SILK SCREEN

ART125

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Course cancellation policy: In the event of your Professor's unanticipated absence from this course due to illness or some other unforeseeable circumstance your Professor will seek to notify you by email or by phone. Your Professor will attempt to reschedule time missed in a cancelled class or provide comparable learning activities to compensate for this cancellation.

Pandemic disclaimers and guidelines

A. This course is intended to be taught in a face-to-face classroom environment, however, if conditions develop that limit or eliminate the possibility for meeting face-to-face the content of this course may be altered in order for that content and the consequent learning experiences of the participants in the course to be offered in part or wholly in an on-line environment.

   This course involves a significant level of direct experiential learning, much of this through lab sessions with your instructor. The College permits you to "opt out" of attending class for health and safety reasons. In this instance you will need to garner information through online sources. I hope to record most class sessions and post them on the internet for this purpose but because of the nature of content this may not always be possible. Please note that these recordings will not be of a professional grade and because of the nature of the material being covered may not be sufficient to completely convey the material covered in the face-to-face class session. Students who need additional information/explanation of class content should contact the instructor directly.

B. In the event circumstances require this course be moved to an online format the assignments and content of the course may change significantly. It is initially anticipated that some digital processes will be substituted for analog processes. It is further anticipated that class meetings will take place as normally scheduled and students will work through BlackBoard and various online media platforms for this purpose. Content for this course will likewise be provided through a variety of online resources

C. As noted above, this course requires a significant level of direct experiential learning. In various situations this experiential learning may insinuate a need for close personal contact or interaction with your classmates and instructor. Despite appearances, under **NO** circumstances should your actions in the classroom cause you to disregard current college protocols regarding safe distancing, use of PPE or any other classroom or other guidelines/policies currently in effect. If at any time you feel that an activity(ies) in this course would put you at risk of violating current college protocols regarding safe distancing, use of PPE or any other classroom or other guidelines/policies currently in effect please **discontinue** that activity immediately and consult with your instructor. Likewise, if any classroom circumstance causes you anxiety or concern please contact the instructor immediately to discuss that circumstance.

D. In order to be prepared for a potential shift to online instruction, classroom activities (demonstrations, talks, etc.) may occasionally be offered online rather than in face-to-face mode to insure that students are adequately prepared to employ the necessary tools for online learning should changes be required.

E. Link To CDC Recommendations

   https://www.cdc.gov/coronavirus/2019-ncov/community/colleges-universities/considerations.html#housing

As in any artistic pursuit, safety is a paramount concern for the contemporary artist. Increased awareness of health and safety issues in all work environments does not exclude the creative environment. Please review the list below.

ART 125/323 – SILKSCREEN SAFETY GUIDELINES

The safe use and handling of materials is very important. Please adhere to the following safety guidelines.

1. **MSDS.** Material Safety Data Sheets are available in the studio for all the chemicals/materials we use in this class.

2. **Personal Protective Equipment (PPE).**

    •**Chemical Splash Goggles**: Always use protective eyewear whenever employing cleaning agents, during pressure washing of your screen or any other instance which represents a hazard to your eyes/vision.

    •**Ear Protection**: You must wear ear protection when washing out screens.

    •**Nitrile Rubber Gloves**: Wear gloves to avoid skin contact with paints, inks, dyes, bases, emulsion, reclaimer or cleaning agents.

    •**Apron/Smock**: Wear an apron or old clothes to protect yourself and your clothing.

3. **Ventilation.**

    • Ventilation equipment must be in use whenever you are using a studio facility. Window fans should be on. Open windows when outdoor temperatures allow.

    •In addition to the operation of window fans, the air cleaners located above the washout sink in room 143 should be running at the high setting when using Greased Lightning or Emulsion Remover.

    • Avoid inhaling chemical vapors.

4. **Splashes/Spills.**

    •If you get chemicals, solvents or inks on your skin flush the affected area with water immediately. A shower is located in rm. 143 when the tap is not sufficient. Avoid prolonged exposure of the skin to chemicals, solvents or inks. Remember that the skin is porous and actually absorbs some materials.

    •If you accidentally splash chemicals or solvents into your eyes alert an instructor or classmate nearby to your predicament. Immediately rinse your eyes thoroughly with water at the eyewash station. If irritation persists after rinsing your eyes or if you have any further concerns go directly to the infirmary and report the incident to the staff.

    •If you get photographic/screen print chemistry on your clothing you should remove the clothing as soon as possible to avoid exposure to the skin.

    •Small chemical spills should be wiped up immediately with paper towel and you should be wearing gloves. In the event of a large spill you should contact your instructor or the Security Department.

5. **Electrical Hazards.**

Dry your hands before plugging/unplugging or turning on/off electrical equipment. Electrical devices should be plugged into the ground fault indicator/detector in room 143. The GFI is located near the center of the room.

6. **Handling Materials & Equipment.**

•Never pour chemicals in the vicinity of your eyes. Always pour chemistry below eye level and away from your face.

•Whenever you are diluting chemical concentrates be certain to pour the water first and then add the chemical concentrate. If your container has water in it a chemical concentrate is less likely to splash in concentrated form.

•Check all containers before handling them to be certain they are properly sealed.

• Never point the pressure washer at anyone.

•. If you are uncertain about the proper use of any equipment or materials for this course you should always ask the instructor first for assistance.

7. **Storage and Labeling of Materials.**

•All containers must be labeled to identify contents.

• Re-seal all container lids well.

8. **Disposal of Materials.**

•Any rags or paper towels contaminated with oils, solvents or flammable liquids should be disposed of in the large drum black/red drum inside the yellow flammables cabinet in the print shop area. Never discard solvent contaminated materials in regular trash containers.

•Save inks for later use. For proper disposal of inks, place ink in used ink bucket labeled for that purpose. Only trace amounts of ink/emulsion should go into trash or down drain.

•To assure that hazardous materials do not enter the water system via the sinks or waste disposal it is every student's responsibility to follow studio guidelines for legal and ethical reasons.

9. **Do not work alone in the studios after dark.**

•For security purposes, no student is permitted to work in the studio areas of the Art Department after 6:00 PM without a classmate or friend in the immediate vicinity.

10. **Be considerate and aware of others working near you.**

11. **Clean Studio.**

•Clean up completely after you have finished your work. A clean studio environment provides a safer working environment for everyone.

12. **Do not eat or drink in the studio** to avoid accidental ingestion of chemicals/materials.

IN CASE OF EMERGENCY, CONTACT SECURITY AT #5000.

POWER WASHER INSTRUCTIONS

WARNING: DO NOT GET WATER ON THE POWER WASHER

1. Before using the power washer check the wand to be certain the power washer wand is in the "off" position and will not discharge liquid.
2. Be certain the water supply hose is attached to the power washer.
3. Be certain the cold water supply is turned on at the faucet. Use ONLY the COLD water and make certain the tap is opened completely. Never run hot water through the power washer, it will wear out the machine faster.
5. Dry your hands (if wet) and switch the washer to the "ON" position.
6. For your personal safety you are required to wear eye and ear protection when operating the power washer. Students who ignore this guideline may be expelled from the course.

AFTER USING THE POWER WASHER
7. When you are done using the power washer dry your hands, turn off the power and turn off the water supply.
8. Lastly, return all protective safety gear to the proper storage location. Do not leave gloves, eyewear or ear protectors on tables, in sinks, etc.

* Never point the wand outside the sink or at another individual-the pressure levels of this instrument could cause serious injury.

* Never leave the pump running when not in use.

* Never leave the faucet running when not in use.

* Never run hot water through the pump.

ART 125 - SCREEN PRINT

A Brief History

The medium of screen print most likely has its origins in the Far East. It is widely thought that the Chinese developed the essential concept of stretching silk threads across a frame in order to support a stencil mechanism for printing an image however there is no tangible evidence of this or any of the early and important discoveries relating to the evolution of screen printing. It is important to point out here that the specific origin of silk-screen printing is somewhat difficult to ascertain in part because it is a "stencil" process and may have been developed from some other stencil technology in gradual steps.

There is good evidence to support the contention that the Japanese were among the earliest to fully realize the capabilities of the screen print medium. The screen print medium was a perfect compliment to the generally flat and decorative character of Japanese art - especially those images created in painting and wood block prints. Wooden frames, stretched with silk do exist from working studios in Japan. The Japanese may have been the first to employ an actual fabric mesh which allowed them to create stencils with free-floating elements (which were difficult to achieve in traditional stencil printing). By employing silk as the support for their stencil elements the Japanese artisan could apply an even layer of color with the silk marks being so fine as to be nearly indiscernible.

Through various forms of trade, as well as a popular interest in Europe and the U.S. in commercial applications of stencil printing, some experimentation into silk-screen printing began to develop during the later 19th century in Europe. Records indicate activity in France and Germany, where there was considerable interest in developing additional cost effective printing technologies (note that photography, lithography and many other means of image reproduction date from the 19th Century). A patent for a process akin to screen printing was issued to Samuel Simon in England in 1907. The Simon process did employ a silk mesh to support stencil materials but it relied on a hand-dabbing technique using a brush (similar to many other forms of stencil imaging).

A rapidly accelerated interest in silk-screen printing developed in the United States in the 20th century. Screen printing provided an extraordinarily flexible means of commercial imprinting which could be used on a number of materials (wood, metal, glass, paper) as well as on a wide variety of surfaces (smooth, textured, flat, shaped, etc.). The versatility of screen printing as well as its low cost and low-run capabilities catapulted it to commercial prominence.

The popular success and prevalence of screen print materials did not go unnoticed by visual artists. Unfortunately, up until the 1930's the information available to the public on the screen print process was limited. After this however, with the development of various forms of cut films (shellac cut-film in 1929 and ulano-cut films shortly thereafter), the process became more widely known and accessible. At this point some early innovative artists explored the use of screen print as a medium of personal expression. Shortly after, in the mid-

1930's the WPA formed a screen printing unit as one of its outreach programs. This program further developed the creative dimensions of the medium.

Although there was great enthusiasm from artists for screen printing in the 1930's interest in the medium during the latter 1940's and throughout the 1950's waned. Some of this was the result of a waning interest in print works in general (in the fine arts print popularity seems to ebb and flow like the tides). In addition, many of the artists working in screen print had been associated with a style of social realism which was rapidly losing favor in art circles. Interestingly, the decline of enthusiasm for screen printing in the 1940's and 1950's appears to have set the stage for its revival in the 1960's and beyond.

In the 1960's tastes in the visual arts underwent a staggering change. The aesthetic theories that had driven preceding movements such as abstract expressionism had gradually succumbed to new ideas and concepts. In the 1960's artists once again looked outward for artistic inspiration. One of the most powerful of these inspirations was the rapidly evolving world of pop culture. As society was being redefined by a host of new media (video, computers, etc.) artists like Andy Warhol, Roe Lichtenstein, Robert Rauschenburg, Tom Wessleman, and many others began to create works of art which reflected this change. Many of these artists looked to screen printing as a powerful symbol as well as practical medium for expression in these regards.

As a commercial process screen printing was a part of the pop culture revolution yet it was also unendingly flexible and suitable to artistic experimentation. Silk-screen printing also allowed easy and inexpensive access to photographic processes which were far less accessible in other printing media such as lithography and engraving. Just as importantly, screen printing directly addressed an important concern of 60's artists, that color was an essential dimension of contemporary artistic experience. Lastly, the screen print process offered access to large-scale image production which was heretofore inaccessible to artists. Suddenly it was common to see prints measured in feet rather than inches. The screen print image could easily compete with the painting in matters of size. In this and many other ways screen printing seemed ideally suited to the pop art movement.

With this interest came a renaissance of screen printing activity. Nearly all of the best known artists of the pop art era issued images executed in the screen print medium. Particularly significant in the 1960's and early 1970's was experimentation with photographic processes and the advent of inexpensive photographic emulsions and films as well as mesh fabrics made from artificial fibers for the process. As the technique and medium continued to expand so did its popularity.

Today screen printing remains a popular and widely used medium in the fine arts. Like most other printmaking media (all of which underwent a rise in popularity in the late 1970's and 1980's) screen printing is changing. Although prints are not as popular today as in past years they still form a significant portion of total fine art production and will likely continue to do so in the future.

In the decades of the 1980's and 90's screen printing has continued to be a vital and dynamic medium. As art progresses into the 90's and beyond many artists have found it desirable to cross traditional media boundaries. Happenings, performance art and a host of new platforms for visual expression have fortified the environment for multiple medium works of art. The predilection for non-traditional imaging surfaces such as fibers, plastics and metals, the increased sensitivity to the prevalence of photographic imagery in modern culture and the resurgence of interest in color have all placed the medium of screen printing in a central position in contemporary art. The same flexibility and economy which originally motivated the development of screen printing continue to propel it forward in the still newer forms of visual expression. It will be interesting to learn where this development leads us in the millennium in which we are beginning to live!

Screen frames

The history of screen printing reflects the development of technique and tooling for the medium. The historical record indicates that the tools and techniques of the medium evolved slowly. Today there are numerous formats for constructing a screen frame. In order to familiarize students with the options we will list a few here:

- Timber frame construction - this is perhaps the most popular form of screen frame. It is constructed from pine or cedar lumber and generally the timber employed is about 2" X 2" in dimension. It is important that the timber employed not be warped and be free of knots so that the final frame rests flat on the printing surface. In timber frame construction it is ideal if the wood employed is kiln-dried.

- Plywood frame construction - this method of screen frame construction is less widely known. In this type of frame the center is cut out from a piece of plywood and the resulting edges of plywood form the frame. Although it does not have great durability it is a good quick method useful for constructing frames for short printing runs.

