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ABSTRACT

Intended to reduce unnecessary paper work on the part of the shop instructor in a graphic communications course, this job assignment book offers a simplified method of keeping student records up-to-date. It first provides a record/form with areas for student name, tool check number, locker number, textbook number, and grades; broad course objectives; course objectives for grades 10, 11, and 12; and instructions for recording student progress on the shop progress records. The student progress records follow. These identify the operations/skills that the student in a graphic communications course is expected to learn and provide a space in which the instructor records student progress as (1) instructed, (2) practiced, or (3) proficient. The theory outline appears next. Twenty-six topics are covered, including orientation, history, major printing processes, introduction to lithography, careers, layout, copy preparation, reproduction photography, the process camera, line photography, contacting, halftime photography, special effects, process color, quality control devices, proofing methods, stripping, platemaking, offset duplicator, offset press, printing inks, printing papers, finishing and binding, job planning, and employer/employee relations. Space is provided for each topic to indicate lesson plan number and dates scheduled, presented, and tested. (YLB)

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GRAPHIC COMMUNICATIONS

DIVISION OF VOCATIONAL-TECHNICAL SCHOOLS

Prepared for

Connecticut State Department of Education
Division of Vocational and Adult Education
Bureau of Vocational Program Planning and Development
Hartford, Connecticut 06115

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1983

PREFACE

The objective of this Assignment Book is to reduce unnecessary paper work on the part of the shop instructor.

This Assignment Book will assist the instructor to keep student records up to date.

This outline, general in nature, was planned with flexibility so that each instructor may adapt his course of study to meet the particular needs of each student and the specific needs of the printing Industry in each geographic area.

In shops doing production work it is necessary to devise flexible daily lesson plans well in advance. This Assignment Book will assist the instructor in planning and organizing considerably in advance, thereby increasing his instructional efficiency.

The instructional staff should make an effort to keep abreast of technological developments in the industry. Continous communication with craft committees is recommended.

Please note that the book is not designed simply for planning. It has areas for locker assignments and text assignments. Students' names are entered only once for the entire course.

Grade Year ..... Instructor

STUDENT	TOOL CHECK NO.	LOCKER NO.	TEXT BOOK NO.	SHOP GRADES MARKING PERIOD						THEORY GRADES MARKING PERIOD					
				1	2	3	4		F	1	2	3	4		F

THEORY OUTLINE

I. ORIENTATION
II. HISTORY OF GRAPHIC COMMUNICATIONS
III. MAJOR PRINTING PROCESSES
IV. INTRODUTION TO LITHOGRAPHY
V. CAREERS IN GRAPHIC COMMUNICATIONS
VI. THE LAYOUT
VII. COPY PREPARATION
VIII. REPRODUCTION PHOTOGRAPHY
IX. THE PROCESS CAMERA
X. LINE PHOTOGRAPHY
XI. CONTACTING
XII. HALFTONE PHOTOGRAPHY
XIII. SPECIAL EFFECTS
XIV. PROCESS COLOR
XV. QUALITY CONTROL DIVICES
XVI. PROOFING METHODS
XVII. STRIPPING
XVIII. PLATEMAKING
XIX. THE OFFSET DUPLICATOR
XX. THE OFFSET PRESS
XXI. PRINTING INKS
XXII. PRINTING PAPERS
XXIII. FINISHING AND BINDING
XXIV. JOB PLANNING
XXV. EMPLOYEE/EMPLOYER RELATIONS
XXVI. LEGAL CONSIDERATIONS

THEORY OUTLINE

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

I. ORIENTATION

A. Definition of Graphic Communications
B. Brief Outline of Industry
    1. Scope
    2. Cultural Contribution
    3. Magnitude
C. Shop Administration
    1. Rules and Regulations
    2. Assignments
    3. Materials Required
D. Shop Safety (General)
    1. Fire Drills
    2. First Aid
    3. Fire Extinguishers
    4. Clothing and Personal Appearance
    5. Conduct in Shop
    6. Consideration of other's safety
E. Safety Around Equipment
    1. Mechanical
    2. Electrical
    3. Hazardous Materials and/or Conditions
        a. Flammables
        b. Electrical
        c. Lubricants
        d. Chemicals
        e. Other Hazards
    4. Procedure in case of Accidents
F. Grading Procedure
    1. Theory
    2. Shop
G. Shop Organization
    1. Departments
    2. Work Flow

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATE TESTED

II. HISTORY OF GRAPHIC COMMUNICATIONS

A. Early Means of Communications
B. Development of Printing until Movable Type

III. MAJOR PRINTING PROCESSES

A. Relief Printing
B. Intaglio Printing
C. Screen Process
D. Planographic Process
E. Other Printing Processes

IV. INTRODUTION TO LITHOGRAPHY

A. Invention of Lithography
B. First Lithographic Presses
    1. Stone Lithography Today
C. Discovery of the Offset Process
D. Introduction of Photography to Printing

V. CAREERS IN GRAPHIC COMMUNICATIONS

A. Divisions of Work
    1. Management
    2. Sales
    3. Layout, Design, and Art
    4. Composition
    5. Copy Preparation
    6. Camera Work
    7. Stripping
    8. Platemaking
    9. Presswork
    10. Bindery
    11. Electronic Technician
    12. Maintenance
    13. Estimating
    14. Shipping
    15. Service
    16. Research
    17. Quality Control
    18. Others

