

VISUAL TECHNOLOGY PRODUCTION  
(MPT1483)

# PHOTOGRAPHY & LIGHT (EXPOSURE)

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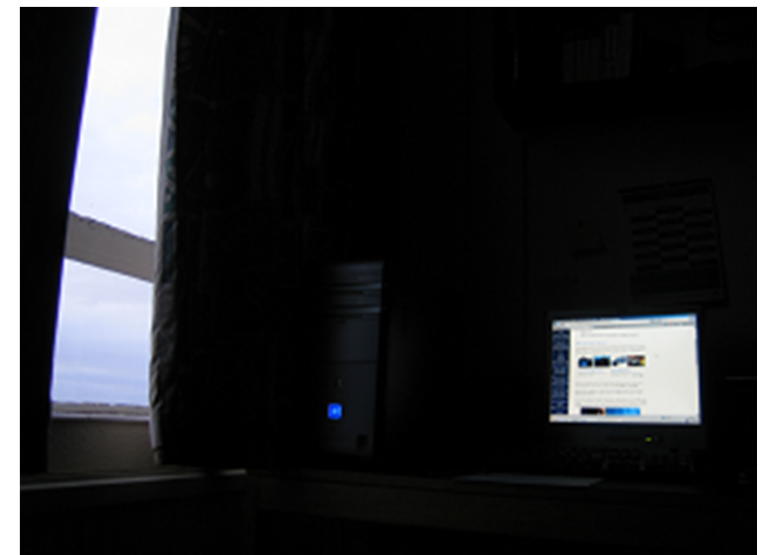
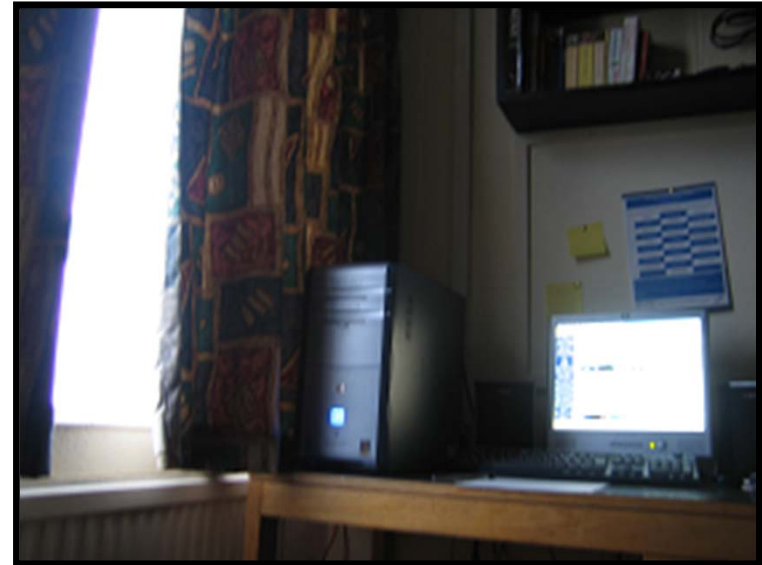


# Exposure...

- **Exposure** is the total amount of light allowed to fall on the film/image sensor.
  - In film photography, exposure refers to the .....??
  - In digital photography, exposure refers to the .....??

# Exposure...

- Too much light creates an over-bright image with white spots:.....??
- Too little light creates an under-bright image with black spots:.....??



# Exposure...

- Exposure can be controlled mainly through two lens settings.

Aperture...



... and also  
ISO...

... and  
Shutter  
Speed

# Exposure...

- Aperture
  - How much light gets in
- Shutter Speed
  - How long light is let in
- ISO
  - Sensitivity of image device

