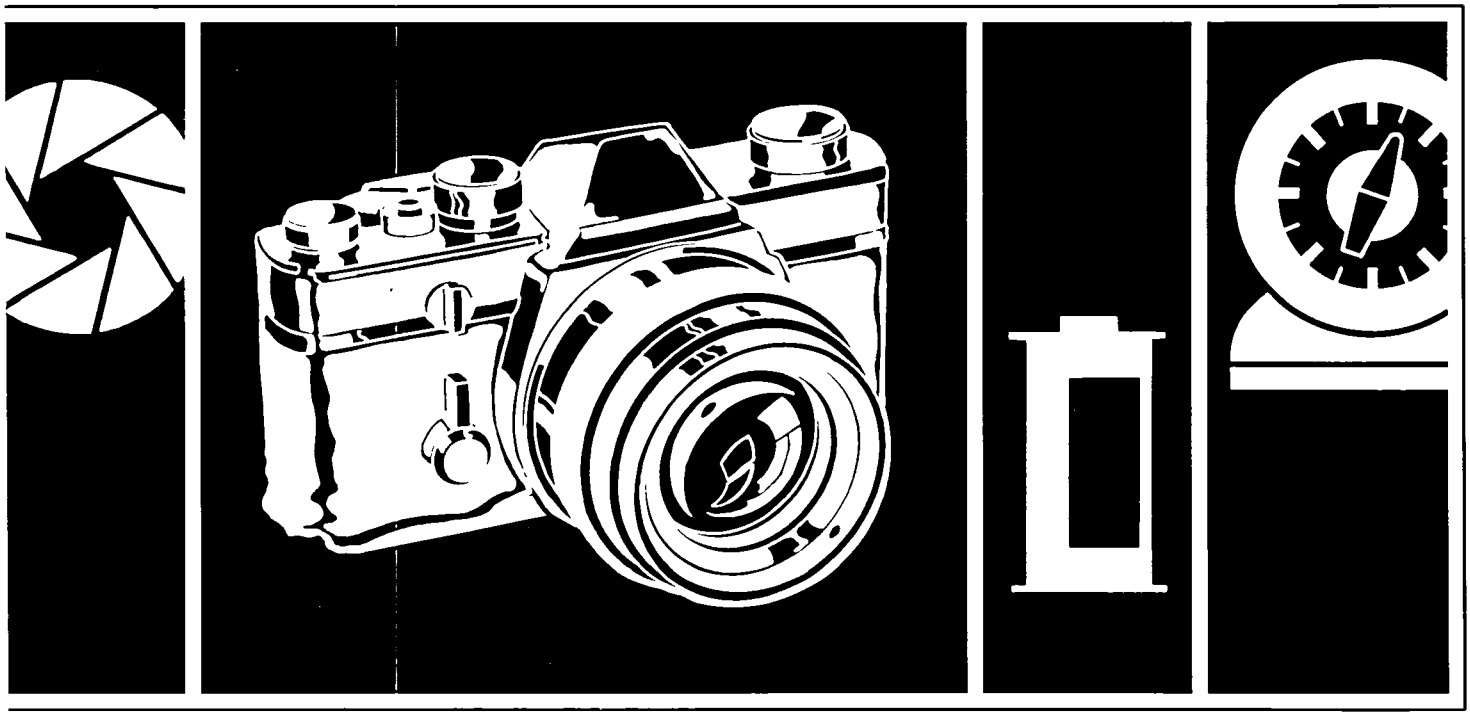
# TECHNOLOGY EDUCATION
# PHOTOGRAPHY
# BLACK & WHITE IMAGING

## HIGH SCHOOL ELECTIVE



The University of the State of New York
The State Education Department
Division of Occupational Programs
Albany, New York 12234

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## FOREWORD

"Photography -- Black and White Imaging" was prepared by David Faux, State University of New York, Oswego; William Geist of Tappan Zee High School, Orangeburg; Ken Malloy of Guilderland Middle School, Guilderland; and Jan Noyes of Oswego High School, Oswego.

It is an 18 week course whose purpose is to expand the students' understanding of the photographic medium and the role it plays in society and may play in their lives in the future.

There are no prerequisites for "Photography -- Black and White Imaging." It can be taken as an elective toward fulfilling the requirements for either a three-unit or five-unit sequence of Technology Education. This half-unit course may also be taken by any student as a general elective. If the instructor uses this syllabus as a guide to instruction, students may be granted Regents credit for this course.