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

VI. THE LAYOUT

A. Types of Layouts
   1. Thumbnail
   2. Rough
   3. Comprehensive

B. Reading Specifications
   1. Reference Marks
   2. Sizes
   3. Printer's Point System

C. Type Styles
   1. Introduction to Type Styles
   2. Development
   3. Characteristics
   4. Classifications
   5. Selecting Proper Typefaces

VII. COPY PREPARATION

A. Careers
   1. Paste-up artist/mechanical artist
   2. Mark-up person
   3. Keyboard operator
   4. Proofreader
   5. Phototypesetter operator

B. Skills requirements
   1. Measurements
   2. Accuracy
   3. Neatness
   4. Drafting practices
   5. Follow directions
   6. Read and use dictionary

C. Working conditions
   1. Quiet
   2. Well lighted
   3. Clean
   4. Limited contact with chemicals

D. Composition Methods
   1. Hot type -- metal
      a. Hand-set foundry type
      b. Machine Composition

VII. COPY PREPARATION (Continued)

2. Cold type
   - a. Strike-on
     1. Standard typewriter
     2. Proportional spacing typewriter
   - b. Dry-transfer lettering
   - c. Photographic composition
     1. Display phototypesetter
     2. Text phototypesetter
     3. Computer-assisted phototypesetter
3. Cold Type Composition
   - a. Hand lettering (drawn by hand)
   - b. Special lettering
   - c. Maps
   - d. Covers
   - e. Design
   - f. Graphs
   - g. Lettering pens
   - h. Stencils
   - i. Templates
4. Clip art
   - a. Commercially prepared (cut out/paste up)
   - b. Line and halftone illustrations
   - c. Slogans, symbols, borders, decorations, word, etc.
   - d. Texture patterns, Ben Day, etc.
5. Adhesive type (pre-printed)
   - a. Letters on clear acetate (adhesive back)
   - b. Guide lines
   - c. Cut out/attach
6. Dry transfer type (pre-printed)
   - a. Plastic transparent sheets
   - b. Transferable ink
   - c. Letters, borders, illustrations, etc.
   - d. Guide lines
7. Tapes for paste-ups
   - a. Border (decorative)
   - b. Rule
   - c. Register marks
   - d. Symbols
   - e. Logos

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

VII. COPY PREPARATION (Continued)

8. Strike-On (impact composition)
   a. Typewriters (standard)
   b. Justifying typesetters
      1. IBM composer
      2. Varityper
9. Photographic composition
   a. Film or paper
   b. Positives or negatives
   c. Hand or machine
   d. Contact printing
   e. Projection printing
   f. Photolettering
   g. Phototypesetting
   h. Kinds of equipment
   i. Processing film or paper (stabilization/coated)
10. Typesetting input methods
   a. Direct input
   b. Tape perforating keyboarding
   c. Magnetic tape keyboarding
   d. Optical Character Recognition (OCR)
   e. Direct computerized input
   f. Video Display Terminal (VDT)
   g. Remote transmission system
11. Composition formats
   a. Flush left (ragged right)
   b. Flush right (ragged left)
   c. Centered
   d. Justified
   e. Run around
   f. Indentations
   g. Tabular matter
12. Proofing
   a. Reading methods
   b. Proofreader's marks
   c. Galley proofs
   d. Page proofs

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

E. Paste-up

1. Care and handling of layout elements and instruments
2. Reading layout specifications
   a. Notations
   b. Keys
3. Types of copy
   a. Composition
   b. Line art work
   c. Captions -- cut lines
   d. Headlines
   e. Windows
   f. Photomechanical
4. Necessary materials
   a. Wax or rubber cement, glue stick
   b. t-square
   c. Triangle
   d. Line gauge
   e. Centering rule
   f. Knife or razor blades
   g. Tape
   h. Mechanical masking film (red or amber)
   i. Transparent overlay sheets
   j. Blue pencil
   k. Pens
   l. Ink
   m. Compass
5. Procedure for paste-up
   a. Layout blue lines
   b. Apply adhesive
   c. Align and secure copy
   d. Check for straightness and cleanliness of copy
   e. Making corrections
      1. Pasting over
      2. Cutting in
6. Kinds of paste-ups
   a. Single color
   b. Multicolor
   c. Signatures
   d. Line/halftone combinations
   e. Reverses

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

E. Paste-up (Continued)

f. Outline halftones

7. Paste-up terms

a. Center marks

b. Trim marks

c. Page size

d. Register marks

e. Overlays

f. Gripper and guide symbols

g. Gutter margin

h. Foot

i. Imposition

F. Copy Mark-up and Proofreading

1. Mark-up specifications

a. Type size and leading

b. Type face

c. Line length

d. Format

e. Caps, lower case (c/lc)

f. Family branch

g. Correction symbols

2. Proofing

VIII. ORIENTATION TO REPRODUCTION PHOTOGRAPHY

A. Types of reproductions

1. Line drawings
2. Halftones
3. Duotones
4. Special effects
5. Process color
6. Posterizations

B. The process darkroom

1. Wet and dry areas
2. The process camera
3. The contact area
4. The developing sink, temperature control
5. Film storage area
6. Chemical storage area
7. Film and/or diffusion transfer area
8. Arrangement of tray processing chemicals

