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ABSTRACT

This document, which is intended for use by community and junior colleges throughout Mississippi, contains curriculum frameworks for the course sequences in the graphics and print communications program. Presented in the introduction are a program description and suggested course sequence. Section I lists baseline competencies for the graphics and print communications course sequence, and section II consists of course outlines for each of the following courses in the program: overview of graphics and print communications; paste-up and layout; graphic design; process camera and darkroom; press operations I-III; platemaking; binding and finishing operations; film assembly; special project in graphics and print communications; and supervised work experience in graphics and print communications. Each course outline contains some/all of the following: course name and abbreviation; course classification; course description; prerequisites; and competencies and suggested objectives. Recommended tools and equipment are listed in section III. Appended are lists of related academic topics and workplace skills for the 21st century and a student competency profile for the graphics and print communications program. (MN)

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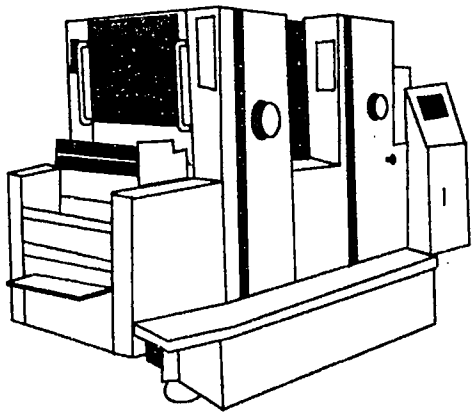
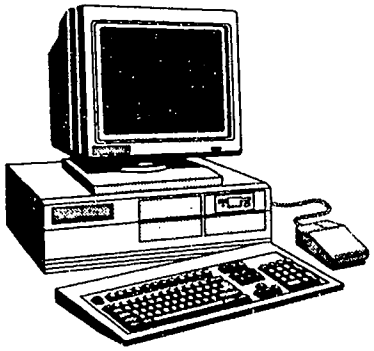
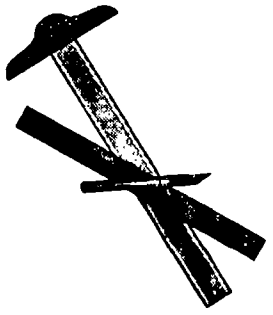
ED 397 344

Mississippi Curriculum Framework for Graphics and Print Communications







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Postsecondary Vocational and Technical Education
1995

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MISSISSIPPI

CURRICULUM FRAMEWORK

FOR

GRAPHICS AND PRINT COMMUNICATIONS

(CIP: 48.0201 - Graphic and Printing Equip. Operators)
(CIP: 48.0208 - Printing Press Operator)

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FOREWORD

In order to survive in today's global economy, businesses and industries have had to adopt new practices and procedures. Total quality management, statistical process control, participatory management, and other concepts of high performance work organizations are practices by which successful companies survive. Employers now expect their employees to be able to read, write, and communicate effectively; solve problems and make decisions; and interact with the technologies that are prevalent in today's workplace. Vocational-technical education programs must also adopt these practices in order to provide graduates who can enter and advance in the changing work world.

The curriculum framework in this document reflect these changes in the workplace and a number of other factors that impact on local vocational-technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U. S. Departments of Education and Labor, provide vocational educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

Each postsecondary program of instruction consists of a program description and a suggested sequence of courses which focus on the development of occupational competencies. Each vocational-technical course in this sequence has been written using a common format which includes the following components:

- Course Name - A common name that will be used by all community/junior colleges in reporting students.
- Course Abbreviation - A common abbreviation that will be used by all community/junior colleges in reporting students.
- Classification - Courses may be classified as:
  - Vocational-technical core - A required vocational-technical course for all students.
  - Vocational-technical elective - An elective vocational-technical course.
  - Related academic course - An academic course which provides academic skills and knowledge directly related to the program area.
  - Academic core - An academic course which is required as part of the requirements for an Associate degree.
- Description - A short narrative which includes the major purpose(s) of the course and the recommended number of hours of lecture and laboratory activities to be conducted each week during a regular semester.

- Prerequisites - A listing of any prerequisite courses that must be taken prior to or on enrollment in the course.
- Competencies and Suggested Objectives - A listing of the competencies (major concepts and performances) and of the suggested student objectives that will enable students to demonstrate mastery of these competencies.

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75 percent of the time allocated to each course. For example, in a four semester hour course consisting of 30 hours lecture and 120 hours of laboratory activities, approximately 22 hours of lecture and 90 hours of lab should be taken by the competencies and suggested objectives identified in the course framework. The remaining 25 percent of each course should be developed at the local district level and may reflect:
  - Additional competencies and objectives within the course related to topics not found in the State framework, including activities related to specific needs of industries in the community college district.
  - Activities which develop a higher level of mastery on the existing competencies and suggested objectives.
  - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed/revised.
  - Activities which implement components of the Mississippi Tech Prep initiative, including integration of academic and vocational-technical skills and coursework, school-to-work transition activities, and articulation of secondary and postsecondary vocational-technical programs.
  - Individualized learning activities, including worksite learning activities, to better prepare individuals in the courses for their chosen occupational area.

- Sequencing of the course within a program is left to the discretion of the local district. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors.

- Programs that offer an Associate of Applied Science degree must include a minimum 15 semester credit hour academic core. Specific courses to be taken within this core are to be determined by the local district. Minimum academic core courses are as follows:

- 3 semester credit hours Math/Science Elective
- 3 semester credit hours Written Communications Elective
- 3 semester credit hours Oral Communications Elective
- 3 semester credit hours Humanities/Fine Arts Elective
- 3 semester credit hours Social/Behavioral Science Elective

It is recommended that courses in the academic core be spaced out over the entire length of the program, so that students complete some academic and vocational-technical courses each semester. Each community/junior college has the discretion to select the actual courses that are required to meet this academic core requirement.

- In instances where secondary programs are directly related to community and junior college programs, competencies and suggested objectives from the high school programs are listed as Baseline Competencies. These competencies and objectives reflect skills and knowledge that are directly related to the community and junior college vocational-technical program. In adopting the curriculum framework, each community and junior college is asked to give assurances that:
  - students who can demonstrate mastery of the Baseline Competencies do not receive duplicate instruction, and
  - students who cannot demonstrate mastery of this content will be given the opportunity to do so.

- The roles of the Baseline Competencies are to:
  - Assist community/junior college personnel in developing articulation agreements with high schools, and
  - Ensure that all community and junior college courses provide a higher level of instruction than their secondary counterparts

- The Baseline Competencies may be taught as special "Introduction" courses for 3-6 semester hours of institutional credit which will not count toward Associate degree requirements. Community and junior colleges may choose to integrate the Baseline Competencies into ongoing courses in lieu of offering the "Introduction" courses or may offer the competencies through special projects or individualized instruction methods.

- Technical elective courses have been included to allow community colleges and students to customize programs to meet the needs of industries and employers in their area.