- Metal frame construction - this method is often used in professional printing environments because these frames have great durability and longevity. Metal frames are generally constructed of lightweight extruded metals and employ a unique fabric grip which allows for varied screen tension.

Screen frame construction

In the construction of a screen frame the most crucial aspect for structural integrity is the corner joint(s). For the most common timber frame there are various joint types. Some of these provide greater strength than others. Often the stronger joint types are a bit more complicated to create but well worth the additional effort.

Here is a brief list of some of the more popular joint types:

- Butt joint - so called because square ends of wood are simply butted up against one another. This is a simple joint to make but it has very little strength. It requires some type of strong fastener in order to make it useful.

- Miter joint - the wood in this joint meets at an angle, generally 45˚. This angular construction gives added strength to the joint. These joints are generally reinforced with metal angles, scotch fasteners or metal crimp fasteners. These joints are often glued in addition to being fastened in order to give them extra strength.

- Lap joint - A slightly more complicated joint to construct because it requires more precise cutting of the timber itself. In this joint the adjoining corners of the wood have cutout extensions which lie over one another. Because of this physical arrangement the wood may be fastened with screws as well as being

glued. In addition , the cutouts employed for the lap joint give it exceptional strength.

- Tongue and groove joint - this is a popular joint in traditional woodworking. One corner being prepared for the joint is cut so that the center portion of the timber extends out. The other corner is cut with a corresponding opening (groove) into which this extension (tongue) can be placed. This is an exceptionally strong joint but again requires a considerable degree of precision in construction.

When preparing a screen frame it is also important to consider the overall size of the frame. Generally you will need to have at least several inches of space around your stencil to have a satisfactory working. In other words, if you are printing an image which is 16" X 20" in size you would want a screen with an opening of about 22" X 26" - enough to provide approximately 3 inches of margin on all sides. Much larger frames over 36" X 36" in size will require an even greater margin.

Screen meshes - supporting the stencil

In the earliest known screen printing, the frames were not covered with a cloth. Instead, nails which were placed periodically around the frame were laced with silk threads. Often paper stencils were placed on top of these threads and the image created by dabbing paint over the stencil.

In more contemporary screen technique, the screen frame is covered with a pre-woven fabric mesh. One of the primary distinctions in these meshes are the material from which they are constructed. Currently there are several fabric meshes which are employed by screen printers:

- Silk - yes, believe it or not, silk meshes may still be purchased! Despite being a natural material it has tremendous strength and resilience. Unfortunately, because silk is quite costly to produce it is also quite costly for use in screen printing. It is not employed with great frequency any longer.

  One of the drawbacks of silk is that it is not very effective when used in conjunction with many of the current photo emulsion technologies. Some of the chemicals employed in these process may actually damage the silk fibers.

- Organdy - for many years artists employed this natural fiber material as an inexpensive substitute for silk. It does not provide the tremendous wear ability of silk but it is suitable for many screen print applications. Unfortunately this material behaves very poorly when used in conjunction with water. Because of the increased use of water-based inks in contemporary screen printing, organdy is not employed with great frequency any longer.

- Synthetic fabrics - these materials are currently the most popular for use in screen printing today. With the advent of synthetic materials such as macron and nylon, screen meshes gained a great deal of flexibility during the middle of the twentieth century.

Synthetic fabrics have tremendous strength and wear ability while also being relatively impervious to a wide range of solvents, coatings, water and various abrasive materials. These properties have allowed synthetic screen fabrics to largely supplant the earlier natural fabrics such as silk and organdy.

In contemporary terms there are two primary types of synthetic fabrics in use today, monofilament and multifilament. The latter is a screen fabric (mesh) which is woven from polyester fibers which consist of multiple strands. Under microscopic examination a multifilament fabric will often look coarse and ragged. Silk and polyester meshes are multifilament. These fabrics do not provide as much open area in the mesh and thus are not as useful for fine detailed work.

In contrast, the monofilament fabric generally is woven from single nylon fibers which appear very smooth and regular when examined microscopically. This smoothness may initially present difficulties since it may be hard for certain stencil materials to adhere to it. For this reason, monofilament screen meshes are often treated with an abrasive compound before being used for printing. In general, monofilament fabrics have many advantages. They allow for easier ink passage, can be made into very fine meshes, are generally easier to clean, provide more open area in the mesh and have great strength and durability.

- Metal fabrics in some very specialized applications, especially where very fine detail is involved, screen meshes are actually created from various metallic materials. This makes great sense since metal wire can be woven essentially the same as thread. Metal fabrics however are quite expensive and seldom used in fine art applications.

Screen fabrics - mesh counts and other properties

There are several very important properties to screen meshes (fabrics) other than the material from which they are created. Among these are the following:

- Mesh count - this is a numerical symbol or indicator for how many threads (fibers) occur in every running inch of a screen fabric. In earlier times the number of fibers in a mesh was denoted by a code (usually a number followed by a number of X's). A fabric denoted 6XX would have about 70 threads per inch, for example. Today it is more common to express mesh count with the precise number of threads per inch. This is especially true with monofilament fabrics. Today mesh counts of anywhere from 70 -200 are available for natural fibers (silk & organdy) and from approximately 150 - 400 for synthetic fabrics.

- Open area - obviously the threads which are used to weave a screen mesh take up a good deal of the surface area of the mesh and prohibit ink from

being transferred through it. Therefore manufacturers of screen fabrics strive to create fabrics with as much space between the fibers of the fabric as possible. This is referred to as "open area". Mesh openings are sometimes specified in measured terms . Thus a monofilament screen fabric with mesh count of 300 would have an open area of about 50 microns.

The open area of a screen fabric may also expressed as a measure of total surface. This is usually expressed in percentages. Thus a monofilament screen fabric with mesh count of 300 would have an open area of about 35%. The open area is affected somewhat by the initial stretching of the fabric during mounting to the frame.

- Fabric color - most natural screen mesh materials were white or off-white in color. The earliest synthetic screen fabrics simulated this quality. However, this presented a problem. These synthetic fabrics were basically plastic and when being exposed as a photographic stencil the clear threads of a mono/multi-filament mesh simply transferred light (and thus exposure) to undesired areas on the screen. In these cases the exposed images often had a soft halo around them.

  Over time it was learned that if screen meshes were woven from yellow or orange fibers then the light which they transferred would not expose unwanted areas of the screen (since the light for exposing photo-emulsions is essentially blue in nature). Because these new colored fabrics did not permit halos in the resulting images, they were nicknamed "anti-halo" fabrics.

Stretching a screen

There is not a unanimous opinion on the best way to stretch screen fabric. Currently there are several techniques which may be used. Each of these techniques has its own advantages and disadvantages. Among the many techniques these four are primary:

- Tack/or nail stretching - arguably the most popular because of the simplicity and speed which it permits. No special tools are required for this technique other than a staple gun for tacking or a hammer for nail work. As with nearly all the other techniques canvas pliers are used to stretch the fabric prior to attachment. On the downside it is very time consuming to replace screen fabrics attached using this technique. For this purpose some technicians lay down a fabric strip and staple or tack over this. When removing fabric from the screen they simply pull on this tab to remove all the staples.

- Rope/cord stretching - a very popular technique that offers many advantages to a screen maker. The fabric is laid over the frame. The frame timber has been specially prepared with a groove. A light cord is laid over the screen mesh and forced down into the groove thereby securing the fabric. This is an excellent technique because it allows for very delicate adjustments to screen tension, does not risk ripping the fabric as stapling does and ultimately allows for easy removal of the screen from the frame (just pull out the cord !).

It is important to note that this technique requires specially prepared wood, cord and application tools in order to be employed.

- Grip frame stretching - in this technique the screen mesh is never permanently attached to the screen. Instead, the screen actually consists of two frames, one inside the other. The interior frame has grips which can be clamped and tightened onto the screen mesh. This interior frames is then connected to the outer frames by a series of tightening screws. As these screws are turned, more pressure is placed on the inner frame and the screen mesh is made more taught. The advantages here are obvious. The screen may be tuned to any tension and the fabric is easily removed/changed. However, this type of frame is complicated to produce and costly to purchase.

- Glue stretching - a very efficient technique for attaching screen mesh to the frame. The fabric is stretched in a grip frame. The grip frame holds the fabric so that it maintains it's tension. Glue is applied to the surface of the frame and the stretched fabric placed over the glue. As the glue dries the fabric is cut loose from the grip frame and the screen is finished. This technique again requires additional tools and isn't conducive to easy removal of the screen mesh when you want to re-stretch the screen frame.

Stretching a screen - step-by-step!

Employing the tack and nail technique it is reasonably easy to stretch a screen.

A. Prepare and gather all the materials required for stretching. You will need the following:

- Wooden frame - be certain that the joints are solid and that it is flat and smooth on the surface where you will be stretching your fabric.
- Canvas pliers
- Staple gun
- Hammer
- Soft leaded pencil
- Scissors
- Screen mesh - cut about 3" larger than the outside dimension of your frame.
- Yardstick
- Large black backdrop paper
- Tape for sealing the screen
- Friend or classmate to help you
- X-acto knife

B. Mark the warp and weft of your fabric. (Your fabric is woven like most others with fibers at 90˚ angles. The longer fibers which rest on the loom are known as the "warp". The fibers which are woven through them are known as the "weft".)

Lay your fabric over the dark background paper. Placing it on the black will make the warp and weft fibers easier to see. Draw a big "cross hair" on the surface of the screen so that it crosses in the center of the fabric. These lines will help you in keeping your stretch screen mesh straight.

C. Check the flatness of your screen frame. Lay it down so that the side to which you will be attaching for screen mesh is facing down. Do this on a surface you are sure is reasonably flat. The frame should not wobble much at all. Check again that there are no old staples, splinters or other foreign objects on the frame which will interfere with attaching your screen.

D. After checking your frame turn it over so that the side you wish to attach your fabric to is facing up. Lay the fabric over the frame so that the center of the "cross hair" is in the middle of the frame.

E. Staple one side of the screen fabric to the frame placing staples on a 45˚ angle at about 1/2" intervals. Try to keep the fabric straight and apply tension along the line of the stretch. After stapling tap all staples down with a hammer to make certain they are securely set in the wood. Then repeat this stapling on the opposite side of the screen. When you staple the opposing side use your canvas pliers to apply tension to the screen. Begin at the center of the screen and work your way out, evenly, to both sides.

   Watch the "cross hair" lines to be certain that the warp and weft are being stretched evenly so that your final tension will be uniform. Be careful not to poke staples through the working area of the screen.

F. After the first two opposing sides are complete finish the remaining two, again monitoring the "cross hairs" to help assure even tension across the screen. The tension level should be relatively high. Enough so that a coin dropped on your stretched fabric from several feet up will take a healthy bounce.

G. Cut the remaining fabric from the frame. Make certain that some exposed wood remains on the fabric side of the frame. You will need this to adhere tape to the frame for sealing the screen.

H. Using a solvent resistant tape (heavy duty duct tape may be substituted for this). Tape the screen so that the wooden frame is sealed off from the fabric. The tape must extend out into the working area of the fabric at least about

   1/2". Make certain that the frame is well sealed by the tape. Since you will be washing your screen in water frequently it is important that little or no water leak into the frame where it might warp or weaken the wood of the frame.

Congratulations - your screen is now complete !

Color - The Medium of Screen printing

Nearly every fine art medium is associated with some physical substance which is manipulated by the artist in order to establish their expressive meaning. In sculpture the artist may carve stone, weld steel, work with paper and the like. The painter obviously works primarily with paint - a pigment and a binder. The materials which the artist chooses to work with have an extraordinarily important impact on both the manner in which the artist may work as well as the resulting outcome of that work.

Often however, the description of the physical material as "the" medium employed in the creation of an artwork neglects to recognize the more conceptually significant dimensions of that medium. So, for instance, although we associate the medium of photography with cameras, film and various forms of chemistry (the physical materials of photography) it is conceptually more accurate to ask about the role which light plays in establishing every photographic image being made.

In screen printing, as in photography and other media, it is easy enough to confuse the basic physical materials employed with the conceptually relevant dimensions of those materials and their significance in defining these materials as a "medium". Although in screen printing the artist relies on inks, squeegees, screens and an array of other physical tools to create an image, the quintessential/elemental component of the medium is certainly color.

It is intellectually challenging to view color as a medium. Let's face it, traditionally we think of color as an attribute of something else not as an independently important phenomena. Yellow for many is a quality of a lemon - not an independently significant experience. Viewed more purely it is necessary to the appreciation of screen printing that color be witnessed as a more tangible component of the screen print. The base constituent or "medium" at work.

The primary significance of color to the medium of screen printing may be noted anecdotally in the work of Josef Albers, easily the most renowned color theorist of the 20th century. Josef Albers in offering to teach artists more about color authored a now famous text entitled The Interaction of Color. The original editions of this book contained hand-tipped (individually mounted) plates to serve as examples of the theoretical color issues which Albers addressed in his text. For all these color plates Albers chose screen printing as the method of production since in the author's view it offered the most faithful rendering of color effects.

Color - Some Primary Information

Having recognized that color is the medium of screen printing it is critical that some energy be devoted to extending our understanding of the medium. As with light in photography, color is a rather ephemeral phenomenon. As stated earlier, color is more often envisioned as a quality of things than as a concrete entity itself.

The ephemeral nature of color is often accentuated by its association with other, equally ephemeral phenomena. Interestingly, in this regard, color is frequently thought to have a very strong correlation to human emotions. Certain emotional states are often described directly as colors or associated with certain traditional colors. Thus, if someone is distressed or upset over events in their life they are often referred to as "blue". If an individual is apprehensive about the risks in a given situation and declines the risk they may be referred to as "yellow". If one person is jealous of another's circumstances they are said to be "green" with envy.

