

Digital Photography

Digital Image Capture:

A digital camera is used to take photographs; these photographs are then saved and stored in digital form, as digital cameras do not require any film. Much like an ordinary film camera, when the shutter is pressed, an aperture opens at the front, allowing light to stream through the lens. However, a digital camera is all electrical, and so when a photograph is taken, the camera captures the incoming light rays and transforms them into electrical signals. There are two types of light detector – a charge-coupled device (CCD), or a CMOS image sensor. There are 3 main files that digital photographs come in; TIFF, JPEG and RAW. TIFF and RAW files are both very large, as the pictures have not been compressed, and so contain a lot of detailed image data. JPEG images on the other hand, are pictures that have been compressed. Most digital cameras store images in a JPEG format, because they store a lot of detail in a small sized format, therefore meaning that more pictures can be taken on one camera card. When pictures are taken on a digital camera, they must be stored on a memory card. Some types of memory cards include:

- SD (Secure Digital) – these cards are the most common type of memory card, as they are compatible with most digital cameras.
- SDXC (Secure Digital Xtra Capacity) – these SD cards have a much higher capacity and faster processing speeds.
- Micro SD Memory Cards – these memory cards are small, and so were popular in storing information into a phone. These cards are not common in digital cameras.
- SDHC (Secure Digital High Capacity) – these memory cards are the same as SD cards, but they have a much higher capacity. However, not all of these cards fit a digital camera.



Storage:

There are many ways to store digital photos. For example, USB memory stick or a hard disk drive. A USB stick is a portable storage device, meaning it can save documents and images. USB drive data can also be stored for long periods of time, when the device is unplugged from the computer and when the computer is powered down. In addition, the use of a hard drive. A hard dick drive is a memory device which permanently stores what is saved to it. They are also capable of storing a large amount of data, 200GB -1TB being common in desktop computers. One other way of storing digital pictures, is through the cloud. The cloud is a remote database. The internet provides a connection between a computer and the database. Using the cloud, files saved to the internet are more secure, and less likely to get lost, meaning files are more protected, so cloud storage has many advantages over traditional storage methods, like a USB.



Types of Cameras:

Camera Type	Image	Function/Used For
Compact Camera		Ultra-compact size. Point and shoot cameras. Fully automatic photography. Can't change the lens, so not a wide zoom.
Go Pro		A Go Pro camera is a small, lightweight camera. Can capture still images and videos in high definition, through a wide angle lens.
Advanced Digital Camera		These cameras are a lot bigger than the compact camera. Good quality lens, meaning good zoom and wide range of focal lengths.
SLR/DSLR Camera		This camera can change lens, based on the desired outcome. These cameras are a lot bigger than the others, and weigh a lot more.
Phone Camera		Smart phones have built in digital cameras. The quality of the camera depends on the make of the phone, but there is no comparison to that of a professional camera.

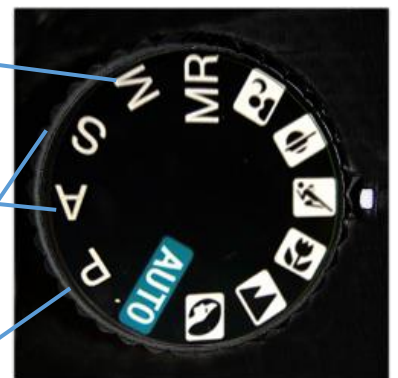
Image Manipulation:

Image manipulation means changing aspects of an image, to create the desired product. A photographer can manipulate the outcome of an image, while taking it, by using lens filters. There are different types of lens filters, each with a different purpose. For example:

- Coloured Filters – Coloured filters are typically used to correct any excess colour in a photo. Coloured filters can also change the colour of a photo by creating a coloured hue.
- Polarising Filters – These are placed in front of a camera lens, to darken the look of the sky, manage reflections and suppress glare.
- UV/Clear Filters – These lens simply protect the camera lens.

In addition to this, the modes on a digital camera are also used to change the effect of an image. The four modes are:

- Manual (M) – This allows you to manually set the aperture and the shutter speed, allowing you to fully take over the exposure controls.
- Aperture Priority (AV) or (A) – This allows you to manually set the aperture levels, while the camera chooses the right shutter speed.
- Shutter Priority (TV) or (S) – Opposite of the AV. This allows you to set the shutter speed, while it controls the aperture levels, depending on the amount of light.
- Program (P) – Camera automatically sets the shutter speed and aperture levels. This is the mode used for 'point and shoot' moments.



Continuing, an image can further be manipulated, after it has been taken, through different software, such as Adobe Photoshop or InDesign. Here, pictures can be edited in any way you want, from simply adjusting the lighting of the picture, to completely changing the entire photo.



Production Process:

Importing the pictures from your camera to your computer is easy, and is what most people do. This can be done by using the SD card in the camera. All you need is a computer, a camera, and the SD card.

- 1) Remove the SD card from the camera, and insert it into the computer, until you hear a click.
- 2) A windows computer will ask you what you want to do next. This is where you choose the 'Open folder to view files' option.
- 3) You will see a folder called 'DCIM'. This is the folder where all of the photos are stored. Double click the folder and open your photos, and then select the ones you want to copy.



Camera Components:



Other Equipment:

To take a good photograph, a lot more equipment is needed. For example:

- A tripod –A tripod will hold the camera steady, ensuring a high quality photo.
- Lighting – lighting is key in getting a good photo. Different bulbs can be used as they all have different brightness's. Lighting can also create highlight, which the camera will pick up.
- Lenses – different lenses have different qualities. Also lens filters can be used to alter the picture.
- Backdrops – using a backdrop will give the final photo a more professional look. They will also set the tone of the photograph, depending on the type of backdrop you use.