ACKNOWLEDGEMENTS

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GRAPHICS AND PRINT COMMUNICATIONS

PROGRAM DESCRIPTION

This nine month certificate program prepares the student to enter the graphic arts field. Students will learn industry terminology, history, and theory. They will develop fundamental process skills in operations related to graphic and print design, pasteup and layout, film assembly, platemaking, press operations, and binding and finishing. The program requires successful completion of a minimum of 32 semester hours of vocational-technical courses to receive a Graphics and Print Communications certificate.

GRAPHICS AND PRINT COMMUNICATIONS

SUGGESTED COURSE SEQUENCE*

Baseline Competencies for Graphics and Print Communications**

FIRST YEAR

2 sch	Overview of Graphics and Print Communications (GPV 1212)	4 sch	Film Assembly (GPV 1524)
4 sch	Paste-up and Layout (GPV 1314)	2 sch	Platemaking (GPV 1612)
4 sch	Graphic Design (GPV 1414)	3 sch	Press Operations II (GPV 1723)
4 sch	Process Camera and Darkroom (GPV 1514)	4 sch	Binding and Finishing Operation (GPV 1814)
2 sch	Press Operations I (GPV 1712)	3 sch	Technical Elective
16 sch		16 sch	

Technical Electives:

3 sch	Press Operations III (GPV 1733)
1-3 sch	Special Project in Graphics and Print Communications (GPV 191(1-3))
1-3 sch	Supervised Work Experience in Graphics and Print Communications (GPV 192(1-3))
3 sch	Commercial Art Elective

* Students who lack entry level skills in math, English, science, etc., will be provided related studies.

** Baseline competencies are taken from the high school Graphics and Print Communications program. Students who can document mastery of these competencies should not receive duplicate instruction. Students who cannot demonstrate mastery will be required to do so.

SECTION I:

BASELINE COMPETENCIES

BASELINE COMPETENCIES FOR POSTSECONDARY GRAPHICS AND PRINT COMMUNICATIONS

The following competencies and suggested objectives are taken from the publication *Mississippi Curriculum Framework for Secondary Graphics and Print Communications*. These competencies and objectives represent the baseline which was used to develop the community/junior college Graphics and Print Communications Technology courses. Students enrolled in postsecondary courses should either: (1) have documented mastery of these competencies, or (2) be provided with these competencies before studying the advanced competencies in the Postsecondary Graphics and Print Communications programs.

Baseline competencies may be integrated into existing courses in the curriculum or taught as special "Introduction" courses. The "Introduction" courses may be taught for up to six semester hours institutional credit and may be divided into two courses. If the Baseline competencies are to be taught as "Introduction" courses, each course should be at least three credit hours. The following course number(s) and name(s) should be used:

Course Name(s): Introduction to Graphics and Print Communications, Introduction to Graphics and Print Communications I, or Introduction to Graphics and Print Communications II

Course Abbreviations: GPV 100(3-6), GPV 1013, GPV 1023

Classification: Vocational-Technical Core

Description: These courses contain the baseline competencies and suggested objectives from the high school Graphics and Print Communications program which directly related to the community college Graphics and Print Communications program. The courses are designed for students entering the community college who have had no previous experience in the field. (3-6 semester hours based upon existing skills for each student. May be divided into 2 courses for a maximum total of 6 hours of institutional credit.)

Competencies and Suggested Objectives:

1. Review educational, occupational, and leadership opportunities in Graphics and Print Communications.
   a. Review student rules and regulations for the local school.
   b. Investigate career opportunities in Graphics and Print Communications.
   c. Update the student's career and educational plans.

d. Identify and describe leadership opportunities available from student youth organizations in the school and community, including VICA.

Related Academic Topics (See Appendix A): C4, C6
Workplace Skills (See Appendix B): WP2, WP3, WP6

2. Demonstrate general safety procedures used in Graphics and Print Communications.
   a. Describe and apply general safety rules associated with Graphics and Print Communications.
   b. Locate and describe the use of fire safety equipment in the Graphics and Print Communications shop.
   c. Describe and apply safety precautions for using flammable liquids in Graphics and Print Communications applications.
   d. Describe procedures to be taken in case of an accident or injury in the Graphics and Print Communications shop.
   e. Describe and apply personal safety protection including eye, ear, hand, and body protective devices.
   f. Describe and apply proper shop dress codes.

   Related Academic Topics (See Appendix A): C1, C4, C6, S8
   Workplace Skills (See Appendix B): WP4, WP5
3. Demonstrate procedures for handling, storing, and disposing of hazardous materials.
   a. Recognize signal words and symbols that indicate severity of a hazard.
   b. Describe methods for reducing hazardous waste.
   c. Describe procedures for storing hazardous waste.
   d. Interpret data found on a hazardous materials safety data sheet (MSDS).
   e. Describe general safety procedures to follow for first aid and clean-up in case of an accident involving hazardous materials.
   f. Demonstrate procedures for handling, storing, and disposing of hazardous materials.

   Related Academic Topics (See Appendix A): C1, C4, C6, S5, S8
   Workplace Skills (See Appendix B): WP3, WP5
4. Demonstrate familiarity with equipment in the graphics and print communications laboratory and hazards associated with that equipment.
   a. Identify and describe the use of all major pieces of equipment in the graphics and print communications laboratory.
   b. Recognize hazards associated with each piece of equipment.

   Related Academic Topics (See Appendix A): C4, C6, S6, S8
   Workplace Skills (See Appendix B): WP5
5. Perform mathematical operations related to graphics and print communications applications.
   a. Calculate the number of factory size sheets that will be needed to print a specific job, using fraction and decimals.
   b. Calculate ratio and proportion problems associated with mixing chemicals, page size, and image size.

c. Convert page size from inches to picas.

Related Academic Topics (See Appendix A): M1, M4
Workplace Skills (See Appendix B): WP1, WP6

6. Perform measurement practices as applied to graphics and print communications applications.
   a. Measure linear dimensions for printing materials in inches and fractions of inches, and in centimeters.
   b. Measure type in points and picas.
   c. Measure copy for reduction and enlargement using a proportion wheel to determine percentage setting.
   d. Measure liquid volume for mixing chemicals for darkroom and pressroom operations.

   Related Academic Topics (See Appendix A): M1, M4
   Workplace Skills (See Appendix B): WP1, WP6
7. Perform basic layout procedures.
   a. Identify and describe the use of tools used in layout including the layout table, triangle, line gauges, and pasting equipment.
   b. Position work on a layout table using a T-square.
   c. Design a simple single page layout.

   Related Academic Topics (See Appendix A): C4, C6, M1, M4, M5
   Workplace Skills (See Appendix B): WP1, WP6
8. Perform basic computer skills associated with desktop publishing.
   a. Identify the parts of a computer desktop publishing system and describe their functions.
   b. Define terms associated with computer usage including cursor, pointer, document, diskette, hard drive, etc.
   c. "Boot" the computer and bring applications software on-line.
   d. Initialize (format) a diskette.
   e. Identify different types of software used in desktop publishing and describe its uses including word processing software, scanning software, desktop publishing, clip art, and drawing software.

   Related Academic Topics (See Appendix A): C4, C6, S8
   Workplace Skills (See Appendix B): WP2, WP5, WP6
9. Perform basic word processing operations.
   a. Create a file, set margins, input text, spell check, edit and proof, save to disk, print, and exit.