TABLE OF CONTENTS

Page

FOREWORD . . . . . iii

INTRODUCTION . . . . . 1

OVERVIEW OF COURSE . . . . . 3

CONTENT OUTLINE. . . . . 5

TOPICS . . . . . 9

INPUTS. . . . . 9

RESOURCES . . . . . 11

PROCESSES . . . . . 15

OUTPUTS . . . . . 22

FEEDBACK/CONTROL. . . . . 23

EQUIPMENT LIST AND RESOURCES . . . . . 25

REFERENCES . . . . . 27

# INTRODUCTION

## INSTRUCTIONAL METHODOLOGY

"Photography -- Black and White Imaging" will require a laboratory and access to 35mm cameras, enlargers, b/w film, and print paper. Emphasis will be given to hands-on learning. Approximately 75 percent of the instructional time will be of the applied variety. Importance should be placed on communicating by means of a still-image format, and on the craftsmanship of producing quality images.

Safety and careers, while not individual topics, are extremely important and should be stressed throughout the course. There should be an on-going process throughout the course that emphasizes safety and career opportunity.

## SPECIAL POPULATIONS PROVISIONS

Many students with handicapping conditions have the intellectual capacity to master the curricular requirements for a high school diploma. Such students must attain the same academic standards as their nonhandicapped peers in order to meet these requirements. Students with handicapping conditions are provided instruction in a wide variety of settings from regular education classes to special education classes. Teachers of this course should become aware of the needs of those students with handicapping conditions who have been appropriately placed within their classes. Instructional techniques and materials must be modified as necessary so that information can be acquired by such students. Each curriculum includes suggestions for modifying instructional strategies and materials to meet the needs of students with handicapping conditions. These suggestions are intended to provide teachers with a few examples and should be viewed as a base on which teachers in both regular and special education can develop additional strategies.

## STUDENT LEADERSHIP SKILLS

Development of leadership skills is an integral part of occupational education in New York State. The New York State Education Department states that, "Each education agency should provide to every student the opportunity to participate in student leadership development activities. All occupational education students should be provided the opportunity to participate in the educational activities of the student organization(s) which most directly relate(s) to their chosen educational program."

Leadership skills should be incorporated in the New York State occupational education curricula to assist students to become better citizens with positive qualities and attitudes. Each

individual should develop skills in communications, decision making/problem solving, human relations, management, and motivational techniques.

Leadership skills may be incorporated into the curricula as competencies (Performance Objectives) to be developed by every student or included within the Suggested Instructional Strategies. Teachers providing instruction through occupational educational curricula should familiarize themselves with the competencies. Assistance may be requested from the State advisor of the occupational student organization related to the program area.

Students who elect to become active members of one of the student leadership organizations chartered by the New York State Education Department have the advantage of the practical forum to practice leadership skills in an action oriented format and have the potential for recognition of their achievements at the local, State, and national level.

# OVERVIEW OF COURSE

## Goal

The goal of this course is to expand the students' understanding of the photographic medium and the role it plays in society and may play in their lives in the future.

## Description

This course introduces the student to the processes of black and white (b/w) still-image photography. It consists of five topics: Inputs, Resources, Processes, Outputs, and Feedback. Each topic explores a portion of the system diagram with respect to the processes of black and white still-image photography as follows:

> INPUTS -- includes an awareness of the client's needs, how to select the best approach to meet these needs, and how to confirm the final solution with the client.
>
> RESOURCES -- are the items that are essential for a photographic system to function: knowledge, people materials, equipment, facilities, energy, time, and capital.
>
> PROCESSES -- explores technical and artistic aspects of photography from composing to taking to processing pictures.
>
> OUTPUTS -- looks at the product after it has been produced.
>
> FEEDBACK/CONTROL -- looks at the three types of feedback associated with production of any product: human control, program control, and automated control.

As the students progress through this course, they will be introduced to general terminology, career opportunities, safe operating practices, and selected technology/art developments that have made this field important. The students will participate in a number of hands-on activities that will reinforce the concepts of visual representation.

## Skills, Knowledge and Behaviors to be Developed

The students will be able to:

1. Identify how information is communicated by pictures.
2. Discuss the visual needs of a client.
3. Identify the basic elements of composition.
4. Describe the components of a 35mm camera system.