Why is it then that color as experience seems so nebulous? A good part of the reason likely lies in the state by which we experience color. Many phenomena of greater or lesser importance in our lives are experienced through the human senses. For many of these phenomena their experience may involve multiple senses. For example, a flower may be experienced through several of the human senses simultaneously - it certainly may be seen, its petals may be touched and under the right circumstances it may be smelled and even tasted. Unlike the flower however, the experience of color is limited to one sense - that of vision. Color cannot be heard, it cannot be tasted or felt - it can only be seen, an experience limited to the human eye.

As a visual experience color is less tangible by its very nature. This may be understood if we briefly examine color experience as an aspect of human vision. All color experience comes to the human eye in the form of light - and more specifically as waves of electromagnetic radiation. These waves of electromagnetic radiation surround us in our environment and are used in many instances for practical purposes. Very short waves of electromagnetic radiation are used for recording x-rays, longer waves exist as ultraviolet radiation,. Some of the longest waves are used for television and radio broadcasts.

The human eye is sensitive to a limited range of wavelengths of electromagnetic radiation. The small portion which the human eye is sensitive to is called the "visible spectrum" with wavelengths anywhere from 400 to 700 nanometers (billionths of a meter) in length. The shorter waves in this spectrum are perceived as purples and blues by the eye. The longer wavelengths account for the shades of red and orange which we experience with other colors which we experience set in between these poles.

There are various techniques used to generate or modify sources of light to produce certain color sensations. The well respected artist and color theorist Johannes Itten offers five primary means.

Refraction - The apparent creation of color brought about by the bending of light waves as they pass through media of differing optical densities.

Polarization - The creation of varied color effects by the manipulation of the direction of polarization of waves of light.

Interference - The generation of varying wavelengths of light brought about by interference between the various waves.

Fluorescence - the emission of particular wavelengths of light from certain substances when struck by yet free electrons.

Diffraction - the apparent creation of color brought about by passing light through small slits and apertures

The physiology of the human eye is critical to understanding color experience for humankind. Essentially the retina, the back surface of the eye contains two sensory devices which are referred to as rods and cones. Rods are traditionally associated with vision in low-level illumination, situations which are largely achromatic. The cone mechanism is more prevalent in the focal area of the retina and is largely responsible for the experience of color.

A discussion of rods and cones would not be necessary for appreciating color if it were not for the remaining nerve connections. The various cones, after being stimulated by certain wavelengths of light emit signals which are transmitted to the human brain. Ultimately, it is within the human brain that these nerve signals are processed and color experience is determined. In understanding color then it is paramount to realize that color is not a tangible physical fact but an intangible (and little understood) psychic phenomena. Color, which we associate with an object as an inherent property of that object is in fact nothing of the sort. It is an interpreted pattern of complex brain waves and as such is subject to interpretation.

The seemingly nebulous nature of color is in part explained by the individual interpretation applied to it by the human brain. Physiological and psychological variations between individual personalities would suggest that we may not all see/interpret the same color stimulus (electromagnetic radiation stimulates a cone sensor) in the same way. These ideas are supported by certain concepts in psychology and communication such as the Whorf-Sapir hypothesis and others.

Regardless of the subjectivity of color, there is enough commonalty of experience between humans that certain theories/models for color relationships and the like become have become very useful.

Color Mixing and Color Primaries

One of the most practical areas in which to begin exploring the basics of color relationships and theory is in the realm of color mixing. In researching color mixing we are immediately made aware of the complex and sophisticated nature of color.

Additive Color Mixing

In traditional fine arts media such as painting the artist mixes pigments in order to create additional colors. In the newer media such as video and color photography the artist is not involved with mixing pigment to create color but instead mixes light (electromagnetic radiation). The systems which these new media artists employ are radically different from those in the traditional fine arts like painting. Perhaps most important is the distinction here between primary colors (those colors which are irreducible) in these systems.

The primary colors in additive color mixing are Red, Green and Blue. If these three wavelengths of electromagnetic energy are combined they form "White Light". This initially seems antithetical to our traditional notions of color mixing - but it is necessary to keep in mind here that we are combining waves of light in the additive color mixing system and light will behave differently than pigments.

In the additive mixing system wavelengths are combined from two colors to form a wavelength which we experience as an individual third color. For instance, if we mix red and green light sources they produce light with a yellow cast. If we mix blue and red we get a magenta effect and if we combine green wavelengths of light with blue we experience a light blue color which is commonly known as cyan. Most surprisingly if we combine all three sources what we experience is "white light". Although symbolically we think of white light as very pure it is in fact a chaotic and impure state for light - like the sound of a waterfall which contains a wide range of audio frequencies which when combined seems amorphous and which scientists refer to as "white noise".

Initially, additive color mixing may seem to only be of scientific interest but this is not so. Additive color mixing is the theoretical basis for color use in color photography, color reproduction, in color television and many other commercial color processes. The color TV which you undoubtedly watch has a screen coated with three phosphors (red, green and blue). Electrons fired at the layers excite them and they emit their associated color. By combining the red, green and blue sources your color television can emulate millions of individual colors with great accuracy.

Subtractive Color Mixing

The pigments in various materials and objects around us absorb very specific wavelengths of light. Those wavelengths (colors) which are not absorbed are often reflected or transmitted to the human eye and - "bingo" - we see red! The primary colors in subtractive color mixing are red, yellow and blue and the color combinations in this system are the ones which many artists are aware of.

Traditionally red and yellow create orange, yellow and blue generate green and so forth. When all the wavelengths of light are absorbed by pigments or dyes in a substance then no light is reflected back to our eye. In theory, when all the primary colors are combined, we experience black (or no light stimulation). The reality is that when the subtractive primaries are combined an artist generally ends up with a pigment which is a nondescript and muddled brown.

For purposes of screen printing the subtractive color primaries are of paramount importance (although we will revisit the additive primaries when we discuss the effects of light quality on the perception of color in a print).

Subtractive Color Components - COLOR AGENT vs. COLOR EFFECT

There are a myriad of ways in which to describe color as it is known within the subtractive color system. In the next section you will learn more about the many models used by scientists and artists to describe certain color relationships. Before this however it is necessary to define some of the many dimensions/properties of color.

In describing color in the subtractive and additive color system it is paramount that a clear distinction be made between the physical phenomena which we are describing/observing (in additive color the wavelength of light and in subtractive color the physical pigment) and the manner in which these stimuli are perceived and interpreted by the human brain. The renowned color theorist Johannes Itten in his introductory text on color refers to the first as "color agent" - "the color sensation or physically analyzable pigment". The second condition Itten referred to (much like Albers) as "color effect" -"the psychophysiological aspect of color". The first dimension of color is perhaps more measurable and predictable. The description of color effect recognizes the crucial perceptual role which the human brain plays in determining how we see color.

Primary Color Attributes for Subtractive Colors

In describing the primary dimensions of color in the subtractive color system it is best to begin with the three primary attributes of color.

Hue - the essential pigmentary basis of color. The attribute of color by which all color is identified, that is "red", "green", and the like. This is the dimension of color which is most commonly associated with color experience even though it is only one of many dimensions.

Value - the relative lightness or darkness of a color. This dimension of color goes by many titles. Shade, tint, etc. are among simply a few of the names used to imply the lightness or darkness of a color.

Intensity - the relative purity of a color is, like value, referred to by many names - chroma, saturation, etc. These terms all imply the degree of purity of a color. In subtractive color mixing a color would become impure when some pigment or

substance in the carrier absorbed the wavelengths which are commonly associated with that color or likewise failed to absorb wavelengths not associated with that color. The effect of this would be to introduce unacceptable wavelengths of light into a given color experience - essentially then the basic color has been contaminated.

Additional Color Attributes

There are additional properties or attributes of color which expand upon the issues involved in the three primary properties described above. Some of these are not essential properties of color but recognize the important interactive effects of color and recognize aspects of color relationship which are critical for an informed usage of color.

- Color temperature - It is no secret that we associate certain sensations of warmth and coolness with particular colors. Traditionally for instance blues are thought to be cool colors and reds to be warm. Interestingly enough many colors have warm and cool versions. In the reds for instance a cadmium red would be thought quite warm. Another red, magenta, is thought to be quite cool. When constructing color relationships it is important to consider the balance of color temperatures which you are working with.

- Color Proportion - Balance between the quantity (or area) of colors in a composition is a critical dimension of color design since certain colors exert a more dominant visual influence than do others. Generally speaking the value of a color is very important in determining how it will balance out proportionally with other colors. For instance, yellow is not a very dominant color particularly with respect to its value character - it is very light. Yellow also has an airy transparent character. Proportionally it may be offset by more minute quantities of blues and purples, etc. since these colors generally have a darker value profile than yellow. Other colors, having relatively similar value profiles, are best balanced in equal proportions. A common example of such a combination is red and green. Reds and greens of medium intensity are proportional equivalents and equal distributions of them in a composition have traditionally been seen as a balanced state.

- Color Contrast (simultaneous) - This phenomena, along with its counterpart (successive) contrast, points out in a very dramatic manner the perceptual and psychological basis of color experience. When various colors are placed adjacent to one another or an achromat (gray) they strongly influence the manner in which each of them is subsequently perceived. For instance, if a patch of blue is placed next to a patch of gray the gray will seem to take on a subtle orange tint. Generally a neutral such as black, gray or white will take on the character of the complement of its neighbor - since orange is the complement of blue our example emphasizes the orange tint.

  Traditionally the phenomena of Simultaneous Color Contrast is demonstrated using squares of color or colors surrounding neutrals and achromats. It is interesting to note that this phenomena also occurs with varied states of black and white. If two areas of gray with differing values are

placed adjacent to one another the darker will cause a small portion of the lighter value to appear lighter yet.

The phenomena of simultaneous color contrast seems to be an action of the brain designed to instill balance into perceptual experience. If we consider that the complement of any color is simply the remaining portion of the visible spectrum then it seems plausible that the mind provides a counterbalance to the stimulus before us.

- Color Contrast (successive) - The counterbalanced nature of color experience is also apparent in situations where we are exposed to color for an extended period of time. In these extended exposure situations when the original color experience ends then our mind often provides a balancing experience of its own. For instance, if you stare at a square of blue for an extended period of time you will see a square of orange in its place when the blue is removed. Because this experience occurs after the original stimulation by the color it is known as "successive". Again, the afterimage which you perceive is the complement of the original stimulus. If we have been seeing green for an extended period the afterimage will be red. This is because (green or (yellow + blue) + red) make up the entire visible spectrum of color.

- Color Complements - Successive and simultaneous color contrast identify another primary form of contrast in color. The contrast of complements. Generally, complementary colors are identified as those colors which are situated opposite one another on the color wheel. As stated above, because of there relationship, each set of two complementary colors contains all of the visible colors. Yellow and violet, blue and orange, etc. These combinations have a very strident character and also play a very crucial role in color theory for artists and scientists alike.

- Color Tension - The ability of colors to draw attention to themselves and away from other colors contributes to their ability to create tension. The tension aspects of a color are less of a visual attribute of the color as the are a reflection of the way color is employed in a work of art. Essentially tension is a compositional issue in which color plays a very important role. In this regard certain colors in compositions may tug us away from others. Likewise some colors may reduce the tension between themselves as well as heighten it. Colors with similar values or intensity levels may reveal a sympathy for each other which binds them visually while others are repelled by one another because of their intrinsic contrasts.

- Color Scale - The author Irving Kriesberg has written about the issue of color scale. This aspect of color definition is also compositional in origin and less purely color related. It has been pointed out that the proportional relationships of color in a given composition must be heeded. This is not identical with the pacing of color changes and transitions which the artist employs in their artwork. If the range of color transitions in an artwork becomes too radical this may disrupt the overall sense of continuity in a design.

Modifying the Intensity and/or Value

Knowing the various basic and extended attributes of color is crucial to fully appreciating and handling color. Beyond simply recognizing attributes of color the artist/screen printer must be capable of modifying these attributes in order to achieve an intended effect. In a very simple and direct video on the subject Barb Watson suggests the following means for modifying intensity and value. There are certainly other means but this set of possibilities covers a wide range:

A. Blend the color with a color from the same color grouping. Generally the value and intensity of the color you are adding will redefine the new mixture. If you add a lighter color from the same family with a lower intensity then the new color mixture should be of the same color group/family but with a lighter value and less intensity.

B. Blend the color with a color from a nearby color grouping. This may shift the hue a little bit while also modifying the value and intensity.

C. Adding black is another popular means for modifying both intensity and value. Black, when combining with many colors, will often not shift hue but will dramatically effect value and intensity. Be mindful that there are various types of blacks. Some contain more blue and others more red. These may radically effect your color mixing result.

D. Adding white to lighten a color is a widely known technique. Characteristically, adding white will also lower the intensity of a color but seldom, depending on the white that is being employed, modify the essential hue or color. Thus, a red which is lightened toward a pink still remains in the red family but it is obviously far less intense.

E. Earth colors may be combined with a color to modify its essential properties. Like some blacks, whites and other neutrals it is important to keep in mind that certain earth colors have higher concentrations of red, yellow, etc. When your color with an earth color you may wish to stay within the same the original group of colors. For example, an ochre might work well in reducing the intensity of a yellow color without noticeably shifting the hue.

F. Adding the complement of a color is a popular means for shifting both hue, value and intensity. In order to dull an exceptionally bright blue it might be wise to combine it with a small quantity of orange. Depending on the quantity of complement which is added the actual hue may shift and the value may shift as well.

