Wisconsin Youth Apprenticeship

Arts, A/V Technology and Communications

PROGRAM GUIDE

Department of Workforce Development

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For more information contact:

Department of Workforce Development
P.O. Box 7972
Madison, WI 53707-7972

Arts, A/V Technology and Communications
YOUTH APPRENTICESHIP
PROGRAM GUIDE

Description

The Arts, A/V Technology and Communications Career Cluster -- Printing Technology Pathway careers range from press operators to customer service representatives and sales. The printing industry "applies creativity and technical skills to transform text and graphics into finished products."[1] Industries range from commercial printing, label and tag printing, greeting card printing, specialty printing, packaging printing, to other trade services, such as binding and finishing. Furthermore, printing is one of the largest manufacturing industries in the United States, employing 1 million people in over 38,000 establishments. Wisconsin ranks 8th with printing sales exceeding over 45,000 people in 1020 establishments.[2]

The Arts, A/V Technology and Communications career cluster is expected to be driven by changing trends. While newspapers and magazines have been impacted by declines in print volumes, the need for immediate media, integrated across communication platforms, is increasing the need for technological expertise in computers and graphic design. This trend is fueling increased demand in this area[3].

This Youth Apprenticeship occupational area focuses on one pathway within the Arts, A/V Technology and Communications industry: Graphic Arts and Printing Technology. People who work in the Printing Technology pathway create visual concepts through design with color, lettering, images, and logos. They then take those designs and convert them into printed material in 3 stages: Pre-press, press, and binding and finishing.[2]

The Youth Apprenticeship Program was approved by the Wisconsin State legislature in 1991 to provide a direct link between business, schools, and youth to meet the workforce demands of technology, teamwork, communication, and leadership.

Wisconsin Youth Apprenticeship (YA) is a rigorous program that combines academic and related technical classroom instruction with mentored on the job learning for high school students. By training youth apprentices, employers play an active role in shaping the quality of their future workforce, improving the skill level of potential workers, and enhancing their competitive positioning in the marketplace. Employers,

[1] Arts, A/V Technology and Communications Career Cluster brochure, NCTEF, 2010.
[2] Printing Industries of America (www.printing.org) and the Great Lakes Graphics Association (www.glga.info)
[3] Department of Labor, Occupational Outlook Handbook, 2010-2020.

school districts, local consortiums, parents, and potential YA students are referred to the *Youth Apprenticeship Program Operations Manual* for general YA Program requirements.

Objective

The Wisconsin Arts, A/V Technology and Communications YA Program is designed to provide students with a working understanding of occupational and technical skills in one of the six pathways within the Arts, A/V Technology and Communications industry. This program provides the framework for educators and industry to work together to produce work-ready, entry-level employees that will compete favorably in a global market, as well as, provide for post-secondary educational advancement while integrating work-based learning in the school and at the worksite.

The following features distinguish a YA Program from other similar youth school to work programs.

- Level Two Youth Apprenticeship is a two-year program for high school juniors and seniors with an interest in a particular field; i.e., printing technology. One-year Youth Apprenticeship Programs are also available to pursue.
- Youth apprentices, parents, employers, YA program coordinators, and school districts enter into a written agreement approved by the Department of Workforce Development.
- Statewide skills are established by the industry, making the youth apprentice skill set more relevant to the state's employers.
- Youth apprentices are trained at the worksite by skilled mentors and are paid minimum wage or better for their work. Students average 10-15 hours per week.
- Youth apprentices receive a high school diploma and a Certificate of Occupational Proficiency from the Wisconsin Department of Workforce Development (DWD) at graduation.
- Youth apprentices may receive advanced standing credit and/or transcripted credit for the YA Program at a Wisconsin Technical College and/or at some four year colleges. See **Appendix F** for current details.
- Statewide skill standards focus on skills and knowledge needed by employers for entry level employment in the Arts, A/V Technology and Communications industry.

Students apply and are interviewed by Arts, A/V Technology and Communications employers for positions in the Arts, A/V Technology and Communications YA Program. The state approved skill standards and program guide for the Arts, A/V Technology and Communications YA Program are used in both the classroom instruction and worksite learning. If the local school district is unable to provide the related technical classroom instruction courses, they may contract with their local technical college or employer practitioners to do so.

The skill standards are competency based. Competencies are performance-based outcome statements of occupational related skills defined by representatives of Arts, A/V Technology and Communications worksites throughout Wisconsin and aligned with national skill standards. The competencies in this program are aligned with the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) Career Cluster Skill Standards in Arts, A/V Technology and Communications, http://www.careertech.org/ for two of the Arts, A/V Technology and Communications pathways: Printing Technology and Visual Arts.

The competencies will be taught at the worksite in combination with supportive, related technical classroom instruction. While the skill competencies are established statewide, program implementation and oversight occurs through local consortium committees to assure local needs are met.

Target Population

This Youth Apprenticeship occupational area focuses on having Arts, A/V Technology and Communications Printing Technology pathway YA students acquire basic skills pertinent to understanding and working with printing and post-press machinery and processes and/or graphic design and pre-press files. The Printing and Post-Press Operations unit allows students to work with press and post-press equipment according to safety regulations and child labor laws. The Graphics and Pre-Press unit provides students with opportunities to design and manipulate images and prepare print files for printing.

All students successfully meeting current high school graduation requirements and with a good attendance record for that year are encouraged to apply for the Arts, A/V Technology and Communications Youth Apprenticeship (YA) Program. The student must apply to the program in the year previous to program entry and be on track toward fulfilling high school graduation requirements in their school district. SEE **Appendix G** for students entering or continuing the Arts, A/V Technology and Communications YA Program in 2012.

All Youth Apprentices must complete the industry-wide foundational skill competencies consisting of competencies in core employability skills, safety and security. The Required Skill competencies may be completed concurrently with the specific technical skills.

Potential youth apprentices will be required to complete a minimum of 450 work hours with 180 hours (2 semesters) of related technical classroom instruction for a Level One (1-year) Arts, A/V Technology and Communications YA Program or a minimum of 900 work hours with 360 hours (4 semesters) of related technical classroom instruction for a Level Two (2-year) Arts, A/V Technology and Communications YA program.

Arts, A/V Technology and Communications YA students are required to perform all of the Core, Safety and Security skills. **Level One (one year)** YA students also are required to complete a technical skill unit. **Level Two (two year)** YA students are to complete an additional technical one year unit in addition to the Level One requirements. The Press and Post-Press Unit may be repeated two times as long as different processes are learned.

Arts, A/V Technology and Communications Units

Printing Technology Pathway-

Graphic Design and Pre-Press Unit
Press and Post-Press Operations Unit

Arts, A/V Technology and Communications Program Responsibilities

The following responsibilities are outlined for individuals involved in the Arts, A/V Technology and Communications YA Program.

Students-

1. Maintain academic skills and attendance at the high school to remain on track for high school graduation.
2. Participate in progress reviews as scheduled.
3. Exhibit maturity and responsibility to meet requirements of employment as designated by the employer.

Parents or Guardians-

4. Ensure that adequate transportation is available to and from the worksite.
5. Participate in student progress reviews as scheduled.

School District-

6. Recruit students and coordinate student enrollment in the program with the consortiums and/or employers.
7. Integrate the YA Program related technical classroom instruction and worksite training into the student's overall education program with high school graduation credit issued for each semester successfully completed.
8. Participate in student progress reviews as scheduled.

YA Program Coordinators-

9. Apply and maintain approval from the DWD to operate a YA Program.

10. Ensure a minimum of 450 hours of worksite instruction/experience plus a minimum of 180 hours of related technical classroom instruction for each one year YA program.
11. Establish and meet regularly with an advisory committee that will identify when and where tasks will be taught during the Arts, A/V Technology and Communications YA Program.
12. Develop and maintain a yearly commitment with participating high schools, technical colleges, and local businesses to accommodate the number of students involved in the Arts, A/V Technology and Communications YA Program.
13. Establish and maintain a YA student grievance procedure.
14. Provide employer mentor training.

Related Technical Classroom Instruction Faculty-

15. Qualify in the specialty areas being taught in the YA Program.

Employers and Worksite Mentors-

16. SEE **Appendix B –** Arts, A/V Technology and Communications YA Implementation Guide for Employers.
17. Participate in a mentor training session and provide on the job training of the Youth Apprentices.

Department of Workforce Development-

18. Monitor national and state regulatory agencies, such as OSHA, for changes and impact on the Arts, A/V Technology and Communications Youth Apprenticeship Program.

Program Guide Organization

The competencies in this program are aligned with the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) Career Cluster Skill Standards in Arts, A/V Technology and Communications, http://www.careertech.org/, for two of the Arts, A/V Technology and Communications pathways: Printing Technology and Visual Arts.

The Arts, A/V Technology and Communications YA Program also requires that Related Technical Classroom Instruction is provided to support attainment of the knowledge necessary to master the competencies. While recommendations for specific Related Technical Classroom Instruction are detailed separately in **Appendix C**, instructional requirements will vary depending on local consortium and advisory group decisions. It is strongly advised that local consortiums work with their advisory groups to determine appropriate Related Technical Classroom Instruction based on their local needs and resources.

The Youth Apprenticeship Program curriculum is written and organized according to the Worldwide Instructional Design System (WIDS) format and includes the Arts, A/V Technology and Communications YA Skill Standards Checklist, Program Appendices, and Unit Appendices, and Course Outcome Summary (COS) for the program. Overall progress is documented on the Skill Standards Checklist, which lists skill level achievement for each competency achieved. The Unit Appendices outline each skill competency with corresponding performance standards and learning objectives. The Performance Standards describe the tasks and behaviors, as applicable, that employers should look for in order to evaluate the competency. The Learning Objectives outline the recommended content to be covered in the related technical classroom instruction. SEE **Appendix D** - Wisconsin Instructional Design System (WIDS) Format and Youth Apprenticeship Program Guide Terms and **Appendix E** - Use and Distribution of the Curriculum for further details.

Evaluation

The student must successfully complete the related technical classroom instruction and demonstrate the minimum skill level required on the Arts, A/V Technology and Communications YA Skill Standards Checklist for each competency according to the applicable curriculum. Worksite mentors and/or instructors use this checklist to evaluate the learner on each of the required skills. It is the responsibility of the mentor(s) to rate the students skill level on all tasks performed at the worksite.

Arts, A/V Technology and Communications YA Program Completion

Upon successful completion of high school and the Level Two (2 year) Arts, A/V Technology and Communications YA Program requirements, the youth apprentice will receive a high school diploma and the applicable Certification of Occupational Proficiency from the Department of Workforce Development indicating “Arts, A/V Technology and Communications Youth Apprenticeship.” Youth Apprentices who successfully complete a Level One (1 year) Arts, A/V Technology and Communications YA Program and who are on track for graduation will be eligible for a Level One Certificate from the Department of Workforce Development. Furthermore, the YA students may;

1. Continue to work in the Arts, A/V Technology and Communications industry.
2. Apply to a registered apprenticeship.
3. Pursue a degree or diploma from a Wisconsin Technical College with advanced standing and/or transcripted credit.
4. Apply for admission to a four-year University of Wisconsin school with high school academic elective credit for admission.
5. Go into military service.

SEE **Appendix F** for current agreements for post-secondary credit at Wisconsin Technical Colleges and University of Wisconsin colleges.

This curriculum was developed through a Grant from the Wisconsin Department of Workforce Development to Wisconsin's Cooperative Educational Services Agency 6 (CESA6)

Appendices

Appendix A - Work Contracts, Child Labor Laws, Liability and Insurance

Appendix B - Arts, A/V Technology and Communications YA Implementation Guide for Employers

- Benefits to the Employer
- Role of the Employer
- Role of the Mentor
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- Frequently Asked Questions
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Appendix C - Recommended Related Technical Classroom Instruction

Appendix D - Wisconsin Instructional Design System (WIDS) Format and Youth Apprenticeship Program Guide Terms

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Appendix I - Arts, A/V Technology and Communications YA Course Outcome Summary (COS): Overview and Table of Contents

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Appendix A

WORK CONTRACTS, CHILD LABOR LAWS, LIABILITY AND INSURANCE

WORK CONTRACTS

Education Training Agreement -

Students and employers participating in an approved youth apprenticeship program must have a **signed Education/Training Agreement (ETA) on file with both the school AND the employer**. Employers without a valid ETA may be assessed (a) double compensation in the event of injury on the job, and/or (b) fines ranging from $25 to $1,000 for every day without a permit for a first offense to $250 to $5,000 for every day without a permit for a second offense within a five year period. The Local Youth Apprenticeship Coordinator will provide the employer with a copy of the ETA. This form is also available from the Department of Workforce Development at (http://dwd.wisconsin.gov/apprenticeship/ya/forms-pubs.htm).

Work Permits -

Students and employers participating in an approved youth apprenticeship program do not need to obtain a separate work permit for the work to be performed as a part of the youth apprenticeship program, **although it is highly recommended**. If employers hire the youth apprentices to perform other work duties outside of their youth apprenticeship duties, a work permit will be required. Employers without a valid work permit (if applicable) may be assessed (a) double compensation in the event of injury on the job, and/or (b) fines ranging from $25 to $1,000 for every day without a permit for a first offense to $250 to $5,000 for every day without a permit for a second offense within a five year period.