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

VIII. ORIENTATION TO REPRODUCTION PHOTOGRAPHY (Continued)

9. Safelights, white lights and switches
10. Viewing table with safelight and white light
11. Film/paper cutter
12. Timers
13. Film drying cabinet or machine
14. Light trap

C. Light sensitive materials
1. Film
a. Orthochromatic
b. Panchromatic
c. Blue sensitive
d. High contrast
e. Continuous tone
f. Negative working
g. Reversal -- duplicating
2. Film characteristics
a. Bases
b. Emulsions
c. Gelatins
d. Antihalation
e. Curl
3. Paper
a. High contrast
b. Continuous Tone
c. Orthochromatic
d. Blue sensitive
e. Panchromatic

D. The contacting area
1. Types of contact frames
a. Mechanical -- top loading with self-contained light
b. Glass over compressible surface (sponge rubber)
c. Vacuum frame
2. Parts of contact frames and controls
a. Glass
b. Blanket
c. Draw-down sheet
d. Looking devices
e. Vacuum switch and vacuum gauge

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

VIII. ORIENTATION TO REPRODUCTION PHOTOGRAPHY (Continued)

- f. Point light source
- g. Timer
- 3. Care and use

E. Darkroom chemistry

- 1. Safety in preparing & handling chemicals
- 2. Developers
  - a. Types
    - 1. Crystals
    - 2. Concentrated liquid
    - 3. Ready-to-use
  - b. Mixing formulas
  - c. Film's reaction to developer
- 3. Fixers
  - a. Types
    - 1. Crystals
    - 2. Concentrated liquid
    - 3. Read-to-use
  - b. Mixing formulas
  - c. Film's reaction to fixers

IX. THE PROCESS CAMERA

- 1. Types of cameras
  - a. Horizontal
  - b. Vertical
- 2. Parts and adjustments
  - a. Lensboard
  - b. Copyboard
  - c. Lens and lens cap
  - d. Lights
    - 1. Arc
    - 2. Tungsten
    - 3. Metal halide
    - 4. Pulsed xenon
  - e. aperture ring and percentage scale
  - f. Lensboard and copyboard percentage tapes (scales)
  - g. Camera bed
  - h. Bellows

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

VIII. ORIENTATION TO REPRODUCTION PHOTOGRAPHY (Continued)

i. Ground glass
j. Film holder -- vacuum or pressure
k. Control panel
    1. On/off
    2. Focus
    3. Timer
    4. Vacuum switch
    5. Percentage tapes controls
    6. Start and stop switch
1. Halftone flashing lamp and timer

X. LINE PHOTOGRAPHY

A. Types of copy
B. Preparing the darkroom
C. Adjusting the camera
D. Handling and positioning film
E. Determining the expose
F. Using the sensitivity guide or gray scale
G. Processing the film
    1. Time and temperture
    2. Inspection
    3. Sensitivity guide
    4. Machine processing
H. Treating problem copy
    1. Weak lines
    2. Fine lines
    3. Off-white backgrounds
    4. Dropping or holding colors
    5. Grayed blacks or poor contrast
    6. Yellowish paper or original
I. Line exposure calibration
    1. F/stop
    2. Exposure time
J. Diffusion transfer materials
    1. Exposure
    2. Processing
    3. Applications

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XI. CONTACT

A. Determining exposures
B. Positioning film and cleanliness
C. Processing the film
    1. Time and temperture
    2. Inspection
    3. Sensitivity guide or gray scale
    4. Machine processing
D. Applications
    1. Photograms
    2. Same-size negatives from original copy
    3. Reverses
    4. Tints
    5. Positives from negatives
    6. Duplicate negatives
    7. Posterizations
    8. Line negatives
    9. Spreading and choking
    10. Halftones

XII. HALFTONE PHOTOGRAPHY

A. Copy and gray scale
    1. Continous tone originals
        a. Black and white photographs
        b. Water color paintings
        c. Charcoal sketches
        d. Pencil Sketches
    2. 12 or 21 step gray scales
    3. Previously printed halftones
B. Density measurement and specifications
    1. Reflection density guide
    2. Densitometer
        a. Reflection
        b. Transmission
    3. Making and interpreting readings

XI. CONTACT (Continued)

C. Halftone screens
    1. Theory related to characteristics
    2. Care and handling
    3. Types
        a. Glass
        b. Contact
            1. Magenta
                a. Negative
                b. Positive
            2. Gray
        c. PMT
    4 Dot shape
        a. Conventional dot (square)
        b. Elliptical dot
        c. Double dot
    5. Screen Ruling
D. Exposure computer calibration
E. Exposure calculations
    1. Main (detail)
    2. Flash
    3. Highlight bump
F. Processing
    1. Tray method
        a. Time and temperature
        b. Inspection
    2. Automatic processor
    3. Stabilization method
    4. Diffusion transfer
G. Tone reprodution
    1. Varying density range
    2. Identifying 50% dot
    3. Affects caused by differnet aperture settings

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XIII. SPECIAL EFFECTS

A. Duotones
  1. Selecting the photograph
    a. Good contrast
    b. Good detail
  2. Selecting colors
    a. Aesthetic factors
    b. Psychological factors
    c. Customer requirements
      1. Product colors
      2. Colors used elsewhere in job
  3. Selecting proper halftone dot angles
    a. Angle copy
    b. Angle screen
    c. Preangled screens
  4. Fake duotones
  5. Moire pattern
B. Outline halftones
  1. Selection of method
    a. Opaquing
    b. Mechanical mask
    c. Photographic mask
  2. Uses of outline halftones
C. Posterizations

