

970 WEST

AT MESA COUNTY LIBRARIES

502 Ouray Avenue | Grand Junction | Colorado | 81501

Introduction to Art Digitization

Class Prerequisites: Introduction to Digital Photography.

Class Description: This introductory class will familiarize you with the necessary equipment and fundamentals to digitize your two-dimensional works of art using the 970West Studio.

Learning Objectives:

1. Get to know the 970West Studio for your digitization projects.
2. Learn about the equipment and how to properly set up for digitization.
3. Learn how we digitize at 970West; from set-up to your final exposure.

What is Art Digitization?

Our goal in digitizing artwork is to provide the renderings of original, two-dimensional pieces of art as accurately as possible. Regardless of the ever-changing landscape of technology and media, two-dimensional art consists of original paintings, drawings, prints, and photographs. Artists who embrace digitization benefit from the conveniences of modern technology such as making their work more accessible/easier to share, submitting pieces/portfolios to online galleries or potential clients, and easier management of their expanding collections.



Handling the Artwork

- Removal of the frame and glass will sometimes be necessary to reduce glare.
 - Remember how to reassemble the frame.
 - Take pictures of the process if necessary.
 - Do not attempt to remove a custom frame that is not intended to be removed.
 - It might be glued or nailed into place.
- The library has white cotton gloves designed for handling art available upon request.
- Be sure to keep the artwork and frames in a safe area.
 - The less foot traffic the better.
- If necessary, ask the artist if there are any special handling instructions.

Setting Up the Live Room

- Set the piece in the wall mount as close to perpendicular to the floor as you can.
 - Make sure your piece is secure in the wall mount by tightening the knobs on the top and bottom brackets. Make sure the bottom bracket is level.
- Lighting - Lighting is the most important element. Be prepared to make adjustments!
 - Turn off the overhead lights in the studio.
 - Camera flash should be turned off.
 - Make sure the light stands are tightened up so they are stable.
 - Lights aiming at a (roughly) 45° angle to the piece.
 - On both sides
 - Soften the lights with diffusers



Setting Up the Tripod & Camera

- Tripod
 - Fully extend the tripod legs and secure them so that the tripod is stable. Mount the camera on the tripod and make sure your tripod is level.
 - Point the camera lens at the center of the piece. Make sure that the camera lens is exactly center and parallel to the artwork. This requires a tape measure. Get a vertical measurement from the floor to the center of the piece. Now get a vertical measurement from the floor to the center of the camera lens. Both measurements should be equal.
- Camera Settings (The Digitization Kit provided by 970West features a Canon T5i)
 - Shooting Mode = Manual
 - Image Quality = RAW (select RAW + JPEG if you plan on loading images to the internet right away).
 - Picture Style = Neutral
 - Shutter Speed will vary as you bracket your shots. Note that your Shutter Speed will become incrementally slower due to the fact that your ISO is low and your aperture is high. This makes the tripod a necessity.
 - Aperture / f-Stop should be between f/8 and f/14, to make sure the edges of your image will be in sharp focus, depending on the size of the art piece and lens. A smaller number aperture setting will soften the focus on the outer edges of your final image; this should be avoided.
 - ISO = 200. Keeping your ISO at 200 will reduce “noise” and reproduce colors more faithfully.
 - White Balance will always be Automatic. Canon cameras have a reliable, pre-set, Automatic White Balance (AWB) for the scope of this project.
- Histograms are a necessary visual aid. The Brightness Histogram (do not use RGB) should always be displayed during your digitization project to let you know when to stop bracketing shots. Stop shooting when your histogram indicates blown out (Bright) highlights. Usually between +1 and +2 on your Exposure Compensation Meter.
- Distance from the piece will be determined by the lens you are using and the size of the piece. Anywhere from 2' to 20'.
 - The lenses that come with the Art Digitization kit are the 18-55mm f/3.5-5.6 and the 75-300mm f/4-5.6. These lenses are capable of digitizing works of various sizes.
- Set the Remote Control Shutter in the Hot Shoe on the camera and turn it on. Using the Remote Shutter will ensure that there is no blur due to subtle movement or vibration when you are taking pictures at slow shutter speeds.
- Turn the camera ON.
- Fill the frame with your subject to maximize resolution and manually focus your camera.
- The orientation of the camera should match the shape of the piece.
 - Landscape or Portrait.