CHILD LABOR LAWS

Youth apprentices enrolled in approved youth apprenticeship programs and their employers are subject to all state and federal child labor laws regarding the employment of minors. The Department of Workforce Development (DWD) will review all statewide youth apprenticeship curriculum for compliance with the child labor laws and will clarify the laws whenever necessary to allow for program implementation. Youth apprentices **are allowed** to work in **some prohibited** occupations because they meet the criteria of **"student learner" AND** the work performed is **incidental** to their training **and** is for **intermittent and for short periods of time** (Wis. Admin. Code DWD 270.14(3)(c)1 at http://docs.legis.wisconsin.gov/code/admin_code/dwd/270.pdf). However, they are **not exempt** from the child labor laws by virtue of being enrolled in a youth apprenticeship program. Students and employers must comply with child labor laws with regard to daily/weekly hours, time of day, employment restrictions, etc.

While DWD can interpret the law, DWD cannot exonerate employers from liability should an accident occur on the job which results in injury to an employee and a subsequent lawsuit. Determining liability for an accident can only be settled in a court of law. DWD can assure employers that they will not be cited (by DWD) for employing a minor in a prohibited occupation as long as the students are enrolled in a DWD approved youth apprenticeship program and a signed Education/Training Agreement is on file with both the student's high school and the employer. This means that employers will not be assessed treble fines should an injury occur which results in the employer being cited.

Readers should refer to DWD 270.12 and 270.14 Child Labor Laws (https://dwd.wisconsin.gov/er/laborstandards/workpermit/lawguide.htm) for descriptions and definitions of the occupations or activities which are normally prohibited to minors.

Arts, A/V Technology and Communications -

Youth apprentices who are 16-17 years old can perform the following tasks, *only after appropriate operation/safety training* AND *only as indicated below*. The ***student learner exception*** limits the minor to **using *hazardous* equipment** on an **incidental** basis [less than 5% of their work time] and only **occasionally** [can't be a regular part of their job]. For example, the student learner exception may apply in a situation, such as carpentry, where most of the work is acceptable but once in a while you might need the minor to use a portable saw to cut a piece to fit. Further interpretation or clarification of Child Labor Laws should be directed to the Department of Workforce Development
(DWD) Labor Standards Bureau Director at 608-266-6860.

Paper-products machines (270.12(22))-

- Students age 16 and 17 years old are **allowed to:**
  - Operate a die cutting press, platen printing press and punch press machine equipped with automatic feed and ejection and with a fixed barrier to prevent hands or fingers of the operator from entering the area between the dies; power presses; and plate punches.
  - ***Load materials into*** a scrap paper baler or paper box compactor IF:
    - ✓ Baler or compactor meets American National Standards Institute (ANSI) standards
    - ✓ Baler or compactor on-off switch is controlled by an adult
    - ✓ On-off switch is OFF when machine is not in use
    - ✓ A warning sign is posted according to 270.12(22)
- Prohibited to ALL Minors:
  - Operating or assisting to operate any of the following power-driven paper products machines
    - ✓ Arm type wire stitcher or stapler
    - ✓ Circular or band saw
    - ✓ Corner cutter or mitering machine
    - ✓ Corrugating and single or double facing machine

- ✓ Envelope die cutting press
- ✓ Guillotine paper cutter or shear
- ✓ Horizontal bar scorer
- ✓ Laminating or combining machine
- ✓ Sheeting machine
- ✓ Scrap paper baler
- ✓ Vertical slotter

- Machines involving **hand feeding**
  - ✓ Platen die cutting press
  - ✓ Platen printing press
  - ✓ Punch press
- Occupation of setting up, adjusting, repairing, oiling or cleaning these machines.

  NOTE: Setting up, adjusting, repairing and cleaning is allowable provided the tasks are completed electronically OR in a manner so that the youth is not accessing sharp or moveable parts.

Saws and guillotine shears (270.12(25))-

o Students may operate or assist on these types of machines **only if** they are equipped with full automatic feed and ejection and fixed guards. *All other types are considered hazardous.*

  NOTE: Setting up, adjusting, repairing and cleaning is allowable provided the tasks are completed electronically OR in a manner so that the youth is not accessing sharp or moveable parts.

Hoists and Hoisting Apparatus (270.12(12))-

o Students age 16 and 17 years old are **not** allowed to:
  - operate an elevator, crane, derrick, hoist or high-lift truck (including hoists commonly used on tow trucks and other hoists), **except** operating an unattended automatic operation passenger elevator or an electric or air-operated hoist not exceeding one-ton capacity;
  - perform work that involves riding on a man lift or on a freight elevator, **except** a freight elevator operated by an assigned operator;
  - assist in the operation of a crane, derrick or hoist performed by crane hookers, crane chasers, hookers-on, riggers, rigger helpers and like occupations.

o Students under age 18 **may** operate an automatic elevator and an automatic signal operation elevator under certain conditions. Refer to DWD 270.12(12)(2) for exceptions and definitions of the terms used in this section.

Student Learner Criteria -

In order to be considered a student learner, youth apprentices must meet the following criteria:

1. They are enrolled in a youth apprenticeship program approved by DWD;
2. They are enrolled in school and receiving school credit for program participation;
3. They receive appropriate safety instruction at the school and at the workplace;
4. The work performed is under direct and close supervision of a qualified and experienced person;
5. The ***work performed in any occupation declared hazardous*** is **incidental** to their training **and** is for **intermittent** and **short periods of time** (refer to DWD 270.14(3)(c)1; &
6. There is a schedule of organized and progressive work processes to be performed on the job (i.e. the worksite is following the state curriculum);

Hours of Work -

The hours an apprentice spends working in the program *during* the hours school is in session during the day **DO NOT COUNT** towards the total hours a minor may work. See the **DWD Child Labor website** for applicable hours and times of the day that minors may work in Wisconsin. (https://dwd.wisconsin.gov/er/laborstandards/workpermit/lawguide.htm)

LIABILITY AND INSURANCE

As employees of the company, youth apprentices are covered by worker's compensation in the event of injury on the job. Employers should review their specific liability coverage to ensure there are no restrictions on employing minors and/or on coverage of minors operating particular machinery. Schools are not allowed to cover youth apprentices through their own workers' compensation policy while the youth apprentice is an employee of the local business.

As stated previously, DWD and/or local schools cannot exonerate employers from liability if a youth apprentice is injured on the job and a subsequent lawsuit is filed against the employer. Determining liability for an accident can only be settled in a court of law and will be based on the specific circumstances for each case. It is important that a signed ETA be kept on file by both the school and the employer to ensure that employers will not be cited for illegally employing a minor in a prohibited occupation.

General Liability –

An employer is liable for the service provided at their facility. In general an employer has adequate general liability and workers compensation coverage, no additional liability is required as a result of the Youth Apprenticeship program. However, before participating in the program, an employer may wish to consult with their insurance carrier.

Transportation –

In general, the party responsible for transportation is liable in case of an accident. Youth apprentices responsible for their own transportation to and from the worksite are responsible for their own insurance. In instances where the school provides transportation for the youth apprentices, the school is responsible for insurance coverage. Only if the facility provides transportation to and from work for the youth apprentice is the facility responsible for this insurance coverage.

Workers Compensation –

Once a youth apprentice becomes a paid employee they must be covered by the employer's workers compensation coverage.

Unemployment Compensation –

If a youth apprentice is enrolled full-time in a public educational institution and receives school credit for their participation in the YA program, then they are generally NOT eligible to claim unemployment compensation from the employer. Youth apprentices who do NOT meet this criterion may be eligible for unemployment compensation benefits.

Worker Displacement –

No employer may hire a youth apprentice who will displace any currently employed worker, including a partial displacement, such as reduction in the hours of non-overtime work, wages, or employment benefits.

Layoffs/Strikes –

A youth apprentice cannot be hired when any other individual is on temporary layoff, with the clear possibility of recall, from the same or equivalent job OR if the employer has terminated the employment of any regular employee, or otherwise reduced the workforce, with the intention of filling the vacancy created with a youth apprentice. Local bargaining units should determine the status of youth apprentices already working in the facility in the event of a layoff. Youth apprentices may be laid off or transferred to work areas to take the place of laid off workers. Child labor laws prohibit youth apprentices from working in a company where a strike or lockout is in active progress.

Collective Bargaining Agreements –

The youth apprenticeship program should not impair existing contracts for services or collective bargaining agreements. Any youth apprenticeship program that would be inconsistent with the terms of a collective bargaining agreement shall be approved only with the written concurrence of the labor organization and employer involved.

Appendix B

Wisconsin Arts, A/V Technology and Communications Youth Apprenticeship
Implementation Guide for Employers

BENEFITS TO THE EMPLOYER

The Arts, A/V Technology and Communications Career Cluster-- Printing Technology Pathway careers range from press operators to customer service representatives and sales. The printing industry includes commercial printing, label and tag printing, greeting card printing, specialty printing, packaging printing, and other trade services such as binding and finishing. Furthermore, printing is one of the largest manufacturing industries in the United States, employing 1 million people in over 38,000 establishments. Wisconsin ranks 8th with printing sales exceeding over 45,000 people in 1020 establishments.[1]

The Arts, A/V Technology and Communications career cluster is expected to be driven by changing trends. While newspapers and magazines have been impacted by declines in print volumes, the need for immediate media, integrated across communication platforms, is increasing the need for technological expertise in computers and graphic design. This trend is fueling increased demand in this area[2].

By working with the Arts, A/V Technology and Communications Youth Apprenticeship Program you make an investment in the young people in your community. You will have access to a dependable recruitment pipeline of entry level workers that can be used to increase workforce diversity and provide supervisory opportunity for staff. You will be directly involved in the economic development efforts of your community as well as become a part of the creation of highly skilled workers, an excellent point in any public relations marketing.

A unique opportunity and added incentive for participation in the Arts, A/V Technology and Communications Youth Apprenticeship Program for both the employer and the student is that the competencies are aligned with the curriculum objectives of the national occupational skill standards recognized by the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) Career Cluster Skill Standards in Arts, A/V Technology and Communications, http://www.careertech.org/, and the Secretary's Commission on Achieving Necessary Skills (SCANS).

Employers also play an active role in improving the quality of the future workforce by helping develop skill standards geared to employer needs, reducing employee turnover by hiring program graduates, supporting program graduates as they continue their

[1] Printing Industries of America (www.printing.org) and the Great Lakes Graphics Association (www.glga.info)
[2] Department of Labor, Occupational Outlook Handbook, 2010-2020.

education in post-secondary settings, raising the interest of other employees in education and training, and increasing the potential for teamwork and flexibility in work sharing. One employer noted, "This program is the single most effective use of taxpayer dollars to link our business community to the workforce and training needs of the community. We must expand, celebrate, promote and encourage participation in this endeavor. I have personally gained staff, changed some lives, and enjoyed the successes of the participants. It has enriched our staff in learning to operate as mentors, and enhanced our perception in the community as involved participants.[3]"

ROLE OF THE EMPLOYER

The work-based learning component of the Youth Apprenticeship Program is the **primary** method for teaching the required competencies. The local business becomes an extension of the classroom for the youth apprentice. The related classroom instruction is intended to *support* the work-based learning experience by providing theoretical knowledge and, when needed, providing appropriate skill development. The work-based learning component is designed to provide an on-the-job learning environment for students by being "apprenticed" to an experienced mentor.

As an employer of a youth apprentice, you will be responsible for the following:

Student Selection
Review employment applications, interview candidates, and select the student(s) they want to hire. New Employee Orientation is provided by you according to your facility's Human Resources policies.

Wages
Youth apprentices must receive minimum wage or higher. A pay schedule is agreed upon with the employer, local YA coordinator and the student. Most employers grant periodic raises dependent upon performance or length of employment.

Workers Compensation
Once a youth apprentice becomes a paid employee they must be covered by the employer's workers compensation coverage. Other benefits may be provided at the discretion of the employer.

Education/Training Agreement (ETA)
Employers must sign and comply with the requirements in the ETA, and have a copy on file.

See *Appendix A* "*Work Contracts, Child Labor Laws, Liability and Insurance"* for more detail.

[3] Kent Olson, YA Employer, Wausau, WI

Work Permits

See *Appendix A* "*Work Contracts, Child Labor Laws, Liability and Insurance"* for more detail.

Child Labor Laws
Employers must ensure that the work of any student at their worksite is allowed by Child Labor Laws and is under the direct and close supervision of a qualified and experienced person. Students must be provided with adequate safety training both in the school and at the worksite. All Arts, A/V Technology and Communications Youth Apprenticeship skill standards **competencies** have been reviewed by the Wisconsin Department of Workforce Developments Labor Standards Bureau and are in compliance with the child labor rules.

See *Appendix A* "*Work Contracts, Child Labor Laws, Liability and Insurance"* for more detail.

Unemployment Compensation
YA students are typically not eligible for unemployment compensation from the employer.

See *Appendix A* "*Work Contracts, Child Labor Laws, Liability and Insurance"* for more detail.