   Related Academic Topics (See Appendix A): C4, C6
   Workplace Skills (See Appendix B): WP2, WP5, WP6
10. Perform desktop publishing operations.
    a. Define terms associated with desktop publishing systems and desktop publishing operations.
    b. Describe and use desktop publishing and page layout software features including menus, rulers, scroll bars, clip boards, tool boxes, and graphic interfaces (Windows).

c. Scan graphics and text to a desktop publishing file.
d. Select appropriate type style (font) and size for different parts of a layout
e. Perform desktop publishing operations including creating a page set-up, importing text and graphics, inputting commands for font size, aligning and leading, producing different sizes of lines and rules, inserting black-outs for photograph, saving file to diskette, and printing hard copy.
f. Correctly exit the desktop publishing software and operating system.

Related Academic Topics (See Appendix A): C4, C6
Workplace Skills (See Appendix B): WP2, WP5, WP6

11. Perform basic set-up and adjustments of a process camera.
    a. Identify and describe the functions of the basic parts of a process camera including copy board, bellows, lens and F-stop, lights, and camera back.
    b. Use a proportional wheel to set up the process camera to make a given size enlargement or reduction.
    c. Select the proper F-stop setting for a given copy.
    d. Select the proper exposure (shutter speed) for a given copy.
    e. Identify and describe the different types of copy that are made on a process film.

    Related Academic Topics (See Appendix A): C4, C6, M1, M4, S6, S8
    Workplace Skills (See Appendix B): WP5, WP6
12. Perform basic darkroom procedures.
    a. Select proper clothing and other protective devices for handling chemicals in the darkroom.
    b. Set up processing trays in proper sequence.
    c. Utilize proper procedures for handling, mixing, and storing chemicals.
    d. Utilize proper procedures for cleaning the darkroom and disposing of used chemicals.

    Related Academic Topics (See Appendix A): C4, M1, M4, S5, S8
    Workplace Skills (See Appendix B): WP5, WP6
13. Produce a process negative.
    a. Describe the types films that are used in process cameras.
    b. Utilize proper procedures for handling and cutting film.
    c. Set up copy and film, adjust camera, and expose film to produce a negative.
    d. Process exposed film including developing, fixing, washing, and drying to produce a negative.

    Related Academic Topics (See Appendix A): C4, C6, S5, S6
    Workplace Skills (See Appendix B): WP5, WP6
14. Perform stripping operations.
    a. Identify and describe the use of tools and equipment used in the stripping process including masking sheets, light table, stripping knife, tape, etc.
    b. Strip a single negative flat.

    Related Academic Topics (See Appendix A): C4, C6, M1, M4
    Workplace Skills (See Appendix B): WP1, WP5, WP6

15. Perform platemaking operations.
    a. Identify and describe the use of tools and equipment used in platemaking.
    b. Identify and describe the use of the different types of plates and platemakers.
    c. Expose a single negative plate.

    Related Academic Topics (See Appendix A): C4, C6, S6
    Workplace Skills (See Appendix B): WP5, WP6
16. Describe the role of copiers in printing and duplication.
    a. Describe the operating principles of a copier.
    b. Describe jobs for which high speed copiers are best suited.

    Related Academic Topics (See Appendix A): C4, C6, S6
    Workplace Skills (See Appendix B): WP4, WP5, WP6
17. Perform set-up of an offset duplicator/press.
    a. Compare an offset duplicator/press to a copier.
    b. Identify and describe the function of the major systems and units of an offset duplicator/press.
    c. Set up basic paper feed and delivery system for a offset duplicator/press including adjusting feeder to paper size, setting up the register board, setting the impression, setting up the receiver tray/chain delivery system, and adjusting air for stock weight.

    Related Academic Topics (See Appendix A): C4, C6, S6
    Workplace Skills (See Appendix B): WP2, WP4, WP5
18. Prepare an offset duplicator/press for printing.
    a. Mix fountain solution according to type of plate.
    b. Set fountain solution flow to moisture rollers.
    c. Apply ink on ink fountain roller
    d. Install a master plate to plate cylinder.

    Related Academic Topics (See Appendix A): C4, M1, M4, S5
    Workplace Skills (See Appendix B): WP1, WP5, WP6
19. Operate an offset duplicator/press.
    a. Run a one page (8½" x 11") job on 20 lb. paper stock.

    Related Academic Topics (See Appendix A): C5, C6, M1, M4
    Workplace Skills (See Appendix B): WP3, WP5, WP6
20. Perform bindery operations.
    a. Discuss different types of binding operations and their applications including folding, stitching, spiral, tipping, padding, hot glue, and trimming.
    b. Perform a single-fold.
    c. Collate, drill, and stitch printed materials.

    Related Academic Topics (See Appendix A): C4, C6, M1, M4
    Workplace Skills (See Appendix B): WP3, WP5, WP6
21. Review educational, occupational, and leadership opportunities in graphics and print communications.
    a. Review student rules and regulations for the local school.

b. Investigate career opportunities in graphics and print communications.
c. Update the students' career and educational plans.
d. Identify and describe leadership opportunities available from student youth organizations in the school and community, including VICA.

Related Academic Topics (See Appendix A): C4, C6,
Workplace Skills (See Appendix B): WP2, WP3, WP6

22. Demonstrate general safety procedures used in graphics and print communications.
    a. Describe and apply general safety rules associated with graphics and print communications.
    b. Locate and describe the use of fire safety equipment in the graphics and print communications shop.
    c. Describe and apply safety precautions for using flammable liquids in graphics and print communications applications.
    d. Describe procedures to be taken in case of an accident or injury in the graphics and print communications shop.
    e. Describe and apply personal safety protection including eye, ear, hand, and body protective devices.
    f. Describe and apply proper shop dress codes.

    Related Academic Topics (See Appendix A): C1, C4, C6, S8
    Workplace Skills (See Appendix B): WP4, WP5
23. Demonstrate procedures for handling, storing, and disposing of hazardous materials.
    a. Recognize signal words and symbols that indicate severity of a hazard.
    b. Describe methods for reducing hazardous waste.
    c. Describe procedures for storing hazardous waste.
    d. Interpret data found on a hazardous materials safety data sheet (MSDS).
    e. Describe general safety procedures to follow for first aid and clean-up in case of an accident involving hazardous materials.
    f. Demonstrate procedures for handling, storing, and disposing of hazardous materials.

    Related Academic Topics (See Appendix A): C1, C4, C6, S5, S8
    Workplace Skills (See Appendix B): WP3, WP5
24. Demonstrate familiarity with equipment in the graphics and print communications laboratory and hazards associated with that equipment.
    a. Identify and describe the use of all major pieces of equipment in the graphic and print communications laboratory.
    b. Recognize hazards associated with each piece of equipment.

    Related Academic Topics (See Appendix A): C4, C6, S6, S8
    Workplace Skills (See Appendix B): WP5
25. Develop skills and resources necessary to gain employment.
    a. Develop a personal data sheet (resume).
    b. Develop a cover letter (letter of application).
    c. Practice interview skills.

d. Complete different types of job application forms.
e. Develop a portfolio of projects and jobs completed.