Once You're Set Up:

For each piece of art you are going to digitize, you will be bracketing your exposures starting at -2 stops on your Exposure Compensation Meter. Finish shooting when your histogram indicates blown out highlights. Once your ISO (200) and Aperture/f-Stop (f/8 to f/14) are set, you will only use the Shutter Speed to bracket your shots.

Procedure:

- Mounting the art:
 - The tip of your nose should be pointing at the center of the piece once it's mounted. This is a good point of reference no matter your height.
- Position your lights so they are covering the whole piece and at a 45° angle to begin with. Keep in mind that lighting is the one element of digitization that requires the most attention. You may need to adjust and readjust the position of your lights depending on glare (oil/acrylic paintings) and the size of the piece of art.
 - Watch for obvious shadows, uneven lighting, areas that are blown out, and glare/reflections.
- Adjust your camera settings, distance, and orientation.
 - Your settings should be pretty consistent from shoot to shoot if you are using the same space and shooting pieces that are the same size.
- Select your lens.
 - Your camera's final position will be determined by the lens you choose since you will want to fill the viewfinder with the piece. This will require you to move the tripod set-up as a whole back and forth until you find the right composition that fills the frame.
- Photograph the piece starting at -2 stops according to the Exposure Compensation Meter in the T5i.
 - After your first exposure, adjust your Shutter Speed to +1/3 stop. This should make the image brighter and slow down your Shutter Speed by a fraction of a second.
 - Repeat this process of taking an exposure and adjusting your Shutter Speed so that your Exposure Compensation Meter moves toward the right, brightening your image and slowing down your Shutter Speed.
 - Once your highlights become overexposed (blown out) according to your histogram, you have finished the digitization of the piece.

Wrapping Up:

When you have finished digitizing, you will need to transfer your data from the SD Card to your own external device or cloud storage. Carefully remove your piece from the wall mount and store it in a safe place. As you break down equipment, place it on the table so that staff can roll it away to the storage area.

Glossary of Terms:

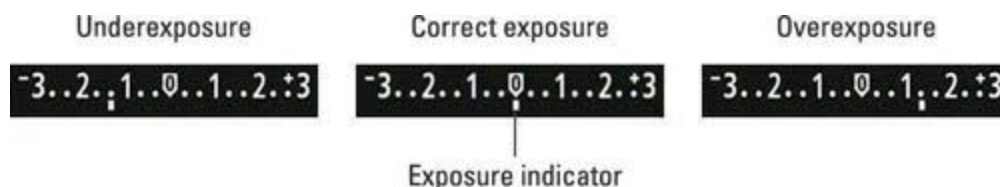
Aperture/f-Stop - The f-number (sometimes called focal ratio, f-ratio, f-stop, or relative aperture) of an optical system is the ratio of the lens's focal length to the diameter of the entrance pupil. Adjusting the aperture of your lens allows for “soft” or “hard” focused edges. Soft edges are to be avoided when digitizing.

Bracketing - In photography, bracketing is the general technique of taking several shots of the same subject using different camera settings, in this case Shutter Speed.

Digitization - In this sense, digitization means a digital reproduction of two dimensional works of art for preservation, digital archiving and enabling the benefits of technology such as file sharing.