XIV. PROCESS COLOR PHOTOGRAPHY

A. Basic theories
  1. Light
  2. Primary colors
  3. Process inks
B. Methods of color separation
  1. Direct
    a. Process camera
    b. Contact frame
    c. Enlarger

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XIV. PROCESS COLOR PHOTOGRAPHY (Continued)

2. Indirect
   a. In-camera
   b. Process camera
   c. Contact frame
   d. Enlarger
3. Electronic color scanners

XV. QUALITY CONTROL DEVICES

A. Densitometers
B. Exposure computers
C. Sensitivity guides
D. Register marks
E. Gray scale
F. Transparent copy guide
G. Reflection copy guide
H. Color control strips

XVI. PROOFING METHODS

A. Prepress
   1. Diazo-blueprint
   2. Electrostatic
   3. Brownline
   4. Transparent color overlays
   5. Transfer color pigments
B. Press
   1. Proof presses
   2. Production presses

XVII. STRIPPING

A. Purpose
B. Equipment and Supplies
   1. Safety
C. Laying Out the Flat
   1. Plate Bend
   2. Gripper Bite
   3. Reference Marks

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XIV. PROCESS COLOR PHOTOGRAPHY (Continued)

D. Negative Preparation
   1. Trimming
   2. Opaquing
E. Assembly of Negatives
   1. Line
   2. Inserting Halftones
F. Imposition
   1. Step and Repeat
   2. Signature
   3. Work & Turn
   4. Work & Tumble
G. Multiple Color Flats
   1. Registering Devices
H. Multiple Exposure Flats
I. Positive Stripping
J. Final check against layout
K. Handling and Storage of Flats

XVIII. PLATE MAKING

A. Plate Characteristics
   1. Surface
   2. Grain
B. Care of Plates
   1. Handling
   2. Storage
C. Types of Platemakers
D. Types of Plates
   1. Direct Image
   2. Photo Direct
   3. Electrostatic
   4. Pre-sensitized Surface
   5. Wipe-on
   6. Positive Working
   7. Negative Working
   8. Additive
   9. Subtractive
   10. Deep Etch
   11. Multi-Metal
   12. Other

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XVIII. PLATE MAKING (Continued)

E. Exposure Control
F. Processing
    1. Desensitizing
    2. Developing and Lacquering
    3. Preserving Plates
    4. Proper Storage of Plates

XIX. OFFSET DUPLICATORS

A. Review of Offset Process
B. Safety
C. Operating Controls
    1. Power
    2. Ink and Moisture
    3. Feeder
    4. Delivery
    5. Air Controls
    6. Speed Controls
D. Feeding
    1. Pile Height
    2. Air Blowers and Vacuum
    3. Sheet Separators
    4. Sheet Forwarding Wheels
    5. Double Sheet Eliminator
    6. Register table
    7. Head Stops
    8. Side Guides
E. Dampening
    1. Function
    2. Types
        a. Conventional
        b. Aquamatic
    3. Function and Names of Rollers
    4. Dampening System Adjustment
    5. Fountain Solution
    6. ph Factor
    7. Setting Rollers
    8. Dampening Covers
        a. Molleton

XIX. OFFSET DUPLICATORS (Continued)

- b. Paper
- c. Disposable
- d. Other
- 9. Care and Cleaning

F. Inking Unit

- 1. Funtion
- 2. Types of Systems
  - a. Conventional
  - b. Aquamatic
- 3. Ink Rollers
  - a. Names
  - b. Function
- 4. Setting Rollers
- 5. Ink Fountain
  - a. Filling
  - b. Setting
  - c. Adjusting
- 6. Roller Glaze

G. Printing Unit

- 1. Plate Cylinder
  - a. Pressure Setting
  - b. Types of Plate Clamps
  - c. Lead Clamp Adjustment
  - d. Care and Cleaning
- 2. Blanker Cylinder
  - a. Types of Blankets
    - 1. Compressible
    - 2. Conventional
    - 3. Two (2) piece
  - b. Pressure Settings
  - c. Image Adjustment
  - d. Changing Blanket
  - e. Care and Cleaning
    - 1. Blanket
    - 2. Cylinder
  - 3. Impression Cylinder
    - a. Care and Cleaning
    - b. Grippers

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XIX. OFFSET DUPLICATORS (Continued)

H. Delivery System
- 1. Types
  - a. Chain
  - b. Chute
- 2. Side Joggers
- 3. Back Jogger
- 4. Delivery Grippers
- 5. Skeleton Wheels
- 6. Delivery Table

I. Trouble Shooting
- 1. Scumming
- 2. Tinting
- 3. Filling Up
- 4. Piling
- 5. Set-off
- 6. Vanishing
- 7. Sticking
- 8. Picking
- 9. Roller Stripping
- 10. Spraying
- 11. Mottling
- 12. Gray Type
- 13. Chalking
- 14. Running
- 15. Hickies
- 16. Image Breakdown
- 17. Streaking
- 18. Out of Register
- 19. No Image
- 20. Deletions From Plate

J. Care and Cleaning
- 1. Lubrication
  - a. Sequence
  - b. Types
- 2. Housekeeping
- 3. Washup
  - a. Types
  - b. Procedure

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XIX. OFFSET DUPLICATORS (Continued)