Related Academic Topics (See Appendix A): C3, C4, C6
Workplace Skills (See Appendix B): WP3, WP3, WP6

26. Perform job planning and layout tasks.
    a. Describe the different types of layouts and their applications, including thumbnail sketch, rough layout, and comprehensive layout.
    b. Create a 4-page and 8-page dummy imposition.
    c. Create a multiple page comprehensive layout.
    d. Describe how job planning and layout affect cost.

    Related Academic Topics (See Appendix A): C2, C4, C6, M1, M4
    Workplace Skills (See Appendix B): WP1, WP3, WP6
27. Perform desktop publishing operations.
    a. Perform spell check and grammar check operations.
    b. Produce a multiple page document.
    c. Produce a business card.
    d. Produce an envelope.
    e. Produce a template for a newsletter.
    f. Produce a template for stationary.
    g. Produce a graphic using a paint or drawing program.
    h. Proof and mark manuscripts for typographical errors using proof readers marks.
    i. Compare the quality of printed material from different desktop publishing printers.

    Related Academic Topics (See Appendix A): C5, C6, M1, M4
    Workplace Skills (See Appendix B): WP2, WP5, WP6
28. Perform darkroom techniques.
    a. Use the diagonal method for determining enlargements/reductions of copy.
    b. Produce a halftone negative.
    c. Produce a PMT (photo-mechanical transfer) of copy.

    Related Academic Topics (See Appendix A): C3, C4, C6, M4, S6
    Workplace Skills (See Appendix B): WP4, WP5, WP6
29. Perform metal platemaking operations.
    a. Strip a multiple page flat according to a dummy imposition.
    b. Develop a plate using the single burn method.
    c. Develop a plate using the double burn method.
    d. Develop a plate using the step and repeat method.

    Related Academic Topics (See Appendix A): C1, C2, M4, S6
    Workplace Skills (See Appendix B): WP5, WP6

30. Perform "black plate" platemaking.
    a. Compare the use of black plates to conventional metal plates and electrostatic masters.
    b. Produce a black plate.

    Related Academic Topics (See Appendix A): C1, C2, M4, S6
    Workplace Skills (See Appendix B): WP1, WP5, WP6
31. Run offset duplicator/press jobs.
    a. Identify and describe the properties and uses of different types of inks including oil-based, rubber-based, and soy-based ink.
    b. Identify and describe the properties and uses of different types and weights of paper including bond, gloss, index, and NCR.
    c. Set up the press for and run envelopes.
    d. Set up the press for and run index stock.

    Related Academic Topics (See Appendix A): C4, C6, S6, S8
    Workplace Skills (See Appendix B): WP1, WP5, WP6
32. Perform daily maintenance of the offset duplicator/press.
    a. Perform daily maintenance and clean-up on the press.

    Related Academic Topics (See Appendix A): C4, S6, S8
    Workplace Skills (See Appendix B): WP5, WP6
33. Discuss color printing operations.
    a. Describe the process of color printing.
    b. Compare the quality of color copy produced by a color copier to that produced by an offset press.

    Related Academic Topics (See Appendix A): C4, C6
    Workplace Skills (See Appendix B): WP2, WP6
34. Perform bindery operations.
    a. Perform a double fold and tri-fold on the folder.
    b. Determine the differences between NCR and standard padding.
    c. Produce pads of paper.
    d. Identify operational and safety procedures for using a mechanical or hydraulic paper cutter.
    e. Cut paper to size using a mechanical or hydraulic cutter.
    f. Set up and make a standard 3-ring binder hole punch.

    Related Academic Topics (See Appendix A): C4, C6, M4, M5
    Workplace Skills (See Appendix B): WP5, WP6
35. Identify maintenance, repair, and other problem areas related to offset printing.
    a. Discuss procedures for changing blankets on an offset duplicator/press as related to type and size of paper to be run.
    b. Discuss adjustment of roller pressure.
    c. Discuss adjustment of plate to blanket pressure.

36. Identify common problems related to offset duplicator/press including scumming, tinting, offset, emulsification, chalking, roller stripping, picking, and spraying; and describe possible remedies.
    a. Identify hickeys and describe their cause and remedy.

    Related Academic Topics (See Appendix A): C4, C6, S6
    Workplace Skills (See Appendix B): WP5, WP6
37. Identify maintenance and repairs related to folders.
    a. Inspect rollers for glaze and build-up.
    b. Check parallel pressure rollers for correct pressure and alignment.

    Related Academic Topics (See Appendix A): C4, C6, S6
    Workplace Skills (See Appendix B): WP5, WP6

SECTION II:

CURRICULUM GUIDE

FOR

GRAPHICS & PRINT COMMUNICATIONS

Course Name: Overview of Graphics and Print Communications

Course Abbreviation: GPV 1212

Classification: Vocational-Technical Core

Description: This course is an overview of the graphic arts. Students will study the major historical events and copyright restrictions. An overview of the general safety practices, measurements, and printing processes is included. (2 sch: 1 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Discuss the historical development of the printing profession.
   a. Discuss major historical events related to the printing profession including the first use of offset printing, the development of lithographic/offset printing, the lithographic printing process, and the development of the process for producing lasting photographs in fine detail.

   Related Academic Topics (See Appendix A): C6
   Workplace Skills (See Appendix B): WP2, WP6
2. Discuss legal aspects related to printing.
   a. Identify the three elements in a copyright notice.
   b. Identify items that can and cannot be copyrighted.
   c. Identify items that cannot be legally reproduced without permission.

   Related Academic Topics (See Appendix A):C4,
   Workplace Skills (See Appendix B): WP2, WP6
3. Demonstrate safety practices in the print shop.
   a. Identify and describe fire safety hazards in the print shop and precautions to be followed.
   b. Apply personal protection devices against hazards in the print shop including eye, ear, hand, and body protection.
   c. Recognize hazardous materials used in the printing process and apply procedures for handling, storing, and disposing of such materials.
   d. Interpret a materials safety data sheet (MSDS).

   Related Academic Topics (See Appendix A): C1, C2, C4, S5, S8
   Workplace Skills (See Appendix B): WP2, WP5, WP6
4. Apply measurement and mathematical techniques used in the printing industry.
   a. Solve copyfitting problems related to space, font, and type size.
   b. Calculate the cost of materials for a given print job.

   Related Academic Topics (See Appendix A): M1, M2, M4
   Workplace Skills (See Appendix B): WP1, WP2, WP6

5. Describe the work flow in a print shop.
   a. Diagram and describe the flow of work in a print shop including typesetting, layout and design, darkroom procedures (including process camera), film assembly, plate preparation, press operations, binding, and shipping and receiving.

Related Academic Topics (See Appendix A): C2, C4
Workplace Skills (See Appendix B): WP1, WP2, WP6

Course Name: Paste-up and Layout

Course Abbreviation: GPV 1314

Classification: Vocational-Technical Core

Description: This course includes production techniques for preparing copy for reproduction. (4 sch: 2 hr. lecture, 4 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Perform layout procedures.
   a. Demonstrate the safe and proper use of layout tools and equipment including cutting tools, waxers, centering rules, and register marks.
   b. Demonstrate proper use of the proportional scale.
   c. Cut overlays for multi-color jobs.
   d. Prepare a multi-color pasteup including producing thumbnail and rough layout.
   e. Prepare a complex single color paste-up for a given project (work and turn, work and tumble, brochure, newsletter).

