

Gravure Printing

Unit Outline

1. Project Team Members: McGowan, T.
2. Title of Course: Printing Technology
3. Title of Unit or Project: Gravure Printing
4. Approximate length of Unit or Project: 3 weeks
5. Brief description of the Unit or Project with an expected final outcome.

Students will work independently and in cooperation in a shop setting to explore the various applications, materials, and techniques used in gravure (intaglio) printing. In this unit, students will receive instruction and hands on experience in the gravure printing process. Students should have a working knowledge of gravure and its application.

6. Major Goals of Unit:

At the end of this block of instruction, students will be able to:

1. Design a printed product to meet specified criteria.
2. Develop a plan to achieve a desired end state or product, and implement the plan.
3. Demonstrate safety and efficiency in the use of gravure printing equipment, tools, and materials in a production/shop setting.
4. Evaluate a printed product and recognize potential methods for improvement.
5. Relate the gravure industry to society and everyday life with emphasis on products, employment opportunities, and environmental impact.
6. Compare & contrast gravure processes and products with other graphic reproduction methods.

7. Sequence of balanced and integrated activities for students:

Students will complete the following activities:

1. Written quiz – Students will complete a written quiz to demonstrate understanding of basic concepts and safety consideration before the initiation of project work.
 2. Drypoint Engraving – Students will prepare and print from an intaglio plate to produce a printed item that has a clear, dense image; and a clean background. Project steps will include:
 - a. Layout & Design
 - b. Plate preparation
 - c. Equipment preparation
 - d. Printing
 - e. Evaluation and corrective actions
 - f. Clean-up/recovery
 - g. Finishing operations
 - h. Project evaluation and submission
 3. Acid Etching - Students will prepare and print from an intaglio plate to produce a printed item that has a clear, dense image; and a clean background. Project steps will include:
 - a. Layout & Design
 - b. Plate preparation
 - c. Equipment preparation
 - d. Printing
 - e. Evaluation and corrective actions
 - f. Clean-up/recovery
 - g. Finishing operations
 4. Process Analysis – Complete an analysis of gravure processes and products. Trace the history of the process, its current application, strengths, and weaknesses. Compare and contrast gravure processes with other printing methods, to include relief, planography, and screen processes. Describe its impact on society and future trends.
8. Checklist or rubric of assessment components for students: See attached sheets

9. Specific Standards addressed in this Unit or Project:

<u>Ref. #</u>	<u>Name of Standard</u>	<u>Title of Individual Standard</u>
Goal #1		
1.1.11G	PA RWSL	Learning to Read Independently
1.6.11A	PA RWSL	Speaking and Listening
3.1.12D	PA ST	Unifying Themes of Science
3.2.12D	PA ST	Inquiry and Design
3.6.12B,C	PA ST	Technology Education
3.7.12C,D,E	PA ST	Technological Devices
Goal #2		
1.6.11A,D,E	PA RWSL	Speaking and Listening
3.1.12A	PA ST	Unifying Themes of Science
3.2.12C,D	PA ST	Inquiry and Design
3.6.12B	PA ST	Technology Education
3.7.12A	PA ST	Technological Devices
Goal #3		
1.6.11C,E	PA RWSL	Speaking and Listening
3.6.12B	PA ST	Technology Education
3.7.12A,B,D	PA ST	Technological Devices
Goal #4		
1.6.11C	PA RWSL	Speaking and Listening
3.2.12D	PA ST	Inquiry and Design
3.7.12B	PA ST	Technological Devices
3.8.12D	PA ST	Science, Technology, and Human Endeavors
Goal #5		
3.6.12B	PA ST	Technology Education
3.8.12A,B,C	PA ST	Science, Technology, and Human Endeavors
Goal #6		
1.5.11A,B,C,D,E,F	PA RWSL	Quality of Writing
1.8.11B,C	PA RWSL	Research
3.2.12D	PA ST	Inquiry and Design
3.8.12A,B,C	PA ST	Science, Technology, and Human Endeavors

Gravure Printing Quiz

Name _____

1. _____ Gravure printing is done from lines that are _____ the surf the plate.
2. _____ An _____ plate has an image that was cut into the plate by hand.
3. _____ An _____ plates image was cut into the plate with chemicals.
4. _____ Images for gravure printing should be made up of cells or _____.
5. _____ A _____ is used to protect the background areas of an etched plate form acid.
6. _____ Always wear _____ and gloves when working with caustic chemicals.
7. _____ Paper for gravure printing should be _____ to improve ink transfer.
8. _____ Ink for gravure printing should be thinned with _____.
9. _____ A gravure press exerts great _____ to transfer the image.
10. _____ A _____ should be left when trimming gravure printed items.

paper	plate	ink	image	knife	resist
solid	engraved	etched	linseed	lines	shading
roller	intaglio	pressure	oil	damp	acid
border	below	above	goggles	apron	press

Students missing questions should be individually remediated and retake the quiz orally with the instructor to verify understanding of basic and safety concepts before proceeding with project work.

