PRESS OPERATIONS II  
Course Syllabus

Course Number: PRNT-1294  
OCAS Code: None  
Course Length: 210 Hours  
Career Cluster: Arts, A/V Technology & Communications  
Career Pathway: Printing Technology  
Career Major(s): Print Production

Pre-requisite(s): This course covers methods and procedures used to produce one and two color reproduction using a variety of small and large presses.

Textbooks: 
The GATF Sheetfed Offset Training Program by GATF Staff, GATF Press Pittsburgh (1998)
Printing in a Digital World by David Bergsland, Delmar, Thomson Learning (1997)

Course Objectives: 
1. Practice safety work habits in press operations.
2. Read and comprehend production information from job ticket/jacket.
3. Describe the various types of digital printing.
4. List the advantages and disadvantages of digital printing vs. offset printing.
5. Describe the use and applications for digital printing in the printing industry.
6. Describe the main technologies and equipment used in digital printing.
7. Describe the operational procedures for each of the controls and adjustments on the press.
8. Identify and use mechanical control of registration.
9. Describe the use of a pin registration system.
10. Trouble shoot press problems:
   a. Paper stock
   b. Mechanical
   c. Chemistry
   d. Registration
12. Use and interpret a conductivity/pH meter.
13. Set-up mix and test ink for printing using color chart for mixing requirements.
14. Print a job on lightweight paper.
15. Print a job on card or board stock.
16. Print a variety of paper finishes:
   a. Halftones
PRESS OPERATIONS II

b. Solids

17. Describe paper characteristics as they relate to printing.
18. Identify various varnishes and coatings.
19. Describe the reasons for using various varnishes and coatings.
20. Print a heavy solid coverage on coated paper.
21. Print a series of jobs using a variety of different impositions.
22. Print a job containing duo-tone.
23. Identify the common problems in color registration and describe the solutions.
24. Interpret color bars on press sheet to determine quality and corrective action if necessary.
25. Identify color densitometry principles and applications.
26. Print a job containing a 133 or above line screen.
27. Perform preventative maintenance procedures on press.
28. Remove, replace, and reset rollers, insuring proper roller pressure and durometer.
29. Select and install plate and/or blanket packing.
30. Interpret quality control data.
31. Interpret and apply industry standards such as SNAP, GRACoL, and SWOP.

B. Perform Set-up Procedures and Operations to Print Documents: Small Presses – Two Color and Large Presses – Two Color.

1. Practice safety work habits in press operations.
2. Read and comprehend production information from job ticket/jacket.
3. Describe the various types of digital printing.
4. List the advantages and disadvantages of digital printing vs. offset printing.
5. Describe the use and applications for digital printing in the printing industry.
6. Describe the main technologies and equipment used in digital printing.
7. Describe the operational procedures for each of the controls and adjustments the press.
8. Identify and use mechanical control of registration.
9. Describe the use of a pin registration system.
10. Trouble shoot press problems:
    a. Paper stock
    b. Mechanical
    c. Chemistry
    d. Registration
12. Use and interpret a conductivity/pH meter.
13. Set-up mix and test ink for printing using color chart for mixing requirements.
14. Print a job on lightweight paper.
15. Print a job on card or board stock.
16. Print a variety of paper finishes:
    a. Halftones
    b. Solids
17. Describe paper characteristics as they relate to printing.
18. Identify various varnishes and coatings.
19. Describe the reasons for using various varnishes and coatings.
20. Print a heavy solid coverage on coated paper.
21. Print a series of jobs using a variety of different impositions.
22. Print a multi-color job on a duplicator using a 2 color press on coated paper.
23. Print a job containing duo-tone.
24. Identify the common problems in color registration and describe the solutions.
25. Print a multi-color, 2-sided job on coated paper.
26. Print a process color job on uncoated paper.
27. Print a process color job on coated paper.
28. Interpret color bars on press sheet to determine quality and corrective action if necessary.
29. Identify color densitometry principles and applications.
30. Perform preventative maintenance procedures on press.
31. Remove, replace, and reset rollers, ensuring proper roller pressure and durometer.
32. Select and install plate and/or blanket packing.

