Course Description:

This course focuses on digital technology for products accessed through computers, mobile devices, game consoles, projectors, radio and TV. Students apply techniques to digitize drawing, painting and typography. They analyze the effects of single-color and multi-color output. They identify advantages and disadvantages of digital communications from philosophical, ethical, creative and commercial output perspectives. Products are critiqued for design, production quality and customer impact.

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 1.1. Employability Skills

Develop career awareness and employability skills (e.g., face-to-face, online) needed for gaining and maintaining employment in diverse business settings.

Competencies

- 1.1.1. Identify the knowledge, skills and abilities necessary to succeed in careers.
- 1.1.2. Identify the scope of career opportunities and the requirements for education, training, certification, licensure and experience (e.g., interdependence of technical and artistic elements).
- 1.1.3. Develop a career plan that reflects career interests, pathways and secondary and postsecondary options.
- 1.1.4. Describe the role and function of professional organizations, industry associations and organized labor and use networking techniques to develop and maintain professional relationships.
- 1.1.5. Develop strategies for self-promotion in the hiring process (e.g., filling out job applications, resumé writing, interviewing skills, portfolio development).
- 1.1.6. Explain the importance of work ethic, accountability and responsibility and demonstrate associated behaviors in fulfilling personal, community and workplace roles.
- 1.1.7. Apply problem-solving and critical-thinking skills to work-related issues when making decisions and formulating solutions.
- 1.1.8. Identify the correlation between emotions, behavior and appearance and manage those to establish and maintain professionalism.
- 1.1.9. Give and receive constructive feedback to improve work habits.
- 1.1.12. Identify healthy lifestyles that reduce the risk of chronic disease, unsafe habits and abusive behavior.

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Outcome 1.2. Leadership and Communications

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

Competencies

- 1.2.1. Extract relevant, valid information from materials and cite sources of information (e.g., First Amendment, Freedom of Information Act).
- 1.2.2. Deliver formal and informal presentations.
- 1.2.3. Identify and use verbal, nonverbal and active listening skills to communicate effectively.
- 1.2.5. Communicate information (e.g., directions, ideas, vision, workplace expectations) for an intended audience and purpose.
- 1.2.6. Use proper grammar and expression in all aspects of communication.
- 1.2.7. Use problem-solving and consensus-building techniques to draw conclusions and determine next steps.
- 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).
- 1.2.11. Write professional correspondence, documents, job applications and résumés.
- 1.2.13. Identify stakeholders and solicit their opinions.
- 1.2.14. Use motivational strategies to accomplish goals.

An "X" indicates that the pathway applies to the outcome.

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Outcome 1.3. Business Ethics and Law

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

- 1.3.2. Follow protocols and practices necessary to maintain a clean, safe and healthy work environment.
- 1.3.3. Use ethical character traits consistent with workplace standards (e.g., honesty, personal integrity, compassion, justice).
- 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.

An "X" indicates that the pathway applies to the outcome.

Pathways X Media Arts X Performing Arts X Visual Design

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

- 1.4.1. Use office equipment to communicate (e.g., phone, radio equipment, fax machine, scanner, public address systems).
- 1.4.2. Select and use software applications to locate, record, analyze and present information (e.g., word processing, e-mail, spreadsheet, databases, presentation, Internet search engines).
- 1.4.3. Verify compliance with security rules, regulations and codes (e.g., property, privacy, access, accuracy issues, client and patient record confidentiality) pertaining to technology specific to the industry pathway.
- 1.4.4. Use system hardware to support software applications (e.g., innovations in imaging and screen printing).
- 1.4.6. Use an electronic database to access and create business and technical information.
- 1.4.7. Use personal information management and productivity applications to optimize assigned tasks (e.g., lists, calendars, address books).
- 1.4.8. Use electronic media (e.g., social media) to communicate and follow network etiquette guidelines.

An "X" indicates that the pathway applies to the outcome.

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Outcome 1.5. Global Environment

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

- 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 (e.g., code switching) 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 (e.g., digital) and recognition of new opportunities.

An "X" indicates that the pathway applies to the outcome.

Pathways X	Media Arts	X Performing Arts	X Visual Design
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Outcome 1.6. Business Literacy

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

Competencies

- 1.6.1. Identify business opportunities.
- 1.6.2. Assess the reality of becoming an entrepreneur, including advantages and disadvantages (e.g., risk versus reward, reasons for success and failure).
- 1.6.5. Describe organizational structure, chain of command, the roles and responsibilities of the organizational departments and interdepartmental interactions.
- 1.6.10. Describe the impact of globalization on an enterprise or organization.

An "X" indicates that the pathway applies to the outcome.

Pathways	X Media Arts	X Performing Arts	X Visual Design
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Outcome 1.7. Entrepreneurship/Entrepreneurs

Analyze the environment in which a business operates and the economic factors and opportunities associated with self-employment.