Job Performance
Employers review, evaluate, and report on the youth apprentice's job performance approximately every nine weeks to ensure they are learning the required competencies. Mentors are expected to participate in progress reviews with the apprentice, school staff and/or Youth Apprenticeship instructors, and parent(s)/guardian(s).

Worksite Hours
Employers must provide for the youth apprentice to meet the following work requirements:

Youth Apprentices in a Level Two (2-year) program must complete a *minimum* of **900 hours** of work-based learning while they are enrolled in the program. At least 500 hours of the required minimum work-based learning hours must take place when related classes are being held, so that classroom instruction can be integrated with worksite learning.

Youth apprentices in a Level One (1 year) program must complete a *minimum* of **450 hours** of work based learning while they are enrolled in the program. At least 250 hours of the required minimum work-based learning hours must take place when related classes are being held, so that classroom instruction can be integrated with worksite learning.

Youth apprentices may work *more* than the required minimum hours throughout the program.

Training to Competencies
The employer is responsible for providing the worksite training required to meet the skills standard competencies specified in the applicable Arts, A/V Technology and Communications area. This requirement means that while the youth apprentice may be hired under one particular job function, he/she must be allowed to rotate and perform other functions in other departments to meet competencies if some of them are not normally a part of that job function.

Mentors
Employers assign worksite mentors to supervise and train youth apprentices. They also allow the mentors to attend special training classes provided by the local YA consortium to become successful mentors of high school apprentices.

See "Role of Mentors" below for more detail.

Organized Labor
Usually the Arts, A/V Technology and Communications Youth Apprenticeship is considered an educational activity rather than a job classification/position status. However, the youth apprenticeship program should not impair existing contracts for services or collective bargaining agreements. Any youth apprenticeship program that would be inconsistent with the terms of a collective bargaining agreement shall be approved only with the written concurrence of the labor organization and employer involved. If youth apprentices will be working in areas covered by labor agreements, organized labor must be involved to approve the program at the worksite.

See *Appendix A* "*Work Contracts, Child Labor Laws, Liability and Insurance"* for more detail.

ROLE OF THE MENTOR

Workplace mentors are one of the most critical elements which often determine the success of a youth apprenticeship. One mentor may work with more than one youth apprentice at a worksite, and the mentor may assign multiple "trainers" to instruct the youth apprentice while they rotate among various departments.

Effective Mentor Qualifications

- Experience working with adolescents either on the job, through family, or through outside activities
- Effective teaching/training skills with adults and/or youth
- Highly skilled in the area in which the youth apprentices will be trained
- Good communication skills in the workplace

- Knowledge of and commitment to the Arts, A/V Technology and Communications Youth Apprenticeship program

Mentor Responsibilities

- Develop a cooperative training schedule for the youth apprentice to ensure performance of the required work-based skills
- Work with instructors to coordinate the application of classroom learning objectives to the worksite
- Communicate regularly with the school, YA coordinator, and the instructor to ensure work-based learning objectives are being met
- Demonstrate tasks to youth apprentices and explain their importance
- Identify other trainers appropriate to train youth in the required competencies
- Evaluate the youth apprentice's progress on a regular basis and document achievements and skills
- Meet with the student, the student's parent(s)/guardian(s), and school staff and/or YA instructor at least once each grading period to review and update them on the student's progress
- Provide encouragement, support, and direction about the worksite culture and skills
- Help the youth apprentice build self-confidence and self-esteem
- Be alert to personal problems that may affect the apprentice's work performance and guide them to seek help from appropriate sources
- Attend mentor training workshops and mentor meetings

Obtain additional resources for mentoring guidance from your local YA coordinator.

CHECKLIST FOR PROGRAM PARTICIPATION

The following checklist will help you to participate in a Youth Apprenticeship (YA) Program:

- Discuss the Arts, A/V Technology and Communications YA program with the local partnership that offers Youth Apprenticeship Programs
- Consult with the management team of your organization and union officials, if applicable
- Obtain approval from appropriate organization officials to hire youth apprentices
- Identify mentors and arrange for mentor training through your local YA Coordinator
- Interview Arts, A/V Technology and Communications YA candidates for the program
- Select youth apprentice(s)
- Sign Education/Training Agreement (ETA)
- Secure a Work Permit form
- Orient your new youth apprentice to the workplace according to your organization's Human Resources policies

Youth Apprenticeship coordinators are available to meet at your location to facilitate any phase of the YA program.

CHECKLIST FOR PROGRAM OPERATION

The following checklist will help ensure continued operation of the Arts, A/V Technology and Communications Youth Apprenticeship (YA) Program:

- Provide worksite training according to the Arts, A/V Technology and Communications Youth Apprenticeship Area curriculum
- Participate in progress reviews with youth apprentices, school staff and/or YA instructors, and parents/guardians
- Meet regularly with the youth apprentices to discuss their performance and any other issues
- Employ youth apprentices during school breaks, either part-time or full-time
- Participate in recognition events organized by the school for youth apprenticeship graduates

FREQUENTLY ASKED QUESTIONS

For questions not addressed here, do not hesitate to call your local youth apprenticeship coordinator or visit the Department of Workforce Development Youth Apprenticeship website. (http://dwd.wisconsin.gov/apprenticeship/ya/)

How does this program differ from other work-based programs like coop education?
Skilled Certified Coop Education and Youth Apprenticeship are similar in that they are both components of Wisconsin's overall school to work transition programs. An important difference, however, is that Youth Apprenticeship students are exposed to an occupational cluster versus a specific job. Additionally, the skills the student learns are developed in association with Wisconsin Arts, A/V Technology and Communications personnel, Wisconsin technical college faculty, YA consortium coordinators, and school district coordinators/instructors. The curriculum is standardized throughout the state.

Will the mentor have to spend his/her entire time at work teaching the student?
No. Apprentices need to be supervised, but you are not required to "shadow" them at all times. However, someone should be available for guidance as necessary. One mentor may work with more than one youth apprentice at a worksite, and the mentor may assign multiple "trainers" to instruct the youth apprentice while they rotate among various departments.

Will the student do productive work?
Yes. After appropriate training, youth apprentices can become productive employees of the facility. However, since they are often rotated through different departments they will require more training time than employees who stay in the same department. It is important to remember that this is a training program. Upon completion of the probationary period, students are expected to meet the requirements of the position.

Will there be a lot of paperwork for me to complete?
Prior to the program, employers are required to sign the Education Training Agreement and maintain it. During the program, employers are expected to verify the youth apprentice's skills on the job and provide input during grading periods. Mentors must complete/maintain a simple "Skill Standards Checklist" as the student completes their competencies.

What happens if I cannot provide all of the required competencies at my facility?
In order to successfully complete the program and receive a Certificate of Occupational Proficiency, the youth apprentice must demonstrate proficiency in all areas required on the Skill Standards Checklist. If your facility does not provide the full range of services needed for competency mastery, the local youth apprenticeship coordinator may be able to arrange for the missing skills to be provided by another company. This arrangement should be discussed with the coordinator before you hire the youth apprentice.

What costs will my business incur and will I be reimbursed?
Primary costs to the employers are the wages paid to the youth apprentice and mentor during the training period.

Will I have to treat the youth apprentice differently than my other employees?
It is important to remember youth apprentices are placed in your facility to learn. Patience and guidance are required while they learn responsible work habits as well as the required skills. However, they are expected to follow your facility's work rules, e.g., dress code, behavior, discipline, etc., and to become a productive member of the Arts, A/V Technology and Communications team.

What is the typical time frame for activities over the course of a youth apprentice's stay with a facility?
Most program activities follow a one-year or two-year cycle depending on the offerings within your company. There may be variance in the timing of learning activities to accommodate local and seasonal needs including trainer availability.

Appendix C

RECOMMENDATIONS FOR RELATED TECHNICAL CLASSROOM INSTRUCTION FOR ARTS, A/V TECHNOLOGY AND COMMUNICATIONS YA

These recommendations are intended to be used by the Local YA Consortium when determining appropriate related technical instruction for Arts, A/V Technology and Communications YA. It is not all inclusive but should be used to assist the partnership with identification and/or development of course work that supports the work-based competencies as identified in the Skill Standards Checklist. As with all YA programs the consortium must ensure that the related instruction meets with the approval of their administration and school board.

OPERATIONAL NOTES

Related Technical Classroom Instruction maybe offered by the employer, within the school district, at another school district, at a Wisconsin Technical College, and/or at a Community College or University by instructors qualified according to the *Youth Apprenticeship Program Operations Manual*.

Learning Objectives are the foundation of related technical classroom instruction. Consortiums may teach using locally developed coursework; however, it is recommended that agreements with the local technical college be pursued to obtain post-secondary credit for YA worksite and classroom experiences.

A minimum of 180 hours (2 semesters) of related technical instruction is required for each one year YA program with 250 of the **work** hours coinciding with the instruction. The student must also receive high school credit towards graduation for this instruction, no matter the provider.

It is suggested that the following courses or learning experiences be provided as a pre-requisite OR concurrently for students interested in this youth apprenticeship:

- Introduction to Arts, A/V Technology and Communications Careers
- Communications
- Graphic Arts and Design
- Computer file management
- Printing Technologies
- Multimedia
- Publishing
- Additionally, students should complete a job shadow prior to enrollment in the Arts, A/V Technology and Communications YA program

Commercial programs or Employer provided classroom certification programs are also appropriate provided that the student receives high school credit towards graduation for the class work. Possible classroom programs include the

Graphic Arts Education and Research Foundation (GAERF) curriculum (http://www.gaerf.org/) and Printing Industries of America (http://www.printing.org/) workshops and training.

Courses chosen should coincide as much as possible to occupational program requirements if the student intends to continue in the Wisconsin Technical College System or University of Wisconsin system.

Arts, A/V Technology and Communications Youth Apprenticeship (YA) Plan of Study

NAME: _____ **DATE:** _____

The **Arts, A/V Technology and Communications Youth Apprenticeship- Printing Technology Pathway** and **Related Technical Instruction course selection and delivery** are entirely within local consortium control. The recommendations listed below are only a suggested path of YA Arts, A/V Technology and Communications career planning and should be individualized to meet each learner's educational and career goals. All plans should meet high school graduation requirements, as well as, college entrance requirements if applicable.

HIGHLY Recommended for **Arts, A/V Technology and Communications** YA students

Educational Level	Grade	**English/ Language Arts** 4 required	**Social Studies Social Sciences** 3 Required	**Math** 2 Required	**Science** 2 Required	**Career Pathway Courses** **(Electives)**	**Recommended Enhancement Electives or Activities**
Secondary	**9**	Oral Communications (Speech) Business Communications		Technical Math and Measuring	Physical Science	Computers Tech Systems	Skills USA Yearbook
	10				Chemistry	Publishing Tech Applications Multimedia Communications	Skills USA Yearbook Job-Shadowing
	11					**Arts, A/V Technology and Communications Youth Apprenticeship Printing Technology and Visual Arts Pathways - Level One or Two** Employability Skills Customer Service Print Technology Communication Technology Graphic Communications	
	12						

Post-Secondary Occupational Opportunities

The chart below shows examples of career ladders organized by pathway.
For additional career cluster information, visit www.careertech.org
For additional career information on a specific occupation, visit http://wicareerpathways.org/or http://worknet.wisconsin.gov/worknet/default.aspx

		High School Diploma, On-the-Job Training	Certificate, Licensing, and/or Associate's Degree (1-2 years college)	Bachelor's/Master's Degree (4 year college)
Arts, A/V Technology, and Communications Pathways	**Printing Technology**	Data Entry Marking Clerk Pre-Press setter	Bookbinder Copy Writer Etcher and Engraver Package and Label Printing Pre-Press Technician Press Operator Printing Machine Operator	Communication Technologist Communications Management Digital Artist Proofreaders
	Visual Arts	Painting & Coating Worker Photographer	Animator Graphic Designer Videographer Web Design	Computer Graphics Copy Editor Graphic Designer Illustrator

SOURCES: WI Career Pathways, 2012, www.wicareerpathways.org; Worknet, 2012, http://worknet.wisconsin.gov/worknet/default.aspx, Waukesha County Technical College (WCTC), Susan Maresh, Waukesha County School-to-Work, 2007.

Appendix D

WISCONSIN INSTRUCTIONAL DESIGN SYSTEM (WIDS)
FORMAT AND YOUTH APPRENTICESHIP PROGRAM GUIDE TERMS

WIDS/YA Program DOCUMENTS:

Course Outcome Summary (COS)

The overview summary of the Arts, A/V Technology and Communications YA program listing the program units and their corresponding *competencies.*

Arts, A/V Technology and Communications YA Program Guide

Description of the Arts, A/V Technology and Communications YA Program. The *appendices* contain program information; and *competencies* with their corresponding *performance standards* and *learning objectives* by unit. In WIDS, this information is located in the Program Outcome Summary (POS)

Skill Standards Checklist

Listing of ALL the competencies in ALL of the industry-wide and industry-specific skill areas. The checklist provides the overall documentation for DWD of the skill achievement levels for the competencies in the Specialty Areas

WIDS TERMS:

Competency

The major skill or outcome stated in observable, measurable terms telling learners what they must be **able to do** AFTER a learning experience.

Performance Standards

Specifications by which performance of a competency will be evaluated (criteria) and the circumstances/situation (condition) in which the competency will be evaluated. This is what the employer should look for when assessing the student's skills, as applicable to that worksite.