   Related Academic Topics (See Appendix A): C6, M1, M4
   Workplace Skills (See Appendix B): WP1, WP2, WP6

Course Name: Graphic Design

Course Abbreviation: GPV 1414

Classification: Vocational-Technical Core

Description: This course is an introduction to graphic design. Students will compare conventional typesetting with desktop publishing systems. This course includes the editing and layout of jobs, basic computer terminology, installation and use of software, proofreading and markup for correction, and the study of type sizes, styles, leading, and line length. (4 sch: 2 hr. lecture, 4 hr. lab)

Prerequisite: None

Competencies and Suggested Objectives:

1. Compare conventional typesetting procedures to desktop publishing.
   a. Describe different generations of typesetters.
   b. Describe the differences between conventional typesetting procedures and desktop publishing.

   Related Academic Topics (See Appendix A): C6
   Workplace Skills (See Appendix B): WP2
2. Design documents using desktop publishing.
   a. Apply basic computer terminology and operating commands for a desktop publishing system.
   b. Install and set up software for a desktop publishing system.
   c. Produce multi-color camera-ready copy using desktop publishing software.
   d. Produce process-color separation originals, including crop marks and register marks, using desktop publishing software.
   e. Scan continuous tone photographs to disk and incorporate into desktop publishing documents.
   f. Scan text using OCR (optical character recognition) software and import into a desktop publishing document.

   Related Academic Topics (See Appendix A): C1
   Workplace Skills (See Appendix B): WP2, WP5, WP6
3. Apply proofing and marking practices.
   a. Proof and mark manuscripts for typographical errors using standard proofreader's marks and produce corrected copy.
   b. Mark up copy to specify type size, type style, leading, and line length.

   Related Academic Topics (See Appendix A): C1, C4, C6
   Workplace Skills (See Appendix B): WP2, WP6

Course Name: Process Camera and Darkroom

Course Abbreviation: GPV 1514

Classification: Vocational-Technical Core

Description: This course covers camera and darkroom techniques for line, halftone, and continuous tone photography. It includes study of films, diffusion transfer processes, chemistries, and special effects. (4 sch: 2 hr. lecture, 4 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Apply safety practices related to process camera and darkroom procedures.
   a. Identify and apply general safety considerations related to darkroom procedures.
   b. Identify and apply safety considerations related to the process camera.
   c. Identify and apply safety considerations related to chemicals used in darkroom processing, including handling, storing, and disposal.

   Related Academic Topics (See Appendix A): C1, C2, S5, S8
   Workplace Skills (See Appendix B): WP2, WP4, WP6
2. Perform darkroom and process camera setup.
   a. Set up the darkroom for a given job including mixing chemicals, arranging trays, and adjusting safe lights and ventilation.
   b. Set up the process camera for a given job including setting proper aperture, exposure time, and reduction/enlargement setting.
   c. Set up and calibrate a densitometer to determine highlight and shadow settings.

   Related Academic Topics (See Appendix A): C4, M4, S8
   Workplace Skills (See Appendix B): WP5, WP6
3. Produce negatives using the process camera and darkroom.
   a. Identify different types of process camera film and describe their characteristics and uses.
   b. Identify the different types of screens used in process camera work and describe their characteristics and uses.
   c. Produce a line negative including selecting the proper film and developing process, setting up the camera, exposing the film, and processing the exposed film into a negative.
   d. Produce a halftone negative including selecting the proper film and developing process, setting up the camera, exposing the film, and processing the exposed film into a negative.

e. Produce duotone negatives including selecting the proper film and developing process, setting up the camera, exposing the film, and processing the exposed film into negatives.
f. Use a densitometer to evaluate film density, dot percentages, and quality control.

Related Academic Topics (See Appendix A): C4, M4, S8
Workplace Skills (See Appendix B): WP5, WP6

Course Name: Press Operations I

Course Abbreviation: GPV 1712

Classification: Vocational-Technical Core

Description: This course is an introduction to press operations with emphasis on safety practices, fundamental setup and operational procedures, and clean-up of offset presses and duplicators. (2 sch: 1 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Apply safety practices and procedures to press operations.
   a. Identify and apply safety precautions and procedures related to the operation of a press/duplicator.
   b. Identify and apply safety precautions associated with inks and other chemicals used in press operations including application and disposal.

   Related Academic Topics (See Appendix A): C4, S5
   Workplace Skills (See Appendix B): WP2
2. Perform setup, basic operations, and clean-up of an offset press/duplicator.
   a. Identify and describe the function of the different systems and parts of an offset press/duplicator.
   b. Setup and adjust the different systems of an offset press including feed, register, cylinder, delivery, inking, and dampening to run a given job.
   c. Perform the clean-up routine for a given press using clean-up sheets and solvents.

   Related Academic Topics (See Appendix A): C4
   Workplace Skills (See Appendix B): WP2, WP5, WP6

Course Name: Press Operations II

Course Abbreviation: GPV 1723

Classification: Vocational-Technical Core

Description: This course is a continuation of Press Operations I with emphasis on 2-color printing operations, maintenance and troubleshooting, and new trends and technologies in printing. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: GPV 1712 (Press Operations I)

Competencies and Suggested Objectives:

1. Perform 2-color printing on a single head press.
   a. Run a 2-color job on a single head press including setting up the press for the first color, running the first color, cleaning the press, setting up and adjusting for the second color, and running the second color.

   Related Academic Topics (See Appendix A): C1, C2
   Workplace Skills (See Appendix B): WP5, WP6
2. Perform operator-type maintenance and troubleshooting on offset presses/duplicators.
   a. Remove and replace blankets.
   b. Remove and prevent roller glaze.
   c. Lubricate the press.
   d. Troubleshoot printing problems associated with feeder and feeding, ink and water balance, and registration.

   Related Academic Topics (See Appendix A): C1, C2
   Workplace Skills (See Appendix B): WP5, WP6
3. Describe new trends and technologies associated with printing.
   a. Describe the use of dry toner copies in the printing industry.
   b. Describe the use of the digital duplicators in the printing industry.
   c. Describe the use of color copiers in the printing industry.

   Related Academic Topics (See Appendix A): C4, C6
   Workplace Skills (See Appendix B): WP4, WP5

Course Name: Press Operations III

Course Abbreviation: GPV 1733

Classification: Vocational-Technical Elective

Description: This course is a continuation of GPV 1712 and GPV 1723 with emphasis on multi-color printing. (3 sch: 6 hr. lab)

Prerequisites: GPV 1712 (Press Operations I)

Competencies and Suggested Objectives:

1. Perform multiple color printing.
   a. Attach T-head to parent press.
   b. Set up and adjust parent press for multiple color printing.
   c. Set up and adjust T-head for multiple color printing.
   d. Print a multiple color job.
   e. Clean the parent press and T-head.

   Related Academic Topics (See Appendix A): C4
   Workplace Skills (See Appendix B): WP5, WP6

Course Name: Platemaking

Course Abbreviation: GPV 1612

Classification: Vocational-Technical Core

Description: This course includes instruction and practice in the use of different processes and exposure systems for making plates for offset presses and duplicators. (2 sch: 1 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Apply safety precautions and practices associated with plate making.
   a. Identify and apply safety procedures associated with chemicals used in platemaking including safe handling, mixing, storing, and disposing procedures.
   b. Demonstrate safe practices in exposing and developing plates.
   Related Academic Topics (See Appendix A): C4, S5, S6
   Workplace Skills (See Appendix B): WP5, WP6
2. Perform setup and maintenance for platemaking equipment.
   a. Calibrate a platemaker using a sensitivity guide.
   Related Academic Topics (See Appendix A): C4, M4, S6
   Workplace Skills (See Appendix B): WP5, WP6
3. Produce metal plates for an offset press.
   a. Produce metal plates including exposing, developing, and finishing the plate.
   b. Expose plates using screen tints.
   Related Academic Topics (See Appendix A): C4
   Workplace Skills (See Appendix B): WP5, WP6
4. Produce photo-direct plates for an offset press.
   a. Prepare and install chemicals used in photo-direct platemaking.
   b. Produce a photo-direct plate.
   Related Academic Topics (See Appendix A): C4, S5
   Workplace Skills (See Appendix B): WP5, WP6

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Course Name: Binding and Finishing Operations

Course Abbreviation: GPV 1814

Classification: Vocational-Technical Core

Description: This course includes instruction and practice in binding and finishing techniques including folding, padding, drilling, and stitching. (4 sch: 2 hr. lecture, 4 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Apply safety precautions and practices associated with binding and finishing operations.
   a. Identify and apply safety precautions and procedures associated with binding and finishing equipment.
   b. Identify and apply safety precautions associated with glues and other chemicals associated with binding and finishing operations.

   Related Academic Topics (See Appendix A): C4, S5
   Workplace Skills (See Appendix B): WP5, WP6
2. Set up, adjust, and operate equipment for binding and finishing operations.
   a. Set up, adjust, and operate a collator.
   b. Set up, adjust, and operate a folder to make various folds.
   c. Set up, adjust, and operate a paper drill for configurations.
   d. Set up, adjust, and operate a single head stitcher for side and saddle stitching operations.
   e. Set up, adjust, and operate a spiral binding machine.
   f. Perform padding operations for plain and carbon-less paper.
   g. Set up, adjust, and operate a paper cutter for trimming operations.
   h. Set up, adjust, and operate a numbering machine.
   i. Set up, adjust, and operate a perforator.

   Related Academic Topics (See Appendix A): C4, M4, S6
   Workplace Skills (See Appendix B): WP5, WP6

Course Name: Film Assembly

Course Abbreviation: GPV 1524

Classification: Vocational-Technical Core

Description: This course includes instruction and practice of lithographic stripping techniques using a variety of flat systems commonly used in the graphic and print industry. (4 sch: 2 hr. lecture, 4 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Apply safety precautions and procedures used in film assembly.
   a. Identify and apply safety precautions used in film assembly operations related to the use of tools.

   Related Academic Topics (See Appendix A): C4
   Workplace Skills (See Appendix B): WP5, WP6
2. Perform film assembly operations.
   a. Identify and describe methods of multi-flat registration including common edge and pin register system.
   b. Strip for a work and turn, work and tumble, and gang impositions.
   c. Strip negative for multi-color registration.
   d. Strip halftone negatives.
   e. Strip multipage signatures.
   f. Strip a 4-color job.

   Related Academic Topics (See Appendix A): C4
   Workplace Skills (See Appendix B): WP5, WP6

Course Name: Special Project in Graphics and Print Communications

Course Abbreviation: GPV 191(1-3)

Classification: Vocational-Technical Elective

Description: This course provides students with practical application of skills and knowledge related to a specific instructor-approved topic. Instructor and student work closely together in planning and conducting the project. (1-3 sch: 2-6 hr. lab)

Prerequisites: Consent of the instructor

Competencies and Suggested Objectives:

(Specific objectives for this course will be developed by the instructor and student and used for assessment of student learning.)

Course Name: Supervised Work Experience in Graphics and Print Communications

Course Abbreviation: GPV 192(1-3)

Classification: Vocational-Technical Elective

Description: A supervised on-site work experience in which the student works under the supervision of industry and community college personnel. Competencies and objectives for this course are determined by a mutual agreement between the student, employer, and teacher. (1-3 sch: 2-6 hr. lab)

Prerequisites: Consent of the instructor

Competencies and Suggested Objectives:

(To be determined)

SECTION III:

RECOMMENDED TOOLS AND EQUIPMENT

RECOMMENDED TOOLS AND EQUIPMENT

1. 10 Power Glass Magnifier (1 per student)
2. 30-60° Angle Drafting Triangle (1 per student)
3. 45° Angle Drafting Triangle (1 per student)
4. Burnisher (flat) (6 per program)
5. Burnishing Roller (6 per program)
6. Chemical Resistant Aprons (1 per student)
7. Chemical Resistant Gloves (1 per student)
8. Collator (1 per program)
9. Computer Task Chair (1 per computer workstation)
10. Computer Workstation (1 per computer)
11. Contact Screens (2 sets per program)
12. Contact Vacuum Frame & Light Source (1 per program)
13. Copy Holder (1 per computer workstation)
14. Copy to Plate Platemaker (1 per program)
15. Densitometer (1 per program)
16. Developing Sink (1 per program)
17. Developing Trays (1 set per program)
18. Digital Scanner - Full Page Flat Bed (1 per program)
19. Drafting Stool or Chair (1 per light table)
20. Drill Punch (1 per program)
21. Dry Toner Electrostatic Copier with Enlarging and Reducing Capacity (1 per program)
22. Film Dryer (Automatic) (1 per program)
23. Film Processor (1 per program)
24. Film Storage Cabinet (1 per program)
25. First Aid Kit with Eyewash Bottle (1 per program)
26. Folding Machine-Table Top (1 per program)
27. Folding Machine-Full Size (1 per program)
28. Graduated Cylinder (1 per program)
29. Handtool Set (wrenches, sockets, Allen wrenches, screwdrivers, etc.) (1 per program)
30. Jogger (1 per program)
31. Laser Printer (1 per 2 computer workstations or 1 if computers are networked)
32. Light Table (6 per program)
33. Line Gauges (1 per student)
34. Microcomputer with high resolution graphics monitor and mouse(1 per 2 students)
35. Micrometer (1 per program)
36. Numbering Machine (1 per program)
37. Offset Duplicator/Press (1 per 2 students)
38. Opaque Brush (6 per program of various sizes)

39. PMT Processor (1 per program)
40. Padding Press (1 per program)
41. Paper Cutter - Hydraulic (1 per program)
42. Perforator/Slitter/Scorer (1 per program)
43. Pin Register System (1 per program)
44. Plastic Binding Machine (1 per program)
45. Plate Processor (1 per program)
46. Plate Punch (1 per program)
47. Plate Sink (1 per program)
48. Platemaker (1 per program)
49. Process Camera (1 per program)
50. Proportion Scale (1 per student)
51. Round Cornering Machine (1 per program)
52. Safe Lights (6 per program)
53. Safety Glasses/Goggles (1 per student)
54. Screen Angle Indicator (1 per program)
55. Scribers (1 set per program of various sizes)
56. Sensitivity Guides (1 set per program)
57. Single Head Stitcher (1 per program)
58. Storage Containers for Hazardous Materials (1 set of various sizes as needed)
59. T-head for Offset Press/Duplicator (1 per 2 presses/duplicators)
60. T-square (1 per student)
61. Technical Drawing Pens (1 set per program)
62. Thermometer (Darkroom) (1 per program)
63. Timer (1 per program)
64. Truck with Roller (Paper Transport) (1 per program)
65. X-Acto Knife (6 per program)

