

# Career & Technical Education | Arts & Communication

## Visual Distribution

**Subject Code: 340330**

### Outcome & Competency Descriptions

#### Course Description:

Students analyze customer preferences to determine product creation, production, and delivery. Students learn techniques to produce high-quality, creative, 2- and 3-dimensional products. They compare the differences of customer impact between using traditional mass distribution to individual consumer targeting.

#### Strand 1. **Business Operations / 21st Century Skills**

Learners apply principles of economics, business management, marketing, and employability in an entrepreneur, manager, and employee role to the leadership, planning, developing, and analyzing of business enterprises related to the career field.

#### Outcome: 1.8. **Operations Management**

Plan, organize, and monitor an organization or department to maximize contribution to organizational goals and objectives.

##### Competencies

- 1.8.2. Select and organize resources to develop a product or a service.
- 1.8.4. Identify alternative actions to take when goals are not met (e.g., changing goals, changing strategies, efficiencies).
- 1.8.8. Identify routine activities for maintaining business facilities and equipment.

#### Outcome: 1.10. **Sales and Marketing**

Manage pricing, place, promotion, packaging, positioning, and public relations to improve quality customer service.

##### Competencies

- 1.10.2 Determine the customer's needs and identify solutions.

## **Strand 2.**

### **Design**

Learners apply the elements and principles of design and compositional techniques to create works of art and visual layouts for both tactile and digital art forms.

#### **Outcome: 2.1.**

#### **Arts Elements and Design Principles**

Analyze works of art for the art elements and the design principles needed to create professional products.

#### **Competencies**

- 2.1.1. Describe art elements of line, value, color, shape, space, form, and texture in various media that are used individually or in combination.
- 2.1.2. Identify specific characteristics (i.e., positive and negative, organic, geometric, quality, weight, direction, variety, unity, balance, symmetry) of art elements that communicate and express ideas.
- 2.1.3. Determine how and when to apply the principles of design, including unity, variety, balance, movement, emphasis, visual hierarchy, and proportion/scale to communicate ideas.
- 2.1.4. Identify, compare, and contrast unity and variety within a design (e.g., formal/symmetrical, informal/asymmetrical, and radial balance).
- 2.1.5. Observe movement shown through repetition, pattern, and rhythm.
- 2.1.6. Interpret emphasis through contrast, isolation, size, and placement.
- 2.1.7. Identify visual hierarchy used to establish dominance.
- 2.1.8. Recognize the use of proportion/scale.

#### **Outcome: 2.2.**

#### **Color Theory**

Assess the use of color for commercial design.

#### **Competencies**

- 2.2.1. Explain the science of color perception using the electromagnetic spectrum.
- 2.2.2. Choose color pairings with regard to ADA compliance, color visibility, readability, and accessibility.
- 2.2.3. Describe how changes to tint, shade, hue, value, intensity, and saturation relate to color theory.
- 2.2.4. Identify gamut output issues and calibrate color.
- 2.2.5. Select color profiles for different mediums (e.g., Red Green Blue [RGB], Cyan Magenta Yellow Key [CMYK], Pantone®, Reference Output Medium Metric [ROMM] RGB, CIE-L\*a\*B\* color space).
- 2.2.6. Replicate color across multiple media accommodating how color changes from the monitor to the final product (e.g., coated and uncoated papers, metallic, color-calibrated monitors).
- 2.2.7. Compare and contrast additive and subtractive color theory (e.g., RGB, CMYK).
- 2.2.8. Compare and contrast choices using the psychology of color.

- 2.2.9. Critique the use of color schemes (e.g., primary, secondary, tertiary, analogous, complementary, triads, monochromatic) in various media.

**Outcome: 2.4. Visual Layouts**

Create layouts for pre-production and analyze the communicative effects on the commercial product.

**Competencies**

- 2.4.1. Create thumbnail and rough sketches.
- 2.4.2. Apply the proper color profile for the final output.
- 2.4.3. Create single and multi-color layouts using images and formats.
- 2.4.4. Use process color and spot color separations.
- 2.4.5. Differentiate between raster- and vector-based layouts.
- 2.4.6. Apply the components of a comprehensive layout (e.g., color scheme, font, white space, text graphics, frames, headings) according to an overall theme for the product.
- 2.4.7. Determine composition, formal qualities, scale, and use of space.
- 2.4.8. Apply compositional techniques, including rule of thirds, use of a grid system, 180-degree rule, framing, fill frame, pyramid, strong center of interest, and aspect ratio.
- 2.4.9. Create visual continuity among a variety of products.
- 2.4.10. Determine how the technical characteristics of the print medium affect content and style.
- 2.4.11. Calculate finishing requirements in a layout (e.g., registration marks, bleed, slugs).
- 2.4.12. Evaluate the product in terms of the message or meaning for the targeted audience.