Core Skills

Competencies that address the abilities, values, and attitudes required for productive and successful employment.

Learning Objectives

The background knowledge that is recommended in order for the student to master the competency. These objectives can direct learning in the related technical classroom instruction information that can be taught on-the-job, in a class, online, or through supplemental reading.

Appendix E

USE AND DISTRIBUTION OF THE CURRICULUM

New and current employers should be given at least one set of the complete curriculum package. The curriculum package includes a copy of the **Program Guide**, **Skill Standards Checklist**, **Unit Appendices,** and **the Course Outcome Summary (COS).** In particular, the performance standards for each competency should be highlighted with the employer mentor(s) so that they know HOW to assess the learner for competency evaluation.

All related technical classroom **instructors** will need to be provided with the **Unit Appendices** in order to see the Learning Objectives for each competency for the related technical classroom instruction. The local Arts, A/V Technology and Communications Youth Apprenticeship advisory group should determine the requirements and delivery of the required related technical classroom instruction ***prior to*** offering this YA program in the local consortium area. It is recommended that the advisory group ensure that the learning objectives are being taught either at the employer facility, school, and/or technical college.

At the beginning of the Arts, A/V Technology and Communications YA program, **student learners** should receive a copy of the **Skill Standards Checklist** and the applicable pages from the **Unit Appendices** to review with their instructor(s) **and** worksite mentor(s). This is the opportunity for instructors and mentors to highlight the worksite experiences, related technical classroom instruction, and assessments that will occur. In a performance-based curriculum successful learning is enhanced when the learners have the opportunity to review what will be expected of them in advance of the lessons.

It is recommended that a portfolio be prepared for EACH learner. The learner should be given the responsibility for maintaining this documentation and making it available to the instructor and/or worksite mentor for recording performance assessments.

When the performance criteria are completed successfully, the learner achievement level information must be recorded on the **Skill Standards Checklist**. A copy of the completed Skill Standards Checklist is the piece of documentation required by DWD in order to issue the Certification of Occupational Proficiency.

Appendix F

POST SECONDARY CREDITS

Wisconsin Technical College System –

Graduates of one-year or two-year Arts, A/V Technology and Communications Youth Apprenticeship programs may be awarded credits in Wisconsin Technical College programs. Each Technical College may grant credit through specific local articulation agreements. Contact the local technical college to determine the number and type of articulated credits available for Arts, A/V Technology and Communications YA. The credits may be taken as technical college courses within Youth Apprenticeship programs or may be granted through advanced standing agreements when students enroll in the technical college.

In addition, YA students should request a credit evaluation of their YA classroom and work experiences upon admission to the local technical college under the Wisconsin Technical College System "Credit for Prior Learning Policy" #323 and through the WTCS-YA Credit Articulation Guidance Document. (http://dwd.wisconsin.gov/youthapprenticeship/pdf/wtcs_ya_articulation_guidance_10_2010.pdf)

UW Institutions Credits for *Admission* –

Admission Credits for the *revised* Arts, A/V Technology and Communications Youth Apprenticeship Program are yet TO BE DETERMINED.

The following website lists the current agreement for the acceptance of high school credit for UW four year university admission in Printing YA: UW System Acceptance of YA Program Credit. (http://uwhelp.wisconsin.edu/preparing/youth.aspx#printing)

Appendix G

GRANDFATHER CLAUSE – PROGRAM TRANSITION GUIDELINES

For NEW and CONTINUING Arts, A/V Technology and Communications YA Students

If the student begins Arts, A/V Technology and Communications YA using the OLD checklist in Graphic Arts/Printing, then the student must complete the YA program using the OLD checklist. The appropriate Level One or Level Two Certificate of Occupational Proficiency from the Wisconsin Department of Workforce Development (DWD) will be awarded.

Senior graduating in 2013 **Level One** YA: The youth apprentice may complete either an OLD checklist in Graphic Arts/Printing OR use the revised Arts, A/V Technology and Communications YA checklists. The appropriate Level One Certificate of Occupational Proficiency from the Wisconsin Department of Workforce Development (DWD) will be awarded.

Senior graduating in 2013 **Level Two** YA: The youth apprentice completes the OLD checklist for the year 2 curriculum for Graphic Arts/Printing YA. An appropriate Level Two Certificate of Occupational Proficiency from the Wisconsin Department of Workforce Development (DWD) will be awarded.

Junior in 2012-2013, **Level One** YA: The youth apprentice may complete either an OLD checklist in Graphic Arts/Printing OR use the revised Arts, A/V Technology and Communications YA checklist. The appropriate Level One Certificate of Occupational Proficiency from the Wisconsin Department of Workforce Development (DWD) will be awarded for the Junior year participation in the YA program.

Junior in 2012-2013, **Level Two** YA: The youth apprentice starts either the OLD checklist in Graphic Arts/Printing OR uses the revised Arts, A/V Technology and Communications checklist, however, the youth apprentice must complete the YA program using the same checklist the 2nd year, their Senior year. The appropriate Level Two Certificate of Occupational Proficiency from the Wisconsin Department of Workforce Development (DWD) will be awarded.

Sophomores applying for the Arts, A/V Technology and Communications Program for 2013-2014: New youth apprentices must use the revised Arts, A/V Technology and Communications YA checklists **by the 2013-14** school year. A Certificate of Occupational Proficiency will not be issued to students who submit the old checklist.

NOTE: Additionally, Youth Apprenticeship students must maintain good academic standing and be on track for graduation to be eligible for a Certificate of Occupational Proficiency from the Department of Workforce Development.

Appendix H

ARTS, A/V TECHNOLOGY AND COMMUNICATIONS YOUTH APPRENTICESHIP

SKILL STANDARDS CHECKLIST

DOWNLOAD MOST CURRENT:

http://dwd.wisconsin.gov/dwd/forms/dws/detw-10039-e.htm

SKILL STANDARDS CHECKLISTS (all programs):

http://dwd.wisconsin.gov/youthapprenticeship/skills-checklists.htm

Appendix I

ARTS, A/V TECHNOLOGY AND COMMUNICATIONS YOUTH APPRENTICESHIP

COURSE OUTCOME SUMMARY: OVERVIEW AND TABLE OF CONTENTS

Arts, A/V Technology and Communications Youth Apprenticeship
Course Outcome Summary

Course Information

Organization	Cooperative Educational Services Agency 6 (CESA6)
Developers	Robin Kroyer-Kubicek
Development Date	August 2012

Description
This curriculum describes the performance-based worksite Competencies, Performance Standards, and Learning Objectives for the Wisconsin Youth Apprenticeship (YA) Program in Arts, A/V Technology and Communications. The Wisconsin Arts, A/V Technology and Communications YA Program is designed to provide students with a working understanding of core industry skills and occupationally specific technical skills that serve as the standard for occupations in the Arts, A/V Technology and Communications industry. This program provides the framework for educators and industry to work together to produce work-ready, entry-level employees that will compete favorably in a global market, as well as, provide for post-secondary educational advancement while integrating work-based learning in the school and worksite.

The Arts, A/V Technology and Communications YA program competencies are aligned with the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) Career Cluster Skill Standards in Arts, A/V Technology and Communications, http://www.careertech.org/. Arts, A/V Technology and Communications YA students are required to perform all of the Core, Safety and Security skills for the pathway they enroll in. **Level One (one year)** YA students are to choose additional competencies from a A/V Technology, and Communications Unit in a specific pathway. **Level Two (two year)** YA students are to complete all of the Level One requirements plus an additional unit within their chosen pathway.

Pathway choices:

Printing Technology

EACH competency (worksite skill) is listed with its corresponding Performance Standards and Learning Objectives. The Performance Standards describe the behaviors, ***as applicable***, that employers should look for in order to evaluate the competency. The Learning Objectives describe the classroom learning content recommended for the required related technical instruction.

Curriculum Sources

Blackhawk Technical College, Course Outcome Summaries for Computer Page Layout, Advanced Page Layout, Computer Illustration, and Photoshop/Image Manipulation.

Illinois Occupational Skill Standards for Image/Pre-Press Cluster and Print Press, Illinois Occupational Skill Standards and Credentialing Council, published 2000, accessed June 2007 online at http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED448354&ERICExtSearch_SearchType_0=no&accno=ED448354.

Madison Area Technical College, Course Outcome Summaries for Softwares for Print Production 1 (4/15/2010), Pre-Press Production Procedures 1 (4/15/2010), Lithographic Press Systems 1 (4/15/2010), Finishing and Machine Basics (4/15/2010), Pre-Press Production Procedures 2 (5/18/2010), Lithographic Press Systems 2 (4/15/2010), Finishing and Fulfillment (4/15/2010), Quality Control for Printing (4/15/2010).

NASDCTEc , Career Cluster Knowledge and Skills charts for Cluster Skills, Printing Technology and Visual Arts for 2008. http://www.careertech.org/.

NCTEF, Arts, A/V Technology and Communications Career Cluster Brochure, 2010, Item No. CC103.

Northcentral Technical College, Course Outcome Summaries for Commercial Printing Applications, Press Tech 1 and 2, (8/21/2011).

Oklahoma Career Tech Skills Standards for Graphic Communications: Bindery Operator (OD44104- 2006), Digital Pre-Press Technician (OD44101- 2006), Offset Press Operator (OD44103- 2006), Pre-Press Assembler (OD44102-2006).

Suttle-Straus Printing Company visit on January 25, 2012. 1000 Uniek Dr. Waunakee, WI.

Wikipedia, Printing, Offset Printing, Pre-Press, Bookbindery, Raster Image, Imposition, www.wikipedia.org, accessed September 2011-February 2012.

Wisconsin Administrative Code, Department of Workforce Development, Chapter 270, Child Labor, (dated August 2005) and Wisconsin State Statutes Chapter 106, Apprentice, Employment and Equal Rights Program..

Wisconsin Department of Workforce Development, Jim Chiolino, Labor Standards Bureau, Child Labor Laws, 2012.

Wisconsin Department of Workforce Development, Printing Technology Review Committee, formed September 2011 for the purpose of revising and updating the Graphic Arts/Printing Youth Apprenticeship curriculum.

Wisconsin Technical College System Curriculum Bank, Course Outcome Summaries for Design Fundamentals (6/4/2007- LTC), and Typography (5/12/2009- SWTC).

Worknet Occupation Task Lists for Graphic Designers, Pre-Press Technicians, Printing Machine Operators, Job Printers, Binder Workers, Bookbinders, and Paper Goods Machine Setters, Operators and Tenders accessed from http://worknet.wisconsin.gov/worknet/default.aspx.

This curriculum was developed through a Grant from the Wisconsin Department of Workforce Development to Cooperative Educational Services Agency 6 (CESA6) .

Arts, A/V Technology and Communications Youth Apprenticeship

Table of Contents

REQUIRED SKILLS

APPENDIX J:

Unit 1: Core Skills

1. Apply academic knowledge
2. Apply career knowledge
3. Apply Arts, A/V Technology and Communications industry knowledge
4. Communicate effectively
5. Act professionally
6. Demonstrate customer service skills
7. Cooperate with others in a team setting
8. Think critically
9. Exhibit regulatory and ethical responsibilities
10. Use resource wisely
11. Use basic technology

Unit 2: Safety and Security

1. Follow personal safety requirements
2. Maintain a safe work environment
3. Demonstrate professional role to be used in an emergency
4. Follow security procedures
5. Maintain confidentiality

APPENDIX K:

Unit 3: Printing Technology Pathway: Graphic Design and Pre-Press

1. Study effective design elements (W/S)
2. Analyze a job ticket
3. Use graphics and/or pre-press software
4. Maintain project, image, photo, and/or illustration files
5. Obtain scanned or photographic images
6. Create and/or edit objects, shapes, charts, images, and/or graphics
7. Apply and/or correct color
8. Select typography
9. Create and/or edit a layout
10. Perform pre-flight print on job files
11. Review proofs
12. Trap project files
13. Impose and configure press sheets
14. Send completed files to RIP
15. Produce print plates/stencils (N/A for digital printing)
16. Maintain pre-press equipment
17. Participate on a print project team

APPENDIX L:

Unit 4: Printing Technology Pathway: Press and Post-Press Operations

BOTH Operations

1. Review job ticket
2. Select materials
3. Perform safety checks
4. Operate tools and equipment safely
5. Monitor equipment for correct operation
6. Clean up
7. Complete job tracking documentation

Press Operations

8. Register print job
9. Mount plate/screen (N/A for digital printing)
10. Load paper and ink
11. Set up press
12. Verify press set up (make-ready)
13. Perform press operation

Post-Press Operations

14. Identify paper options for project
15. Calculate most efficient cuts/folds
16. Set up post-press equipment
17. Verify post-press set up (make-ready)
18. Perform post-press operation

Appendix J

ARTS, A/V TECHNOLOGY AND COMMUNICATIONS
YOUTH APPRENTICESHIP

REQUIRED SKILLS CURRICULUM
UNITS 1-2

Unit 1: Required Skills
Core Skills

Competency
1. Apply academic knowledge

Performance Standard Condition
Competence will be demonstrated
at the worksite and classroom