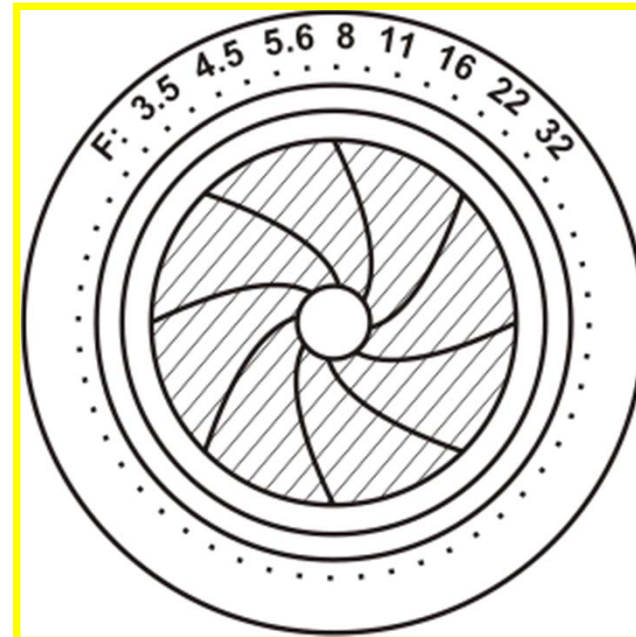
# APERTURE





# Aperture...

- Aperture is the size of the opening of a lens.
- The aperture determines how much light will enter through the lens.



# Aperture...

- Aperture is measured in f-stop numbers (e.g. f2 or f8).
- F1 : is very wide opening letting in lots of light
- F32: is a small opening letting in little light.
- $F_{\text{stop}} \rightarrow 1.4, 2.0, 2.8, 4, 5.6, 8, 11, 16, 22, 32$

f 64, 32, 22, 16, 11,  
**SMALL**

f 8, 5.6, 4,  
**MEDIUM**

f 2.8, 2, 1.4, 1.2, 1.1, 1  
**WIDE**

- The higher the f-stop, the smaller the gap (and vice versa)...



# Aperture...



f 6.3

# Aperture...



f 1.8

# SHUTTER SPEED



# Shutter Speed...

- Shutter speed refers to the amount of time that the aperture can remain open.
- The longer the shutter speed, the more light enters the camera and reaches the sensor.
- Indicated by the  $1/x$  number
- Common values include  $1/2$  second,  $1/8$  second,  $1/1000$  second etc

# Shutter Speed...

- Shutter speed 15 vs 2000 ? Which would be letting lots of light into the camera ?
- $1/15^{\text{th}}$  of a second would be a long exposure letting lots of light into the camera.
- $1/2000$  would be a short exposure, letting in very little light.

# Shutter Speed...

- Impact of shutter speed in photography technics?
- Slow shutter speeds allow blurring of the subject.
- Fast shutter speeds stop the action.



# Shutter Speed...

- As your shutter speed decreases, your chances of getting a blurry image increase because you must hold the camera steady for a longer period.

# Shutter Speed...

- Fast Shutter Speeds (600 and up) are used to stop motion and will freeze the subject.
- Slow Shutter Speeds (1/60 or slower) can be used to portray movement or speed
- Very Slow Shutter Speeds (5 sec. or slower) can be used in very low light situations to obtain correct exposure, or achieve dramatic effects

