

Student's Name/Initial:

/ Date:

Teacher's Initials:

Date:

**Offset Press Operations/Bindery & Finishing**  
**Course Codes for Graphic Communications program: 5205, 6200, 6201, 6202, and 6203**

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**Directions:** Evaluate the student using the applicable rating scales below and check the appropriate box to indicate the degree of competency. The ratings 3, 2, 1, and N are not intended to represent the traditional school grading system of A, B, C, and D. The description associated with each of the ratings focuses on the level of student performance or cognition for each of the competencies listed below.

**PERFORMANCE RATING**

- 3 - Skilled--can perform task independently with no supervision  
2 - Moderately skilled--can perform task completely with limited supervision  
1 - Limitedly skilled--requires instruction and close supervision  
N - No exposure--has no experience or knowledge of this task

**COGNITIVE RATING**

- 3 - Knowledgeable--can apply the concept to solve problems  
2 - Moderately knowledgeable--understands the concept  
1 - Limitedly knowledgeable--requires additional instruction  
N - No exposure--has not received instruction in this area

**OFFSET PRESS OPERATIONS**

**A. OFFSET PRESS CONFIGURATIONS**

**3 2 1 N**

- \_\_\_ \_\_\_ \_\_\_ 1. Review mechanical safety requirements when working with offset press equipment.
- \_\_\_ \_\_\_ \_\_\_ 2. Describe a job jacket/ticket.
- \_\_\_ \_\_\_ \_\_\_ 3. Create a job jacket/ticket using an instructor specified print job.
- \_\_\_ \_\_\_ \_\_\_ 4. Identify the basic systems and parts of an offset press:
- a. feeder,
- b. printing unit, and
- c. delivery.
- \_\_\_ \_\_\_ \_\_\_ 5. Describe the paper path of a sheetfed offset press.
- \_\_\_ \_\_\_ \_\_\_ 6. Identify common maximum sheet sizes of sheetfed offset presses.
- \_\_\_ \_\_\_ \_\_\_ 7. List common speeds (impressions per hour) of sheetfed and webfed presses.
- \_\_\_ \_\_\_ \_\_\_ 8. Describe paper path of a web (roll) fed offset press.
- \_\_\_ \_\_\_ \_\_\_ 9. Compare the advantages and disadvantages of a web fed offset press versus a sheetfed offset press.

- \_\_\_ \_\_\_ \_\_\_ 10. Evaluate printed samples produced on a webfed offset and sheetfed offset press.
- \_\_\_ \_\_\_ \_\_\_ 11. Describe perfecting and compare the features of a perfecting press versus non-perfecting press.
- \_\_\_ \_\_\_ \_\_\_ 12. Identify components of a printing unit by sketching an illustration:
- a. inking system,
- b. dampening system,
- c. plate cylinder,
- d. blanket cylinder, and
- e. impression cylinder.
- \_\_\_ \_\_\_ \_\_\_ 13. Describe a single color offset press.
- \_\_\_ \_\_\_ \_\_\_ 14. Describe a multi-color offset press.
- \_\_\_ \_\_\_ \_\_\_ 15. Describe an offset lithographic plate and explain how it separates an image from a non-image area.
- \_\_\_ \_\_\_ \_\_\_ 16. Describe the function of the blanket.
- \_\_\_ \_\_\_ \_\_\_ 17. Describe the function of the impression cylinder.
- \_\_\_ \_\_\_ \_\_\_ 18. Describe the operation of an offset printing press from feeding, through the printing unit, to delivery.
- \_\_\_ \_\_\_ \_\_\_ 19. Compare the imaging process of digital printing versus offset printing.

- \_\_\_ \_\_\_ \_\_\_ 20. Rate the advantages and disadvantages of offset printing versus digital printing.
- \_\_\_ \_\_\_ \_\_\_ 21. Compare the features and capabilities of offset presses offered by three manufacturers.
- \_\_\_ \_\_\_ \_\_\_ 22. Determine key activities within an offset press operation in a commercial printing plant either on site or online via a virtual tour.
- \_\_\_ \_\_\_ \_\_\_ 23. Describe how automation tools are being employed on an offset press:
- a. plate changing and
- b. ink presets.
- \_\_\_ \_\_\_ \_\_\_ 24. Discuss roles and responsibilities of pressroom personnel:
- a. pressroom supervisor,
- b. lead press operator, and
- c. helper.
- \_\_\_ \_\_\_ \_\_\_ 25. Construct 5 questions to ask a press operator about the skills required for his or her job.

## B. PAPER

3 2 1 N

- \_\_\_ \_\_\_ \_\_\_ 26. Identify characteristics of paper:
- weight,
  - finish,
  - thickness,
  - brightness,
  - opacity, and
  - grain direction.
- \_\_\_ \_\_\_ \_\_\_ 27. Identify weight, coating, and size from a label found on a ream, box, or skid of paper.
- \_\_\_ \_\_\_ \_\_\_ 28. Determine grain direction of five different types of papers used in the offset printing process.
- \_\_\_ \_\_\_ \_\_\_ 29. Describe how grain direction will affect the running of a press, folding, scoring, and binding.
- \_\_\_ \_\_\_ \_\_\_ 30. Describe wire versus felt side of paper.
- \_\_\_ \_\_\_ \_\_\_ 31. Describe a watermark in paper.
- \_\_\_ \_\_\_ \_\_\_ 32. Identify specialty substrates:
- carbonless,
  - pressure sensitive,
  - gummed label,
  - plastic based, and
  - metal.
- \_\_\_ \_\_\_ \_\_\_ 33. Explain the importance of paper conditioning and describe potential problems that can be created by poor paper conditioning prior to running the press.
- \_\_\_ \_\_\_ \_\_\_ 34. Describe workflow steps required in printing a process color job on coated versus uncoated paper.
- \_\_\_ \_\_\_ \_\_\_ 35. Evaluate the quality of five offset printed jobs:
- color and
  - register.

## C. INK

3 2 1 N

- \_\_\_ \_\_\_ \_\_\_ 36. Describe inks used with an offset press:
- oil-based,
  - rubber-based,
  - soy-based, and
  - UV.
- \_\_\_ \_\_\_ \_\_\_ 37. Describe process (CMYK) and spot (PMS) color inks.

- \_\_\_ \_\_\_ \_\_\_ 38. Identify process and spot color areas from selected sample print job.
- \_\_\_ \_\_\_ \_\_\_ 39. Describe the procedure for mixing and testing custom colored inks.
- \_\_\_ \_\_\_ \_\_\_ 40. Describe causes of ink problems and possible solutions.
- \_\_\_ \_\_\_ \_\_\_ 41. Review solutions for common ink problems.
- \_\_\_ \_\_\_ \_\_\_ 42. Discuss coatings:
- aqueous,
  - ultraviolet cured, and
  - varnish.

## D. DAMPENING SOLUTION

3 2 1 N

- \_\_\_ \_\_\_ \_\_\_ 43. Describe the components of dampening solution.
- \_\_\_ \_\_\_ \_\_\_ 44. Describe the purpose and operation of a dampening system.
- \_\_\_ \_\_\_ \_\_\_ 45. Demonstrate the proper mixing of dampening solution using appropriate ratios.
- \_\_\_ \_\_\_ \_\_\_ 46. Describe and demonstrate the use of pH strips and conductivity meters to monitor dampening solution to maintain print quality.

## E. MAKE-READY

3 2 1 N

- \_\_\_ \_\_\_ \_\_\_ 47. Analyze a job ticket for printing instructions:
- number of colors,
  - imposition,
  - quantity, and
  - type of paper.
- \_\_\_ \_\_\_ \_\_\_ 48. Describe a folding dummy.
- \_\_\_ \_\_\_ \_\_\_ 49. Distinguish imposition of printing jobs:
- sheetwise,
  - work-and-turn, and
  - work-and-tumble.
- \_\_\_ \_\_\_ \_\_\_ 50. Identify marks on press sheet:
- registration,
  - trim,
  - bleed, and
  - fold.
- \_\_\_ \_\_\_ \_\_\_ 51. Specify the steps required to execute make-ready for a printing job.
- \_\_\_ \_\_\_ \_\_\_ 52. Describe the purpose of a gripper.

- \_\_\_ \_\_\_ \_\_\_ 53. Describe the purpose of a side guide.
- \_\_\_ \_\_\_ \_\_\_ 54. Describe types of blankets:
- compressible and
  - conventional.
- \_\_\_ \_\_\_ \_\_\_ 55. Describe packing sheets (blanket and plate).
- \_\_\_ \_\_\_ \_\_\_ 56. Describe cylinder to cylinder pressure measurements.
- \_\_\_ \_\_\_ \_\_\_ 57. Demonstrate paper handling make-ready steps.
- \_\_\_ \_\_\_ \_\_\_ 58. Demonstrate mounting plate to plate cylinder.
- \_\_\_ \_\_\_ \_\_\_ 59. Demonstrate inking system make-ready.
- \_\_\_ \_\_\_ \_\_\_ 60. Demonstrate dampening system make-ready.
- \_\_\_ \_\_\_ \_\_\_ 61. Demonstrate printing unit make-ready.
- \_\_\_ \_\_\_ \_\_\_ 62. Demonstrate ink roller, dampener roller, and cylinder pressure settings on a press.
- \_\_\_ \_\_\_ \_\_\_ 63. Estimate time and materials used during five make-ready jobs.

## F. PRINT

3 2 1 N

- \_\_\_ \_\_\_ \_\_\_ 64. Explain the operational procedures, controls, and adjustments for each system (feeding, printing, and delivery) on the offset press.
- \_\_\_ \_\_\_ \_\_\_ 65. Describe the use of flags to signify waste sheets during a pressrun.
- \_\_\_ \_\_\_ \_\_\_ 66. Print a single-color one-sided job.
- \_\_\_ \_\_\_ \_\_\_ 67. Print a single-color registered two-sided job.
- \_\_\_ \_\_\_ \_\_\_ 68. Locate gripper and guide sides on a single-color registered two-sided job.
- \_\_\_ \_\_\_ \_\_\_ 69. Print a job on heavyweight stock.
- \_\_\_ \_\_\_ \_\_\_ 70. Print a two-sided job using the following methods:
- sheetwise,
  - work-and-turn, and
  - work-and-tumble.
- \_\_\_ \_\_\_ \_\_\_ 71. Print a multi-color job that contains register marks and color bars with accurate registration and monitored ink density.
- \_\_\_ \_\_\_ \_\_\_ 72. Print a process color job on coated paper.

- \_\_\_ \_\_ \_\_ 73. Explain the purpose of stray powder on an offset press.
- \_\_\_ \_\_ \_\_ 74. Explain the purpose of a drying unit on an offset press.
- \_\_\_ \_\_ \_\_ 75. Demonstrate wash-up techniques for the inking system (including a color wash), dampening system, and cylinders.
- \_\_\_ \_\_ \_\_ 76. Describe the use of a press console.

## G. QUALITY

3 2 1 N

- \_\_\_ \_\_ \_\_ 77. Describe the use of color bars for quality control.
- \_\_\_ \_\_ \_\_ 78. Describe the functions of optical measurement tools used for quality control:
- densitometer and
  - spectrophotometer.
- \_\_\_ \_\_ \_\_ 79. Interpret color bars on a press sheet to determine corrective actions, if necessary.
- \_\_\_ \_\_ \_\_ 80. Describe the importance of print industry specifications:
- web offset publications (SWOP),
  - specifications for newsprint advertising productions (SNAP), and
  - general requirements for applications in commercial offset lithography (GRACoL).
- \_\_\_ \_\_ \_\_ 81. Adjust inking and/or dampening system so that solid ink density matches print specifications (SNAP, GRACoL, and SWOP).
- \_\_\_ \_\_ \_\_ 82. Discuss the use of color-controlled lighting in press sheet evaluation.

## H. MAINTENANCE

3 2 1 N

- \_\_\_ \_\_ \_\_ 83. Review the procedures for daily, weekly, and monthly maintenance on a press.
- \_\_\_ \_\_ \_\_ 84. Discuss the importance of maintenance recording in a log.
- \_\_\_ \_\_ \_\_ 85. Perform press maintenance and record the information in a log.

- \_\_\_ \_\_ \_\_ 86. Perform roller care and maintenance of inking and dampening systems.

## I. MATH AND MEASUREMENT

3 2 1 N

- \_\_\_ \_\_ \_\_ 87. Solve addition of fraction problems.
- Calculate total amount of ink if can one contains 1 ½ pounds and can two contains 4 ¾ pounds.*
- \_\_\_ \_\_ \_\_ 88. Solve subtraction of decimal problems—two and three digits.
- Calculate the hourly pay if employee is paid \$15.00 per hour and is late 30 minutes.*
  - Calculate remaining space if total space of print center is 10,450 square feet and bindery takes up 364 square feet.*
- \_\_\_ \_\_ \_\_ 89. Solve basic ratio and proportion problems.
- If a 5000 sheet job can be completed in 30 minutes, how many sheets will be completed in 20 minutes?*
- \_\_\_ \_\_ \_\_ 90. Solve basic liquid measurement problems.
- Calculate the total of a one quart bottle and a 13 ounce bottle of aqueous lamination liquid.*
- \_\_\_ \_\_ \_\_ 91. Convert English to metric.
- Calculate to meters the length of a roll of paper that is 500 feet long.*
  - Calculate paper weight from pounds to grams per square meter.*
- \_\_\_ \_\_ \_\_ 92. Estimate a small offset press job, labor costs to include make-ready, running, and clean-up.
- \_\_\_ \_\_ \_\_ 93. Estimate ink and paper costs on a common print job.

## BINDERY & FINISHING

### A. BINDERY AND FINISHING TECHNOLOGIES

3 2 1 N

- \_\_\_ \_\_ \_\_ 94. Review the mechanical safety requirements when working with bindery and finishing equipment.
- \_\_\_ \_\_ \_\_ 95. Summarize the finishing production information on a job jacket/ticket.
- \_\_\_ \_\_ \_\_ 96. Prepare folding dummies from instructor specified impositions.
- \_\_\_ \_\_ \_\_ 97. Demonstrate how to check the squareness of stock.
- \_\_\_ \_\_ \_\_ 98. Demonstrate paper jogging techniques.
- \_\_\_ \_\_ \_\_ 99. Demonstrate paper sheet counting techniques by:
- ream marker,
  - weight, and
  - caliper.
- \_\_\_ \_\_ \_\_ 100. Identify hand tools, equipment, and materials in bindery operations.
- \_\_\_ \_\_ \_\_ 101. Identify in-line finishing systems.
- \_\_\_ \_\_ \_\_ 102. Identify off-line finishing systems.
- \_\_\_ \_\_ \_\_ 103. Describe specialty finishing techniques:
- foil stamping,
  - embossing/debossing,
  - perforation,
  - drilling/punching,
  - scoring,
  - die cutting,
  - coating, and
  - lamination.
- \_\_\_ \_\_ \_\_ 104. Determine key activities within a bindery operation in a commercial printing plant either on site or online via a virtual tour.
- \_\_\_ \_\_ \_\_ 105. Determine the skills required to work in a bindery operation.

### B. CUTTING

3 2 1 N

- \_\_\_ \_\_ \_\_ 106. Identify a guillotine cutter.
- \_\_\_ \_\_ \_\_ 107. Define a parent sheet.
- \_\_\_ \_\_ \_\_ 108. Assess instructor supplied paper samples for suitability when cutting.

- \_\_ \_\_ \_\_ 109. Calculate basic paper cuts from a parent sheet, considering job requirements and grain direction.
- \_\_ \_\_ \_\_ 110. Draw a layout of cuts required for an instructor specified printed job.
- \_\_ \_\_ \_\_ 111. Create numbered sequence of cuts for an instructor specified printed job.
- \_\_ \_\_ \_\_ 112. Describe setup and use of programmable guillotine cutter.
- \_\_ \_\_ \_\_ 113. Demonstrate proper cutting procedures for an instructor specified job.

### C. FOLDING

3 2 1 N

- \_\_ \_\_ \_\_ 114. Assess instructor supplied paper samples for suitability when folding.
- \_\_ \_\_ \_\_ 115. Describe folding configurations:
- a. half fold,
  - b. tri fold,
  - c. Z fold,
  - d. Accordion fold,
  - e. gate fold, and
  - f. French fold.
- \_\_ \_\_ \_\_ 116. Demonstrate the use of folding equipment to produce:
- a. half fold,
  - b. tri fold,
  - c. Z fold,
  - d. Accordion fold,
  - e. gate fold, and
  - f. French fold.
- \_\_ \_\_ \_\_ 117. Describe the uses and customer application of common folds.
- \_\_ \_\_ \_\_ 118. Describe folding techniques:
- a. right angle folding,
  - b. knife folding,
  - c. buckle folding, and
  - d. combination folding.
- \_\_ \_\_ \_\_ 119. Describe scoring.
- \_\_ \_\_ \_\_ 120. Describe the advantages/disadvantages of using a press or a folder to score or perforate sheets.