G. In order to change the intensity of a chosen color without shifting its value it is possible to blend it with a complement of the same value as the initial color. In some instances the complement of the same value may be a naturally occurring color. In other instances the complement of the same value has to be created in order to be mixed with the initial color.

H. Gray may be blended with a color to modify both intensity and value without risk of modifying the essential color being employed.

COLOR HARMONY

The relationships which colors create are referred to under many different names. Some refer to them as color schemes, color harmonies, etc. Understanding the attributes of individual colors is a complex task. Understanding the relationship between a grouping of colors may be even more challenging.

Traditionally artists have used various models to describe and define various color relationships. For the visual artists working with subtractive colors the simplest model is the 12 step color wheel. In varying ways this model provides clear accurate information about a range of color relationships.

One of the most important of the relationships expressed on the color wheel is that of color primacy. Certain colors which you work with as an artist are "irreducible". That is to say, they may not be created or mixed from other existing colors. In subtractive color mixing Red, Yellow and Blue are referred to as the PRIMARY colors. When any two primary colors are combined, say for instance red and yellow, they create a SECONDARY color. When a secondary color and a primary color are brought together they form a TERTIARY color.

The color educator Barb Watson who was mentioned earlier has an interesting variant of this naming system in which she uses numbers for primary, secondary . . . A number (1) color (primary) is irreducible. If you combine two number (1) colors they add up to (2) - a secondary color. If you add up a number (1) color and a number (2) color they in turn create a number (3) color. This color is referred to as tertiary.

Color Harmonies - Some Simple Models and Ideas

There are many terminologies which are used for describing various color relationships. On the 12 step color wheel it is possible to describe some of these relationships in simple ways.

- One Color Harmony - This simple relationship is often referred to as "monochromatic" since it involves only one color. Because there is no contrast of hue in this form of color harmony the only remaining issues are those of value and intensity.

- Two Color Harmony - some writers have referred to these as "Dyadic" relationships and others as "complementary". Generally, for theoretical purposes, these two color harmonies are thought to derive from opposing colors on the color wheel. Such complementary harmonies are often very intense - each color serving to energize the other.

  It is possible to imagine a two color harmonic relationship which would not be axiomatic, for instance yellow and yellow-green are not complements but certainly could form a two color relationship. For descriptive purposes, harmonies which involve colors placed closely to one another on the color

wheel are all referred to as "analogous" whether they involve two, three, four or more colors

- Three Color Harmony - these harmonies, on a theoretical level, are referred to as "triadic". In these relationships, because of the increased number of colors, the range of relationships is increased as well. There are several potential subsets of Three Color Harmony.

  A. On the color wheel, if the three colors involved are spaced equally, as the primary colors would be, for example, then this relationship may be referred to as a "primary triad" or "equilateral triad."

  B. If instead of an equilateral triad, the triad is formed by modifying a dyad so that one color and the two colors adjoining its complement on the color wheel are present then this is often referred to as a "split complement." The split complement softens the intensity of contrast noted in the dyadic complement relationship.

  C. As with the dyadic relationship[it is possible to have a combination of three colors which share close proximity on the color wheel and are thus referred to as analogous. In addition, it is possible to have a selection of colors which have no axiomatic relationship. These color relationships have no particular name but might be referred to as non-axiomatic.

- Four Color Harmony - are often referred to as tetrads. Like their three color counterparts they are available in an assortment of pre-set arrangements.

  A. If the four color arrangement is derived by modifying a basic dyad so that the two colors adjoining each complement are employed then the tetrad is referred to as a "split complementary".

  B. In addition to the split complement, it is possible to select four colors from the color wheel so that each is an equal interval apart from the other. In geometrical terms this creates two sets of complementary colors in the same harmonic relationship. The result can be quite stark.

  C. As with the triadic relationship[it is possible to have a combination of three colors which share close proximity on the color wheel and are thus referred to as analogous. In addition, it is possible to have a selection of four colors which have a trapezoidal relationship or a number of other non-axiomatic alignments.

While examining the various popular descriptors for harmonious color relationships, it is apparent that these relationships have a very cerebral character. Their association is based to a great extent on geometrical relationships. In fact, there are other relationships based on the hexagon, octagon and so forth. These structured color harmonies afford us a very disciplined approach to color and color relationships. At the same time it is important to keep in mind that much of the character of color is "felt" and that

these models may help but the best guidance in establishing expressive color relationships is by personal intuition.

ART 125 L - SCREEN PRINT

COLOR: THE ORDER OF THINGS

Working with color in screen inks requires certain adjustments to the particular nature of screen print inks. As artists we are tempted to equate screen inks with either oil based paints or water based acrylic paints. In many respects oil based screen inks are similar to oil based paints and water based screen inks are similar to water based acrylic paints. The point here is similar but not identical.

Firstly, it is important to realize that screen print inks do not always mix in the same manner as paints. They are a bit less accurate from a chromatic standpoint. In other words, when you mix yellow and red in screen inks you may find that you will get a less brilliant orange than you might anticipate if you combined the same colors in the form of paint. The same results may be noted when combining other primary and secondary colors. For this reason it is good to begin familiarizing yourself with the palette which is available to you in screen printing. Try mixing various combinations of inks, especially in the primary and secondary colors to note the variations from traditional paints. You may even want to create your own "chip chart" of sample colors to keep for future reference.

Secondly there is the matter of transparency. Oil based screen inks are reasonably opaque. If you print a solid blue over a solid yellow you have a reasonably good chance of covering the yellow without the blue turning green. The water based inks used in this course are not nearly so opaque as oil based inks (but they certainly are more environmentally friendly and far safer for human use). Therefore, when you print a blue over a yellow there is a very good chance that some of the yellow will be visible through the blue and as a result the blue will appear green in that area. An important rule of thumb here is that darker colors tend to be more transparent than lighter colors. In other words, blues, dark greens, dark violets and browns will tend to cover other inks better than lighter colors such as yellow, red, etc.

In order to control certain aspects of transparency and other qualities of your ink there are additives manufactured for use with them. Unfortunately there is no additive for making the ink more opaque. There is however and additive for giving it greater transparency. This is referred to simply as "Transparent Base". The more transparent base that you add to an ink the more transparent it becomes. If the proportion of transparent base to ink reaches the point of equality (50/50) or the quantity of transparent base begins to exceed that of the ink then you will find that the ink will take on a whole new quality - becoming a bit more viscous and in some instances more difficult to print with.

Along with transparent bases there is an additive for slowing the drying of inks used in screen printing. In order to reduce the waiting time for drying most inks actually contain chemicals which accelerate drying. In many situations this is helpful because it speeds up turnaround time in the printing process. In other cases however it can be a complicating problem. If your ink dries too fast it may dry in your screen - clogging the screen and making it impossible to print your

stencil effectively. To minimize this problem you may use an ink additive known as "Screen Retarder Base". The retarder base simply counteracts the effects of drying agents in the ink and slows, or retards drying time. During the winter months, when central heating dries the air in the studio significantly, this is a very useful additive.

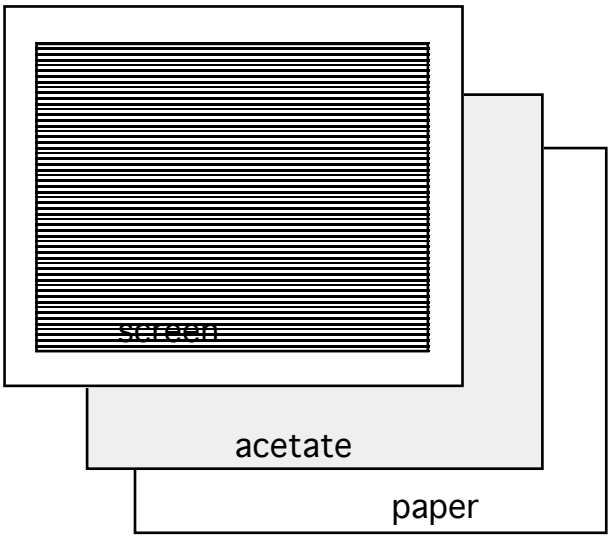
ART 125 L - SCREEN PRINT

TECHNICAL ISSUES: REGISTRATION

There are several registration techniques which may be employed by the artist to insure that the various stencils of a printed image are properly aligned with each other. Below are listed a few of the basic techniques, however it is important to keep in mind that these are not real answers to your special registration needs. In your own prints it may be helpful to combine a couple of these techniques or strike out on your own and invent something particularly appropriate to your situation.

VISUAL REGISTRATION - Essentially this boils down to looking through your existing stencil to see where the underlying image is. This is not a particularly reliable technique and can be exhausting for large editions. For minuscule runs, monotypes and related circumstances however it may be quite satisfactory.

ACETATE REGISTRATION - A subtle variant of the visual registration technique employs a piece of acetate for a clear "see-through" alignment. Begin by setting up for a screen print in the normal manner. Just prior to printing, place a large sheet of acetate under your screen (be sure that it's large enough to accommodate your stencil image). Tape the acetate securely to the surface you are working on and arrange it so that you can pull it our from under the screen and

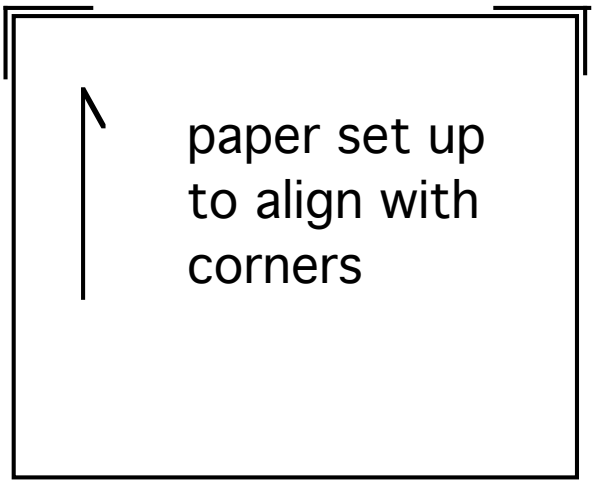


lay it to the side. Prior to printing on your paper, pull a copy of your stencil on the acetate, then remove it from under the screen to dry momentarily. After the ink is dry (you can

pull proofs in the meantime on paper) you may flip it back under the screen, pulling it taut and flat. By placing your printing paper beneath this sheet you will now be able to determine where the image will be printed on the paper below it. The same technique may be followed for each of the stencils in your whole image. This what-you-see-is-what-you-get technique is nice because it permits you to see or pre-visualize your results and adjust your design before committing to a certain color, arrangement or the like.

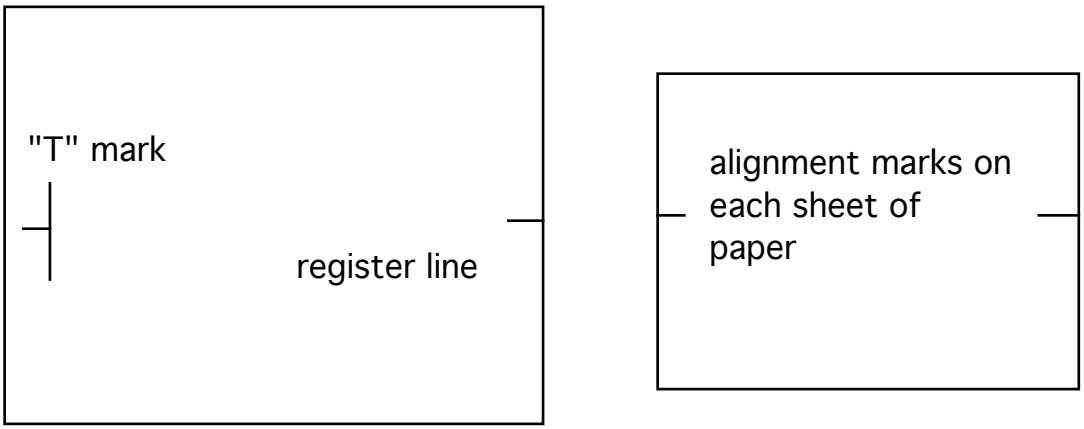
LINE REGISTRATION - There are numerous names for this and easily as many specific variations of the technique. Basically it involves making some type of alignment marks on your printing surface, lines which later guide the placement of the paper sheet. Here are some possibilities:

corner marks - all the sheets of paper in the edition are cut to the same size. One of these sheets of paper is aligned under the screen stencil so that the image will be printed in proper position on it. The corners of this sheet are then traced out and each succeeding sheet is aligned with these corner marks. (caution: if your sheets are not sized exactly the same this technique can produce painful results!).

