

FUNDAMENTALS OF EXPOSURE



GOAL

Understand the fundamentals of exposure to creatively expose a scene.

SUMMARY

Understanding exposure and controlling the factors that affect the exposure of an image can be a tough task for many beginners.

One needs to understand the concept and relationships between aperture, shutter speed and ISO in capturing the right exposure and in this project, we will discuss the fundamentals of exposure for capturing correctly exposed photographs.



It is important to get the exposure right in camera for good quality outputs in images because getting the exposure right will ensure that there is enough brightness, and details in the highlight and shadow areas of the image. When you first start using a camera, it is easy to get confused with the different buttons, dials and menus in the camera, but getting a basic understanding of what these do can help you with achieving the right exposure in camera.



Photo by Shahzin Shajid

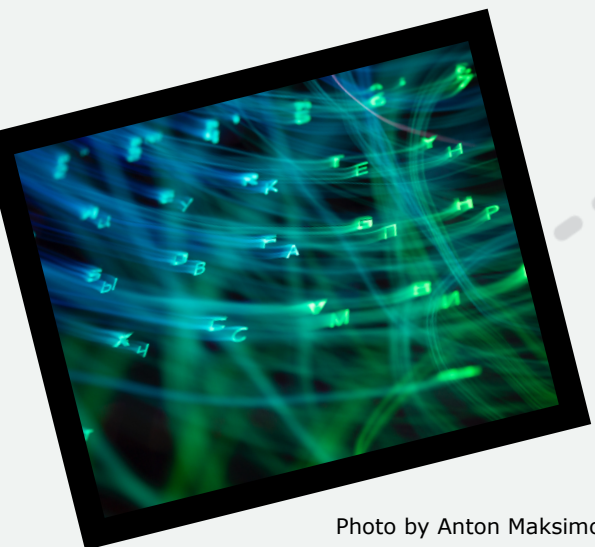


Photo by Anton Maksimov

THINGS TO REMEMBER:

1. SETTINGS



The main factors that affect exposure in an image are aperture and shutter speed and there is a third factor called ISO that affects the brightness of the image as well.

2. EXPOSURE



Exposure is the amount of brightness in an image and it depends on the amount of light that falls on the camera's sensor. Correct exposure is having enough details in the brightest and darkest parts of the image.

3. UNDEREXPOSURE



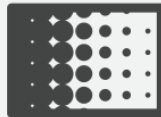
Underexposure is when the shadow areas are very dark with no distinguishable details. Unless underexposure was intentional, it is not advisable to capture underexposed shots.

4. OVEREXPOSURE



Overexposure is when the highlights or bright areas are too bright with no distinguishable details and the shadow areas will look too bright and unnatural. It can be quite difficult to recover details if the image is overly exposed.

5. DYNAMIC RANGE



There are times when there will be a huge difference between the brightest and darkest areas of the image (huge dynamic range) and it may be impossible to capture as much details in one shot. Bracket exposures in these situations.

6. CREATIVITY



Correct exposure is not a defined factor and it is based on one's creative vision. What is perceived as over or underexposure by one viewer may look correctly exposed to the photographer.



Photo by Danny Lines



Photo by Joshua Sukoff

THE PROCESS:

1. CHANGING THE APERTURE VALUES



Photo by Thom Holmes

Set the aperture to a wide value, for example f/2 adjust the shutter speed (faster than 1/ focal length if you are hand holding the camera) and set the iso to get the desired exposure. Capture the shot. Narrow down the aperture a bit, for example f/4. Now you will notice that the exposure looks underexposed. So you will need to slower the shutter speed or increase the iso or both to get the desired exposure.

3. CHANGING THE SHUTTER SPEED



Photo by Kasper Gant

Set the aperture to a fixed value, anything of your choice for the scene you are working with. Let us say for example f/7. Use a shutter speed to freeze movement. It could be about 1/500 to 1/1000 or even 1/2000 of a second.

2. COMPARING THE RESULTS



Photo by Silas Baisch

Now narrow down the aperture further to f/7 or f/9. Adjust shutter speed and iso to get the desired exposure. Compare the above shots, to see how the background looks, how much of the subject is in focus and observe other elements around in the frame. You will get an understanding of how aperture values can affect the look of an image and how the three factors work together to get the desired exposure.

4. COMPARING THE RESULTS



Photo by Andrew Sterling

Now slow down the shutter speed for example, 1/250 of a second. The exposure will now look overexposed. Slow down shutter speeds further to 1/100 up to 1/2 or even 1 second and see how you need to work with shutter speed.

5. CHANGING THE ISO VALUES



Photo by Nico Smit

Choose a scene or subject to photograph. This could be either indoors or outdoors. Set the iso to about 100 or 200 depending on the lowest value in the camera. Adjust the aperture and shutter speed to get the desired exposure. Increase the iso to 400. You will now see that the exposure or brightness has increased. Narrow down the aperture or use faster shutter speed or both to get the desired exposure.

7. INTENTIONAL DEPTH OF FIELD



Photo by Henrik Verle

How much depth of field do I need? Based on that, you can set the aperture value to wide or narrow. Only use the desired values and not narrower apertures than that so you can capture low iso shots.

6. COMPARING THE RESULTS



Photo by Conditus

Now repeat this task with iso values 640, 1000, 2000, 3200 and each time adjust aperture value, shutter speeds to get the desired exposures. Compare the resulting images and see what you observe when zoomed in at 100%. Increasing the iso will amplify the electrical signals resulting in noise in the image.

8. MOVEMENT OR FREEZE ACTION



Photo by Thom Holmes

What do I wish to capture? Movement, freeze action or capture a static scene? Am I using a tripod or hand holding the camera? Based on these factors, set the shutter speed. Only use desired shutter speeds and not faster than that, so you can shoot at lower iso values.

9. ADEQUATE ISO



Photo by Elien

You have a desired aperture value and shutter speed, what ISO values do I need to use to get the desired exposure? Problems arise when you use narrow aperture values and faster shutter speeds. Depending on the light conditions, you may need higher iso values to get the desired exposure.

10. ADEQUATE EXPOSURE



Photo by Federico Beccari

Sometimes under bright light conditions, you may have brighter exposures even with low iso values, especially if you are looking for creative exposures like a long exposure or a portrait with very wide aperture values. Check to see if a faster shutter speed or narrower aperture will help if that will work out for the scene. If not, you may need to make use of an ND filter to cut down very bright light entering the camera.

YOUR TASK:

Capture a photograph and explain the reason why you decided to use those particular aperture, shutter speed and iso settings or values for the resulting exposure.



Photo by Ganesh Partheeban



POST YOUR RESULTS [ON THE FORUM!](#)