OVERVIEW OF COURSE, continued

5. Demonstrate a working knowledge of b/w film processing and printmaking.
6. Apply safety procedures and have a knowledge of first-aid applicable to the course.
7. Select and apply appropriate materials, accessories, and equipment to produce an optimum image.
8. Evaluate negatives and prints for their artistic and technical merit.
9. Explore career clusters within the photographic field.
10. Explore the impact that visual communication has on our life.

## CONTENT OUTLINE

I. Inputs

A. Address a need for b/w still images
1. Why
2. What
3. To whom
4. How
5. Personal preference

B. Select appropriate film medium
1. Brainstorm ideas
2. Consider various possibilities
3. Select best choice

II. Resources

A. Facilities
1. Instructional
2. Film processing
3. Print processing
4. Finishing

B. Equipment
1. Camera/accessories
2. Film processing
3. Contact system
4. Enlarger/accessories
5. Print processing
6. Finishing/mounting

C. Materials
1. Film type; format
2. Developers
3. Photographic paper
4. Chemicals
5. Mount board

III. Processes

A. Image recording
1. Camera types
2. Camera controls
3. Accessories
4. Film characteristics
5. Film structures
6. Film types

B. Composition
   1. Placement
   2. Point of View
   3. Simplicity

C. Lighting
   1. Principles
   2. Types
   3. Applications

D. Film processing
   1. Tank loading
   2. Chemical preparation/monitoring
   3. Film processing
   4. Film evaluation
   5. Film drying
   6. Chemical handling/disposal

E. Projection printing
   1. Contact proof
   2. Evaluation and cropping
   3. Test print
   4. Projection printing
   5. Corrective printing
   6. Special effects

F. Print processing
   1. Chemical preparation/monitoring
   2. Print processing
   3. Print evaluation
   4. Print drying
   5. Safety
   6. Chemical handling/disposal

G. Print finishing
   1. Toning
   2. Spotting
   3. Coloring
   4. Mounting
   5. Matting/framing

IV. Outputs

A. Impact
   1. Commercial/artistic/documentary
   2. Social/personal

CONTENT OUTLINE, continued

V. Feedback/Control

A. Human/mechanical/automatic
1. Client/photographer
2. Controls and devices
3. Electronics/programs

TOPIC: I. INPUTS

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

1. Given a need for a still image, the student will collect information related to this need, with a degree of accuracy and completeness acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Describe why still images are important in communicating ideas
   b. Describe the message(s) that the still image can communicate
   c. Identify and list the market(s) the still image will reach
   d. Identify and list the format(s) of the still image

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Show examples and lead discussion on the purpose of a commercial, a documentary and an artistic image.

2. Require each student to find a published commercial, artistic, and documentary image and lead a discussion on why the image was published.

3. Lead a discussion on what the students think still images communicate, and how these images reach the consumer market(s).

4. Demonstrate the commercial, documentary, and artistic value of b/w photography.

TOPIC: I. INPUTS

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

2. Given various photographic opportunities, occupations, and situations, the students will discover why there are different format films, with a degree of accuracy and completeness acceptable to the instructor.

   In order to do this, the student must be able to:

   a. List photographic opportunities, situations and occupations in which there would be a need to use different film formats
   b. List special film needs for each of the areas listed
   c. Select the best format for several areas presented
   d. Explain why 35mm format is a desired format for the classroom situation

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Lead a discussion dealing with the areas of photography requiring different formats of film.

2. Lead a discussion dealing with types of cameras that use different formats.

3. Use show-and-tell techniques to clarify the camera types, formats, and advantages and disadvantages, using cameras that students have brought to class or those available in the classroom.

TOPIC: II. RESOURCES

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

1. Following instruction, the student will demonstrate an understanding of why facilities are a necessary resource in 35mm b/w still-image photography, with a degree of accuracy and completeness acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Discuss the set up of a typical school, industrial and home photographic lab
   b. Identify the differences and similarities among darkrooms (safelights, chemicals, enlargers, and accessories)
   c. Demonstrate the safe use of the darkroom and film processing area

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Have the students observe the darkroom and film processing facilities and procedures. Collectively develop and list a set of safety regulations. Post these regulations in a visible place in the laboratory.