K. Solvents and Chemicals

1. Safety
2. Press Washes
   a. OSHA Specifications
   b. Types
   c. Storage
   d. Care in Handling
   e. Proper Uses
3. Plate Cleaners and Conditioners
4. Gums
   a. Process
   b. 14° Baume'
5. Fountain Solutions
6. Deletion Fluids

XX. THE OFFSET PRESS

A. Safety

B. Operating Controls

1. Power
2. Ink
3. Dampening
4. Feeder
5. Delivery
6. Locations of Emergency Stops
7. Cylinder Impression

C. Feeder and Register Table

1. Pile Height
2. Air and Vacuum
3. Sheet Separators
4. Sheet Forwarding Wheels
5. Double Sheet Eliminator
6. Register table
7. Head Stops
8. Side Guides
9. Sheet Hold Downs

D. Dampening Unit

1. Function
2. Types
   a. Conventional
   b. Continuous Flow (Alcohol)

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XX. THE OFFSET PRESS (Continued)

3. Rollers
    a. Names
    b. Functions
4. Adjustment
5. Fountain Solutions
6. Setting Rollers
7. Dampener Covers
    a. Molleton
    b. Paper
    c. Disposable
    d. Sleeves
    e. Other
8. Care and Cleaning

E. Inking Unit
1. Function
2. Rollers
    a. Names
    b. Function
    c. Care
3. Setting Rollers
4. Ink Fountain
    a. Filling
    b. Setting
    c. Adjusting
    d. Agitators

F. Printing Unit
1. Plate Cylinder
    a. Purpose
    b. Plate Clamps
    c. Cylinder Undercut
    d. Cylinder Bearers
    e. Cylinder Packing
    f. Cylinder Gap
    g. Vertical/Horizontal Adjustment
    h. Care and Cleaning
2. Blanket Cyclinder
    a. Pupose
    b. Cylinder Undercut

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XX. THE OFFSET PRESS (Continued)

- c. Cylinder Bearers
- d. Cylinder Packing
- e. Cylinder Gap
- f. Blanket Installation
- g. Care and Cleaning
- h. Positioning Adjustment

3. Impression Cylinder
   - a. Grippers
   - b. Care and Cleaning

G. Delivery

1. Joggers
2. Grippers
3. Chain
4. Skeleton Wheels
5. Gripper Release Cam
6. Table

H. Trouble Shooting

I. Care and Cleaning

1. Lubrication
   - a. Sequence
   - b. Types
   - c. Automatic Oilers
2. General Housekeeping
3. Washup

J. Solvents and Chemicals

K. Multicolor Sheet Fed Presses

L. Web Fed Presses

XXI. PRINTING INKS

A. Composition of Inks

1. Vehicle
   - a. Purposes
   - b. Types
2. Pigments
   - a. Purpose

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XXI. PRINTING INKS (Continued)

b. Organic Pigments
c. Inorganic Pigments
d. Opaque Pigments
e. Transparent Pigments

3. Driers
a. Purpose
b. Types

4. Ink Additives
a. Waxes
b. Greases and Lubricants
c. Reducers
d. Varnishes

5. Pantone Matching System (PMS)

B. Manufacture of Printing Inks

C. How Ink Dries
1. Oxidation
2. Evaporation
3. Absorption (Penetration)

D. Physical Properties of Ink
1. Viscosity
2. Tack
3. Length of Ink

E. Types of Inks
1. Heat Set
2. Quick Setting
High Gloss
4. News
5. Metallic
6. Web
7. Magnetic
8. Other Specialty Inks
Copyfitting

F. Ink Troubles
1. Greasing or Scumming
2. Tinting
3. Stripping
4. Piling or Caking
5. Drying
6. Set-off

XXI. PRINTING INKS (Continued)

7. Crystallization
8. Trapping
9. Wearing of Plates
10. Fill-in
11. Picking
12. Chalking

XXII. PRINTING PAPERS

A. Manufacture
   1. Types of Pulps
B. Characteristics
   1. Grain
   2. Felt Side
   3. Wire Side
C. Major Classifications
   1. Bond
   2. Book
   3. Cover
   4. Bristol Index/Tag
   5. Ledger
   6. Specialty Papers
D. Basic Sizes
E. Basic Weights
F. Equivalent Weights
G. Paper Finishes
H. Paper Related Printing Problems
   1. Lint
   2. Curl
   3. Dull Knife
   4. Other
I. Calculations
   1. Paper Label
   2. Ordering
   3. Fiquring Stock

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XXII. PRINTING PAPERS (Continued)

4. Cutting Diagram

XXIII. FINISHING AND BINDING

A. Binding Equipment Safety
B. Handling Paper
C. Folders
    1. Types of Folders
        a. Suction
        b. Friction
        c. Stream Feed
D. Types of Binding
    1. Stitching
        a. Side Wire
        b. Saddle
    2. Perfect
    3. Case
    4. Sewn
E. Trimming
F. Mechanical Binding
    1. Plastic
    2. Wire Spiral
    3. Aluminum Fasteners
G. Padding
H. Other Finishing Procedures
    1. Perforating
    2. Die Cutting
    3. Drilling
    4. Round Cornering
    5. Punching
    6. Collating
        a. Hand
        b. Machine
    7. Packaging
        a. Hand
        b. Machine
    8. Other