Performance Standard Criteria
Performance will be successful when learners:
Read and comprehend work related materials
Apply mathematical operations involving whole numbers, fractions, decimals, percentages, formulas and methods of measurement accurately when necessary
Interpret charts, tables, and graphs

Learning Objectives
MATH
Add, subtract, multiply, and divide whole numbers, fractions, decimals and percents
Calculate averages, ratios, proportions, and rates
Convert decimals to fractions, fractions to percents and vice versa
Measure and accurately report measurements of time, temperature, length, width, height, width, perimeter, area, volume, and weight
Use appropriate formulas
Convert measurements correctly (e.g., English (standard) to metric)
Interpret meaning from data
ENGLISH
Use standard English to compile information and prepare written reports
Apply English language correctly (spelling, grammar, structure)
Derive meaning from text through summarizing
Discern meaning from written word
Use acceptable language
Write legibly
SCIENCE
Explain the key elements of the scientific process
Define the differences in qualitative and quantitative measurements
Compare and contrast subjective and objective information
Discriminate between fact and opinion

Comments:

Unit 1: Required Skills
Core Skills

Competency

2. Apply career knowledge

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Demonstrate understanding of career development in the Arts, A/V Technology and Communications industry

Obtain necessary skills and knowledge to meet position requirements

Learning Objectives

Explain the process for seeking employment

Describe the major functions and duties of the career pathways within the Arts, A/V Technology and Communications career cluster

Discuss educational, training, and credentialing requirements for a selected job

Research job requirements and characteristics of a selected job

Contrast "positive" and “less positive” aspects of a selected job

Describe opportunities for advanced training in Arts, A/V Technology and Communications careers

Comments:

Unit 1: Required Skills
Core Skills

Competency

3. Apply Arts, A/V Technology and Communications industry knowledge

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Demonstrate Arts, A/V Technology and Communications industry systems understanding based on ***current knowledge and training***

Learning Objectives

SYSTEMS, PRINCIPLES, CONCEPTS

Characterize the three phases of print production: pre-press, press, post-press

Compare and contrast the workflows of the major printing processes

Discuss common vocabulary terms used in the printing industry

Identify and describe the major printing processes: flexography, gravure, offset/lithography, screen printing, and digital

List the advantages and disadvantages of each major printing process

List typical products produced by each major process

Identify and describe basic production equipment used in a commercial printing plant such as: computer workstation; proofing device; plate-setter; scanner; offset press; digital press; paper cutter; paper folder; saddle stitcher; perfect binder; paper padder; and paper drill

HISTORY and TRENDS

Describe a brief history of A/V communications and governmental communications legislation

Examine the history, current state and future forecast of the printing industry

List major milestones in the printing industry

Describe the impact of technology on the printing industry

Explain and analyze the quality approval process used in the printing industry

Comments:

Unit 1: Required Skills
Core Skills

Competency

4. Communicate effectively

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

- Deliver coherent verbal messages in words that can be understood
- Use appropriate and bias-free language
- Use appropriate body language
- Listen actively to others
- Demonstrate courtesy with self-introduction
- Respond to inquiries or statements within the scope of current responsibilities and understanding
- Does not provide confidential information without appropriate authorization
- Does not overreact in response to anger
- Record information in a timely manner
- Record written information legibly and accurately
- Organize and compile messages, technical information, and summaries accurately
- Use email, the Internet, printer, copier, scanner, and fax machine equipment appropriately as applicable
- Is sensitive to special, multicultural, and/or multilingual needs

Learning Objectives

GENERAL

- Compare verbal and nonverbal behaviors
- Explain how empathy and bias can be communicated verbally and non-verbally

LISTEN

- Discuss effective and active listening skills
- Differentiate between hearing and listening

WRITTEN

- Discern meaning from written instructions
- Write clearly to communicate written ideas
- Discuss common recording errors and how to avoid them

CUSTOMER

- Identify internal and external customers at your facility
- Discuss steps to assess customer understanding
- Describe the steps to follow when dealing with complaints

TOOLS

- Describe technology used in communicating such as, telephone, texting, instant messaging (IM), computers, fax, intercom, beepers, etc.
- Explain the proper use and etiquette required for these forms of communication technology

Review the policies and procedures for using written communication tools in your company such as email, Internet, printer, copier, scanner, and/or fax

Comments:

Unit 1: Required Skills
Core Skills

Competency

5. Act professionally

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Follow oral and written instructions
Is pleasant, courteous, and professional with coworkers and internal and external customers
Appearance and dress are appropriate according to the requirements of the employer
Takes personal responsibility for attendance
Is punctual
Begin work promptly
Organize and prioritizes tasks efficiently
Exhibit positive attitude and commitment to task at hand
Complete assigned tasks accurately and in a timely manner
Take responsibility for actions and decisions
Recognize lack of knowledge and seeks help from information sources
Evaluate work goals periodically with worksite professional
Accept constructive criticism and applies suggestions
Communicate safety, training, and job-specific needs
Adhere to safety rules and regulations

Learning Objectives

Locate and explain written organizational policies, rules and procedures to help employees perform their jobs
Locate and explain your company's employee manual for policies on Appearance, Breaks, Time Off, Cell Phone Use, Weather, Personal Issues, etc.
List qualities of successful Arts, A/V Technology and Communications employees
Describe how you can demonstrate enthusiasm and commitment at the worksite
Define initiative
Explain ways that you can show initiative at a worksite
Explain methods to evaluate work assignments and prioritize them
Describe how to effectively receive feedback

Comments:

Unit 1: Required Skills
Core Skills

Competency

6. Demonstrate customer service skills

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Is knowledgeable about products and services
Address the customer, either in person, by telephone, e-mail or other means
Gather information about customer's needs, and customer's knowledge of products or services
Respond to customer's comments and questions
Solicit supervisor or co-worker support and advice when necessary to meet customer needs
Coordinate as needed with other services to expedite delivery of service or product
Handle complaints tactfully without insult or conflict

Learning Objectives

Define customer service
Identify internal and external customers at your facility
Describe how customer service affects a company's "bottom line"
Describe standards of service
List strategies for maximizing customer satisfaction
Describe the functions of other departments or units to serve the customer
Describe the steps to follow when dealing with complaints
Identify customer service methods to use when encountering an angry customer
Review material pertaining to products and services produced by your department or company

Comments:

Unit 1: Required Skills
Core Skills

Competency

7. Cooperate with others in a team setting

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

- Demonstrate respect relating to people
- Contribute to a group with ideas, suggestions, and effort
- Listen and respond appropriately to team member contributions
- Work collaboratively with people from other backgrounds/cultures
- Resolve differences for the benefit of the team
- Complete their share of tasks necessary to complete a project

Learning Objectives

- Explain the functions of each department or unit within the larger organization
- Identify roles found in teams such as leader, facilitator, recorder, etc.
- List effective meeting management skills
- Demonstrate techniques that show respect for others
- Describe how to effectively give and receive feedback
- Describe conflict resolution methods
- Discuss ways to participate within a team setting
- Explain how to interact appropriately with diverse ethnic, age, cultural, religious, and economic groups in different situations
- Describe how work teams coordinate work flow and help manage resources

Comments:

Unit 1: Required Skills
Core Skills

Competency

8. Think critically

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Recognize the existence of a problem
Apply problem-solving steps
Differentiate between fact and opinion
Consider other viewpoints and perspectives
Apply the principles and strategies of organized thinking
Evaluate information, ideas, and problems
Collect information through probing questions and research
Define the problem
Use techniques such as brainstorming to acquire alternative solutions
Demonstrate comparison skills
Make decisions based on analysis
Present ideas for critical evaluation
Support viewpoints with evidence

Learning Objectives

Describe how to break a problem down in order to brainstorm, evaluate, and analyze possible solutions
Discuss the difference between fact and opinion
Discuss data collection techniques for the problem solving process
Describe how to present a solution with evidence
Explain ways to reach a decision by consensus
Discuss methods to evaluate a solution that has been implemented

Comments:

Unit 1: Required Skills
Core Skills

Competency

9. Exhibit regulatory and ethical responsibilities

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Follow all safety and worksite standards and regulations
Perform legally and ethically by all local, state, and national standards
Use email, the Internet, printer, copier, scanner, and fax machine equipment appropriately and correctly as applicable
Operate within scope of authority adhering to company rules, regulations, and policies as established in employee handbook/procedures
Comply with legal requirements for documentation
Document work processes as required
Record and file appropriate documents in timely manner
Maintain confidentiality of company, customer, and co-worker information
Document reportable incidents to worksite professional immediately, if applicable
Receive, handle, package, and ship materials and product according to shipping laws and regulations if applicable

Learning Objectives

GENERAL

Explain the role of the government in regulating and managing the Arts, A/V Technology and Communications industry
Compare national, state and local regulators that oversee the Arts, A/V Technology and Communications industry: Federal Communications Commission (FCC), Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), etc. as applicable
Identify the major printing industry associations: National Association for Printing Leadership (NAPL); Printing Industries of America (PIA); Flexographic Technical Association (FTA); Specialty Graphic Imaging Association (SGIA); and, AIGA, the professional association for design
Identify the management structure and employees' roles within your organization
Explain legal issues faced by Arts, A/V Technology and Communications professionals
Compare counterfeiting, copyright, and trademark laws
Explain the concept of intellectual property
Describe the function of a non-disclosure agreement (NDA)
Explain how copy write and trademark law applies legally and ethically to the use of other source code and web page design
Define the purpose and function of WAI (Web Accessibility Initiative) guidelines

ETHICAL

Explain the difference between an ethical practice and a legal responsibility

Identify current ethical issues common to the Arts, A/V Technology and Communications field

Describe ethical work values such as confidentiality, productivity during the day, following safety standards

SAFETY

Define legal and ethical responsibilities for safety procedures

Describe the certification/license requirements to operate specific equipment or perform specific functions

RECORDS

Identify the main functions of documents and documentation

Identify the guidelines for retaining common documents

Comments:

Unit 1: Required Skills
Core Skills

Competency

10. Use resources wisely

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Follow the facility pollution/waste prevention plan
Recycle whenever possible
Dispose of materials appropriately
Dispose of hazards legally and with regard to environmental impact

Learning Objectives

Identify current environmental issues affecting the Arts, A/V Technology and Communications industry
Define what is meant by making “green” choices
Compare renewable and nonrenewable natural resources
Explain the meaning of sustainable resources use
Identify practices that contribute to sustainability
Describe why wise use of resources at the worksite is important
Give examples of wasteful uses of resources (unnecessary waste and duplication) at the worksite
List materials that can be recycled
Describe materials that require special disposal
Explain purpose of pollution control systems
Relate power generation to energy sources
Compare environmental impact of energy sources (e.g., fuel cells, chemical, wind, hydro, nuclear, electric, mechanical, solar, biological)

Comments:

Unit 1: Required Skills
Core Skills

Competency
11. Use basic technology

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Use communication technology (such as pagers, radios, phone, fax, email, Internet) to access and distribute data and other information within the scope of the job

Follow rules for proper computer and communication technology usage

Use calculating tools such as a computer, calculator, and adding machine correctly

Enter, edit, and store data on computerized equipment according to worksite guidelines

Verify data entry prior to data storage or equipment operation

Learning Objectives

Identify the parts and functions of a computer system using correct terminology including the keyboard, monitor, mouse, printer

Point out the storage device locations on the computer such as the Hard drive, Floppy drive, CD-ROM drive, and Portable File Storage drive, etc

Show the appropriate connections and positioning of peripheral devices such as a mouse, keyboard, monitor, portable devices, and printer

Discuss the importance of backing up computerized files

Compare different forms of communications technology including email, texting, word processing, spreadsheets, database, presentation software, and use of the internet to communicate, search and display information

Describe how to evaluate internet websites and information for validity and reliability

Explain appropriate and inappropriate uses of email and internet while at work

Describe how to develop effective presentations using appropriate technologies (e.g., tables, charts, and visual graphics)

Explain the use of writing/publishing/presentation applications

Comments:

Unit 2: Required Skills
Safety and Security

Competency

1. Follow personal safety requirements

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Participate in all required safety training
Follow all worksite guidelines for personal safety
Apply principles of proper body mechanics when necessary
Report any exposures, injuries, or accidents, personal or to others, immediately, if applicable
Locate and can find key information on Material Safety Data Sheets (MSDS)
Handle and dispose of any hazardous materials appropriately, if applicable
Operate only equipment that he/she is trained on
Adhere to equipment safety standards
Visually inspect equipment to ensure safety compliance and function before operation
Wear the required Personal Protective Equipment (PPE) at all times as required by the worksite for specific tasks

Learning Objectives

Discuss the regulatory purpose and responsibility of the Occupational Safety and Health Administration (OSHA)
List your rights as a worker according to OSHA
Explain the procedure to follow in case of an exposure, injury, or accident to self or to another
Explain ways your company prevents accidents
List engineering controls that are taken to protect workers from accidents
Describe safe and unsafe work habits and their implications
List safety hazards at your facility
Explain potential hazards associated with blood borne pathogens
Explain the ergonomic impact of work techniques
Describe proper techniques for lifting loads
Describe the Material Safety Data Sheet (MSDS) and its purpose
Discuss the procedures of handling and disposing of hazardous material
List mechanical, chemical, electrical, compressed air, and equipment safety hazards at your facility
Explain how Lock Out/Tag Out procedures prevent accidents
Define the Personal Protective Equipment (PPE) required for specific tasks in your facility
Explain the use of safety equipment such as eyeball washers and chemical safety showers and when you would use them
Describe ways to prevent burns