Tulsa Tech
Revised: 9/2/2014
14-15 SY Course Syllabus
Page 2 of 5
33. Interpret quality control data.
34. Interpret and apply industry standards such as SNAP, GRACoL, and SWOP.
35. Print a job containing a 133 or above line screen.

C. Perform Set-up Procedures and Operations to Print Documents Using a Cadet Flexographic Press.
1. Practice safety and procedures pertaining to flexographic operations.
2. Read and comprehend production information from job ticket/jacket.
3. Discuss the history of flexography.
4. Discuss the narrow web process.
5. List the flexographic narrow web products.
6. Discuss the flexographic narrow web market.
7. Identify narrow flexographic presses.
   a. Stack press
   b. Central impression (ci) press
   c. In-line press
8. Discuss types of Print ED designs:
   a. Line work
   b. Screen work
   c. Process color and halftone
9. Discuss the process of printing plates.
10. Discuss different methods of plate mounting:
    a. Hand mounting method
    b. Pin register mounting method
    c. Video/microscope assisted mounting
11. Identify types of cylinders:
    a. Integral cylinders
    b. Demountable cylinders
    c. Continuous design laser engraved
    d. Print cylinder
    e. Plate cylinder addition
12. Discuss types of tooling:
    a. Diecutting
    b. Hole punching
13. Discuss the print station:
    a. Fountain roll
    b. Anilox roll
    c. Plate cylinder
    d. Impression cylinder
14. Discuss types of inking systems:
    a. Two-roll system
    b. Reverse angle doctor blade system
    c. Chamber blade system
15. Discuss types of ink and substrates:
    a. Paper
    b. Foil
    c. Pressure sensitive coated films
    d. Different types of film
16. Identify types of ink.
17. Identify ink components.
18. Discuss ink system.
19. Discuss overprint varnish.
20. Discuss viscosity and how to measure.
21. Use and interpret a conductivity/ph meters.
22. Discuss characteristics of quality ink.
23. Discuss ink identification, handling, and storage.
24. Discuss basic press operations.
25. Demonstrate knowledge of unwind section.
26. Demonstrate knowledge of web path:
   a. Prior to print section
   b. Through print section
   c. Drying section
   d. After print section
   e. Rewind section

27. Discuss set-up procedures.
28. Demonstrate knowledge of selecting appropriate print stations.
29. Demonstrate knowledge of inspecting the dies.
30. Demonstrate knowledge of plate inspection.
31. Perform installation of anilox roller.
32. Perform installation of dies.
33. Demonstrate knowledge of stock set-up.
34. Demonstrate knowledge of setting up edge guides.
35. Demonstrate knowledge of setting up lamination station.
36. Perform dry registering the press.
37. Prepare print stations.
38. Prepare ink distribution systems.
39. Set-up fountain roll and/or doctor blade.
40. Perform color matching process.
41. Discuss press run procedures.
42. Check ink viscosity.
43. Perform ink-up:
   a. Adding ink to fountain
   b. Monitor pH of water-based inks
   c. Add reducer
   d. Add amine (water-based inks only)

44. Perform quality check and registration.
45. Print a single color job using appropriate die.
46. Print a two color job using appropriate die and lamination station.
47. Print a process job using appropriate die and lamination station.
48. Discuss clean-up procedures.
49. List necessary cleaning equipment and supplies.
50. Perform clean-up:
   a. Clean the ink fountain
   b. Clean the plates
   c. Remove cutting die
   d. Clean anilox roll
   e. Mark in containers
   f. Label unPrint ED stock
   g. Clean area around machine

D. Perform Set-up Procedures and Operations to Utilize Vinyl Graphic Wraps.

1ODCTE objective
2Print ED competencies
All unmarked objectives are TTC instructor developed.

Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.
## PRESS OPERATIONS II

### Grading Procedures:
1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

### Description of Classroom, Laboratories, and Equipment:
Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

### Available Certifications/College Credit
The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

### College Credit Eligibility:
The student must maintain a grade point average of 2.0 or better.