RECOMMENDED INSTRUCTIONAL AIDS AND RESOURCES

1. Computer Graphics Design Program
2. Data Conversion Software
3. Desktop Publishing Software
4. Optical Character Recognition (OCR) Software
5. Word Processing Software
6. TV/monitor
7. VCR
8. TV/VCR Cart
9. LCD Projection Panel
10. Overhead Projector

APPENDIX A:

RELATED ACADEMIC TOPICS

APPENDIX A

RELATED ACADEMIC TOPICS FOR COMMUNICATIONS

C1 Interpret written material.
C2 Interpret visual materials (maps, charts, graphs, tables, etc.).
C3 Listen, comprehend, and take appropriate actions.
C4 Access, organize, and evaluate information.
C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.

EXPANDED TOPICS FOR COMMUNICATIONS

TOPIC C1: Interpret written material.

C1.01 Read and follow complex written directions.
C1.02 Recognize common words and meanings associated with a variety of occupations.
C1.03 Adjust reading strategy to purpose and type of reading.
C1.04 Use sections of books and reference sources to obtain information.
C1.05 Compare information from multiple sources and check validity.
C1.06 Interpret items and abbreviations used in multiple forms.
C1.07 Interpret short notes, memos, and letters.
C1.08 Comprehend technical words and concepts.
C1.09 Use various reading techniques depending on purpose for reading.
C1.10 Find, read, understand, and use information from printed matter or electronic sources.

TOPIC C2: Interpret visual materials (maps, charts, graphs, tables, etc.).

C2.01 Use visuals in written and in oral presentations.
C2.02 Recognize visual cues to meaning (layout, typography, etc.).
C2.03 Interpret and apply information using visual materials.

TOPIC C3: Listen, comprehend, and take appropriate action.

C3.01 Identify and evaluate orally-presented messages according to purpose.
C3.02 Recognize barriers to effective listening.
C3.03 Recognize how voice inflection changes meaning.
C3.04 Identify speaker signals requiring a response and respond accordingly.
C3.05 Listen attentively and take accurate notes.
C3.06 Use telephone to receive information.

C3.07 Analyze and distinguish information from formal and informal oral presentations.

TOPIC C4: Access, organize, and evaluate information.

C4.01 Distinguish fact from opinion.
C4.02 Use various print and non-print sources for specialized information.
C4.03 Interpret and distinguish between literal and figurative meaning.
C4.04 Interpret written or oral communication in relation to context and writer's point of view.
C4.05 Use relevant sources to gather information for written or oral communication.

TOPIC C5: Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.

C5.01 Select appropriate words for communication needs.
C5.02 Use reading, writing, listening, and speaking skills to solve problems.
C5.03 Compose inquiries and requests.
C5.04 Write persuasive letters and memos.
C5.05 Edit written reports, letters, memos, and short notes for clarity, correct grammar, and effective sentences.
C5.06 Write logical and understandable statements, phrases, or sentences for filling out forms, for correspondence or reports.
C5.07 Write directions or summaries of processes, mechanisms, events, or concepts.
C5.08 Select and use appropriate formats for presenting reports.
C5.09 Convey information to audiences in writing.
C5.10 Compose technical reports and correspondence that meet accepted standards for written communications.

TOPIC C6: Communicate ideas and information using oral and written forms for a variety of audiences and purposes.

C6.01 Give complex oral instructions.
C6.02 Describe a business or industrial process/mechanism.
C6.03 Participate effectively in group discussions and decision making.
C6.04 Produce effective oral messages utilizing different media.
C6.05 Explore ideas orally with partners.
C6.06 Participate in conversations by volunteering information when appropriate and asking relevant questions when appropriate.
C6.07 Restate or paraphrase a conversation to confirm one's own understanding.
C6.08 Gather and provide information utilizing different media.

C6.09 Prepare and deliver persuasive, descriptive, and demonstrative oral presentations.

RELATED ACADEMIC TOPICS FOR MATHEMATICS

M1 Relate number relationships, number systems, and number theory.
M2 Explore patterns and functions.
M3 Explore algebraic concepts and processes.
M4 Explore the concepts of measurement.
M5 Explore the geometry of one-, two-, and three-dimensions.
M6 Explore concepts of statistics and probability in real world situations.
M7 Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

EXPANDED TOPICS FOR MATHEMATICS

TOPIC M1: Relate number relationships, number systems, and number theory.

M1.01 Understand, represent, and use numbers in a variety of equivalent forms (integer, fraction, decimal, percent, exponential, and scientific notation) in real world and mathematical problem situations.
M1.02 Develop number sense for whole numbers, fractions, decimals, integers, and rational numbers.
M1.03 Understand and apply ratios, proportions, and percents in a wide variety of situations.
M1.04 Investigate relationships among fractions, decimals, and percents.
M1.05 Compute with whole numbers, fractions, decimals, integers, and rational numbers.
M1.06 Develop, analyze, and explain procedures for computation and techniques for estimations.
M1.07 Select and use an appropriate method for computing from among mental arithmetic, paper-and-pencil, calculator, and computer methods.
M1.08 Use computation, estimation, and proportions to solve problems.
M1.09 Use estimation to check the reasonableness of results.

TOPIC M2: Explore patterns and functions.

M2.01 Describe, extend, analyze, and create a wide variety of patterns.
M2.02 Describe and represent relationships with tables, graphs, and rules.
M2.03 Analyze functional relationships to explain how a change in one quantity results in a change in another.
M2.04 Use patterns and functions to represent and solve problems.
M2.05 Explore problems and describe results using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.

M2.06 Use a mathematical idea to further their understanding of other mathematical ideas.
M2.07 Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as art, music, and business.

TOPIC M3: Explore algebraic concepts and processes.

M3.01 Represent situations and explore the interrelationships of number patterns with tables, graphs, verbal rules, and equations.
M3.02 Analyze tables and graphs to identify properties and relationships and to interpret expressions and equations.
M3.03 Apply algebraic methods to solve a variety of real world and mathematical problems.

TOPIC M4: Explore the concepts of measurement.

M4.01 Estimate, make,and use measurements to describe and compare phenomena.
M4.02 Select appropriate units and tools to measure to the degree of accuracy required in a particular situation.
M4.03 Extend understanding of the concepts of perimeter, area, volume, angle measure, capacity, and weight and mass.
M4.04 Understand and apply reasoning processes, with special attention to spatial reasoning and reasoning with proportions and graphs.

TOPIC M5: Explore the geometry of one-, two-, and three-dimensions.

M5.01 Identify, describe, compare, and classify geometric figures.
M5.02 Visualize and represent geometric figures with special attention to developing spatial sense.
M5.03 Explore transformations of geometric figures.
M5.04 Understand and apply geometric properties and relationships.
M5.05 Classify figures in terms of congruence and similarity and apply these relationships.

TOPIC M6: Explore the concepts of statistics and probability in real world situations.

M6.01 Systematically collect, organize, and describe data.
M6.02 Construct, read, and interpret tables, charts, and graphs.
M6.03 Develop an appreciation for statistical methods as powerful means for decision making.
M6.04 Make predictions that are based on exponential or theoretical probabilities.

M6.05 Develop an appreciation for the pervasive use of probability in the real world.

TOPIC M7: Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

M7.01 Use computers and/or calculators to process information for all mathematical situations.
M7.02 Use problem-solving approaches to investigate and understand mathematical content.
M7.03 Formulate problems from situations within and outside mathematics.
M7.04 Generalize solutions and strategies to new problem situations.

RELATED ACADEMIC TOPICS FOR SCIENCE

S1 Explain the Anatomy and Physiology of the human body.
S2 Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.
S3 Relate the nine major phyla of the kingdom anomaly according to morphology, anatomy, and physiology.
S4 Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.
S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.
S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.
S7 Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance, population genetics, the structure and function of DNA, and current applications of DNA technology.
S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

EXPANDED TOPICS FOR SCIENCE

TOPIC S1: Explain the Anatomy and Physiology of the human body.

S1.01 Recognize common terminology and meanings.
S1.02 Explore the relationship of the cell to more complex systems within the body.

S1.03 Summarize the functional anatomy of all the major body systems.
S1.04 Relate the physiology of the major body systems to its corresponding anatomy.
S1.05 Compare and contrast disease transmission and treatment within each organ system.
S1.06 Explore the usage of medical technology as related to human organs and organ systems.
S1.07 Explain the chemical composition of body tissue.

TOPIC S2: Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.

S2.01 Identify the major types and structures of plants, viruses, monera, algae protista, and fungi.
S2.02 Explain sexual and asexual reproduction.
S2.03 Describe the ecological importance of plants as related to the environment.
S2.04 Analyze the physical chemical and behavioral process of a plant.

TOPIC S3: Relate the nine major phyla of the kingdom anomaly according to morphology, anatomy, and physiology.

S3.01 Explain the morphology, anatomy, and physiology of animals.
S3.02 Describe the characteristics, behaviors, and habitats of selected animals.

TOPIC S4: Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.

S4.01 Examine minerals and their identification, products of the rock cycle, byproducts of weathering, and the effects of erosion.
S4.02 Relate the Hydrologic Cycle to include groundwater its zones, movement, and composition; surface water systems, deposits, and runoff.
S4.03 Consider the effects of weather and climate on the environment.
S4.04 Examine the composition of seawater; wave, tides, and currents; organisms, environment, and production of food; energy, food and mineral resources of the oceans.

TOPIC S5: Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.

S5.01 Examine the science of chemistry to include the nature of matter, symbols, formulas and nomenclature, and chemical equations.

S5.02 Identify chemical reactions including precipitation, acids-bases, and reduction-oxidation.
S5.03 Explore the fundamentals of chemical bonding and principles of equilibrium.
S5.04 Relate the behavior of gases.
S5.05 Investigate the structure, reactions, and uses of organic compounds; and investigate nuclear chemistry and radiochemistry.

TOPIC S6: Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.

S6.01 Examine fundamentals of motion of physical bodies and physical dynamics.
S6.02 Explore the concepts and relationships among work, power, and energy.
S6.03 Explore principles, characteristics, and properties of electricity, magnetism, light energy, thermal energy, and wave energy.
S6.04 Identify principles of modern physics related to nuclear physics.

TOPIC S7: Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance; population genetics, the structure and function of DNA, and current applications of DNA technology.

S7.01 Examine principles, techniques, and patterns of traits and inheritance in organisms.
S7.02 Apply the concept of population genetics to both microbial and multicellular organism.
S7.03 Identify the structure and function of DNA and the uses of DNA technology in science, industry, and society.

TOPIC S8: Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

S8.01 Apply the components of scientific processes and methods in classroom and laboratory investigations.
S8.02 Observe and practice safe procedures in the classroom and laboratory.
S8.03 Demonstrate proper use and care for scientific equipment.
S8.04 Investigate science careers, and advances in technology.
S8.05 Communicate results of scientific investigations in oral, written, and graphic form.

APPENDIX B:

WORKPLACE SKILLS

APPENDIX B
WORKPLACE SKILLS FOR THE 21ST CENTURY

WP1 Allocates resources (time, money, materials and facilities, and human resources).

WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.

WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.

WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.

WP5 Selects, applies, and maintains/troubleshoots technology.

WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.

APPENDIX C:

STUDENT COMPETENCY PROFILE

STUDENT COMPETENCY PROFILE

Student: _____

This record is intended to serve as a method of noting student achievement of the competencies in each course. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the program.

In the blank before each competency, place the date on which the student mastered the competency.

Overview of Graphics and Print Communications (GPV 1212)

_____ 1. Discuss the historical development of the printing profession.
_____ 2. Discuss legal aspects related to printing.
_____ 3. Demonstrate safety practices in the print shop.
_____ 4. Apply measurement and mathematical techniques used in the printing industry.
_____ 5. Describe the work flow in a print shop.

Paste-up and Layout (GPV 1314)

_____ 1. Perform layout procedures.

Graphic Design (GPV 1414)

_____ 1. Compare conventional typesetting procedures to desktop publishing.
_____ 2. Design documents using desktop publishing.
_____ 3. Apply proofing and marking practices.

Process Camera and Darkroom (GPV 1514)

_____ 1. Apply safety practices related to process camera and darkroom procedures.
_____ 2. Perform darkroom and process camera setup.
_____ 3. Produce negatives using the process camera and darkroom.

Press Operations I (GPV 1712)

_____ 1. Apply safety practices and procedures to press operations.
_____ 2. Perform setup, basic operations, and clean-up of an offset press/duplicator.

Press Operations II (GPV 1723)

_____ 1. Perform 2-color printing on a single head press.
_____ 2. Perform operator-type maintenance and troubleshooting on offset presses/duplicators.
_____ 3. Describe new trends and technologies associated with printing.

Press Operations III (GPV 1733)

_____ 1. Perform multiple color printing.

Platemaking (GPV 1612)

_____ 1. Apply safety precautions and practices associated with plate making.
_____ 2. Perform setup and maintenance for platemaking equipment.
_____ 3. Produce metal plates for an offset press.
_____ 4. Produce photo-direct plates for an offset press.

Binding and Finishing Operations (GPV 1814)

_____ 1. Apply safety precautions and practices associated with binding and finishing operations.
_____ 2. Set up, adjust, and operate equipment for binding and finishing operations.

Film Assembly (GPV 1524)

_____ 1. Apply safety precautions and procedures used in film assembly.
_____ 2. Perform film assembly operations.

Special Project in Graphics and Print Communications (GPV 191(1-3))

Specific objectives for this course will be developed by the instructor and student and used for assessment of student learning.

Supervised Work Experience in Graphics and Print Communications (GPV 192(1-3))

To be determined.