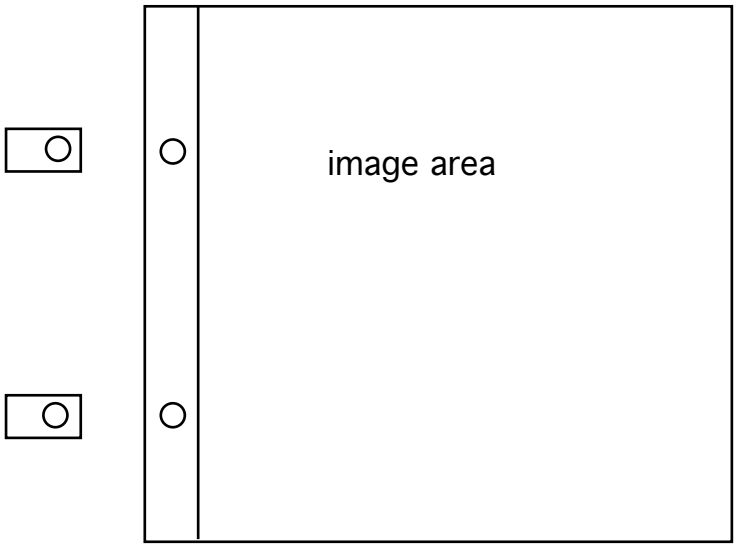


T-mark registration - this is a good technique to use with rag papers which have an irregular or deckled edge. Each sheet of paper is first marked with registration lines 1/2 way down its side. These marks should be on the back of the paper but some printers mark them lightly on the front. Your paper must then be aligned under the screen and a

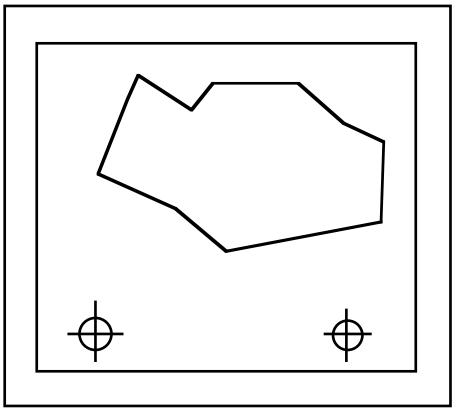
corresponding T-mark placed at the location of one of these lines and a continuous line at the other. When subsequent sheets are laid down one of these lines will be laid up to align with the top of the "T" and the other to align with the continuous line.



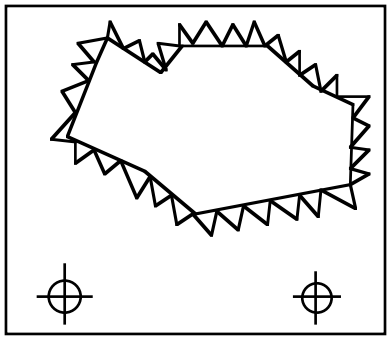
PIN REGISTRATION - perhaps the cleanest system of registration is the type used in commercial printing houses. Here, a small metal plate with a peg (or "pin") attached to it is used to position your paper sheet. Before printing, each sheet of paper is punched with two holes the size of this peg. These holes must be identically positioned on each sheet of paper (we have a special punch for this). This hole portion is later torn off so extra paper must be allowed in cutting sheets for this technique. Begin by setting up in the normal manner. Align a sheet of your punched paper so that it is placed properly below the stencil. After this you should place two pins in the holes and tape the pin plates to the surface you are printing on. After this each sheet may be positioned identically by placing its registration holes over the pins.



CROSS-HAIR REGISTRATION - this technique is limited to use in conjunction with photo-stencil techniques. In this procedure each of the photo materials is marked with cross-hairs. These cross-hairs are exposed on your screen with each photo stencil so that each photo stencil may be aligned with those previously printed. This essentially a technique employed in commercial printing and is especially helpful when multiple colors are used.



screen w/photo stencil and register marks

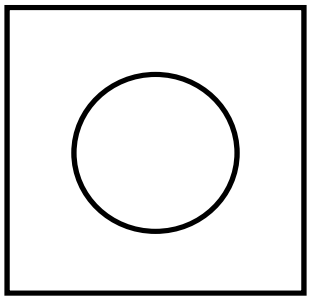


print with previous impression on it

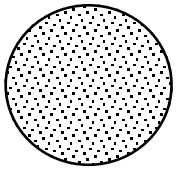
This list is not meant to be exhaustive. There are certainly other means of registration available to the artist/printmaker. These are however some of the more popular techniques currently in use. In some instances aspects of these techniques may be combined and in cases where unique printing surface such as fabric, plastics and ceramics are employed, then the techniques may be radically different.

Registration and stencil design

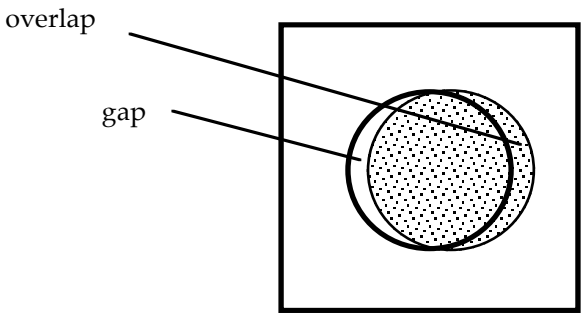
When creating the stencils which will be used to print the individual colors of a silk-screen image it is essential to consider how the borders of the various colors will relate to one another. Although some forms of registration permit the precise placement of design elements in the print certain types of difficulties are nearly inevitable in screen printing. The most persistent difficulty in registration and stencil design arises where colors in a design, especially flat areas of color, adjoin or abut one another. The difficulty is simply that if these areas of color do not adjoin perfectly then unsightly gaps and overlaps occur. These gaps appear as unsightly white spaces between forms in the image. The overlaps occur along the edges of image elements where the design and their colors overlap in an undesirable manner.



Stencil A - background color

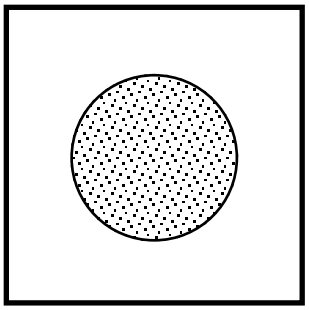


Stencil B - object color

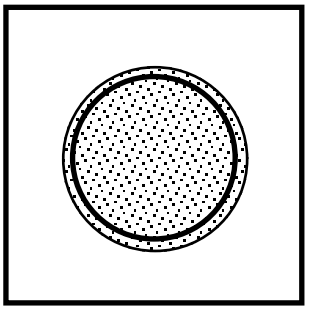


Stencil A & B together

The solution to the undesirable gaps and overlaps of screen printing is simple - print all colors so that they overlap slightly in a regular fashion. In the printing industry this use of slight overlaps to avoid gaps and large overlaps is known as "**TRAPPING**" and the overlap itself as a "**TRAP**". It is crucial when designing the stencils for a multicolored print that these overlaps or TRAPS be incorporated into the stencil design.



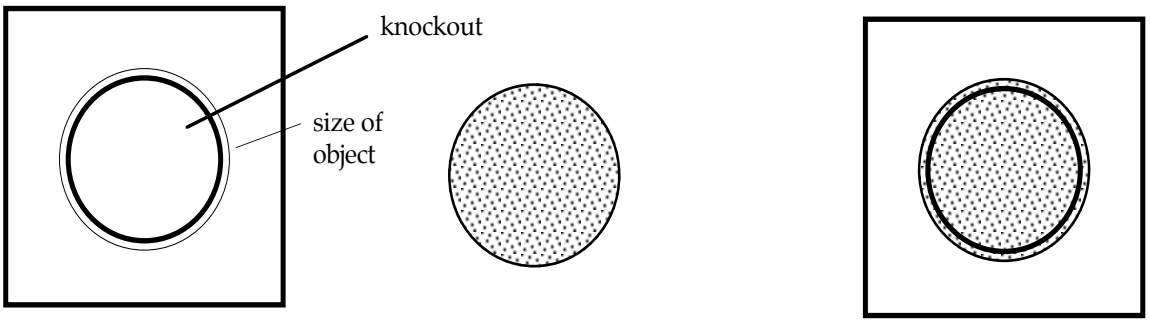
Design w/o traps - technically difficult



Design with traps

Choke Traps and Spread Traps

There are two types of traps which may be employed in stencil design. For practical purposes the difference between the trapping techniques essentially determines which color will be printed over the other. A "SPREAD" trap is one in which a foreground object is its actual final size over a background design which is made slightly larger so that the foreground object can overlap it and prevent any unsightly white gaps. In this case the foreground object has been said to spread over the background.

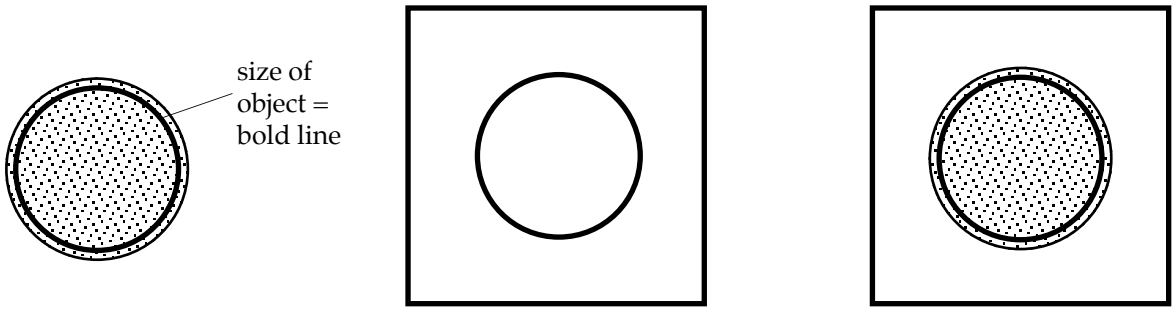


The background color with a circular opening or "knockout"

The object is designed to represent its final size in the print

The edges of the object overlap the knockout by about 1/16"

The "Choke" trap is the opposite of a spread trap in that the foreground object is printed first rather then second and is printed slightly larger than its actual (or desired size in the final print). The background color is then printed over the object color shrinking or constricting (choking) the object color to its desired size in the master design.



The object color is designed larger than its final size in the print

The background color with knockout set to the size of final object color

The edges of the backgorund color overlap the object color by about 1/16"

Traditionally a spread trap uses a lighter foreground object to be printed over a darker background (knockout). In the choke trap a lighter background color was traditionally printed over a darker object color. As mentioned earlier in these notes however, in screen printing , and especially in screen printing with water-based inks which tend toward transparency, if you wish to cover an underlying color it is best to place a darker ink over a lighter ink. Therefore, whether you do a choke trap or a spread trap it is best to use a

darker color for the overlapping color. There are some instances, when you may wish to emphasize the boundary of an object, where this procedure might be modified.

Determining the amount of trap or the degree to which your images should overlap is generally simple. If you are generating your stencils directly on the screen or with cut film or paper or using less precise means of registration give yourself a liberal margin for error and a generous overlap - from 1/8" - 1/4" in width. If you are using a photo-stencil technique and a more precise system for registration such as pin registration then you may wish to use a less generous overlap margin of 1/16" - 1/8". Obviously particular situations may require unique margins to accommodate them.

COURSE OUTLINE: SILKSCREEN I
ART 125

" Color is my day-long obsession, joy and torment."
Claude Monet

Instructor: Professor Doug Tyler

Office: 330 Moreau Hall

Office Hours:

Monday/Wednesday	9:30 - 11:00 (I am often in my office or somewhere in Moreau Hall in the afternoon on MWF. Phone/text to see if I am in or stop by.
Tues./Thurs.	8:00 - 8:30 and 1:00-1:30
Friday	By appointment or stop by/phone to see if I am in !

Communications: I am not at a computer as often as would be ideal. The best way to reach me is by text message at my cell phone number. I do not publish this number but will provide it in class so please note it down.

Phone numbers: Office: 284 – 4621
Home: 269 - 683 - 0934 (Niles) A long distance number but toll free.

Email: dtyler@saintmarys.edu

Lab assistants: Hannah Toepp, Chief Assistant, Brynne Elick, Hannah O'Farrell & Lili Payne, Assistant-to-the-Chief

Course Description: Please see course description under Art 125 online on page at the following link: https://catalog.saintmarys.edu/undergraduate/undergraduate-courses-az/art/.

Course Goals: To introduce the student to the primary techniques and expressive potentialities of the silkscreen (serigraphy) medium as well as essential concepts of color in relation to screen printing. Students will also be introduced to the use of digital tools for the creation of screenprint images.

Implementation: Technical information will be provided through class lectures, readings and laboratory demonstrations. This information will be applied by the student to work executed to meet specific problems posed in course assignments. The aesthetic dimensions of screen printing will be discussed along with the technical and will receive special attention during periods devoted to the discussion of color, design and student works. Members of the class may be asked to travel to museums and galleries (independently or as a group) in order to view artist's works first-hand.

Evaluation: The student's final course grade will be based upon the accumulation of achievement points received during the semester. Achievement points being awarded for evaluation may include, but shall not be limited to, points for participation in class activities,

presentation of any written assignments, development of skill in the use of the silkscreen medium, attendance and scores from any tests or quizzes administered during the semester. In addition, each student will be required to submit a portfolio of their work at the end of the semester for which achievement points will also be awarded. Criteria for the presentation of this portfolio will provided in class.

Proposed point weighting

A. 5 - 8 print assignments	200 points
B. Class participation	100 points
C. Attendance grade	100 points
D. Papers/quizzes	100 points
E. Final portfolio	500 points

SAFETY: Any student enrolled in this course is required to observe the safety guidelines outlined for this course. Students who ignore the safety guidelines outlined for this course or employ improper safety practices may be dismissed from the course.

Attendance and Late Assignments: Late assignments will be **devalued 10 achievement points** for each day they are past due. Late assignments will be evaluated at midterm and during final portfolio evaluation or at the discretion of the instructor.

Attendance is mandatory and achievement points will be awarded for each class meeting you attend. Achievement points may also be awarded for attending events / exhibitions specified by your instructor. Because of the special nature of demonstrations required for this course all students will need to be present at the beginning of class. Any student not present at the beginning of the class or when roll is taken will be considered absent from it. ***Any student who misses more than 7 class meetings (except for major medical/family reasons) will automatically fail this course*** !

Attendance at all critiques is also MANDATORY. Unexcused absence from any critique will result in the **loss** of **50 achievement points**.

