

Career & Technical Education | Arts & Communication

Digital Image Editing

Subject Code: 340120

Outcome & Competency Descriptions

Course Description:

This course focuses on manipulating images for final output through print and web-based production. Students obtain a brief perspective on analog image editing and delve into the world of editing digital photos, illustrations, and other artwork. They learn to adjust resolution and exposure, modify color, compress data, and format and manage files. Students will use problem-solving strategies and work collaboratively to complete the creative process with artists, printers, and web developers.

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: 1.2. Leadership and Communications

Process, maintain, evaluate, and disseminate information in a business. Develop leadership and team building to promote collaboration.

Competencies

- 1.2.9. Identify advantages and disadvantages involving digital and/or electronic communications (e.g., common content for large audience, control of tone, speed, cost, lack of non-verbal cues, potential for forwarding information, longevity).
- 1.2.13. Identify stakeholders and solicit their opinions.

Outcome: 1.3. Business Ethics and Law

Analyze how professional, ethical, and legal behavior contributes to continuous improvement in organizational performance and regulatory compliance.

Competencies

- 1.3.3. Use ethical character traits consistent with workplace standards (e.g., honesty, personal integrity, compassion, justice).
- 1.3.7. Identify the labor laws that affect employment and the consequences of noncompliance for both employee and employer (e.g., harassment, labor, employment, employment interview, testing, minor labor laws, Americans with Disabilities Act, Fair Labor Standards Acts, Equal Employment Opportunity Commission [EEOC]).
- 1.3.8. Verify compliance with computer and intellectual property laws and regulations.
- 1.3.9. Identify potential conflicts of interest (e.g., personal gain, project bidding) between personal, organizational, and professional ethical standards.

Outcome: 1.4.**Knowledge Management and Information Technology**

Demonstrate current and emerging strategies and technologies used to collect, analyze, record, and share information in business operations.

Competencies

- 1.4.8. Use electronic media to communicate and follow network etiquette guidelines.

Outcome: 1.5.**Global Environment**

Evaluate how beliefs, values, attitudes, and behaviors influence organizational strategies and goals.

Competencies

- 1.5.1. Describe how cultural understanding, cultural intelligence skills, and continual awareness are interdependent.
- 1.5.2. Describe how cultural intelligence skills influence the overall success and survival of an organization.
- 1.5.3. Use cultural intelligence to interact with individuals from diverse cultural settings.
- 1.5.4. Recognize barriers in cross-cultural relationships and implement behavioral adjustments.
- 1.5.5. Recognize the ways in which bias and discrimination may influence productivity and profitability.
- 1.5.7. Use intercultural communication skills to exchange ideas and create meaning.
- 1.5.8. Identify how multicultural teaming and globalization can foster development of new and improved products and services and recognition of new opportunities.

Outcome: 1.6.**Business Literacy**

Develop foundational skills and knowledge in entrepreneurship, financial literacy, and business operations.

Competencies

- 1.6.10. Describe the impact of globalization on an enterprise or organization.

Outcome: 1.8.**Operations Management**

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

Competencies

- 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.

Outcome: 1.11. Principles of Business Economics

Examine and employ economic principles, concepts, and policies to accomplish organizational goals and objectives.

Competencies

- 1.11.8. Identify the relationships between economy, society, and environment that lead to sustainability.

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: 2.3. Art Forms

Apply art elements and design principles to create two-dimensional (2D) and three-dimensional (3D) commercial products using various media to communicate the message and evoke the desired audience response.

Competencies

- 2.3.2. Render in one-point, two-point, multi-point, and aerial perspectives.
- 2.3.3. Apply color using pencil, marker, dry media, wet media, and digital media.
- 2.3.4. Demonstrate shape, volume, depth, and dimension.
- 2.3.6. Select the material based on its characteristics (e.g., design, construction, maintenance, care of product) for the intended use.

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.
- 2.5.6. Determine the effect of various font types on operating systems.
- 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. Identify key elements of the UX/UI design process (e.g. vision, journey mapping, wireframing, prototyping, strategizing) for the targeted platform (e.g. graphics, applications, programming, products).
- 2.6.2. Conduct and analyze research (focus testing, beta testing) with the end user in mind.
- 2.6.6. Design interface elements and experiences that connect concepts with the real world (i.e. Skeuomorphic Design).
- 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.

Strand 3. Written Content Creation

Learners apply content creation knowledge and skills to use the intended message for entertainment, journalism, or marketing purposes.

Outcome 3.1. Career-Based Writing

Develop basic skills and knowledge related to fact-, entertainment-, and marketing-based copy.

Competencies

- 3.1.1. Analyze writing content and styles of fact-, entertainment-, and marketing-based models.
- 3.1.3. Assess and determine the platform for delivery (e.g., video, audio, print, digital, and social media).
- 3.1.10. Select visual imagery to support or enhance copy.
- 3.1.11. Review, re-write, and edit to prepare the final copy for client and artistic approval.

Outcome: 3.3. Fact-Based Writing

Write concise and focused copy for journalism.

Competencies

- 3.3.3. Identify positions from research and resources while remaining objective.
- 3.3.7. Follow protocol for off-the-record information.
- 3.3.9. Create informational text for multiple purposes, including editorial, press releases, biographies, narratives, public service announcements, and social media.
- 3.3.13. Engage symmetrical and asymmetrical strategies in the creation and revision of content.
- 3.3.14. Illustrate the value of a project through a media pitch.
- 3.3.15. Identify the time-sensitive elements of content.

Outcome: 3.4. Market-Based Writing

Write concise, creative, memorable, sellable copy for advertising, public relations, and proposals.

Competencies

- 3.4.1. Research and analyze trends and local markets for opportunities.

- 3.4.9. Evaluate advertising to measure quantifiable achievement of goals and objectives, including analytics, where applicable.

Outcome: 3.5. Social Media

Develop content for social media.

Competencies

- 3.5.5. Create content tailored to a specific social media platform.

Strand 4. Audio, Video, and Photo Imaging

Learners apply knowledge and skills of photography and videography to capture, engineer, and manipulate audio, images, and video for media production.

Outcome: 4.5. Photography

Capture and edit still images for commercial purposes.

Competencies

- 4.5.2. Clean and maintain camera equipment.
- 4.5.13. Integrate image capture with post-production processes.
- 4.5.15. Understand the fundamentals of composition.
- 4.5.17. Produce or modify story elements such as mood, tone, and theme to tell a coherent story through images.

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

- 5.1.7. 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.
- 5.2.6. Compare image carrier generation methods, including computer-to-plate [CTP], film-based, screen, and flexography.

Outcome: 5.3. Offset Image Control Systems

Set up substrate and image control systems for printing.

Competencies

- 5.3.6. Compare drying methods, including heat, oxidation, ultraviolet [UV], LED, additives, and infrared.

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.
- 5.4.3. 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).

Outcome: 5.5. Digital Print Methods

Analyze digital print technologies for digital and offset production.

Competencies

- 5.5.1. Explain printing technologies and uses, including laser, toner-based xerography, ink-based digital, wide-format, inkjet, direct-to-film, direct-to-garment, and UV (ultraviolet) printing.
- 5.5.3. Analyze the raster image processor (RIP) / digital front end (DFE), including its functionality, purpose, and significance in a digital printing workflow.
- 5.5.5. Determine proper planning for jobs and cost accounting for production for each method of printing.
- 5.5.6. Compare and contrast proofing techniques used in various printing technologies.
- 5.5.7. Compare the differences between colorants and substrates used in various printing technologies.
- 5.5.9. Identify the basic subsystems and the functions of the components of digital output devices.

Outcome: 5.6. Digital Production Printing

Produce digital print jobs on digital print systems.

Competencies

- 5.6.1. Use database software and text/graphics to create a variable data printing job.
- 5.6.3. Determine the proper output device according to job specifications.
- 5.6.5. Manage output product types for digital printing.
- 5.6.6. Print black-and-white and process-color jobs on coated and uncoated paper.
- 5.6.7. Analyze the capabilities of three-dimensional (3D) printing.

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: 6.1. Content Management

Import, store, export, and manage digital assets.

Competencies

- 6.1.4. Import media into the selected application.
- 6.1.5. Identify the hardware capabilities of various devices and how processor speed, Random Access Memory (RAM), monitor resolution, and media storage affect the development and use of digital projects.
- 6.1.6. Convert file formats for use in editing software and other applications.
- 6.1.7. Export media in the appropriate format for delivery.
- 6.1.8. Manage and archive digital assets through organizational techniques (e.g., metadata, keywords, file/folder structure, name conventions).

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.

Outcome: 6.5. Web Page Design

Design and create webpages to appeal to the end user.

Competencies

- 6.5.1. Identify how different devices, browsers, and operating systems affect the look of a web page.
- 6.5.6. Organize assets for a functional web page.
- 6.5.8. Incorporate audio, video, graphics, and animations into a web page.
- 6.5.9. Draft, revise, edit, and proofread to check for format and text accuracy.