Comments:

Unit 2: Required Skills
Safety and Security

Competency

2. Maintain a safe work environment

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Comply with posted safety warnings and symbols
Identify unsafe conditions and/or work habits and reports them to the worksite professional immediately, if applicable
Help maintain a clean and safe working environment free of debris and obstacles
Clean, organize, put away items in the work area
Safely identify, handle, store, and use hazardous materials according to company procedure, if applicable
Report any indications of insects or pests

Learning Objectives

List the major components of a facility safety program
List the different state and federal agencies that provide regulatory oversight at your facility for personal safety, environmental safety, and equipment safety
List accident and fire prevention techniques
Describe posted safety warnings and symbols and what they mean
Describe safe and unsafe work habits and their implications
Discuss the importance of keeping the work area and tools/equipment clean
List mechanical, electrical, and equipment safety hazards at your facility
Discuss how to identify and report unsafe conditions in your facility
Discuss safety procedures to prevent accidents
Describe the requirements at your facility for safety training and auditing
Assess need for good housekeeping practices
List accident and fire prevention techniques
List hazards that contribute to injury due to slips, trips, or falls
Outline compliance requirements of sanitation and health inspections

Comments:

Unit 2: Required Skills
Safety and Security

Competency

3. Demonstrate professional role to be used in an emergency

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Participate in emergency safety simulations and drills
Outline the company's policy and procedure for worksite incidents, accidents, electrical, fire, tornado, bomb threats, robbery, hostage situations, and other emergency situations
Identify the closest fire alarms and emergency exits in the assigned worksite area
Identify the fire extinguishers in the assigned worksite area
Identify appropriate alarms and procedures for using alarms
Contact emergency personnel according to company requirements in the event of an emergency
Document any emergency incidents according to company requirements

Learning Objectives

Describe the procedures in your company to report an emergency
Review your company procedures for responding to exposures, injuries, accidents, spills, fire, tornado, bomb threat, robbery, hostage situations, etc.
Demonstrate how to use the fire blanket and/or fire extinguisher
Explain the evacuation plan for the worksite
Indicate the demeanor necessary during an emergency
Identify methods to cope with emergency situations
Name the resources for assistance in crimes or accidents
Locate and explain use of first aid emergency care kits
Detail steps to use in medical emergencies requiring First Aid, CPR, and/or Heimlich maneuver
Locate and explain use of spill kits, if applicable to worksite
Explain who in your facility can give first aid care in the event of an emergency
Explain the local protocols in place with local law enforcement
Explain the role of the Hazardous Materials (HAZMAT) team
Detail how to access help in a robbery or terrorist situation
Explain the use of safety equipment such as eyeball washers and chemical safety showers and when you would use them

Comments:

Unit 2: Required Skills
Safety and Security

Competency

4. Follow security procedures

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Maintain customer and employee security procedures
Observe surroundings to identify dangerous situations
Secure and store lost and found items as required
Recognize and report suspicious situations if applicable
Comply with all required employee testing of facility such as fingerprinting or drug testing

Learning Objectives

Describe the need for security within printing companies and the products they produce
Identify sources of security risk
Describe your facilities security system of surveillance cameras, personnel, lighting
Outline how access to specific areas is controlled
Outline how locking systems and security control measures protect customers and employees
Define basic security measures for records and files
Describe procedures for controlling lost and found items
Discuss the purpose and ethics of employee fingerprinting and drug testing in the Arts, A/V Technology and Communications industry

Comments:

Unit 2: Required Skills
Safety and Security

Competency

5. Maintain confidentiality

Performance Standard Condition

Competence will be demonstrated

at the worksite and classroom

Performance Standard Criteria

Performance will be successful when learners:

Do not provide confidential information without appropriate authorization

Safeguard the confidentiality of customer records and project information per requirements

Comply with legal requirements for confidentiality

Learning Objectives

Discuss legal regulations pertaining to privacy and security such as the USA Patriot Act

Identify penalties for regulation non-compliance

Explain ways to ensure project confidentiality

List the legal requirements for release of customer and project information

Evaluate technological threats to confidentiality

Describe the disposal policy of confidential information

Comments:

Appendix K

ARTS, A/V TECHNOLOGY AND COMMUNICATIONS
YOUTH APPRENTICESHIP

PRINTING TECHNOLOGY PATHWAY
GRAPHIC DESIGN AND PRE-PRESS (UNIT 3)

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

1. Study effective design elements

Performance Standard Condition

Competence will be demonstrated

at the worksite OR in the classroom in a simulate setting. Simulation should ONLY be used IF there is no possibility of skill performance at the worksite.

Performance Standard Criteria

Performance will be successful when learners:

Locate successful examples of effective design
Interpret the individual components of the design
Examine the basic visual elements of the design
Compare common visual design layouts and their design elements to intended purpose-logos, brands, posters, magazines, package designs, ads, annual reports, websites
Discuss with worksite professional features that account for a design's effectiveness

Learning Objectives

Define graphic design
Discuss the process and phases of designing
Identify the basic principles of design (i.e., unity; contrast; proportions; balance; emphasis; and, rhythm)
Identify the basic elements of design (i.e., line; shape; direction; size; texture; value; and, color)
Explain the purpose of a Graphic Standards Manual
Discuss the impact of visual communication
List main design styles in history
Demonstrate an understanding of corporate identity including how branding affects consumer recognition
Evaluate the integration of concept and visuals in poster design
Explain how type and visuals communicate to magazine viewers
Discuss the purpose of package design
Analyze the use of form and function requirements for packaging design
Discuss "green" ideas in package design
Study the role of content, design, and information architecture in web design

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

2. Analyze a job ticket

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Obtain a copy of the job ticket

Study the customer specifications and customer supplied files

Review job components

Identify the required job components

- Fonts
- Graphics
- Image
- Transparencies
- Size
- Hard mechanicals
- Printing requirements

Select the design the elements to be incorporated into the final print job product keeping in mind the printing requirements

Learning Objectives

Explain the purpose of the job ticket

Describe different parts of a printed product

Identify and list print markets and types of print businesses

Describe what happens in a graphics and pre-press department

Describe how all print departments work together to complete a print job

Compare capabilities, productivity, and quality of high-end output versus low-end output

Explain the impact of print requirements to design

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

3. Use graphics and/or pre-press software

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Access software
Manipulate computer commands, codes, menus to perform job tasks
Retrieve, copy, edit, save, and print files as required
Demonstrate appropriate save and export techniques
Use file compression for file transfer or storage

Learning Objectives

Discuss the use of software in graphic design and in pre-press
ID the various types of jobs that can be designed and produced using desktop publishing
Identify professional prepress software applications and uses, including: page layout (QuarkXPress, InDesign); image editing (Photoshop); illustration (Illustrator); Portable Document Format (PDF) generation and editing (Acrobat, PitStop); and, imposition (Preps).
Describe the disadvantages of using office/home-based software for professional graphic purposes
Demonstrate the process of importing, placing, and manipulating text and images

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

4. Maintain project, image, photo, and/or illustration files

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Screen customer supplied files for viruses, font usage, image format, etc
Select appropriate forms/records
Create working files
Code documents as required
Manage incoming and outgoing media/materials
File forms/records in appropriate location
Retrieve and replaces files in correct position
Use appropriate computer codes, formatting, macros, charts, spreadsheets, etc.
Verify data prior to entry/storage
Complete job tracking documentation

Learning Objectives

Describe common file and image issues associated with customer supplied files
List advantages/disadvantages of removable storage media
Explain the significance of PDF as it pertains to the printing industry
Identify various file formats and their extensions: .doc; .qxd; .pdf; .tif; .eps; .rtf; .raw; .jpg; .bmp; .txt; .indd; .psd; .ai; .pub; .html; .gif; .xls; .zip; .dmg; .png; .dng
Explain the process for documenting print job work
Describe the importance of record retention in print project development projects

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

5. Obtain scanned or photographic images

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Obtain images

- Use digital camera to capture image
- Locate image file from a stock photography website
- Locate image file from storage device

Evaluate image originals

Verify key variables (% enlargement/reduction, input resolution to be adjusted)

Calibrate scanner

Scan originals

Evaluate resultant scanned images and make adjustments

Acquire scanned images using appropriate dpi, color and option settings

Complete job tracking documentation

Learning Objectives

Identify high/low resolution images and describe the uses of each

Describe the difference between a raster image and a vector graphic image

Classify Vector and Raster images according to their common uses

Explain basic digital camera hardware and use

Explain basic scanning hardware and use

Compare basic scanner software, its uses, and limitations

Explain and identify the difference between line art and continuous tone originals

Explain appropriate scanner/program operations for line artwork and continuous tone in both black/white and color

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

6. Create and/or edit objects, shapes, charts, images and/or graphics

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer to customer requirements and job ticket
Create rough drafts by sketching
Determine size and arrangement of graphics material required
Use computer software to generate object, shape, chart, image and/or graphic
Create or edit images and graphics based on knowledge of principles of design (color theory and schemes, proximity, alignment, repetition, optimization)

- Check size and resolution
- Crop and adjust images as required
- Use filters, effects, warps, 3D
- Correct scanned images
- Manipulate images in a raster based program using layers, transparencies, layer modes, masks, selections, etc.
- Edit a raster image by using cropping, scaling, etc.
- Manipulate drawings/photographs using a vector illustration program

Evaluate visual appeal with worksite professional
Make improvements as needed
Finalize image
Document image information with file
Convert image into a format which can be viewed
Complete job tracking documentation

Learning Objectives

Compare common software packages used to create and edit images and graphics
Describe the difference between a raster image and a vector graphic image
Classify Vector and Raster images according to their common uses
Demonstrate an understanding of the differences between raster and vector files
Discuss how to integrate photographically derived images with hand-drawn graphic images
Describe the use of transformation tools
Explain the use of layers for compositing, applying filters and special effects

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

7. Apply and/or correct color

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer to customer requirements and job ticket
Select correct color space for project
Create and apply color
- Use color modes, fills, strokes, gradients, and blends
- Use variations, levels, curves, hue/saturation/brightness and other color tools
- Produce digital color separations
- Demonstrate an understanding of additive and subtractive color, i.e., Red-Green-Blue (RGB) and Cyan-Magenta-Yellow-Key/black (CMYK)
- Use the Pantone Matching System® (PMS) or other color matching system

View or print color separations
Correct color on images
- Use brush features to adjust
- Perform digital color correction and color retouching
- Edit a raster image by using color correction and tone control

Evaluate visual appeal with worksite professional
Make improvements as needed
Finalize color
Document color information with file
Complete job tracking documentation

Learning Objectives

Discuss basic color principles
Explain how color plays a role in design
Explain how color theory is used to select appropriate colors
Define color depth, resolution, pixels, dpi/ppi
Explain color relationships (complimentary, analogous, monochromatic, etc.)
Discuss color theory by describing primary, secondary, and tertiary colors
Explain hue, tint, value and shade, and the effect of light and distance on color
Explain additive and subtractive color theory
Identify colors modes and their use
Describe the Pantone Matching system
Discuss the impact of black and white in design
Explain the effect of lighting on color perception
Explain the effect of the surround on color perception
Explain the significance of standard viewing conditions in the graphic communications industry

Explain how physical color is applied in a print environment
Explain the influence of the substrate on color reproduction

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

8. Select typography

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer to customer requirements and job ticket
Select typography
Determine type size needed
- Measure type in points
- Measure line length in picas

Create or modify type
- Determine contrast, angle, terminals
- Select figures, ligatures, letterforms
- Rotate, circle, extend, tint, fill type

Evaluate legibility and readability in context of purpose
Evaluate visual appeal with worksite professional
Make improvements as needed
Finalize typography
Document typography information with file
Complete job tracking documentation

Learning Objectives

Define typography
Discuss how elements of typography are incorporated into overall design
Explain common terms used in typography
Identify structural aspects of type
Explain how to measure type using points and picas
List the major typefaces/font families and their uses
Compare Type I, Postscript, and Open Type fonts
Compare different kinds of typographic guidelines and purposes
Discuss ways designers choose to follow or break typographic rules
Explore decisions for type creation including contrast, angle of stress and terminals
Distinguish between display (headline) type and body (text) type by their point sizes, styles, and uses
Explain letter spacing, tracking, kerning, baseline shift, and horizontal scale
Demonstrate the type arrangements: flush left–ragged right, flush right–ragged left, centered, justified, force justified, and widows and orphans
Illustrate x-height, mean-line, base-line, ascenders, descenders, serifs, leading, and their roles in measuring and designing with type
Illustrate caps, lowercase, uppercase, small caps, and ligatures
Define dingbats, bullets, rules, glyphs, symbols, and their uses in publications

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

9. Create and/or edit a layout

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer to customer requirements and job ticket