NOTE: If this is an evening course trips to museums and galleries would need to be made outside of class. In this event, class time will be cut to compensate for the time applied toward the field trip.

EVALUATION CRITERIA: The following are some major factors which may be considered , when appropriate, for evaluating your assignments. Keep in mind that your participation in critiques, discussions and so forth is also an integral part of your semester grade.

Special writings: Did you complete all special problems which were assigned ?

Assignment studies: Did you prepare and submit a plan/design for the assignment as outlined by the instructor (using required materials, dimensions, etc.)

Final prints: Were you able to create the required number of prints in your edition? Is the final print effective in its usage of the elements of color, overall composition, etc. How have you employed basic visual elements such as line, shape and combined these through framing, point-of-view, etc. ?

Presentation and craftswomanship: Is the print or assignment neatly executed (no extraneous ink on backs or edges, etc.). Was the print properly mounted for submission. Is the assignment properly identified?

Creativity/ problem solving: Has assignment/problem been addressed through the image? Does the image provide evidence of individual insight, personal commitment for resolution and sensitivity to awareness of process. Is the image too predictable in response to the assignment.

MY GENERAL GRADING SCALE:

You tried and made primarily **thoughtful** decisions:

A (90 – 100% of possible achievement points)

You tried and made **some** thoughtful decisions

B (80 – 90% of possible achievement points)

You tried but **didn't make** many thoughtful decisions

C (70 – 80% of possible achievement points)

You tried somewhat and made **some bad** decisions

D (60 – 70% of possible achievement points)

You didn't try and you didn't **think**

F (0 – 59% of possible achievement points)

FINAL GRADE POINT SCALE:

900-1000 POINTS = A

800-900 POINTS = B

700-800 POINTS = C

600-700 POINTS = D

600 POINTS OR LESS = F

Women's Voices requirements

This course has been certified and approved to fulfill a portion of the women's voices requirements for the Sophia Program in Liberal Learning. Courses with Women's Voices certification seek to achieve the following learning outcomes:

A Saint Mary's student identifies and understands women's contributions to human knowledge and achievement and how those have been influenced by constructions of gender.

A Saint Mary's student reflects analytically upon constructions of gender in individual or group heritage, culture, or experience, and articulates those reflections within a particular disciplinary context.

A Saint Mary's student analyzes the forms and effects of constructions of gender, and evaluates strategies for response.

RECOMMENDED (NOT required) TEXTBOOK:

Water-Based Screenprinting Today: From Hands-On Techniques to Digital Technology by Roni Henning (Watson-Guptill, Oct 1, 2006)

A Course Guide will be provided to you in electronic format.

SUPPLY LIST (The Department will provide you with printing inks and bases, photo-emulsions, screen filler, drawing fluid, index paper and some acetate for registration purposes. You will need to supply the following additional supplies).

1. LAB APRON, SMOCK OR OLD CLOTHES
2. RUBBER SPATULA
3. INK KNIFE / PUTTY KNIFE
4. 2 C-CLAMPS (3" jaws)
5. PAINT AND COLORED PENCILS FOR PREPARATORY SKETCHES
6. A COUPLE OF VERY CHEAP AND SMALL BRUSHES
7. TWO 32" X 40" WHITE MATBOARD (4 PLY) FOR MOUNTING/MATTING ASSIGNMENTS (MAY BE PURCHASED AT BOOKSTORE, HOBBY LOBBY, ETC.)
8. X-ACTO KNIFE WITH #11 BLADE (don't get a "Stanley" styler utility knife)
9. METAL STRAIGHT-EDGE (a regular metal yardstick will do)
10. MIXING BOWL(mandatory) ONE OR TWO QUART WHITE PLASTIC BOWL 11.
11. FOAM BRUSH (1" – 2")
12. SCISSORS
13. MASKING TAPE (get a 1" wide roll)
14. PAIR OF STURDY RUBBER GLOVES (nitrile)
15. 256 MB USB MEMORY STICK

16. REGISTER PINS (requires a $5.00 deposit)
17. PRINTING PAPER (you will need about $10.00 to purchase paper from the instructor or at the store)
18. ALUMINUM PRE-STRETCHED SCREEN (purchased through the Art Department. Estimated cost $28.55+1.99 tax = $30.54 total)
19. INK JET FILM will be provided per project. Additional sheets may be purchased from the Department.
20. LAB KEY (from the Cashier's window in the Business Office - $15 Deposit))

All students should select a supply locker at the beginning of this course. These lockers are located on the lowest level of Moreau Hall just down the hall from our classroom. They are provided on a "first-come" basis. You must supply your own lock for these lockers. Your personal supplies may not be stored in the classroom or your print/assignment drawer.

ART 323 L PHOTOSILKSCREEN

EXERCISE A: TRANSPARENCY STUDIES

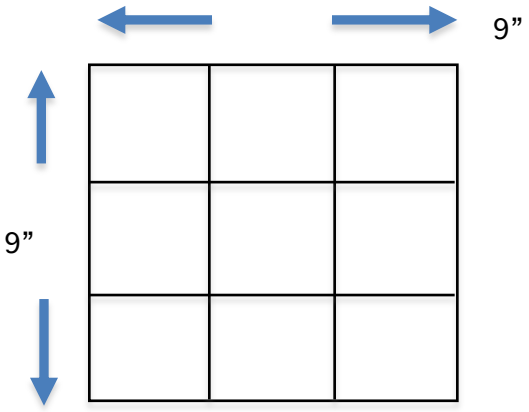
"Just because you like red doesn't mean you have to use red in all your graphic designs"

Hideaki Chijiiwa

The Problem: One of the most vital and dynamic characteristics of the screenprinting medium is that of transparency. The capability of combining colors which reveal themselves through one another is, as in water-color painting, one of the essential potentialities of the medium of silkscreen. In order to fully appreciate the expressive capabilities of the medium it is essential that students comprehend this intellectually and be capable of employing transparency intuitively in their silkscreen work.

Assignment:

A. TRANSPARENCY STUDIES - Create four color transparency study sets using the following design with the designated measurements. Think carefully about the colors you choose as well as the potential outcome of their combination. Keep your work neat and professional in appearance (technical execution will be very important this semester).



Create 4 favorite colors on matboard targets

1. Print favorites as opaque colors (without transparency)
2. Print favorites as transparent colors (with transparency)

DUE DATE: _____(at the beginning of class)

ART 125L SCREEN PRINT I

ASSIGNMENT NO. 1: LIVING IN AMERICA - ALL ABOUT THAT BASS

PHOTO-COLLAGE (with manipulations)

"Every hue throughout your work is altered by every touch that you add in other places; so that what was warm a minute ago, becomes cold when you have put a hotter color in another place, and what was in harmony, when you left it, becomes discordant as you see other colors beside it."

John Ruskin

The Problem: Our visual environment is awash with shapes, textures and patterns. We are barraged daily with images in advertising, politics, textbooks and the like. Many of these images and messages are directed at modifying our behavior For more than a century artists have used this plethora of extant material as the basis for their artistic creations. Picasso and Braque did collages, many Dadaists and surrealists such as Max Ernst did as well, and a number of photographers, pop artists and screen printers have explored this territory too. The technique of Photo-screen printing affords a range of expressive opportunities in this regard.

Assignment: You will employ one of several techniques to construct a visual collage based upon the theme of "body image". We will be examining this theme through the lens of the recent hit song *"ALL ABOUT THAT BASS"* by singer/songwriter Meghan Trainor and the controversy surrounding the lyrics to it. Your design may be either vertical or horizontal in nature and may contain words as well as images. Collages may be created through a variety of techniques as noted below. The specific techniques to be used in your collage will be set forth in class:

- cutting out materials from newspapers & magazines and gluing them to paper (your design should be no larger than 10.5" X 16.5").
- xeroxing content from various sources and then pasting it together. (your design should be no larger than 10.5" X 16.5").
- Creating an electronic/digital collage in Photoshop, et al. Create a file that is 10.5" X 16.5" in size)

You will print your photo-collage design in the following formats:

A. Monochromatic images – print your stencil in a single color creating two separate versions. Print 4 copies of your stencil on the index paper. One color must be a personal color.

B. Flipped Image – print your design again upside down on top of your original print. Consider the transparency level of your ink when doing this. Print two unique flipped versions.

C. Marbled Image – Using the marbling techniques described create a single marbled image.

D. Color blocked – You will modify your design by printing color areas beneath the original design.

(continued)

E. Write a one page statement explaining how your design addresses the contemporary theme of "BODY IMAGE" Explain what is unique about your visual statement in this regard. Are there ways that your design intersects the issues discussed in M Trainor's lyrics or the lyrics of any other contemporary female composers?

* NOTE: You may need to create a master design which identifies the placement of all contours in your design and where they are placed in relation to the frame of the image. This design will also identify various traps being used in the final stencils. Your master design will also detail the placement of each color in your design. Your instructor will provide further information on this process in class.

Objectives:

1. To introduce the student to the concept of editioned prints and basic registration.
2. To initiate exploration of a multi-color, multi-stencil print with special attention to the color-blocking option and the use of photo-silkscreen techniques for the creation of stencils.
3. To expand the student's understanding of the expressive range of the screen print medium with special attention to the contributions of women.
4. To introduce the student to the concept of color transparency in screen printing and its importance in extending the range of colors in their designs.
5. To expand the students ability to use digital imaging technologies in conjunction with screen printing processes and to reflect self-conciously on their own artistic practice including consideration of their own gendered experience.
6. To introduce screen print materials and tools as well as expand your sensitivity to and understanding of basic color theory.
7. To connect artistic practice in the studio to the current cultural milieu and develop in students an awareness of gender imaging and stereotyping. To further consider the use of the artistic image as a strategy for response to such constructions of gender.

Evaluation: Your work will primarily be evaluated according to the following criteria.

1. Demonstration of sensitivity to and skill in the use of materials and processes involved in the assignment.
2. Originality and creativity in response to the various parameters of the assignment, especially that of visual experimentation and composition.
3. General craftswomanship as demonstrated in the final works submitted for evaluation. HINT: Keep it clean!
4. Evidence of the awareness and application of principles and concepts presented through any assigned readings in the course text, lectures or other sources.

READINGS: (caution - some of the following content contains adult language)

http://en.wikipedia.org/wiki/All_About_That_Bass#Background_and_concept

http://feministing.com/2014/08/06/why-meghan-trainors-body-acceptance-anthem-all-about-that-bass-is-disappointing/

http://www.vox.com/2014/9/12/6126429/ban-meghan-trainor

http://jennytrout.com/?p=7857

DUE DATE: _____

ART 125 SCREEN PRINT I

ASSIGNMENT / EXERCISE B: LIGHT AND COLOR

"From the standpoint of psychology, colors are the properties neither of luminous objects nor of luminous radiations but are contents of consciousness, definite qualities of vision"

James Southall

The Problem: Color is often considered a subjective visual element about which judgments and decisions are made on an emotional basis. Face it, we even use colors to denote certain emotional states "she's green with envy", "he's red hot", "she's feeling a bit blue today", and so on. Because of their emotional associations colors and color relationships are seen as intuitive in nature, not easily subject to rational discussion. Because screen printing relies most distinctly on the expressive use of color we need to begin to familiarize ourselves with the nature and dimensions of color. The following exercises are intended to assist you in developing a greater familiarity with color general in general and the ink forms in which they are employed in screen printing.

Assignment:

A. PERSONAL COLOR - Our relationship with colors is often very personal and revealing. Color may symbolize a state-of-mind, an emotion, etc. For part A. of this assignment create five color mixtures which **you** feel are **personally** appealing . Mix enough of each color so that you may paint an even coat of it onto a 4" X 4" square of matboard. Name your five favorite colors in an imaginative manner and write each name on the back of the card with your own name. You will use four of these colors on an upcoming assignment so be certain to keep accurate records of the mixture ratios for each color.

B. IMAGINED COLOR - The names which we use to identify colors may be as subjective as color itself. Reading the names of nail polish, paint or make-up can be a real adventure. Using the attached sheet list ten creative names for colors which you can imagine in your mind but which do not necessarily exist at present. After listing the name try to associate the color with some specific experience or location and note this as well (refer to the samples on the sheet.) Let your imagination run wild on this one and have fun with it . . . this often produces the most exciting results !

C. COLOR ANALYSIS - Select the work of a contemporary woman artist whose images employ color as a significant expressive element (the artist does not have to be using screen printing). Prepare a three (3) page written analysis of this work in which you define the basic color relationships/harmonies employed by the artist (your discussion should employ concepts as discussed in class as well as those from your readings of Itten, Albers et al.), how these color relationships are employed to establish the primary expression of the image and a critical evaluation of the artists decisions toward this end. Does the artists gender appear to play a role in the definition of color in this image – if so, how? If not, why not?

Assigned readings: **The Elements of Color** by Johannes Itten (on reserve in library)

Recommended Readings: Begin looking at various texts on color either from your reserve list or select your own materials from the card catalog.

Objectives:

1. To begin familiarizing ourselves with the dimensions of color as outlined in the Itten text. According to Itten, what is the difference between color agent and color effect? What are the various color contrasts?
2. To experience and explore the ink materials we will employ during the semester to create color effects.
3. To experience the creative openness of color and the significance which color plays in the world around us.
4. To begin exploring issues related to color harmony
5. To permit students to broaden their knowledge of women's roles in the visual arts and to analyze and offer reflections upon the impact of these artists on the larger art culture while considering means by which to react to aspects of these impacts.