**Outcome: 2.5. Typography**

Apply typographical elements for a commercial presentation.

**Competencies**

- 2.5.1. Select typefaces for relevant applications.
- 2.5.2. Apply typography kerning, leading, and hierarchy for readability and accessibility.
- 2.5.3. Use typographic measurements in terms of picas, points, pixels, and ems.
- 2.5.4. Apply multiple families of type within a project.
- 2.5.5. Use typography as a primary component of logo design.
- 2.5.7. Assess typography's effects on message delivery and aesthetics (e.g., limit families, readability).

## **Outcome: 2.6. UX/UI Design**

Develop basic skills and knowledge of the UX/UI (User Experience/User Interface) design process.

### **Competencies**

- 2.6.1. Understand the UX/UI design process (e.g. vision, journey mapping, wireframing, prototyping, strategizing) for the targeted platform (e.g. graphics, applications, programming).
- 2.6.2. Conduct and analyze research (focus testing, beta testing) with the end user in mind.
- 2.6.8. Draft, design, and utilize design prototypes (low-fidelity, high-fidelity) to guide the design process.
- 2.6.10. Understand how the use of appropriate iconography impacts user experience
- 2.6.11. Understand various design methodologies (Bottom-Up, Top-Down, Agile) and evaluate their strengths and weaknesses.
- 2.6.12. Describe how attention, memory, perception, conditioning, and learning define the user experience and affects their actions.
- 2.6.13. Describe how usability heuristics develop a better experience for the end-user.

## **Strand 5. Print Production Process**

Learners apply knowledge and skills to produce print or digital products.

### **Outcome: 5.1. File Preflight**

Preflight files before printing.

#### **Competencies**

- 5.1.1. Input customer files from various sources (e.g. Dropbox, Google Drive, FTP, etc.) into a design application and process on a prepress system.
- 5.1.2. Compare the on-screen layout to the customer proof.
- 5.1.3. Create and manage page geometry for print production concerns including bleeds, trapping, pagination/imposition, screening, total ink coverage, and creating color separations.
- 5.1.4. Examine font and picture usage for mapping, alignment, linking, and resolution issues.
- 5.1.5. Identify color correction factors, including assignment, gamut, dot gain, screen angles, trapping, gray balance, and rich black.
- 5.1.6. Troubleshoot files using automated preflight tools and reports. Make recommended adjustments to files.
- 5.1.7. Confirm file accuracy through test printing or electronic approval.

### **Outcome: 5.2. File Output**

Output files for print production.

#### **Competencies**

- 5.2.1. Determine the resolution of the output device.
- 5.2.2. Using additive and subtractive color theories, explain the difference of RGB, Grayscale, LAB, and CMYK color spaces.
- 5.2.3. Manage output factors, including file management and raster image processing.
- 5.2.4. Interpret marks used for indicating registration, cropping, trims, and ink density.
- 5.2.5. Verify that imagesetter materials and settings are correct.
- 5.2.6. Compare image carrier generation methods, including computer-to-plate [CTP], film-based, screen, and flexography.
- 5.2.7. Analyze factors for image carrier issues, including depleted chemistry and light leak.
- 5.2.8. Check color separations.

### **Outcome: 5.3. Offset Image Control Systems**

Set up substrate and image control systems for printing.

#### **Competencies**

- 5.3.1. Explain and demonstrate substrate selection and substrate printing methods.
- 5.3.2. Apply color matching specifications for industry recognized systems.
- 5.3.3. Maintain conductivity and pH levels for offset printing.
- 5.3.4. Set up and adjust register systems.
- 5.3.5. Maintain image density and coverage.
- 5.3.6. Compare drying methods, including heat, oxidation, ultraviolet [UV], LED, additives, and infrared.
- 5.3.7. Preserve image carriers.
- 5.3.8. Select ink types based on their properties and product specifications.
- 5.3.9. Explain the difference between substrates (e.g. – paper – coated/uncoated, cover/text weights, basis weight, vinyl – banner/adhesive, printable/nonprintable, textiles, etc.)
- 5.3.10. Demonstrate the operation of different printing processes (e.g., digital printing, offset printing, screen printing, flexography, wide-format printing, etc.).

### **Outcome: 5.4. Printed Images**

Create printed images according to the client's approved proof.

#### **Competencies**

- 5.4.1. Compare and contrast color density proofs and press sheets for offset wide-format inkjet and laser formats using visual and equipment readings.
- 5.4.2. Interpret color bars.
- 5.4.3. Analyze the effects of single-color and multiple-color (e.g., Pantone®, spot color) output on various substrates (e.g., paper, plastic, recycled materials).
- 5.4.4. Analyze the effects of process color output on various substrates (e.g., paper, plastic, recycled materials).
- 5.4.5. Analyze and maintain print quality controls for offset wide-format inkjet and laser formats.
- 5.4.6. Produce copies following project specifications.
- 5.4.7. Identify the image quality factors that are measured by a densitometer and a spectrophotometer and other quality control devices.

## **Outcome: 5.5. Digital Print Methods**

Analyze digital print technologies for digital and offset production.

### **Competencies**

5.5.12 Determine artwork capabilities for reproduction.

## **Outcome: 5.7. Screen Printing and Embroidery**

Engage screen printing and embroidery operations.

### **Competencies**

- 5.7.1. Identify substrates and their marketable applications in screen printing and embroidery.
- 5.7.2. Compare the differences in screen printing inks (e.g. water-based ink, plastisol, specialty additives).
- 5.7.3. Compare the differences in embroidery threads (e.g. acrylic, polyester, cotton, rayon).
- 5.7.4. Adjust the factors that determine the quality of the impression (e.g., angle, pressure, speed, composition).
- 5.7.5. Compare light-emitting diode (LED) lamps to metal halide lamps and select the lamp for the given screen-printing purpose.
- 5.7.6. Explain image digitization for embroidery purposes.
- 5.7.7. Explain stitch count and hoop size, using embroidery software.
- 5.7.8. Perform maintenance on equipment and machinery.
- 5.7.9. Create final print materials for screen printing and embroidery and verify printing quality.
- 5.7.10. Dry or cure printed objects for screen printing projects.
- 5.7.11. Reclaim screens and waste materials for screen printing projects.

## **Outcome: 5.8. Binding and Finishing**

Evaluate post image transfer finishing methods and techniques.

### **Competencies**

- 5.8.1. Identify post image transfer finishing requirements.
- 5.8.2. Describe and identify inline- and offline-finishing systems.
- 5.8.3. Explain specifications for folding and using mockups.
- 5.8.4. Fold products, using single-, letter-, and tri-fold.
- 5.8.5. Score and perforate products.
- 5.8.6. Bind products through drilling, perfect binding, and saddle and flat stitching techniques.

- 5.8.7. Finish a saddle-stitched product through in-line, near-line, and off-line methods.
- 5.8.8. Identify requirements for padding.
- 5.8.9. Apply specialty finishing processes, including thermography, foil stamping, embossing, and die cutting.
- 5.8.10. Verify that imagesetter materials and settings are correct.
- 5.8.11. Assemble three-dimensional (3D) products (e.g., packaging, promotional and point-of-purchase displays, folders, pop-up books).

**Outcome: 5.9. Flexography**

Engage flexographic printing operations.

**Competencies**

- 5.9.1. Identify and explain how flexography is different from other types of contact printing.
- 5.9.2. Identify and explain the substrates and inks used in flexography and the differences between the types of substrates and inks from other types of contact printing.
- 5.9.3. Make and explain the prepress methods and platemaking process used in flexography (e.g., trapping, step and repeat, screening, anamorphic distortion, analog, and digital platemaking).
- 5.9.4. Demonstrate and explain the plate mounting procedure for flexography. (e.g., plate durometer, thickness, sticky back selection).
- 5.9.5. Demonstrate and explain the operation of a flexographic printing press and how it differs from other types of contact printing.
- 5.9.6. Demonstrate and explain the different finishing operations in flexography. (e.g., inline vs. near line vs. offline, creasing, die cutting, specialty finishing, varnishes, metallics, variable data).



## **Strand 6.**

### **Digital Design**

Learners apply knowledge and skills of digital design to manipulate and animate new and existing audio, video, or photo images to create graphics for internet, broadcast, mobile, and other multimedia applications.

#### **Outcome: 6.2.**

##### **Scanning**

Apply scanning techniques and procedures to capture images for design.

##### **Competencies**

- 6.2.1. Describe the relationship between lines per inch (LPI) and dots per inch (DPI).
- 6.2.2. Describe the relationship between resolution and file size.
- 6.2.3. Manipulate input functions, calibrate scanning equipment, save images in various formats, and scale, size, and adjust file resolution to scan images.

#### **Outcome: 6.3.**

##### **Graphics**

Create and manipulate two-dimensional (2D) and three-dimensional (3D) digital graphics.

##### **Competencies**

- 6.3.1. Create digital graphics.
- 6.3.2. Manipulate the attributes of graphics (e.g., color, shape, size, texture, typography).
- 6.3.3. Arrange and manage graphics using layers.
- 6.3.4. Select a graphic file format based on compression, resolution, and file size.
- 6.3.5. Organize and export graphic files for intended use and platform.