Use layers and layer groups to organize complex files

Assemble digital elements

- Collect job components to be incorporated (files, images, graphics, typography, etc)
- Identify formats required
- ***Use graphics and/or pre-press software*** (translation, compression)
- Import data into page layout software
- Measure linear dimensions in inches and fractions of inches

Incorporate image(s)

- Review file
- Place photos, illustrations and other images on each page

Select typography and arrangement

- Review file
- Format and place copy on each page
- Measure typography in points and line length in picas

Apply and/or correct color

- Review file
- Edit colors according to production requirements (touch plate, varnish, fifth and sixth color)

Determine size and arrangement of layout

- Create simple grids as a layout device
- Add crop marks and set up overlaying methods
- Measure tolerances
- Fit visual elements in limited space
- Analyze visual hierarchy with a focal point
- Construct a multi-page document using master pages, paragraph, character styles

Verify compatibility of required job components

- Restructure and translate files and graphics

Evaluate layout in context of purpose, quality and accuracy

Evaluate layout with worksite professional

Edit layout and make improvements as needed

Finalize layout

Document layout information with file

Assemble all relevant data utilized in final file into specific locations to final output

Complete job tracking documentation

Learning Objectives

Explain the goals and functions of a layout
Discuss the importance and purpose of layout structure
Explain how to match layout form to message in purposeful ways
Discuss how to match layout design to audience needs and tastes
Interpret the relationship between form and content
Identify the visual hierarchy of design elements
Define the typographical devices used in layouts
Define thumbnails, roughs, comprehensives
Explain how to use a grid
Describe how to align regular and irregular objects on a grid
Identify current copyright laws as applied to a layout design

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

10. Perform pre-flight print on job files

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer to customer requirements and job ticket

Verify compatibility of required job components

Perform pre-flight to diagnose potential print problems

- Review for discrepancies in text, fonts, graphics, and images
- Check for correct fonts, image formats, locations of graphics
- ID proper resolution for images
- Measure original images for reduction and enlargement using various methods to determine the percentage for final reproduction
- Verify correct color formats, profiles and separations for output
- Confirm page layout size, margins, bleeds, marks, page information meet constraints
- Ensure correct parts of all files properly located, identified and linked for final output

Resolve any discrepancies with design team

- Restructure and translate files and graphics

Document actions taken

Create proof(s)

- Produce digital and/or analog proofs to show both content and color
- Check proof for adherence to client specifications, company QC standards, and industry standards

Complete job tracking documentation

Learning Objectives

Explain the purpose of pre-flighting

List common checks performed in pre-flight

Explain the use of printing industry and company standards

Discuss common issues in printing and output related to fonts, color, layout and design

Explain the difference in quality of electronic output devices

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

11. Review proofs

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Perform pre-flight on project files

Create proof(s)

Evaluate proof one last time for adherence to customer specifications

Evaluate proof one last time for all printing compatibility requirements

Evaluate proof with worksite professional

Assist worksite professional to submit proof to customer for final approval

Complete job tracking documentation

Return materials to client when required

Learning Objectives

Explain the purpose of proofing

Explain the difference between digital and analog proofs

Explain the difference between supplying PDF files versus native files for print and proofing by customers

Discuss the cost factors involved for incomplete or inaccurate proof(s)

Compare blueline proofs to color print proofs

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

12. Trap project files

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer to customer requirements and job ticket
Review trapping requirements with printer prior to output
Determine appropriate elements for trapping
Determine trap settings
Trap digital files using software
Verify completed trapped files

Learning Objectives

Define trapping in the printing industry
Explain the purpose of trapping
Define overlaps (spreads) and underlaps (chokes)
Compare trapping technologies- vector-based versus raster-based
Discuss when each type of trapping technology is used
Explain the common basic rules for applying trapping decisions

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

13. Impose and configure press sheets

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer to customer requirements and job ticket to review the layout and job requirements including any special circumstances (shingling, bottling, binding method, crossovers)
Select appropriate imposition technique
Prepare pages or components for final imaging size
Impose digital files according to layout and job requirements using software
Add quality control guides to imposed pages
Create an imposition proof
Review proof with worksite professional
Complete job tracking documentation

Learning Objectives

Define the process of imposition in the printing industry
Discuss the factors that impact imposition choices
Compare imposition formats for different print job configurations
Discuss the cost implications of incorrect or inefficient imposition

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

14. Send completed files to RIP

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Send the print project complete files to raster image processor after all reviews and approvals have occurred

Use standard quality control devices to adjust variables on image setters, proofers, laser printers and plate setters

Download files and fonts as required

Diagnose and correct errors (post-script, network, system and software, file, RIP messages)

Complete job tracking documentation

Learning Objectives

Describe the difference between a raster image and a vector graphic image

Discuss the purpose of raster image processing (RIP)

Explain the stages of RIP

List and define the types of file formats that can be sent to a RIP

Compare software versus standalone RIPs

Compare a continuous tone bitmap and a halftone bitmap

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

15. Produce print plates/stencils (N/A for digital printing)

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer job ticket and company requirements for instructions for plate or screen creation
Review production specifications for plate or screen selection
Obtain required materials for plate or screen creation

PLATES

Calibrate the plate making device
Operate the plate making device
- Align plate flat with device
- Expose plate
- Process plate

Inspect the plate for quality control standards
Handle plates correctly

SCREENS

Transfer original image to transparent overlay
Select screen
Coat with emulsion and dry
Place overlay on screen and expose
Complete job tracking documentation

Learning Objectives

Explain the purpose of the plate or screen
Discuss common materials used for plates or screens
Discuss how Computer To Plate (CTP) and Direct To Plate (DTP) technology have revolutionized pre-press
Explain digital plate-making process
Explain digital plate-making equipment for offset and gravure plates
Explain the difference between static output and variable output
Explain the process of creating digital output from a computer file
Explain the screen development process

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

16. Maintain pre-press equipment

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Follow manufacturer guidelines for cleaning, maintenance, service and repair
Identify maintenance schedule for equipment that requires routine maintenance
Label equipment appropriately to show malfunction, if applicable
Identify location of repair service information, maintenance manuals, and/or troubleshooting guides
Verify procedure to follow
Perform/call service for routine maintenance or malfunction in accordance with equipment manual/maintenance instructions and service agreements
Assist worksite professional with back-ups and software/hardware updates
Document the maintenance and/or repair/troubleshooting performed

Learning Objectives

Identify and describe basic pre-press production equipment used in a commercial printing plant, including: computer workstation, proofing device, platesetter, and scanner
Describe the use and maintenance of your department/facility's imaging and scanning equipment
Explain why performing routine maintenance of equipment reduces costs to the facility
Describe the materials and information needed to determine an equipment maintenance schedule
Describe the basic procedure to be followed when a piece of equipment is not functioning properly in your department/facility
Discuss how tracking of equipment maintenance and servicing is done in the department/facility
List the critical pieces of equipment in your department/facility which require priority repairs when malfunctioning
Explain your department/facility's back up plan and disaster recovery plan

Comments:

Unit 3: Printing Technology Pathway
Graphic Design and Pre-Press

Competency

17. Participate on a print project team

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Review the scope and phases of the design project with worksite professional

Participate in the following project team activities to develop and implement the print project plan as able

- Identify customer requirements
- Compare customer requirements to industry and company printing standards
- Develop schedules from approved specifications
- Investigate the legal and financial requirements of the project
- Estimate required resources and budget
- Estimate supply quantities needed
- Estimate time requirements
- Identify interdependencies
- Identify critical milestones
- Develop job ticket
- Track critical milestones
- Regularly report project status to team members in a timely and accurate manner as required
- Monitor and document client-requested changes

Periodically review print project plan activities completed and their results

Learning Objectives

Explain the sequence of events for a print project

List the phases of the printing process- design, pre-press, press, post-press

Explain factors that need to be considered when estimating costs and budget

Classify costs (e.g., direct and indirect, fixed and variable, methods and standards)

Apply basic math skills to calculate the quantity and cost of materials needed

Explain the impact publication process and distribution method have on product development

Explain how to compute ink proportions, paper stock, imposition configurations, material control costs

Comments:

Appendix L

ARTS, A/V TECHNOLOGY AND COMMUNICATIONS YOUTH APPRENTICESHIP

PRINTING TECHNOLOGY PATHWAY PRESS AND POST-PRESS OPERATIONS (UNIT 4)

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

1. Review job ticket

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Obtain job ticket

Read and interpret production information on a job ticket

Study the print operation requirements

Review job components

Identify the required job components

- Paper required- size and type
- Inks and colors required
- Imposition configuration
- Printing and post-press equipment to be used
- Other press and post-press requirements

Learning Objectives

Explain the purpose of the job ticket

Describe different parts of a printed product

Describe what happens in a press and post-press department

Describe how all print departments work together to complete a print job

Compare capabilities, productivity, and quality of high-end output versus low-end output

Explain the impact of design to press and post-press requirements

Discuss some the of the incompatibilities that arise between design files and press and post-press requirements

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency
2. Select materials

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Obtain job ticket

Identify the required print job materials components

- Paper required- size and type
- Inks-colors

Calculate the amount of paper and ink required for the run

Choose the appropriate raw materials

Verify raw material(s) meet specifications

Arrange and ready the materials in the production area

Learning Objectives

Identify the raw materials included in a wide range of printed products

Explain how to calculate amounts of paper and ink required for a press run

Analyze and contrast the effect of using different papers and inks for differing products during the printing process

Identify basic paper sizes and weights

Compare types of paper (lightweight, carbon, card stock, envelopes)

Compare paper finishes (linen, laid, flat, coated stock, vellum)

Discuss types of paper coatings

Measure linear dimensions for printing materials in inches and fractions of inches

Identify effects of temperature and humidity on paper and storage requirements

Discuss paper issues that occur in the printing environment such as piling, linting, blistering, etc.

Discuss precautions for handling and loading paper rolls

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

3. Perform safety checks

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Review production procedure to be used

Review safety requirements of procedure

Verify safety equipment and any Personal Protective Equipment (PPE) needed for production process

Inspect tools and work area for safety considerations

Examine equipment labeling and safeguarding

Learning Objectives

Explain and analyze the rules for safety in the printing environments

List the types of labeling used on tools and equipment at your facility to indicate whether a tool or piece of equipment is functional and safe to use

List the situations which require you to obtain help to resolve problems with equipment or production

List the safety rules for the equipment you will be operating

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

4. Operate tools and equipment safely

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Wear the required Personal Protective Equipment (PPE) at all times as required for the operation of the equipment
Cycle equipment
Operate equipment safely in the manner required for the job task
Operate equipment according to machine requirements
Monitor equipment for safe operation while operating

Learning Objectives

Describe advantages and limitations of automated production
Identify and describe basic production equipment used in a commercial printing plant, including: platesetter, offset press, digital press, paper cutter, folder, saddle stitcher, perfect binder, paper padder, and, paper drill
List the situations which require you to obtain help to resolve problems with equipment or production

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

5. Monitor equipment for correct operation

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Monitor product produced for specification
Monitor the process and equipment for performance
Adjust the process for quality and/or productivity as needed
Take corrective actions to resolve problems as they occur
Replenish processing materials as needed
Check product for proper production requirements
Label pieces for compliance or non-compliance
Document quality control checks
Products are produced to specification

Learning Objectives

List the quality checks performed as part of the production process
List and describe quality control devices for press (color bars, densitometer, etc.)
List and describe quality control for post-press (sheets in order, stitch and fold placement)
Explain why products are checked for quality
List the situations which require you to obtain help to resolve problems with equipment or production
Identify common production problems encountered in the bindery area
Explain why labeling and documentation are part of the quality check

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

6. Clean up

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Select appropriate cleaning tools and equipment
Clean production tools/equipment as required
- Perform roller care and maintenance of inking and dampening systems

Clean work area as required
Store tools safely in proper location
Store materials in safe manner
Identify unsafe conditions and report them promptly
Take corrective action to correct unsafe conditions
Ensure that workstation is clean and clear of safety hazards
Ensure workstation is organized for efficiency
Dispose of waste appropriately as required by the facility
Complete cleaning documentation

Learning Objectives

Describe the cleaning procedures and materials used for the specific processes you perform
Explain procedures for daily, weekly, and monthly maintenance on press or post press equipment
Identify various conditions affecting the use of solvents for various parts of the press
Explain how to prevent print plates from oxidation
Discuss the reasoning for maintaining the dampening roller covering
Discuss any special disposal requirements for materials processed

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

7. Complete job tracking documentation

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Document processing data on items such as labor, quality, quantity, and time
Documentation is legible
Documentation is accurate

Learning Objectives

Describe the uses of production data
Describe the importance of documenting the production process

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency
8. Register print job

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Ensure that the customer has reviewed and approved the proofs for the print run
Check the file type(s) is compatible for the commercial printer
Register the plate/screen/job image (side-to-side, up and down, tilt)
Register the color
Register crop marks and bleed allowances

Learning Objectives

Explain the purpose and function of automatic registering systems with single and multiple register marks and/or scanning heads
Explain the purpose of registration, crop, and bleed marks
Compare registering and proofing a PMS or Pantone color job to a typical CMYK color match
Identify problems common in color registration
Explain the concept of printer spread sheetwise, work and tumble, work and turn
Discuss the purpose of the color bar
Explain the major functions of a densitometer as a quality control device
Maintain accurate registration and monitor ink density
Compare digital printing registration to other commercial printer registration (e.g., offset)
Explain precautions for maintaining a good register system

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

9. Mount plat/screen (N/A for digital printing)

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Review job ticket for type of press run

Review set up and safety requirements for equipment

Prepare plates

- Verify bends
- Compare copy to plate
- Verify plate sequence

Mount each plate as required on the press equipment with respect to the color they represent

Adjust plates

- Tension, Lateral/Circumferential/Tangical Position

Apply substances to plates as needed (desensitizers, gum, etc.)