2. Lead a discussion dealing with the similarities and differences among school, industrial and home facilities.

TOPIC: II. RESOURCES

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

2. Following instruction, the student will demonstrate an understanding of why equipment is a necessary resource in 35mm b/w still-image photography, with a degree of accuracy and completeness acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Select a working 35mm camera system
   b. Explain the selection and discuss its individual components

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Require the students to mock-order what they think is an ideal 35mm system from readily available catalogs.

2. Ask students to compare various 35mm camera systems-- either their own or those available in the classroom -- to their ideal systems.

3. Lead a class discussion giving the students opportunity to explain their basic criteria for selection.

TOPIC: II. RESOURCES

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

3. Following instruction, the student will demonstrate an understanding of why materials are a necessary resource in 35mm b/w still-image photography, with a degree of accuracy and completeness acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Pass a safety test dealing with the chemicals and materials that may be present in the lab
   b. List format types for film
   c. Indicate the correct developers and fixers for 35mm film
   d. List the correct chemicals used in b/w film processing and printing
   e. Indicate how to choose the correct photo paper for the negative selected
   f. Indicate what size and color mount board is appropriate for contest photographs

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Emphasize, in lectures and demonstrations, the safe use of chemicals, materials, and tools, and the first-aid for injuries caused by any of the items that would be in the lab environment.

2. Discuss the theory of silver-based photography.

3. Show how film and papers react to typical photographic chemicals.

TOPIC: III. PROCESSES

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

1. Given a 35mm camera and film, and appropriate information and examples, the student will compose and record images, with a degree of accuracy and understanding acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Load a 35mm camera correctly with film
   b. Select and adjust the film speed setting
   c. Select and adjust the camera controls to obtain correct exposure for the images being recorded
   d. Adjust the focus of the camera
   e. Select and adjust commonly used accessories

## SUGGESTED INSRUCTIONAL STRATEGIES

1. Have students identify and use basic components of a 35mm camera.

2. Have students load and unload a 35mm camera until competent.

3. Have students adjust the controls in the presence of the instructor before gathering images.

TOPIC: III. PROCESSES

PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

2. Given examples of pictorial composition, the student will demonstrate the understanding of selected principles in picture taking and in print making, with a degree of accuracy and understanding acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Understand basic principles of composition such as placement, simplicity, and point of view.

   b. Identify the principles of composition in the photographs of other students

SUGGESTED INSTRUCTIONAL STRATEGIES

1. Show students examples of each of the basic principles of composition.

2. Explain why these principles make an image more desired and accepted by editors, clients and judges.

3. Have students identify basic principles of composition in their work, other students' work, and in the works of other photographers.

TOPIC: III. PROCESSES

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

3. Following instruction and demonstration, the student will apply lighting techniques, to a degree of accuracy and understanding acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Discuss principles of lighting as they apply to the resources involved in photographic systems
   b. Discuss and explain the difference between natural and artificial lighting by wavelength and color temperature
   c. Produce successful pictures using specified lighting techniques

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Show examples of the principles of lighting.

2. Demonstrate the combined use of natural and artificial lighting, and assign exercises requiring the use of natural and artificial lighting.

3. Demonstrate and provide the information and equipment necessary to produce pictures by use of specified lighting techniques.

TOPIC: III. PROCESSES

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

4. Given an exposed roll of film and a demonstration, the student will process the film, with a degree of accuracy and understanding acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Load film into a daylight tank
   b. Identify and prepare the proper working solutions
   c. Complete the film processing, controlling time, temperature and agitation
   d. Determine what is an acceptable negative
   e. Prepare a dried roll of film for storage and darkroom use
   f. Identify those film processing chemicals that are harmful to humans and/or the environment

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Require students to practice rolling film onto a tank reel.

2. Provide students with appropriate information on chemicals, quantities, and times for processing the film.

3. Demonstrate and discuss the importance of time, temperature, and agitation during the critical development steps.

4. Provide examples and list the characteristics of an acceptable negative.

5. Demonstrate the proper technique of negative evaluation, and cutting and storage of film.

6. Discuss the difference between acids and bases, and the correct procedure for their use and disposal.

TOPIC: III. PROCESSES

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

5. Following instruction, students will select negatives and produce projection prints, with a degree of accuracy and understanding acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Produce a contact proof
   b. Identify and crop images for potential visual impact
   c. Focus, crop and enlarge a print
   d. Make a test print to determine proper exposure
   e. Dodge, burn-in, and/or control the contrast of a print
   f. Identify possible special effects that are available to the printmaker

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Demonstrate a laboratory procedure for making contact proofs.

2. Review the elements of photographic composition.

3. Demonstrate the set-up for projection printing.

4. Demonstrate and discuss the laboratory procedures for making a properly exposed print.

5. Demonstrate the procedures for dodging and burning-in, and discuss the concept of contrast control by filtration.

6. Show examples of the use of special effects.

TOPIC: III. PROCESSES

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

6. Given an exposed image on photographic paper, the student will process the paper, with a degree of accuracy and understanding acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Identify and prepare the proper working solutions
   b. Control proper developing conditions
   c. Complete print processing, controlling time, temperature and agitation
   d. Determine what is an acceptable print
   e. Prepare a dried print for storage and mounting
   f. Identify those film processing chemicals that are harmful to humans and/or the environment

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Provide students with appropriate information on chemicals, quantities, and times for processing the paper.

2. Emphasize the importance of developing by time and temperature.

3. Demonstrate and discuss the importance of time, temperature, and agitation during critical development steps.

4. Provide examples and list the characteristics of an acceptable print.

5. Discuss the difference between acids and bases, and the correct procedures for their use and disposal.

TOPIC: III. PROCESSES

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

7. Given a processed print, the student will alter it by toning or coloring, and select an appropriate mounting format, with a degree of accuracy and understanding acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Alter a print by color toning
   b. Recognize the need for print spotting
   c. Add color to a specific area of the print
   d. Demonstrate correct print mounting procedures
   e. Recognize the purpose of matting and framing photographs

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Discuss and demonstrate commercial toners and the toning process.

2. Discuss and demonstrate the spotting of a print as a corrective technique for improving print quality.

3. Display and demonstrate a variety of hand colored photographs.

4. Demonstrate the procedure of mounting photographs for exhibition purposes.

5. Discuss and demonstrate how a photograph's impact is changed through matting and framing.

TOPIC: IV. OUTPUTS

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

1. Given a series of still photographic images, the student will explain the impacts of each image, to the satisfaction of the instructor.

   In order to do this, the student must be able to:

   a. Discuss how still images have had impact on the commercial, artistic and documentary fields
   b. Show how a still image has had impact on social and personal areas of society

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Lead a discussion about how photography is an essential element in the commercial, artistic and documentary areas of the visual media.

2. Lead a discussion of how photography affects social and personal areas of society.

TOPIC: V. FEEDBACK/CONTROL

## PERFORMANCE OBJECTIVE/SUPPORTING COMPETENCIES

1. Given a variety of photographic situations and equipment, the student will analyze and discover their human, mechanical, and automatic components to a degree of accuracy and understanding acceptable to the instructor.

   In order to do this, the student must be able to:

   a. Recognize the role of the photographer/client relationship in the feedback and control process
   b. Identify a variety of controls and devices that use mechanical methods to achieve feedback
   c. Utilize and adjust a select sample of electronic and program feedback devices

## SUGGESTED INSTRUCTIONAL STRATEGIES

1. Lead a discussion on the relationship between the client and the photographer as a way of achieving human feedback.

2. Demonstrate and discuss a variety of mechanical devices that are essential for feedback in photography.

3. Demonstrate a variety of electronic and program devices used in photography.

# EQUIPMENT LIST AND RESOURCES

## Camera/Accessories

35mm cameras
Film
Bulk loader
Lens cleaning paper
Tripod
Flash unit
Selected Filters
Cable release
Studio lights

## Film Processing

Process tanks and reels
Changing bag
Film developer, fixer
Film wash
Film drying area
Negative sleeves
Chemical storage bottles
Timers
Thermometer
16 and 32 ounce beakers
Funnels
Shop aprons
Safety glasses

## Contact and Enlarging Area

Enlargers
Photographic paper
Paper developer
Stop bath
Contact easels
Enlarging easels
Focusing magnifier
Polycontrast filters (grades 1-4)
11" x 14" trays
Tongs
Safelights
Print washer
Dry rack

**Print Finishing**

Tack iron
Mount board
Mount tissue
Dry mount press
Print toners
Coloring oils
Spot toner

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