center and straight, no ink smudges, and pantone color matches. Each contestant determined from this inspection whether or not a quality insurance auditor had correctly inspected a *Lot* of 500 shirts. Their performance assignment was to determine the accuracy of the quality assurance audit by inspecting five garment that had been rejected as described in a scenario on the *Quality Control Problem Worksheet*. (See Page 39 of the attached plan.) This quality control problem required most of the 15 minutes allotted because the contestants were required to inspect both the front and back of each garment. Chris Hewitt of **Pittsburg State University Graphics Imaging Department** prepared the quality assurance test garments for this station. David Granschow, of **Absolute Graphix** located in Sparks, Nevada, prepared a performance test answer key and judged the quality control competition.

## Station 6 – ORAL PROFESSIONAL ASSESSMENT

Each contestant participated in a role-play job interview. The interview was designed to determine the contestant's professionalism, critical thinking, screen-printing technology knowledge, and the contestant's realistic self-concept. Rebecca Hudson, Computer Science Instructor and former Human Resources Supervisor for a company in Waynesville, Missouri interviewed the Post Secondary Contestants, Rick Hicks, from *NAZDAR Consulting Services* interviewed the Secondary Contestants.

## Station 7 – WRITTEN KNOWLEDGE TEST

Each contestant was given 15 minutes to complete a 25 question multiple-choice test related to graphic imaging and screen-printing processes. The questions used to compose the test have been subjected to a validation process by having screen-printing subject matter experts (SME) mark examination instruments that listed over 100 test items. Any question that a SME answered incorrectly was not included in the 25-question Knowledge Test. The test question pool was also administered to screen-printing students over a 3-year period. Questions answered correctly by all of the students were not used because those items did not differentiate between students who had screen-printing knowledge and those who did not. The test was scored and the results recorded by Rebecca Hudson, *Aero Travel*. {**Note;** There were two persons named Rebecca Hudson who worked during the Screen Printing Technology Competition. }

## **MISCELLANEOUS SUPPLIES AND MATERIALS WERE PROVIDED BY THE FOLLOWING:**

**Aero Travel**  
**Hanes Printables**  
**HEARLIHY**  
**HIX Corporation**  
**National Mills**  
**Ozarks Technical Community College**  
**Pittsburg State University**  
**Saati Print**  
**Ulano**