Mount screen on material as required for color alignment

Learning Objectives

Compare common methods of image transfer in the printing industry

Explain the purpose of the plate or screen

Discuss common materials used for plates or screens

Discuss how Computer To Plate (CTP) and Direct To Plate (DTP) technology have revolutionized pre-press

Explain how an offset lithographic and gravure plate work

Explain digital plate-making process

Compare digital printing methods: electrophotography (EP), ink-jet, ion or electron charge deposition, magnetography, thermal transfer, thermal dye sublimation and electro-coagulation

Discuss the purpose and types of substances used on plates

Explain the reasoning and preparation of plate bends

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency
10. Load paper and ink

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Review job ticket for type of press run

Review set up and safety requirements for equipment and inks

Select appropriate materials

Handle paper in manner to eliminate any damage

Paper

- Find grain direction with and without carton label
- Jog and air paper stock
- Set separators and detectors for weight and caliper (wire/felt, watermarks, and carbonless sequence)
- Set up web-to-sheet converter
- Load paper into equipment
- Set up grippers and guides as required
- Install flags to count sheets during a pressrun
- Correct any paper problems prior to running the press

Ink

- Obtain pre-mixed inks for color
- Mix ink
- Measure volume for mixing chemicals for pressroom operations
- Mix test ink for printing using color chart for mixing requirements
- Interpret color bars on press sheet to determine quality

Set up inking system

- Establish ink sequence
- Measure durometer
- Prepare system- rollers, roller pressures
- Assemble fountain and liners

Learning Objectives

Discuss proper paper handling and preparation techniques

Demonstrate basic paper jogging techniques

Explain how to find or determine grain direction of paper

Explain the importance of proper grain direction when running the press, including folds and scoring

Describe the importance of paper conditioning prior to running the press

Explain typical process for color addition in a print environment

Identify ink ingredients

Describe the differences between colorants used in digital printing versus offset lithography

Describe the differences in substrates intended for offset printing versus digital printing

Compare offset ink types and uses including oil-based, rubber-based, soy-based, and Ultraviolet (UV)
Discuss how to establish ink sequence depending on paper stock, coverage, dry time, waste elimination, marking prevention
Explain the purpose of using spray powder on an offset press
Explain the purpose of an infrared dryer on an offset press
Describe the procedure for mixing and testing custom colored inks
Explain the purpose and use of fountain solution and fountain solution additives
Explain how to mix fountain solutions using appropriate ratios

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

11. Set up press

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Review job ticket for type of press run

Review set up and safety requirements for equipment

Register print job

Assemble and adjust tools and production equipment as required

Verify production equipment is available for use and in working order

Verify production equipment is current for preventative maintenance and/or calibration

Calculate any control settings needed

Check equipment water, solutions and additives, ink, oil, air, pressure levels as required

Load paper and ink

Set production equipment parameters as required for the procedure

- Set up feeder/roller system- shafts, roll stand, braking mechanisms, rollers, web guides
- Set up sheet transfer and guiding system
- Set up delivery system- roll-to-roll, sheeter, signature, inline
- Set up plate and inking systems- install blanket, cylinder alignment and pressures
- Set up dampening system- solutions and additives, rollers
- Set up drying system

Document set up as required

Learning Objectives

Explain the function of the following components on a typical press: paper handlers, grippers, trimmers, inking, dampening, delivery

Identify methods of sheet transfer (chain, single-drum, three-drum, transverter, beaded blanket, air-cushion drum, etc.)

Identify characteristics of dampening solutions and additives- pH, Conductivity, water, alcohol, fountain solutions

Compare different delivery devices such as front gates, fans, infrared dryer, spray powder, air knives, suction wheels, back jogger, static eliminator

Identify types of folders associated with web press (combination, inline, sheeter, stackers and bundlers, etc.)

Discuss chute versus chain delivery systems

Explain the relationship between cylinder undercut and plate and blanket packing and thickness

Compare drying techniques and their associations with specific inks (quickset, heatset, UV, electron beam, laser, fluorescent, magnetic, oxidizing, hard dry, etc.)

Identify variables that affect drying temperature and impact to press operation (press speed, weight of web, amount of ink, length of dryer, temperature of dryer, etc.)

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

12. Verify press set up (make-ready)

Performance Standard Condition

Competence will be demonstrated

at the worksite

while assisting a worksite professional

Performance Standard Criteria

Performance will be successful when learners:

Verify set up meets process requirements and product specifications

- Paper stock
- Ink
- Plate/screen
- Proper web lead if applicable
- Feeder and delivery devices
- Dampening and inking systems
- Check blankets
- Registration

Examine first piece/product or production run for visual and/or dimensional specification

Adjust to ensure piece/product meets specification if needed

- Make necessary adjustments to register image position
- Adjust/set color (tint value, ink hue, density, dot gain)
- Adjust impression pressure
- Rule up sheet
- Appropriately sequence order of inks

Document makeready steps if required

Learning Objectives

List the types of labeling used on tools and equipment at your facility to indicate whether a tool or piece of equipment is functional and safe to use

Explain the purpose and importance of preventative maintenance and calibration

List the situations which require you to obtain help to resolve problems with equipment or production

Discuss causes of tension disturbances in feeder systems

Explain common issues associated with sheetfed delivery systems (ink setoff and blocking, anti-setoff spray, static electricity, failure to jog neatly)

Identify how splices affect the printing process

Identify common issues with web delivery (curling, poor folding, static electricity, smudging, wrinkling, etc.)

Identify causes of ink problems and suggest appropriate solutions (ghosting, piling, trapping, stripping, etc.)

Describe common drying system issues (dryer and chill roll, wet ink, uneven drying, setoff, hue change, blistering, etc.)

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

13. Perform press operation

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Wear the required Personal Protective Equipment (PPE) at all times as required for the operation of the equipment

Attach auxiliary equipment if needed (perforators, numberers, scorers, coaters, etc.)

Operate equipment safely in the manner required for the job task according to machine requirements

Monitor equipment for safe operation while operating

Operate printing press and monitor

- Register System
- Feeding System
- Delivery System
- Dampening System- dampening rollers
- Inking System
- Printing System (image transfer)
- Drying System

Print:

- Single color or multi-color job
- Single or multi-color, 2 sided job
- Color job on coated and/or uncoated paper

Complete job tracking documentation

Store and/or forward printed materials for post-press, packaging and/or distribution

Learning Objectives

Compare the fundamentals of typical printing process: offset/lithography, gravure, flexography, letterpress, screen, electrophotography, digital

Identify basic parts of the press(es) used in your facility

Describe the attributes of sheet-fed, web-fed, stream-fed, and perfecting presses

Describe sheetwise, work-and-turn, and work-and-tumble jobs, and how they differ for 2 sided jobs

Explain how to identify, interpret and monitor register marks

Identify primary causes for various issues during a press run (paper problems, ink problems, plate problems, blanket problems, positioning of side-guide marks, register and fit, excessive inking, color consistency, ink and water spots, trapping, doubling, plate wear or cracking, etc.)

Identify problems inherent in printing heavy solid work on a duplicator press

Identify causes of unintended screen patterns

Define variable data printing

Give specific examples of variable data printing products
Compare and contrast the production considerations of a variable data job compared to a static job
Describe the types of jobs that use one, two, four or more color printing

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

14. Identify paper options for project

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer to customer requirements and job ticket to review the layout and job requirements including any special circumstances (shingling, bottling, binding method, crossovers)
Select appropriate paper option technique
Prepare pages or components for final imaging size
Impose digital files according to layout and job requirements using software
Add quality control guides to imposed pages
Create imposition proof
Create an accurate master cutting diagram for making cuts from the proof
Review master diagram with worksite professional
Ensure that the customer has reviewed and approved the proofs for the post-press process

Learning Objectives

Define the process of imposition in the printing industry
Discuss the factors that impact imposition choices
Compare imposition formats for different print job configurations
Discuss the cost implications of incorrect or inefficient imposition
List basic paper types, weights, grades and classifications commonly used in the printing industry
Identify grain direction of paper, and explain its importance
Demonstrate proper printed paper handling and storage procedures
Demonstrate knowledge of paper types related to their grain direction, cutting, folding and binding characteristics
Identify basic folds for printed products
Identify die cut products, embossing and foil stamping products, and procedures/equipment used for each
Identify and explain different binding methods and applications including: case binding, perfect binding, saddle stitching, and lay-flat

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

15. Calculate most efficient cuts/folds

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Refer to customer requirements and job ticket to review the layout and job requirements including any special circumstances (shingling, bottling, binding method, crossovers)

Select appropriate paper option technique

Calculate cuts/scores from a parent sheet

Calculate number of sheets for booklets

Calculate number of sheets to cut and load

Learning Objectives

Describe how to calculate basic paper cuts from a parent sheet, considering job requirements and grain direction

Demonstrate basic paper counting techniques: measure by ream marker, weight, caliper, or other methods

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

16. Set up post-press

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Review job ticket for type of post-press run
Review set up and safety requirements for equipment
Assemble and adjust tools and production equipment as required
Verify production equipment is available for use and in working order
Verify production equipment is current for preventative maintenance and/or calibration
Calculate any control settings needed
Check equipment, fluids, air, pressure levels as required
Set production equipment parameters as required for the procedure

- Paper stock (Correct grain direction, quantity of pads, sheets/pad, counted sheets, insert chip boards as full sheets)
- Chemistry
- Registration
- Mechanical (jog, stitch, folding, drill hole positions)

Document set up procedure if required

Learning Objectives

Describe how to set up programmable automatic cutters, stitchers, folders, drills
Identify padding equipment materials and hand tools
Identify stapling and stitching equipment materials and supplies
Identify punching/drilling equipment and tools
Identify folding equipment
Identify collating equipment
Explain the importance of proper grain direction when running the post-press, including folds and scoring

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency

17. Verify post-press set up (make-ready)

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Verify set up meets process requirements and product specifications
- Paper stock
- Chemistry
- Registration
- Mechanical

Examine first piece/product or production run for visual and/or dimensional specification

Adjust to ensure piece/product meets specification if needed

Verify repeatability of set up if applicable

Document set up procedure for repeatability if applicable

Document set up procedure if required

Learning Objectives

List the types of labeling used on tools and equipment at your facility to indicate whether a tool or piece of equipment is functional and safe to use

Explain the purpose and importance of preventative maintenance and calibration

List the situations which require you to obtain help to resolve problems with equipment or production

Identify the major components of equipment used in your production process and their functions

Identify variables that impact equipment settings

Define repeatability

Describe the importance of repeatability in printing

Demonstrate basic paper jogging techniques

Demonstrate how to check the squareness of stock

Comments:

Unit 4: Printing Technology Pathway
Press and Post-Press

Competency
18. Perform post-press operation

Performance Standard Condition

Competence will be demonstrated

at the worksite

Performance Standard Criteria

Performance will be successful when learners:

Wear the required Personal Protective Equipment (PPE) at all times as required for the operation of the equipment

Operate equipment safely in the manner required for the job task according to machine requirements

Monitor equipment for safe operation while operating

Operate post-press equipment

- Cutting (Correct direction)
- Folding
- Collating
- Numbering
- Perforating/scoring
- Binding
- Packaging and shrink wrapping
- Stitching
- Other Finishing (die cuts, laminating, embossing, foil stamping, flocking, etc.)

Watch operation for

- Sheets in order
- Edges jogged flush
- Edges free of white space or image/color bleed
- Wires closed
- Perforation/scoring positions

Adjust settings as needed:

- Feeder table for different sizes, consistent feed
- Roller gap settings and double sheet detector
- Open and close correct gates
- Adjust gates for accurate folds

Complete job tracking documentation

Store and/or forward printed materials for packaging and distribution

Learning Objectives

Describe different ways paper can be bound

Discuss common types of binding and finishing: pads of paper, side and saddle stitching, die cutting, laminating, embossing, foil stamping, flocking, etc.

Describe how to use programmable cutters, stitchers, folders, drills

Define folding terminology and list different folding techniques

Demonstrate the use of folding equipment to produce a single fold, an accordion fold, and a gate fold

Describe and identify the uses of right angle folding, knife folding, buckle folding, and combination folding
Describe tipping in procedures
Demonstrate the use of folding equipment to perforate and score
Describe and identify off-line finishing systems
Describe the fundamentals and applications of saddle stitching and perfect binding
Identify spiral binding and wire binding equipment and products
Describe the case binding process
Identify packaging and shrink wrap equipment and materials
Identify specialty bindery processes: foil stamping, embossing, die cutting, and thermography
Describe the differences between, and the advantages/disadvantages of: in-line; off-line; and, near-line finishing

Comments: