

Press Operations, Binding and Finishing

Instructional/Task Analysis

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit 1: Offset Press Systems

1. Offset press systems terms and definitions
2. Basic theory of offset printing
3. Basic systems of a typical sheet fed offset press*
4. Functions of basic systems of a typical sheet fed offset press
5. Basic systems of a typical web offset press*
6. Advantages and disadvantages of a web offset press*
7. Components of the feeder system
8. Components of the feeder system and their functions
9. Types of feeder systems and their operations*
10. Components of the register system
11. Components of the register system and their functions*
12. Two types of register systems*
13. Components of the cylinder system
14. Components of the cylinder system and their functions
15. Types of offset blankets*
16. Offset press cylinder arrangements
17. Perfecting press*
18. Components of a conventional inking system
19. Components of a conventional dampening system
20. Components of the inking/dampening system and their functions
21. Two types of dampening systems*
22. Components of the delivery system
23. Functions of components of the delivery system
24. Types of delivery systems*
25. Test the basic theory of offset printing

Instructional/Task Analysis

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit 2: Offset Inks and Dampening Chemistry

- | | |
|--|---|
| 1. Terms and definitions | 16. Conduct an ink cabinet inventory* |
| 2. Main ingredients of offset inks* | 17. Conduct an inventory of offset press dampening chemistry* |
| 3. Three ink manufacturing procedures which benefit the user | 18. Mix dampening solution and test for pH and conductivity* |
| 4. Types of ink* | 19. Mix PMS colors; conduct and evaluate an ink draw-down or smear* |
| 5. Three conditions influencing the printing performance of offset inks | 20. Mix two colors of ink to produce a third color* |
| 6. Three ink properties which affect the printing quality of offset inks | |
| 7. Rules for ink care, storage, and disposal | |
| 8. Purpose of offset dampening solutions | |
| 9. Dampening solution ingredients and their functions* | |
| 10. Two methods of measuring pH* | |
| 11. pH range for a fountain solution | |
| 12. Effects of using alcohol or alcohol substitutes in a fountain solution | |
| 13. Importance of measuring conductivity of a dampening solution* | |
| 14. Importance of ink-water balance* | |
| 15. Characteristics of waterless printing* | |

Unit 3: Platemaking Procedures

1. Terms and definitions
2. Identify types of plate ends
3. Types of offset plates
4. Plate exposing devices.
5. Types of presensitized plates
6. Steps to expose and process plates
7. Automatic plate processors

Instructional/Task Analysis

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit 3: Platemaking Procedures (continued)

- | | |
|--|---|
| 8. Items to consider when selecting a plate material | 13. Expose and develop a subtractive plate |
| 9. Gumming of plates | 14. Determine plate exposure using a step-off test |
| 10. Handling and storing plates | 15. Expose a plate when using a screen tint |
| 11. Do's and don'ts for properly handling plates and chemicals | 16. Make plates for a two-color job |
| 12. Pin registration systems* | 17. Make additions, deletions, and repairs to an offset plate |
| | 18. Prepare a digital plate |

Unit 4: Offset Press Operating Procedures

- | | |
|--|---|
| 1. Terms and definitions | 8. Compare control features of offset and digital presses |
| 2. Essential safety precautions* | 9. Set up the sheet control systems* |
| 3. Two reasons why efficient press operation is important | 10. Set up the image control systems* |
| 4. Offset press operator control functions* | 11. Operate an offset press from setup of systems through printed sheet delivery* |
| 5. Typical operator control features and the press systems in which they are located* | 12. Rule up a sheet |
| 6. Arrange in order steps in the sequence of paper movement through a typical offset press | 13. Perform a color wash on an offset press* |
| 7. Ink key presetting technology* | 14. Print envelopes* |
| | 15. Change press from envelopes to letterhead |
| | 16. Print a two-color, two-sided job* |
| | 17. Print a two-color hairline registration job using an additional color head* |
| | 18. Print a work-and-turn* |
| | 19. Print a work-and-tumble* |
| | 20. Print halftones and screen tints* |
| | 21. Print solids* |
| | 22. Print a job using photodirect, electrostatic, and/or computer-to-plate masters on carbonless paper* |
| | 23. Print a four-color process job* |
| | 24. Perform perforation and scoring* |
| | 25. Print a two-color job using tight registration* |
| | 26. Print a two-color job using tight registration, 4-up* |

Instructional/Task Analysis

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit 5: Preventive Maintenance and Troubleshooting

1. Match terms and definitions
2. Advantages of a routine, thorough preventive maintenance program
3. Three areas of work in a preventive maintenance program
4. Preventive maintenance schedules
5. Requirements for a preventive maintenance schedule in chart form
6. Preventive maintenance procedures for daily cleanup*
7. Preventive maintenance procedures for weekly cleanup
8. Preventive maintenance procedures for monthly cleanup
9. Procedures for daily, weekly, and monthly lubrication
10. Daily and weekly adjustment procedures
11. Monthly adjustment requirements
12. Steps in making an ink form roller check
13. Ink stripe configurations
14. Troubleshooting techniques
15. Categories of press troubles*
16. Types of emulsification*
17. Technique for avoiding emulsification*
18. Conditions that create ink drying problems
19. Common ink problems on the press
20. Process color ink analysis*
21. Printing industry standards*
22. Guidelines for evaluating good print quality
23. Print quality problems and their causes
24. Use a troubleshooting guide to find the best solution to an ink and dampening problem*
25. Use a troubleshooting guide to find the best solution to a paper stock problem*
26. Use a troubleshooting guide to find the best solution to a registration problem
27. Use a troubleshooting guide to find the best solution to a process problem
28. Use a troubleshooting guide to find the best solution to a mechanical problem
29. Determine lubrication requirements for a specific press*
30. Set up a preventive maintenance schedule in chart form*
31. Take an inventory of spare parts
32. Adjust dampener rollers to plate cylinder*
33. Adjust ink form rollers to plate*
34. Adjust plate cylinder to blanket cylinder*
35. Adjust blanket cylinder to impression cylinder*
36. Degrease plate and impression cylinders
37. Deglaze ink rollers and blanket*
38. Change blanket*
39. Backflush vacuum pump

Instructional/Task Analysis

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit 6: Job Ticket and Cost Awareness

- | | |
|---|--|
| 1. Terms and definitions | 10. Estimate costs of printing jobs* |
| 2. Fixed and variable costs of a printing job | 11. Estimate costs of printing jobs using Franklin Offset Catalog or Software* |
| 3. Cost items to consider when giving an estimate on a printing job | |
| 4. Franklin Offset Catalog/Software to estimate a printing job | |
| 5. Cost awareness factors for a successful printing business | |
| 6. Proper practices for waste management in the printing shop | |
| 7. Definition of a job ticket | |
| 8. Components of a job ticket | |
| 9. Printing trade customs | |

Unit 7: Calculating and Cutting Paper

- | | |
|--|--|
| 1. Terms and definitions | 9. Use the formula for cutting paper stock* |
| 2. Safety rules for operating a paper cutter* | 10. Use the formula to determine how many sheets will be required* |
| 3. Purpose of jogging paper before cutting* | 11. Calculate a combination cut using stock cutting formula* |
| 4. Two types of paper cutters | 12. Draw a cutting diagram* |
| 5. Two techniques for cutting carbonless paper | 13. Set up a programmable paper cutter and cut paper* |
| 6. Formula for cutting paper stock* | 14. Change a blade on an automatic paper cutter* |
| 7. Formula for determining the number of sheets to be cut for a printing job | 15. Cut carbonless paper* |
| 8. Formulas for making a combination cut | |

Unit 8: Binding and Finishing

1. Terms and definitions
2. Paper folding styles*
3. Embossing and foil stamping
4. Common problems encountered in foil stamping and embossing*

Instructional/Task Analysis

Related Information: What the Student Should Know

Application: What the Student Should Be Able to Do

Unit 8: Binding and Finishing (continued)

- | | |
|---|--|
| 5. Advantages and two disadvantages of laminating and coating techniques* | 15. Use folding equipment to produce a gate fold* |
| 6. Binding methods* | 16. Use folding equipment to produce a French fold (double fold)* |
| 7. Tipping* | 17. Use folding equipment to produce slitted, perforated, and scored sheets* |
| 8. Folding techniques* | 18. Jog paper, check for squareness, and demonstrate brick stacking* |
| 9. Inline finishing operations* | 19. Prepare a folding dummy for a 16-page imposition* |
| 10. Ancillary finishing operations* | 20. Set up and operate a paper folder consistent with job specifications* |
| 11. Packing and shrink-wrapping equipment and materials* | 21. Use folding equipment to produce high-folio lip signatures* |
| 12. Bindery waste disposal* | 22. Bind a book with plastic coil binding* |
| 13. Mail class guidelines* | 23. Bind a book with thermal tape binding* |
| 14. Mail class rates* | 24. Bind a book with plastic comb binding* |

Unit 9: Troubleshooting and Maintenance for Binding and Finishing

- | | |
|--|--|
| 1. Importance of troubleshooting in binding and finishing* | 7. Calculate savings by bindery operators* |
| 2. Steps in bindery preflighting | 8. Set up a preventive maintenance schedule for a folding machine* |
| 3. Select true statements concerning quality control in bindery operations* | 9. Locate and correct a feeding problem on a paper folder |
| 4. Steps in the problem-solving process | 10. Perform preventive maintenance on a folding machine* |
| 5. How the characteristics of paper affect binding and finishing operations* | |
| 6. Troubleshooting and maintenance criteria for bindery equipment* | |