

# **FILTERS**

# **GUIDE**



Ontario Police College  
Identification Training

Module P-7

Revised: 1 Aug 97  
1 Apr 98  
1 Mar 99

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## **INTRODUCTION**

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### **RATIONALE**

The forensic photographer often deals with evidence in which detail may be difficult to observe because of a lack of contrast and glare reflections. In this module you will learn to use photographic filters to enhance contrast, correct colour brightness, reduce haze and reduce glare reflections.

### **PREREQUISITES**

- P-1, 2, 3, 11, 8, 4, 16, 5, 6

### **WHAT THIS MODULE CONTAINS**

- **GUIDE** - this booklet, a resource guide
- **ACTIVITIES** - the booklet of practice activities
- **ACTIVITY CHECK-OFF SHEET** - a progress report
- **CRITERION TEST** - a test instrument

### **HOW TO WORK THROUGH THIS MODULE**

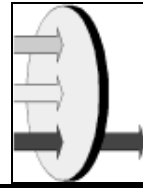
- read the objective to discover what you will attain for your efforts
- gather the resources listed in this guide
- examine the Criterion Test to learn how you will provide evidence of attaining the objective
- start reading this guide and follow written instructions

The material in the Guide and the Activities booklets, although integral parts of this training package, are by no means adequate by themselves to ensure success. Study the resource material. The resources have been carefully selected for their relevancy to the objective.

### **THINGS YOU WILL NEED**

- tripod
- 35mm camera kit with 60mm lens
- view camera
- shutter release cable
- air brush and lens cleaning tissue
- hand-held exposure meter
- filters

## FILTERS



### OBJECTIVE:

- Given written and video materials and the requisite equipment, at the end of the session the student will utilize photographic filters competently, to the extent that the student will be able to: maintain filters in good working order; identify filters by their names and types; demonstrate the function of each type; select the appropriate filter to enhance photographic evidence based on the subject and the environmental conditions; compute accurate exposures using filter factors, individually and in combination with other factors; as judged by the facilitator.

### KEY CONCEPTS:

- what a filter is
- how it works
- care and handling of glass, acrylic and gelatin filters
- filter factors what they are and how they are applied when used individually and in conjunction with other factors such as lens extension factor
- forms of filters (series-size, threaded, holder-type)
- filter designations (K2, 8)
- types of black-and-white filters: correction, contrast, haze
- types of filters for colour film: conversion, colour compensating
- polarizer used for black-and-white and colour
- protocol when introducing photographic evidence in court where filters were employed to alter contrast considerably, eliminate glare reflections or penetrate atmospheric haze

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## RESOURCES

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Video: *On Assignment: Guide to Basic 35mm Photography, Cassette #2,(Film) and Cassette #5, (Filters).*

Video: *On Assignment: Photographic Light, Cassette #2,(Color).*

Filter manufacturer's data sheets

Book: *B-3 Kodak Filters For Scientific And Technical Uses*

Book: *Kodak Encyclopedia: Practical Photography* (p.p. 469-478, 1061-1078, 1563)

Book: *Nikon F-601 Instruction Manual*

Book: *Introduction to Photography*

Principles of Filters 270

Law of Transmission and Absorption 271

Forms of Filter Construction 272

Exposure with Filters 273

Through-the-Lens Metering 273

External Metering 273

Filters for Black-and-White Photography 274

Correction Filters 276

Contrast Filters 276

Ultraviolet and Haze Filters 278

Polarizing Filters 279

Careers in Photography: Creative Photographer 280

Neutral Density (ND) Filters 282

Special Effect Filters 283

Summary 284 Filters for Color Photography 285

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Skylight and Ultraviolet Filters 288

Polarizing Filters 288

Neutral Density Filters 288

Special Effect Filters 289

Questions to Consider 289

Suggested Field and Laboratory Assignments 289

Book: *Photography, Art And Technique*

Optical Nature of Filters 185

Desirability of Filter Use 188

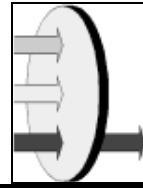
Color filters with Black-and-White Films 189

Color Balancing with Filters 196

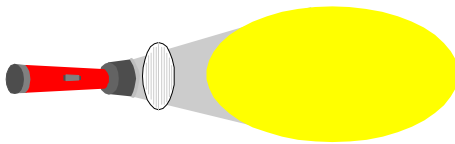
Neutral Density Filters 199

Polarizing Filters 200

## FILTERS

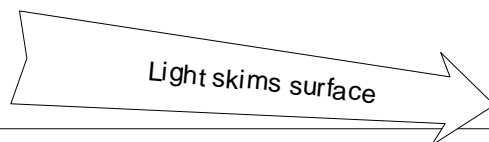


Study pages 270-284, *Introduction to Photography*, and pages 200-208, *Photography: Art and Technique* and complete Activities One and Two.



When you get to Activity Two, there will be an instruction to photograph a footwear impression in dust utilizing a polarizing filter. This information will not be found in your books. It is a specialized application of polarized light. Generally, people try to rid themselves of plane polarized light by filtering it out as it reaches the camera. In this instance we intend to illuminate the subject with polarized light to enhance contrast.

When searching for footwear impressions and other evidence on a smooth surface, it is generally advisable to reduce the intensity of ambient light. Then, with a strong light source, a flashlight will do if the room is darkened, held close to the surface, play the light across the surface at an oblique angle.



This low-angle light will emphasize irregularities in the apparent smooth surface. When a recognizable footwear impression is encountered, try placing a polarizer over the low-angled light source. Rotate the filter until the best effect is achieved while viewing the impression from directly above it where the camera will be placed.. If you see an improvement, you may substitute the flashlight for a more suitable photographic light, even an electronic flash head! Maintain the same orientation of the polarizer between the light source and the impression. Because most of the light is reflected away from the camera, do not be surprised if your calculations result in what may seem excessive exposure.

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Polarizing filters have also been found useful in reducing the glare often associated with photographing skid marks on paved surfaces. In this case, the polarizer is installed on the lens. (**Note:** it is advisable when using automatic cameras to set them for manual exposure and focus. Some of these cameras use beam splitters for focusing and metering. The polarizer may interfere with this system giving less than satisfactory results.) Adjust your camera angle and filter orientation to achieve the best results.

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## NOTES

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