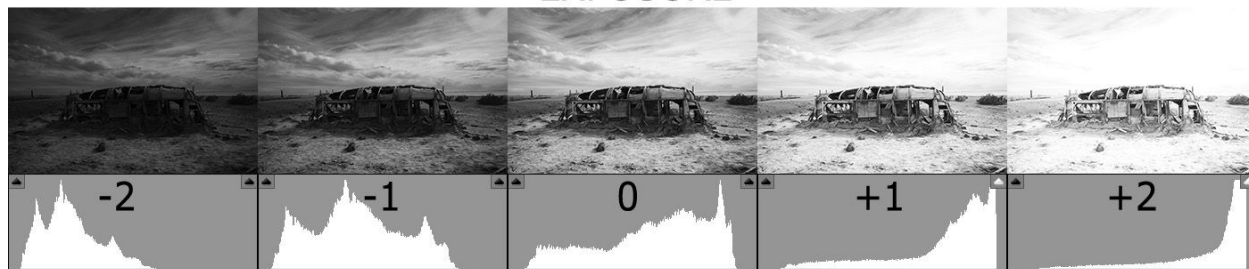
Exposure - In digital photography, exposure is the unit of measurement for the total amount of light permitted to reach the electronic sensor during the process of taking a photograph. The two main controls for exposure in your digital camera are the Shutter Speed and Aperture.

Exposure Compensation Meter - Exposure Compensation is the feature of a camera that allows you to adjust the exposure measured by its light meter. Usually, the range of adjustment goes from -3 to +3 in 1/3 steps. This means that you can adjust the exposure measured by the light meter by telling the camera to allow more light in (positive exposure compensation) or to allow less light in (negative exposure compensation).



Histogram - One of the most useful tools in digital photography, a histogram is a graphical representation of the tonal values of your image. In other words, it shows the amount of tones of a particular brightness found in your photograph ranging from black (0% brightness) to white (100% brightness). While the Canon T5i has two native histograms (Bright and RGB), we recommend using the Bright Histogram for digitization.

EXPOSURE



Notice the waveform in the Histogram shifts from left (underexposed) to right (overexposed).

Hot Shoe - The Hot Shoe is the metal bracket located on the top of the camera. It provides electrical contact with the piece of equipment (Remote Shutter) mounted to the camera via the Hot Shoe.

Image Quality (RAW v JPEG) - RAW v JPEG is a debate amongst photographers. For this class all you need to know is this: RAW files will allow you more creative freedom in post production. Editing in post production usually means you have some editing skills with specialized computer software that can actually read RAW files. JPEG files are more user-friendly, ready to load and share right out of the camera. Most modern devices and software packages support JPEG images, making the format extremely compatible. At 970West, we always shoot RAW photos because we color correct our work using specialized software.

ISO - ISO stands for International Standards Organization. It's the unit of measurement that is associated with the light sensitivity of the camera's most expensive piece of hardware, the Image Sensor. For Digitization, keep your ISO at 200 to reduce digital "noise" and reproduce colors more faithfully. Higher ISO settings are useful for shooting in low light situations.

Shooting Mode - Digital cameras have preset shooting "Modes" designed for different situations such as Portrait, Landscape, Action, and Automatic. For digitization purposes you will shoot in Manual mode giving you complete control over your Shutter Speed, Aperture and ISO sensitivity.

Shutter Speed - Shutter Speed is the amount of time that your camera's image sensor is exposed to light. For digitization purposes, Shutter Speed is crucial because this is the one parameter you will use to bracket your shots once you set up.

White Balance - Similar to shooting modes, digital cameras have a variety of White Balance settings for different lighting situations such as Tungsten, Sunlight, Shade, Custom, and Automatic. For digitization, we have realized, through trial and error, that Canon has a very reliable Automatic White Balance (AWB) setting that reproduces color with fantastic accuracy.

970West Art Digitization Kit includes:

1. Canon EOS Rebel T5i with 32G SD Card
2. 18-55mm f/3.5-5.6 and 75-300mm f/4-5.6 Canon EFS Lenses
3. Manfrotto Tripod with 3-Way Pan/Tilt Head
4. Two Genaray LED Studio Lights with Light Stands
5. One Vello Remote Control Shutter
6. One MacBook Pro for review and transfer of files
7. OPTIONAL - If you plan on color correcting your project in post production, you may request a ColorChecker Card and/or a Grayscale Card.