# ISO



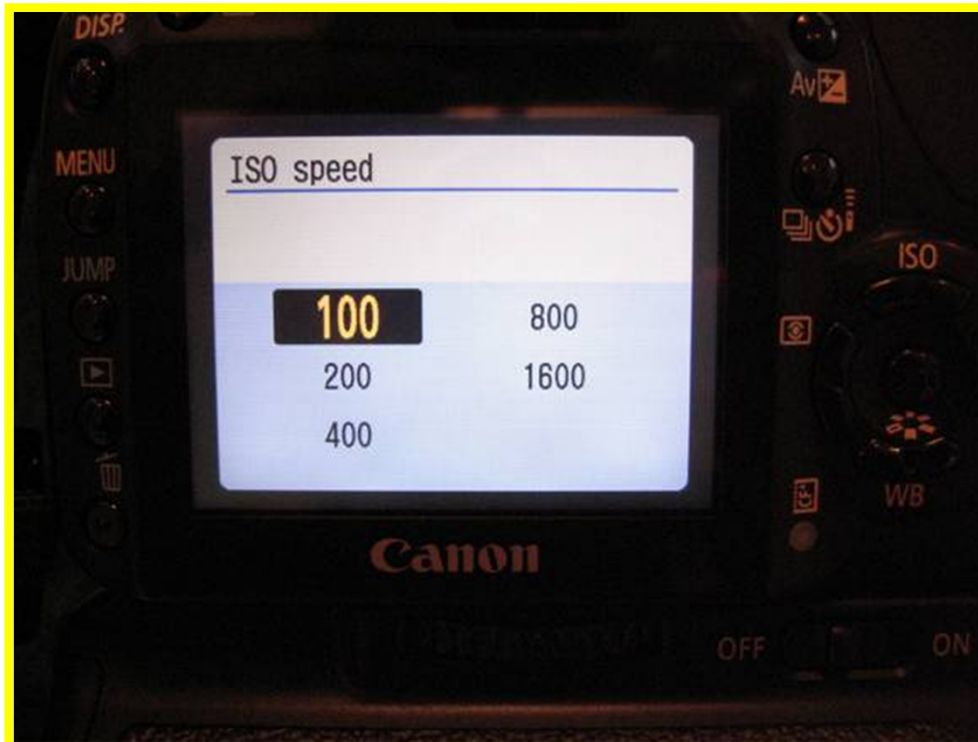
# ISO

- In film photography, ISO is the measurement of the film's sensitivity to light.
- Although the ISO series runs from 6 to 6400, the most common film speeds are ISO 25, 50, 100, 200, 400, 800, 1600, and 3200.



# ISO

- Most digital cameras have this adjustment.



# ISO

- ISO is the measurement of the camera sensor's sensitivity to light.
- A lower ISO number means that more light is required.  
How ?
- Either with a longer shutter speed, a larger aperture opening, or both—to get the same effect that a higher ISO number would get with less light.

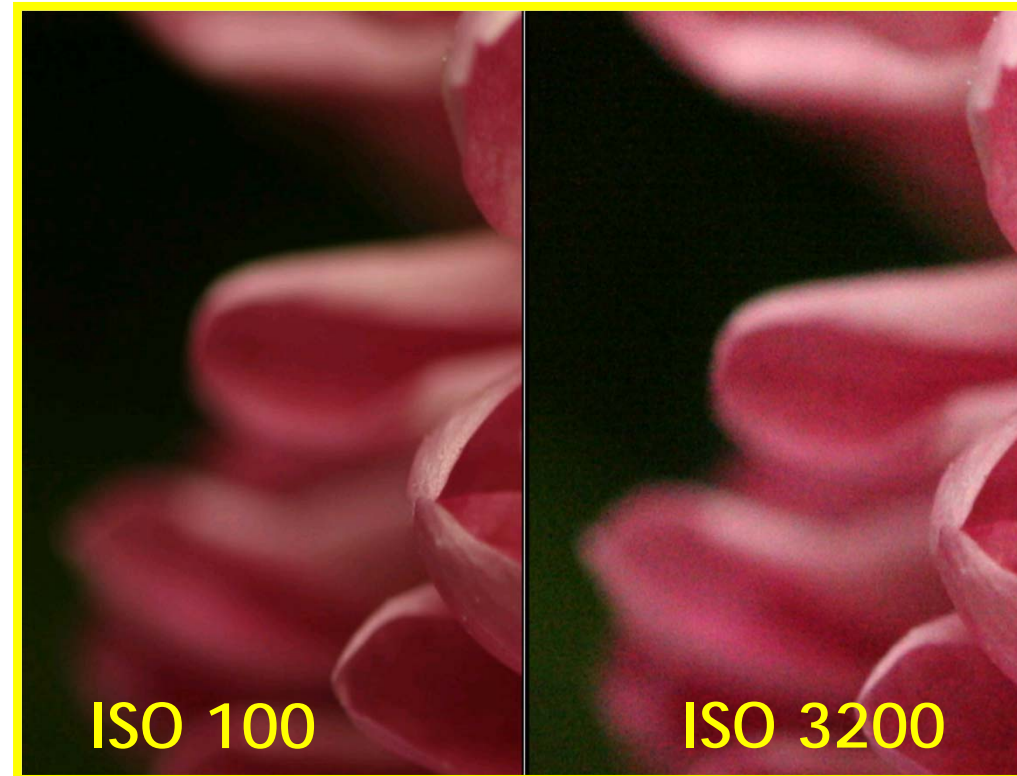


# ISO

- HIGH ISO value means the sensor will be MORE sensitive to light, meaning it will take LESS LIGHT to get the right exposure.
- Low ISO indicates low sensitivity to light but generally higher resolution with less “noise” or “grain”.
- Indoor vs Outdoor ? ISO ?
  - ISO (Light sensitivity)
    - 50 outdoors/sunlight (low grain/noise)
    - 1600 indoors/no flash (high grain/noise)

# ISO

- Set the lowest setting possible to avoid noise.
- ISO measures the sensitivity of the image sensor. The lower the number the less sensitive your camera is to light and the finer the grain.



# ISO: General Rules & Tips

- Will be discussed in class....(with examples)

# Thank You !