### D. COLLATION

3 2 1 N

- \_\_ \_\_ \_\_ 121. Review workflow steps used for collating sets of print.
- \_\_ \_\_ \_\_ 122. Compare the collating ability of digital presses versus offset.
- \_\_ \_\_ \_\_ 123. Demonstrate proper collation of sets in correct sequence for an instructor specified job.

### E. BINDING

3 2 1 N

- \_\_ \_\_ \_\_ 124. Describe binding:
- a. side stitch,
  - b. saddle stitch,
  - c. perfect bind,
  - d. coil bind,
  - e. wire bound,
  - f. comb binding,
  - g. velo binding, and
  - h. padding.
- \_\_ \_\_ \_\_ 125. Discuss reasons why customers choose different binding applications.
- \_\_ \_\_ \_\_ 126. Assess instructor supplied paper samples for suitability when binding.
- \_\_ \_\_ \_\_ 127. Identify spiral binding, perfect bind, and wire binding equipment.
- \_\_ \_\_ \_\_ 128. Define crossover.
- \_\_ \_\_ \_\_ 129. Define creep of pages when folding a signature.

### F. TRIMMING

3 2 1 N

- \_\_ \_\_ \_\_ 130. Discuss types of projects that require trimming.
- \_\_ \_\_ \_\_ 131. Explain the role of trimming to create a bleed effect.
- \_\_ \_\_ \_\_ 132. Use a paper cutter to trim bound books.

### G. PACKING

3 2 1 N

- \_\_ \_\_ \_\_ 133. Identify packaging and shrink wrap equipment and materials.
- \_\_ \_\_ \_\_ 134. Summarize packaging information on job jacket/ticket.

### H. MAILING

3 2 1 N

- \_\_ \_\_ \_\_ 135. Review USPS capabilities.
- \_\_ \_\_ \_\_ 136. Review USPS postal regulations:
- a. size,
  - b. weight, and
  - c. rates.
- \_\_ \_\_ \_\_ 137. Demonstrate the correct placement of addressing and additional elements on job that will be mailed.
- \_\_ \_\_ \_\_ 138. Discuss the benefit of maintaining correct postal zip code order while performing bindery operations.
- \_\_ \_\_ \_\_ 139. Review the quality assurance procedures of maintaining correct postal zip code order while performing bindery operations.

### I. MAINTENANCE

3 2 1 N

- \_\_ \_\_ \_\_ 140. Demonstrate preventative maintenance on instructor specified bindery equipment.
- \_\_ \_\_ \_\_ 141. Determine when a blade needs to be changed on a paper cutter.
- \_\_ \_\_ \_\_ 142. Perform preventative maintenance on a paper cutter.

### J. MATH AND MEASUREMENT

3 2 1 N

- \_\_ \_\_ \_\_ 143. Solve subtraction of whole number problems—two and three digits.
- Calculate how much paper is left after completing a job that required 6,355 sheets when starting with 12,000 sheets.
  - Calculate remaining booklets if initial quantity is 900 and 26 are spoiled in bindery.
- \_\_ \_\_ \_\_ 144. Solve multiplication of decimal problems—two and three digits.
- Calculate the value of 2000 pounds of scrap paper at 2.5 cents per pound.
  - Calculate total cost of a \$250 job after a 6.55 percent sales tax is added.

- \_\_\_ \_\_ \_\_ \_\_145. Solve division of whole number problems—two and three digits.
- *Calculate how many 24 page booklets are created from a total run of 1450 pages.*
  - *Calculate average salary of seven employees if total payroll is \$125,000.*
- \_\_\_ \_\_ \_\_ \_\_146. Solve basic paper cutting calculations.
- *Calculate the number of 8.5 x 11 sheets that can be cut from a 23 x 35 inch sheet.*
- \_\_\_ \_\_ \_\_ \_\_147. Estimate the cost of materials and production for performing three instructor specified bindery operations.