Evaluation: Your work will primarily be evaluated according to the following criteria:

1. Demonstration of sensitivity to and skill in the use of materials and processes involved.
2. Originality and creativity in response to the various parameters of the assignment, especially that of visual experimentation and composition.
3. General craftswomanship as demonstrated in the final works submitted for evaluation. **HINT: keep it clean**
4. Evidence of the awareness an application of principles and concepts presented through any assigned readings in the course text, lectures or other sources.

DUE DATE: _____

ART 125 L SCREEN PRINT I

ASSIGNMENT NO. 3 SCREAM PORTRAIT (POSTERIZATION & VARIATION)

"The work of art is a scream of freedom."

Cristo

"Success comes from good judgment,
good judgment comes from experience,
experience comes from making mistakes"

Ralph Stephens

Posterization is a process in photographic development which converts normal photographs into an image consisting of distinct, but flat, areas of different tones or colors.

Wikipedia

The Problem: The photo-silkscreen stencil can be created in such a fashion as to be immensely complex or very simple in effect. From detailed photographic impressions to simple silhouettes, the photo-silkscreen process has many varying traits. Likewise, identity may be defined or expressed in very differing ways. Various features of our appearance can be manipulated and incorporated into a screenprint design.

Assignment: Women have been associated with "the Scream" in art for more than a millennium. Screams of joy, sorrow, fear are deeply embedded in the annals of art. You will see the work of various artists who have explored the SCREAM THEME in a powerpoint during class. You will record multiple digital images of yourself for this assignment whose formal theme will be "Scream Portrait" (if needed you will be lent a digital camera that has "macro" capabilities for this purpose). You will manipulate these images on the computer using the Photoshop and Adobe Illustrator programs in order to establish a "posterization" effect You will not be able to transform your images into halftone patterns but instead will rely on the banding-like qualities of the posterization effect. You will print two separate editions of this image in three colors each. Your final image size will be 10.5" X 16.5" or 12.5" X 18.5" (Maximum) on a sheet size of &&" X &&" or so depending upon the actual size of your screen.

Objectives:
1. To extend the exploration of color through the creation of comparative designs.
2. To continue developing the students skill in registration for the screen print medium.
3. To begin examining additional photo-silkscreen stencil generation techniques, specifically the use of digital technology/computer graphics in conjunction with screen printing.
4. To expand our investigation into the unique constructions of gender in art and to discuss the potential positive and negative implications of these representations.

Evaluation: Your work will primarily be evaluated according to the same criteria outlined in assignment 2 above.

DUE DATE: _____

ART 125 L SCREEN PRINT I

ASSIGNMENT NO. 4: REFRAMING GENESIS (halftones and the screen process)

"Art is not the product of individuals, but of traditions,
old or new . Every work of art has been influenced by others
in some degree."

David Pye

The Problem: For many centuries now artists have conceived of the image as existing in a FRAME. This frame delineated the boundaries of the artist's gestures and thought while simultaneously lending structure to them. Traditionally this frame has been rectangular in character, oftentimes for reasons of practicality rather than expression. Much of modern art has been devoted to breaking out of this rectangular straight-jacket and freeing that shape which frames the artist's creation. The medium of screen print offers ample opportunity for the artist to escape the traditional rectangular encasement and to frame an image in a complex or detailed contour which complements and contributes to their expressive intent.

Likewise, in western art, images have traditionally been created by placing dark marks upon a light surface (even though the opposite option has long been available to artists). Once again, the medium of screen print offers artists the opportunity to escape this traditional mindset and express themselves with light markings placed upon dark.

Assignment: Create a design visualizing the events described in Genesis. You may employ content from any part of the Book. In this design you must observe the following guidelines:
A. Your design must include a halftone separation
B. Your design must have an irregular contour rather than a rectangular frame
C. You must employ three colors in your design
D. You may include the use of negative elements in one of your stencils
Failure to include any of these will reduce your final assignment grade by 10 points (this assignment is worth 35 points total).

Your image will be printed in an edition of five on index and possibly rag paper (Somerset Satin) in a sheet size of approximately15" X 20". Your image size will be 10.5" X 16.5" and the final print will be submitted in full edition with one of the edition matted.

Objectives:

1. To familiarize the student with halftone and other non-traditional approaches to designing images in the screen print medium .
2. To investigate and explore the opportunities for treatment of color and contrast in a non-traditional manner within the medium of photo-silkscreen.
3. To apply a variety of the expressive direct stencil techniques discovered in the previous assignments.
4. To extend the student's understanding of and skill in use of the basic photo-stencil techniques, especially as it relates to photo-emulsion coating and screen exposure

Evaluation: Your work will primarily be evaluated according to the same criteria outlined in assignment 2 above. DUE DATE: _____

ART 125 L SCREEN PRINT I

ASSIGNMENT/EXERCISE NO. 5 DIRECT STENCIL TECHNIQUE: *SCREEN SAMPLER*

> "I try to apply colors like words that shape poems, like notes that shape music."
>
> Joan Miro

The Problem: There are sundry techniques for creating a stencil image on the screen mesh material. Essentially these techniques are separated into Direct Stencil Techniques and Indirect Stencil Techniques. In Direct Stencil Techniques some material is applied or directly attached to the screen mesh in order to form open and closed areas in the screen thus establishing a pattern which defines the ultimate image. Among these techniques are cut paper stencils, resist techniques, masking techniques and the like. Indirect Stencil Techniques on the other hand derive their images from some emulsion (usually photographic) which is applied to the screen mesh. The image is usually formed by some exposure of the material to light. In this technique the image is not constructed directly on the screen itself and is therefore referred to as indirect.

Assignment:

A. SCREEN SAMPLER - Using a soft pencil draw a grid on your screen with 4" X 4" square units. The grid will be 4 squares high and 4 squares wide so that the final image will be 14" X 14". Construct a composition in this grid in which you employ 16 differing examples of the techniques described in the demonstration for this assignment. *(NOTE: be careful not to mix techniques so that you are unable to clean your screen properly. Note that the negative imaging techniques are very difficult to mix with the positive techniques.)* This stencil will be printed in a single color with the image centered on a full sheet of index paper. The final image need not be matted for submission. Print 5 to 6 copies of your final image.

B. ROTATED SAMPLER- Using your extra copies of the screen sampler ROTATE your stencil and print your image again on top of the original print. Do this in the following ways:

A. print the stencil over the original image again but this time slide the screen to the side 1" – 2" to achieve a "shifting" affect (use a transparent ink).

B. rotate your stencil 90° or 180° and using a more transparent ink print over your existing image in a new color which you feel will complement the existing color and pattern (print 2 of these).

C. rotate your stencil again and using a third "new" color ink print over your existing image from "B." above. Use a new color which you feel will complement the existing colors and patterns.

Assigned readings: **The Interaction of Color** by Josef Albers (on reserve in library). You should have finished these readings at the conclusion of this assignment.

Objectives:

1. To introduce students to the general techniques and materials of the direct stencil screen print technique. Topics such as positive/negative stencil technique, screen filler, screen drawing fluid and the like may be covered.
2. To introduce issues surrounding the creation of "multiples" images. How does a multiple differ from a unique artwork, what role have multiples played in the tradition of art, etc.
3. To explore the large variety of creative means for stencil generation using materials from the world around us.
4. To consider the possibilities for the combination of screen print media with other media (mixed media) and materials not traditionally associated with screen printing.

Evaluation: Your work will primarily be evaluated according to the following criteria:

1. Demonstration of sensitivity to and skill in the use of materials and processes involved in the assignment.
2. Originality and creativity in response to the various parameters of the assignment, especially that of visual experimentation and composition.
3. General craftwomanship as demonstrated in the final works submitted for evaluation. Hint: keep it clean!
4. Evidence of the awareness and application of principles and concepts presented through any assigned readings in the course text, lectures or other sources.

DUE DATE: _____

DIRECT STENCIL METHODS

There are numerous techniques for applying stencil materials to the fabric of a screen in order to block ink. In one category of these techniques, the stencil material is applied directly to the fabric in order to establish both the stencil and the stencil image. Among these techniques are the following:

a. **NEGATIVE METHOD** - an ink resistant material is applied to the screen with a brush or another instrument. For this class we use "SCREEN FILLER", a reddish grainy-like paint. This may be applied to the screen in several ways to achieve interesting effects:

1. spatter painting with a toothbrush or flinging with a brush
2. painted directly on the screen (you can trace a design onto your screen in pencil)
3. placed on an object and then pressed onto the screen
4. placed over damp spots on the screen (can create some nice fluid effects)
5. paint over blocking materials such as masking tape, etc.

because you have blocked the screen with the filler no ink will pass through at these points, thus your stencil is a reversal or "negative" of the image you will get.

b. **POSITIVE (RESIST) METHOD** - in this technique a soluble substance is used to paint or place a stencil image on your screen. After this material dries, screen filler is coated over it. When this screen filler dries the original drawing material is cleared out of the screen leaving an opening where the original drawing was made. Thus the image of the original drawing is printed not in reverse but in a "positive" mode. Among the possibilities here are the following:

1. drawing fluid - a special blue-like ink which is water soluble may be used to draw on the screen. When the drawing is completed and the drawing fluid has dried it is covered with screen filler. After this screen filler dries the original drawing fluid is wash out with COLD water. Note that a scoop coater may be useful in applying a uniform thin layer of screen filler to your screen.

2. rubber cement or maskoid - may be brushed or drawn onto the screen. After coating with the screen filler and drying, the rubber cement or maskoid may be lifted off with a rubber cement lift.

3. litho crayons, craypas, lipstick, vaseline or other oil based drawing materials may be applied or drawn onto the screen and then covered with screen filler. After the screen filler has dried, these materials be removed using a solvent such as mineral spirits/ paint thinner .

Note: If using several of the positive techniques listed above in combination then the order for removing the resist materials is critically important. Begin by removing any rubber cement/maskoid materials first. Secondly remove any oil based resist materials using paint thinner/mineral spirits (after this you may wish to wash your screen to remove the residue of the paint thinner). Finally, remove any water based resist materials. Leaving the water wash out till last will permit you to clean the screen and prep the screen for the water base inks you will be using.

ART 125 SILKSCREEN

ASSIGNMENT NO. 6 FOOD FOR THOUGHT

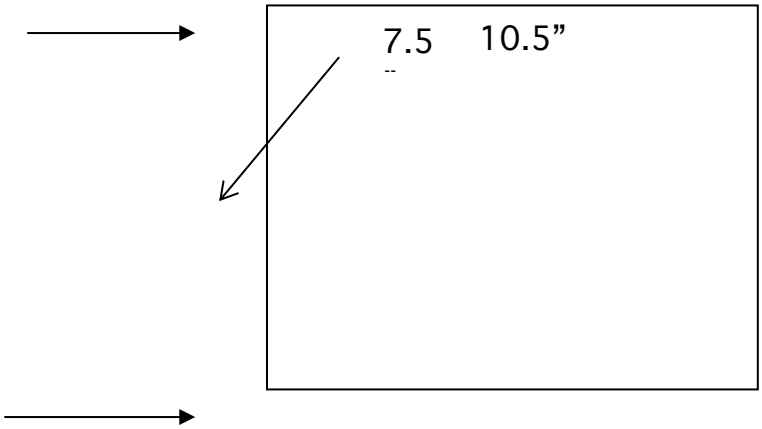
"It's wicked, when there is such an excess of non-GM food aid available, for GM to be forced on countries for reasons of GM politics... if there is an area where anger needs to be harnessed it is here."

UK Environment Minister, Michael Meacher, speaking at a briefing of British parliamentarians, November 27, 2002

The Problem: We have begun discussing the extraordinarily malleable nature of the screenprint medium. One aspect of this is the tremendous range of materials which may be used as "INK" in the creation of a print. Among the most fascinating of possible materials is that of food. Processed and unprocessed foods afford a range of visual, conceptual and expressive opportunities to the visual artist working in the screenprint medium.

Assignment:

A. Using processed and unprocessed foods as a source of alternative printing "INK" create an image about world hunger. You must employ a minimum of two stencils in your image. Each print in the booklet will printed on paper sized 7.5" X 11" as detailed in the diagram below. Your image may not be larger than 9.5" X 6.5":



B. To be proactive in response to the theme of this project please collect five cans of food from friends and family. You will submit this canned food with your assignment and it will be distributed to a local food shelter

C. COLOR SHARE – There is a growing body of evidence that men and women may experience colors very differently. How might your knowledge of these differences affect the way you would employ/deploy color in your designs? Show two of your personal color squares from above to male and female friends/family. Ask them to

describe the colors. Keep notes during your conversations and see if there are notable differences in the responses of males and females. If so, how do these differences correlate with the findings in some of the following resources:

http://news.nationalgeographic.com/news/2012/09/120907-men-women-see-differently-science-health-vision-sex/
http://www.colormatters.com/color-symbolism/gender-differences

POTENTIAL FOOD PRODUCTS

TOMATO PASTE	JELLO
BABY FOODS	CARROTS
STRAINED PEAS	GRAPE PRODUCTS
CHEEZ WIZ/VELVEETA	BARBECUE SAUCE
CHOCOLATE SYRUPS	STRAWBERRY SYRUP
SEMI SWEET CHOCOLATE SYRUP	BEETS & BEET JUICE
COFFEE (THICKEN?)	SPLIT PEA SOUP
YOGURTS W/FRUIT TO COLOR	YOGURT W/KOOL AID
PUDDINGS (KID FLAVORED W/COLORS)	GRAVY (PREPACKAGED)
CRANBERRIES (JELLIED)	BLUEBERRY PRODUCTS
YAMS	PLUMS
MUSTARD	

Objectives:

1. To continue to investigate the role of color in the feminine psyche and to enrich our understanding of its impact on the art of women and various constructions of masculinity and feminity .
2. To introduce the possibility of gender differences in color experience and to assess their importance to the visual artist.
3. To examine social themes employing specific materials as an expressive element of that examination.
4. If time is available the process of "halftone screening" will be discussed in relation to this project.
5. To reacquaint students with the ink materials and to examine alternative sources of colorant and ink in the screenprint process.