Drypoint Engraving Rubric

Task: Prepare and print a drypoint engraving

Conditions: Given the necessary equipment, materials, facilities and instruction.

Standard: The student will prepare and print from an engraved plate to produce a printed item with a clear, dense, readable image; a clean background; that fulfills a specified need.

Task Steps:

	Go	NoGo	
1. Follows proper design procedure	_____	_____	*
a. Produce thumbnail sketches	_____	_____	
b. Refine layout using a rough sketch	_____	_____	
c. Produce a comprehensive layout	_____	_____	
d. Produce cameral copy if needed	_____	_____	
2. Prepare an acid etched plate	_____	_____	*
a. Reverse the image	_____	_____	
b. Scribe lines to proper depth	_____	_____	
c. Raise a burr to hold ink	_____	_____	
3. Print using a gravure plate	_____	_____	*
a. Case paper to proper moisture content	_____	_____	
b. Mix ink with oil to proper consistency	_____	_____	
c. Apply proper amount of ink to plate	_____	_____	
d. Remove ink from background areas	_____	_____	
e. Uses adequate pressure when printing	_____	_____	
4. Performs finishing operations	_____	_____	*
a. Presses images until dry & flat	_____	_____	
b. Trims images and leaves even margins	_____	_____	
c. Maintains tools and equipment	_____	_____	
5. Completes project evaluation sheet	_____	_____	*

Evaluation:

5 numbered items correct	- Outstanding
4 numbered items correct	- Acceptable
3 or less numbered items correct	- Needs additional instruction / practice

* All subtasks must be correct for a numbered item to be considered correct.

Acid Etching Rubric

Task: Prepare and print an etching

Conditions: Given the necessary equipment, materials, facilities and instruction.

Standard: The student will prepare and print from an etched plate to produce a printed item with a clear, dense, readable image; a clean background; that fulfills a specified need.

Task Steps:

	Go	No Go
1. Follows proper design procedure	_____	_____*
a. Produce thumbnail sketches	_____	_____
b. Refine layout using a rough sketch	_____	_____
c. Produce a comprehensive layout	_____	_____
d. Produce cameral copy if needed	_____	_____
2. Prepare a drypoint plate	_____	_____*
a. Reverse the image	_____	_____
b. Clean plate material	_____	_____
c. Coat plate with resist	_____	_____
d. Scribe image through resist	_____	_____
e. Etch the plate to proper depth	_____	_____
f. Wash plate	_____	_____
g. Remove resist	_____	_____
3. Print using a gravure plate	_____	_____*
a. Case paper to proper moisture content	_____	_____
b. Mix ink with oil to proper consistency	_____	_____
c. Apply proper amount of ink to plate	_____	_____
d. Remove ink from background areas	_____	_____
e. Uses adequate pressure when printing	_____	_____
4. Performs finishing operations	_____	_____*
a. Presses images until dry & flat	_____	_____
b. Trims images and leaves even margins	_____	_____
5. Completes project evaluation sheet	_____	_____*

Evaluation:

5 numbered items correct	- Outstanding
4 numbered items correct	- Acceptable
3 or less numbered items correct	- Needs additional instruction / practice

* All subtasks must be correct for a numbered item to be considered correct.

Process Analysis Rubric

Name _____ Date _____

Gravure Printing	Possible Points	Points Assigned
Organized and logical sequence	10	
Writing Style – Grammar, Spelling	10	
Adequately Describes Process	10	
Describes Uses of Printed Products	10	
Relates to Personal Experience	10	
Describes Strengths	10	
Describes Weaknesses	10	
Compare to at Least 2 Other Processes	15	
Possible Uses for Process	10	

Total	
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Grade according to the following scale:

100-90	Outstanding
89 - 80	Acceptable
79 - 70	Marginal
69 - 0	Needs remediation