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

LESSON PLAN NO.	DATE SCHEDULED	DATE PRESENTED	DATED TESTED

XXIV. JOB PLANNING

A. Customer Requirements
B. Customer Relations
C. Estimating & Purchasing
    1. Copyfitting
    2. Materials
    3. Labor
    4. Time/Materials
    5. Fixed Costs
    6. Overhead
    7. Profit
D. Scheduling
E. The Job Ticket

XXV. EMPLOYEE-EMPLOYER RELATIONS

A. Filing an Application
B. Interviews
C. Attitude
D. Work Habits
E. Working For/With Others
F. Responsibility
G. Graphic Communications Labor Unions & Associations

XXVI. LEGAL CONSIDERATIONS

A. Copyright Laws
B. Counterfeiting
C. Illegal & Offensive Material

TITLE	LEV	USABILITY	AUTHOR	PUBLISHER	CPYRT.
Photo Offset Fundamentals Study Guide	12.5	OK* = Good	John E. Cogli	McKnight Publishing Co.	1973
COMMENTS: Paperback; 2 colors, fair visuals, questions vocabulary development.					
Photo Technology	10.0	OK* = Good	LaCour & Lathrop	American Technical Society	1972
COMMENTS: Good visual, 3 colors, good headings, vocabulary development, introduction, projects but no questions.					
Platemaker's Guide	14.0	OK* = Good	No Author	Print Products Division, 3M Company	1970
COMMENTS: Paperback, colors, glossary, good visuals, print good, good vocabulary development.					
Practical Problems in Mathematics for Printers	11.6	OK* = Good	James P. DeLuca	Delmar Publishing Co.	1976
COMMENTS: 2 colors, good visuals and examples. Vocabulary well developed, good explanations.					
Printing Estimating	10.8	OK* = Good	Gerald A. Silver	American Technical Society	1970
COMMENTS: Black & white, good headings, good print, introduc tion, questions and vocabulary.					
Printing Layout & Design	9.6	Poor	Delmar	Delmar Publishing Co.	1968
COMMENTS: Paperback, 2 colors, but colors in one section, headings light, no questions, no vocabulary, not recommended.					
Graphic Arts Procedures - Basic	10.5	OK* = Good	Karch R. Randolph	American Technical Society (Chicago)	1965
COMMENTS: Subheadings, 2 colors, some visuals, no questions, some vocabulary development, glossary.					
Graphic Arts Procedures - The Offset Processes	8.9	OK* = Good	Karch & Buber	American Technical Society (Chicago)	1967
COMMENTS: 3 colors, visuals, good headings, fine print, vocabulary and questions.					
Graphic Communications	11.0	OK + = Excellent	Richard J. Brolkhuizer	McKnight Career Publications	1973
COMMENTS: 3 colors, visuals, good headings, fine print vocabulary and questions					
Lithographer	9.3	OK- = Fair	no author	U.S. Gov't. Printing Office	1963
COMMENTS: 2 colors, print ok, visuals outdated, no introduction or summary.					
Lithographer 3 & 2	10.2	OK- = Fair	no authur	U.S. Gov't	1963
COMMENTS: Black & white, visuals, headings, good introduction, vocabulary development, no questions, snall print, has glossary					
Modern Graphic Arts Paste Up	10.9	OK* = Good	Gerald A. Silver	American Technical Society	1973
COMMENTS: Paperback, 2 colors, vacabulary developments, no questions, good headings, visuals.					
Photo Offset Fundamentals	12.6	OK* = Excellent	John E. Cogoli	McKnight Publishing Co.	1973
COMMENTS: Multicolor, good visuals, good print, vocabulary included, questions included, introduction.					

Grade Year Instructor

TOOL CHECK NO.	LOCKER NO.	TEXT BOOK NO.	SHOP GRADES MARKING PERIOD						THEORY GRADES MARKING PERIOD					
			1	2	3	4		F	1	2	3	4		F

Grade Year Instructor

TOOL CHECK NO.	LOCKER NO.	TEXT BOOK NO.	SHOP GRADES MARKING PERIOD						THEORY GRADES MARKING PERIOD					
			1	2	3	4		F	1	2	3	4		F

GENERAL GRAPHIC COMMUNICATIONS OBJECTIVES

The Graphic Communications course of study in the Vocational-Technical Schools of Connecticut is designed to provide students with basic training in the field of graphic communications.

On Successful completion of this course the student will be able to take a SAFE and workmanlike approach in solving theoretical and actual on-the-job problems. The student will know where to locate pertinent information, both technical and practical, to accomplish all assignments in the most practical and proper manner.

As a result of experience gained through the broad objectives listed below, the student will:

1. be able to recognize the major printing processes and their respective products and know the relative merits of each process;
2. be able to perform in the areas of copy preparation, reproduction photography. stripping, platemaking, presswork and finishing with a level of proficiency suitable for job entry as an advanced learner;
3. have the related technical knowledge needed to supplement skills in the areas itemized above in order to make rational decisions;
4. have a realistic concept of his abilities and limitations in the various areas comprising the graphic communications;
5. have the personal traits of promptness, willingness to work, and the ability to accept supervision;
6. be able to follow written and oral directions;
7. be aware of the interrelationships among production departments and the contributions each area makes to the other.
8. respect the potential for personal injury of production equipment and use appropriate safety precautions when working around such equipment;
9. have an accurate concept of the most common occupations in graphic communications and the traits and preparation required of employees desiring to succeed in those occupations;
10. understand the relationship between continuous training and success in an occupation.