DUE DATE: _____ **(at the beginning of class)**

ART 125L SCREEN PRINT I

ASSIGNMENT / EXERCISE NO. 7: COLOR MONOPRINTS (or "how to have fun with color")

> "Instead of trying to reproduce exactly what I see
> before me, I make more arbitrary use of color to express
> myself more forcefully ...
>
> Vincent Van Gogh, 1888

The Problem: In working with any printmaking medium there are traditionally a number of cumbersome steps which must be completed before one can realize the results of their efforts (i.e. "see something"). The myriad of preparatory steps make these printmaking media relatively INDIRECT in nature. To combat this in directness many artists work with these media by creating monotypes or monoprints - single impressions that are not developed into editions or prints. Because of the unfamiliar nature of screen color and the processes involved in screen printing monotypes become an excellent exploratory introduction to the medium.

Assignment: Create one monotype image using index paper as a base for each image. You are free to develop any type of composition you choose, but among these two images the following must be included:

1.) Imagined still-life - This exercise is meant to allow you to explore the “feel” of the screen print medium. This is not a regular assignment – just an exercise so relax, get loose and have some fun. Use the tools and techniques presented in your demonstration to create an image which references or resembles a still-life. It need not be an accurate rendering.

Some hints:

1. Observe how the screen materials may be used to achieve certain effects in creating visual components such as line, texture value and so forth. As you discover these try to work the qualities into your piece. Remember, you're an explorer on this assignment - try to put to use what you discover.

2. Pay close attention to the color effects and relationships which you are achieving (just because this is exploratory and experimental does no mean that it is totally out of control). You are responsible for establishing the color effects and harmonies which you create!

3. Have fun and be wild - let your spirit move you! If you feel cautious and "tight" try to relax and let go . . . remember this quotation from the famous 20th century artist Marcel Duchamp:

"Make it fun, if not, you'll bore us"

4. Practice keeping it neat - this may sound contradictory to having fun, but they can occur simultaneously. Don't get fingerprints all over your prints. Don't spill or smear unwanted ink on them. A little care can go a long way in this regard.

Required readings: Harald Mante Color Design (on reserve in library - this is mostly a "look-book" just enjoy flipping through it)

Recommended readings: Start looking at various texts that include the work of painters, color photographers, and other artists whose work is strongly involved with the use of color. Begin looking for an artist whose use of color excites you.

Objectives:

1. To begin familiarizing students with the general techniques and materials of the screenprint medium. Topics such as screen frames, fabric meshes, proper clean-up and the like may be covered.
2. To continue to experience and explore the ink materials we will employ during the semester to create color effects. Topics such as mixing inks, transparency, ink additives and the like may be covered.
3. To experience the creative openness of color and the significance which color plays in the world around us.
4. To continue exploring issues related to color harmony in an image context.

Evaluation: Your work will primarily be evaluated according to the following criteria:

1. Demonstration of sensitivity to and skill in the use of materials and processes
   involved in the assignment.
2. Originality and creativity in response to the various parameters of the assignment, especially that of visual experimentation and composition.
3. General craftwomanship as demonstrated in the final works submitted for evaluation. Hint: keep it clean!
4. Evidence of the awareness and application of principles and concepts presented through any assigned readings in the course text, lectures or other sources.

DUE DATE: _____

ART 125 L SCREEN PRINT I

ASSIGNMENT NO. 8 "Living in America" (Suite Print)

> "Superhighways - coast to coast - easy takin' anywhere -
> On the transcontinental overload - just slide behind the wheel.
> How does it feel when there's no destination that's too far
> And somewhere on the way - you might find out who you are".
>
> From "*living in America"* lyrics by James Brown

> "This hit . That ice cold . Michelle Pfeiffer . That white gold . This one, for them hood girls . Them good girls . Straight masterpieces . Stylin', while in . Livin' it up in the city . Got Chucks on with Saint Laurent . Got kiss myself I'm so pretty"
>
> From "*Uptown Funk"* lyrics by Mark Ronson

The Problem: Modern culture immerses us in a sea of images, many of which seek to define us or cause us to think and behave in certain ways - drink this, "just do it", look like this, etc. The pop artists of the sixties - Warhol, Lichtenstein et al celebrated this in much of their artwork. Since this time however, new issues, ideas and concepts of contemporary culture have emerged. Some of these continue to celebrate current culture, others satirize it, some criticize it. America, as a nation and as a culture, has lead the world in exploring these new realms, defining them as well as being defined by them.

Assignment: The class will collectively create a suite of prints around the central theme of "Living in America". You are free to select any topic or issue related to this theme as the basis for your final print. You may employ either direct stencil and/or photo stencil techniques to construct your final image.

Your image will be printed on Somerset paper which you will purchase and will conform to the following guidelines:

1.) Your final paper size will be 11" X 14" (if your paper size is wrong you will fail this assignment). The image contained within this paper will be no larger than 9" X 12". You may orient your image in any manner which you choose (horizontally or vertically).

2.) Your final edition will consist of ___ good quality prints (it is suggested that you attempt to have a run of ___ prints in order to achieve this final result). You must employ a minimum of three colors in your design.

3.) You may employ any stencilmaking technique which we have covered in the course - photographic or hand-generated. You may also combine these techniques if desirable.

4.) You may be required to construct a portfolio for your suite which measures 13" X 16" on the exterior dimensions.

5.) At minimum you will need to purchase the following materials for the creation of your print and portfolio. (If no portfolio is required these amounts may vary).

a. Print paper - __ sheets @ $1.00/sheet (2 for inside of portfolio and __ for editioned print.
b. Cotton muslin fabric for portfolio cover ($2.00)
c. Mounting board for portfolio ($1.50)

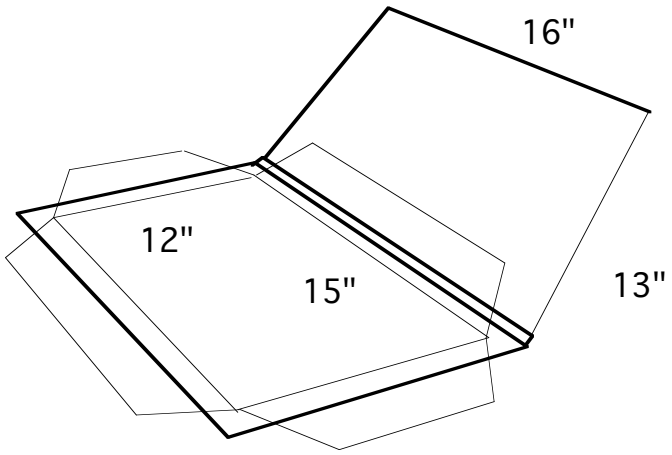
Some hints:

* Practice keeping it neat - You will be sharing your prints with your classmates. Don't get fingerprints all over your prints. Don't spill or smear unwanted ink on them. A little care can go a long way in this regard.

* Don't let your portfolio construction wait too long. It takes approximately 3 hours to complete the construction of your portfolio.

DUE DATE December 6, 2007 AT THE END OF CLASS
(YOUR FINISHED FOLIO WILL ALSO BE DUE AT THIS TIME) !

Portfolio Guidelines



Exterior portfolio size: 16" X 13"

Interior pocket size: 15" X 12"

PRE-ASSEMBLY STEPS:

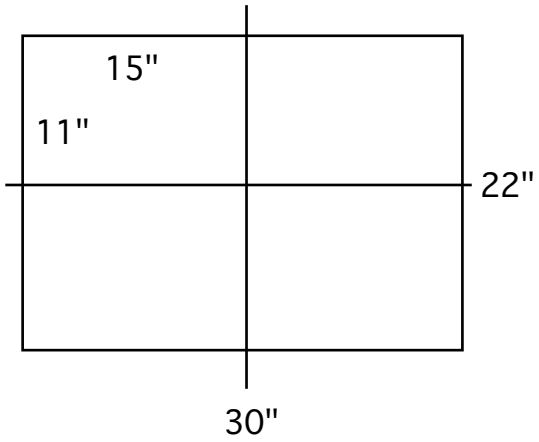
1. Iron fabric

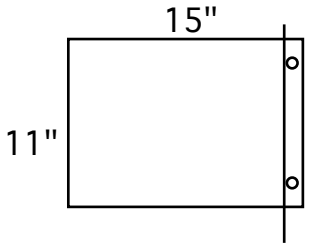
2. Cut out pocket folder using template supplied - fold into final shape
3. Attach drymount tissue to front of boards and center strip (spine)
4. Attach drymount tissue to back of pocket folder and inside cover sheet

ASSEMBLY STEPS:

1. Place (2) 13" X 16" boards and spine strip in positioning form - be certain drymount tissue faces up.
2. Center fabric over cover boards.
3. Carefully begin to iron fabric to boards.
4. Place folio (fabric side up) in drymount press @ 175-200^{o} F. Leave 20-30 seconds. Check for good adhesion when removing. If necessary heat longer to get good adhesion. Allow to cool.
5. Wrap edges of fabric and drymount to board

6. Place inside cover sheet in position and drymount to board then place pocket folder in place and drymount to board.
7. Place inside of folio in drymount press to complete assembly.





1" for register pins

quarter your full sheets of paper

***** Special note - final notice: all personal materials charges for this course must be paid by_____ or you WILL receive an incomplete.

$12.50 Folio assignment
$15.00 Fabric mesh
$ 6.00 Paper
$ 2.00 Register pins (if not turned in)

COURSE NOTES

Songs with BODY-IMAGE lyrics:

Body Love Part 1 & 2 – Mary Lambert

Beautiful – Christina Aguilera

Scars to Your Beautiful – Alessia Cara

Flawless - Beyoncé (ft. Chimamanda Ngozi Adichie)

Most Girls- Hailee Steinfeld

Roar - Katy Perry

My Skin – Lizzo

Me Too – Meghan Trainor

This Body – BAUM

Born This Way - Lady Gaga

Thunder Thighs – Miss Eaves

Shameless – Lissie

Flava – Princess Nokia

Perfect - Pink

Confident – Demi Lovato

I Am Not My Hair – India Arie

Pretty Hurts – Beyoncé

Try – Colbie Caillat

Signing prints (copy coming soon)

Printing substrates (copy coming soon)

Some information on squeegee hardness from the site printersedge.com

Durometer:

When selecting a Squeegee, the first task is to determine your desired durometer, or hardness. The durometer is the value that reflects the physical hardness of the Squeegee material. The Squeegee durometer values from 50A to 95A. This is measured by a durometer gauge, and measured based on standards established by ASTM procedures. (American Standard Testing materials) . For the sake of simplicity, we will call soft - 60A, medium - 70A, and 80A - a hard Squeegee, and 90A -extra hard. Plastics/Squeegees are measured in various scales of hardness. Shore A scale is the most widely used for measuring Squeegee material. The values are based on readings There are many different styles of durometer gauges available on the market. All of the durometer gauges on the market have a dial indicator with a small needle head that measures the hardness of the Squeegee. A durometer gauge is identical to a tension meter. Like a tension meter, a durometer gauge should be calibrated on a regular basis. (1 time per year). The small needle head penetrates into the material, and indicates the hardness of the rubber.

Typically the substrate and the screen mesh will directly determine the durometer selected. For example, if the substrate has an irregular or rough surface and requires a coarse mesh, then a squeegee with a durometer between 60 and 70A is recommended. If the substrate is smooth, however, and a high mesh count is being used, a harder durometer squeegee between 80 and 90, should be used. The most popular durometer regardless of industry specific, is the 70 durometer blade. Why? The Squeegees job is to shear the ink, and transfer the ink through the screen. So, the blade needs to be rigid enough for this, yet needs to be soft enough to adapt to the contour of the Screen. A 70 durometer blades gives the printer the best of both worlds. A softer blade, but not soft enough to the point where it will roll over and loose ink shear. See diagram below: Middle of the road makes the most sense when it comes to Squeegee selection. However, ink is also a determining factor when selecting the durometer of the Squeegee. The more aggressive inks such as UV inks cause more harm to the blade than a standard plastisol or water based ink. The harder the material, the more solvent resistant the blade. Therefore, to eliminate swelling and chemical breakdown, use a harder durometer Squeegee.

The printing equipment itself can also affect squeegee choice. Hard durometer Squeegees are normally recommended for use on high speed automatic presses due to the high degree of abrasion that occurs during a production run. Softer durometers Squeegees are typically used for low-pressure low speed manual and semi-automatic presses. The harder the material, the lower the coefficient of friction, and the less abrasion on the screen. The Squeegee durometer directly affects the way the ink is deposited. A soft Squeegee will deposit a thicker layer of ink than a harder Squeegee. Thus, a soft Squeegee would be used for putting a full coverage image onto the substrate.

Most manufacturers of Polyurethane Squeegees color-code their Squeegees based on the hardness of the material. By color-coding, it makes the Squeegee easier to define for a particular job. For Example, one manufacturer has a color scheme of 60A - red, 70A green, and 80A blue. Others use an orange, blue, and red color-code

system. Unfortunately, there aren't any standards for colors. The printer knows if they want a heavy ink deposit, they should use a 60 durometer, but it could be red or orange, or even another color. For best results, the printer should invest in a durometer gauge.