OBJECTIVES - GRADE 10

Upon successful completion of the tenth grade, the student should be able to:

1. Work around printing equipment using safe work habits.
2. Prepare a mechanical for a simple one color printing job.
3. Proofread using the proper proof marks.
4. Scale camera copy for reduction/enlargement.
5. Prepare the darkroom and process camera for operation.
6. Produce acceptable line negatives and contact prints.
7. Lay out and strip a flat for an offset duplicator.
8. Expose and process presensitized offset plates.
9. Prepare an offset duplicator for operation.
10. Run a single color job on an offset press.
11. Handle printing papers properly.
12. Calculate the number of stock sheets required for a given job.
13. Set up and operate a power cutter safely.
14. Perform simple bindery operations.
15. Communicate in trade situations using trade terminology.

OBJECTIVES - GRADE 11

Upon successful completion of grade 11, the student should be able to:

1. Work around printing machinery using safe work habits.
2. Mark up copy specifications for phototypesetting.
3. Perform basic phototypesetting operations.
4. Prepare, maintain and operate film/paper processors.
5. Prepare a camera ready mechanical with masks, overlays.
6. Calculate exposure times for copy of varying qualities.
7. Expose and process negatives using time/temperature method.
8. Calcualte exposure times for making halftone negatives.
9. Photograph camera ready copy using photo mechanical process.
10. Prepare impositions and strip flats for multiple page and multicolor forms.
11. Prepare step-and-repeat and other multi-burn flats.
12. Expose and process offset plates requiring multiple exposures.
13. Identify the various kinds of printing papers.
14. Calculate the amount of paperrequired to print a given job.
15. Print multi-color jobs and jobs requiring close register on an offset duplicator.
16. Perform basic operations required to print single color work on an offset press.
17. Set up and operate air feed folder for single fold.
18. Follow job specifications as written on job ticket.

OBJECTIVES - GRADE 12

On successful completion of grade 12, the student should be able to:

1. Write formats and use proper codes for setting type on the phototypesetter.
2. Mark up a printing job for type styles and sizes.
3. Change film fonts/discs on phototypesetter.
4. Perform more difficult camera operations.
5. Perform more complex phototypesetting operations.
6. Prepare impositions and strip flats for complex forms.
7. Perform those operations on an offset press which are required to hold register, ink and water balance, and proper ink coverage.
8. Set up and operate various bindery machines.
9. Fill out a job ticket accurately.
10. Cost out a printing job using proper estimating procedures.
11. Perform in a trade enviornment, recognizing the importance of SAFETY, proper work habits, good character and proper attitude when entering the work force.
12. Seek employment in the Graphic Communications industry.

RECORDING STUDENT PROGRESS

A major principle of vocational education is that the students learn skills or the performance of operations of a trade with the production job as a vehicle to accomplish this objective.

The operations are defined on the shop progress record and it is imperative that the instructor have some means of recording the student experiences and achievement.

The approved method of recording student progress is as follows:

Instructed - This designation on the progress record indicates that the student has performed a skill with the assistance of and under the supervision of the instructor.

Practiced - This designation on the progress records indicates that the student has performed a skill either by himself or with little help from the instructor.

Proficient - This designation on the progress record indicates that the student is capable of performing a skill by himself within a reasonable amount of time with no assistance from the instructor. In effect this implies that the student has been tested for the skill.

This method of noting student progress will define accurately student achievement and in fact will point out any weaknesses the student may have in certain operations; thus highlighting areas where the student may need help.

Grades should be kept on student daily progress cards or in roll books.

PASTE MAKEUP

Draw lines accurately	Square up a board	Draw center lines	Draw paper marks	Draw image lines	Wax type/art	Trim type/art	Lay out work to be pasted	Position type	Position artwork	Center type/art	Paste up using wax	Paste up using rubber cement	Line up work horizontally	Line up work vertically

PASTE MAKEUP

Prepare simple mechanical																					
Burnish type																					
Clean mechanical																					
Prepare combination mechanical																					
Scale copy for enlargement/ reduction																					
Prepare ruled form																					
Paste up using preprinted tints																					
Paste up using Prestype																					
Paste up using Rubylith																					
Paste up using overlays																					
Paste up using rule tapes																					
Paste windows																					
Draw round corners																					
Paste up simple advertisement																					
Paste up form w/bleeds																					

COLD TYPE COMPOSITION (Non Photo)

Prepare machine for operation	Change type fonts	Set letterspacing	Set word space	Increase/decrease line spacing	Set line length	Change ribbon	Set flush left lines	Set flush right lines	Set centered lines	Set justified type	Set tabular matter	Set runarounds	Set type with rules	Store fonts

PHOTOCOMPOSITION (Display)

Set up machine for operation	Prepare Chemicals	Set a simple line	Letterspace words	Condense words	Develop line	Clean machine	Change film/paper	Advance film/paper	Change disc/film strip					

ERIC Full Text Provided by ERIC

Prepare typesetter for operation	Initialize typesetter	Insert/initialize disc	Set type flush left	Set type flush right	Set type centered	Store job on disc/tape	Call job to screen	Edit copy on screen	Replace copy on screen	Delete copy on screen	Change font/width card	Remove/replace cassette	Change paper/film	Load photographic material

	Insert space
	Set justified type
	Set type w/ fixed spaces
	Increase/decrease letterspacing
	Increase/decrease line spacing
	Insert character
	Insert leader
	Insert baseline rule
	Flash only
	Space only
	Increase/decrease density
	Set tab parameters
	Clean & maintain phototypesetter
	Store discs/tapes

PHOTOTYPESETTING PROCESSORS

Prepare chemicals	Develop film/paper	Replenish chemistry	Clean & maintain processor					

WIRE STITCHER

Set for thickness	Set length of stitch	Set for side wire stitch	Set for saddle stitch	Change spool	

ERIC Full Text Provided by ERIC

DARKROOM PROCEDURES

Set up darkroom	Mix chemicals	Handle film properly	Cut film	Develop & fix film	Read sensitivity guide	Wash negative/positive	Dry film	Evaluate negatives	Chemical etch	Store film	Keep darkroom clean			

PROCESS CAMERA

																					Set aperature
																					Set timer
																					Adjust camera lights
																					Clean copy holder
																					Load copy holder
																					Clean lens
																					Position image using ground glass
																					Focus using ground glass
																					Focus using tapes
																					Set vacuum board
																					Place film on vacuum board
																					Expose film
																					Replace camera lights

47

LINE PHOTOGRAPHY	POWER CUTTER
Place sensitivity guide	
Expose same size copy	
Expose reduction	
Expose enlargement	
Expose copy of different quality	
Proportion scaling	
Expose copy using filters	
	Jog paper
	Set back guage
	Operate cutter
	Split backgage
	Replace cutting stick
	Lubricate cutter

CONTACTING

																					Make contact w/pt. light source
																					Make contact w/process camera
																					Duplicating film
																					Make paper print
																					Make film positive
																					Make spreads/chokes
																					Make reverse print
																					Make contact w/enlarger
																					Make PMT positive
																					Make PMT reverse
																					Make PMT transparency
																					Make PMT halftone
																					Clean & maintain PMT processor

Photograph contact screen

Photograph halftone computer

Make main exposure

Make flash exposure

Make bump exposure

Make test negative

Evaluate negative

Find screen range

Make corrected halftone negative

Make duotone negatives

Make dropout halftone negative

Make negative from halftone print

Rescreen printed halftone

Process halftone by time/temp.

Operate hand camera	Determine proper settings	Change lenses	Load/unload camera	Load exposed film on reel	Mix chemistry	Develop roll film	Make contact print	Set up enlarger	Make test strip	Make an enlargement	Tray process print	Machine process print	Handle print	Dodge/burn in

						Rule for accuracy	Layout a simple flat	Trim negatives	Align/position negatives	Tape down negatives	Check flat against layout	Cut windows	Opaque negatives	Strip for double burn

STRIPPING

Strip for step & repeat	Scribe rules in negative	Strip using pins/tabs	Plan an imposition	Make imposition dummy	Strip a gang flat	Strip multiple page flats	Strip trim/fold marks	Make color masks	Strip silhouettes	Strip in corrections	Strip register marks			

Operate platemaker
Burn plate for simple exposure
Burn plate w/multiple images
Burn step & repeat plate
Burn plate for register
Process additive plate
Process subtractive plate
Process transfer plate
Process direct image plate
Process electrostatic plate
Desensitize a plate
Preserve a plate
Store a plate
Replace light source

Lubricate folder																							
Set feeder																							
Load stock to dummy																							
Set air blast																							
Set vacuum																							
Set friction wheels																							
Set vacuum																							
Set transfer tapes																							
Adjust transfer table																							
Set fold plates/single fold																							
Set fold plates/multiple parallel folds																							
Set for right angle folds																							
Set for tandem folding																							
Set roller pressures																							
Set for perf/score/slit																							

PAPER FOLDER OFFSET DUPLICATOR

Set delivery				Lubricate duplicator	Handle paper	Set feeder	Set feed rollers	Set caliper	Set transfer tapes	Set side guide	Set head stop	Set air blast	Set vacuum	Set suckers

Install plate
Raise/lower image
Mix fountain solution
Set dampeners
Set ink rollers
Adjust ink fountain
Adjust dampener dwell
Get proper position
Set delivery/chute
Set delivery/chain
Set spidar wheels
Adjust plate to blanket pressure
Adjust impression cylinder pressure
Clean blanket
Clean impression cylinder

OFFSET DUPLICATOR

Clean dampener covers	Change dampener covers	Wash duplicator	Check for register	Deglaze rollers									

OFFSET PRESS

Lubricate press	Set up feeder	Load paper stock	Set register table	Set guides near/far	Change side guide	Set double sheet trip	Read micrometer	Pack plate	Install plate	Pack blanket	Install blanket	Set dampener fountain	Read hydrometer	Mix fountain solution

Set dampener rollers
Recover dampener rollers
Remove/replace dampener rollers
Test for ph
Set ink fountain
Adjust ink fountain
Set ink rollers
Remove/replace ink rollers
Deglaze rollers
Set delivery
Set cylinder pressures
Raise/lower image
Adjust cylinder lay
Automatic washup
Register for color

OFFSET PRESS

Apply ink additives	Set anti-offset spray													

OTHER BINDERY EQUIPMENT

Set/operate paper drill
Set paper drill for round corners
Sharpen hollow drill
Set/operate plastic binder
Make pads w/padding compound
Operate electric numbering machine
Wrap packages
Hand fold
Count stock
Handle paper cartons