Competencies

- 1.7.3. Identify the factors that contribute to the success and failure of entrepreneurial ventures.
- 1.7.4. Assess the roles of nonprofit and for-profit businesses.
- 1.7.7. Create a list of personal strengths, weaknesses, skills and abilities needed to be successful as an entrepreneur.
- 1.7.8. Explain pathways used to become an entrepreneur.
- 1.7.13. Protect intellectual property and knowledge (e.g., copyright, patent, trademark, trade secrets, processes).

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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.
- 1.10.3. Communicate features, benefits and warranties of a product or service to the customer.
- 1.10.5. Monitor customer expectations and determine product/service satisfaction by using measurement tools.

An "X" indicates that the pathway applies to the outcome.

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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 (e.g., evolution and impact of the arts).

An "X" indicates that the pathway applies to the outcome.

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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. Art 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) 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.
- 2.1.6. Observe movement shown through repetition, pattern and rhythm.
- 2.1.8. Identify visual hierarchy used to establish dominance.
- 2.1.9. Recognize the use of proportion/scale.

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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. Analyze position in color theory models (e.g., color wheel; Munsell's design relationship among chroma/intensity, value/lightness and hue).
- 2.2.3. Describe how changes to tint, shade, hue, value, intensity and saturation relate to color theory.
- 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 mediums 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.

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Pathways	Х	Media Arts	Х	Performing Arts	Х	Visual Design
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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

2.3.4. Demonstrate shape, volume, depth and dimension.

An "X" indicates that the pathway applies to the outcome.

Pathways	Media Arts	Performing Arts	Х	Visual Design
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Outcome 2.4. Visual Layouts

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

- 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.
- 2.4.5. 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.
- 2.4.10. Determine how the technical characteristics of the print medium affect content and style.

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2.4.12. Evaluate the product in terms of the message or meaning for the targeted audience.

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Pathways	Media Arts	Performing Arts	Х	Visual Design

Outcome 2.5. Typography

Apply typographical elements for a commercial presentation.

Competencies

- 2.5.1. Select typefaces (e.g., serif, sans serif).
- 2.5.2. Apply typography kerning and leading to typefaces for readability.
- 2.5.3. Use typographic measurements in terms of picas, points, pixels and ems.
- 2.5.4. Mix 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).

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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 the writing content and styles of fact-, entertainment- and marketing-based models.

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- 3.1.3. Assess or determine the platform for delivery (e.g., video, audio, print).
- 3.1.6. Adapt writing for the literacy level of the audience, including the use of readability software.
- 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.

An "X" indicates that the pathway applies to the outcome.

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 objective and subjective informational text for multiple purposes, including editorial, press releases, biographies, narratives, public service announcements and social media.

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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.
- 3.4.2. Determine the wants and needs of the target audience.
- 3.4.3. Communicate brand image and product value.
- 3.4.9. Critique advertisements to ensure the achievement of goals and objectives.
- 3.4.10. Apply channels of direct mail, online, email, Web and social media strategies.

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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 a media production.

Outcome 4.2. Audio Capturing

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Apply the principles and properties of how sound is measured, converted and perceived to capture an audio recording for professional purposes.

Competencies

4.2.7. Distinguish among digital media formats (e.g., .mp3, .mp4, .wav, .aiff).

An "X" indicates that the pathway applies to the outcome.

Outcome 4.4. Lighting

Measure and manipulate lighting based on the characteristics and properties of light.

Competencies

4.4.2. Employ the characteristics (e.g., hard light, diffused light, incident light) and properties of light.

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Outcome 4.5. Photography

Capture and edit still images for commercial purposes.

Competencies

- 4.5.1. Analyze the capabilities of different image capturing devices.
- 4.5.9. Modify images through sizing, cropping and output resolution.
- 4.5.10. Modify an image through color-management and special effects.
- 4.5.11. Enhance an image with tone, contrast, filters, composites and sharpening techniques.

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Strand 5. Print Production Process

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

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.

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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], additives and infrared.

An "X" indicates that the pathway applies to the outcome.

Pathways	Х	Media Arts	Х	Performing Arts	Х	Visual Design

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, wideformat 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).

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Outcome 5.5. Digital Print Methods

Analyze digital print technologies for digital and offset production.

Competencies

- 5.5.1. Identify digital printing technologies and uses, including laser, toner-based xerography, ink-based digital and wide-format inkjet.
- 5.5.3. Analyze the raster image processor (RIP), including its functionality, purpose and significance in a digital printing workflow.
- 5.5.5. Compare digital printing to offset printing.
- 5.5.6. Compare and contrast proofing techniques used in digital and offset printing technologies.
- 5.5.7. Compare the differences between colorants and substrates used in digital printing versus offset printing.
- 5.5.9. Identify the basic subsystems and the functions of the components of digital output devices.

An "X" indicates that the pathway applies to the outcome.

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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.
- 5.6.7. Analyze the capabilities of three-dimensional (3D) printing.

An "X" indicates that the pathway applies to the outcome.

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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.

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Competencies

- 6.1.1. Identify the characteristics that make media interactive.
- 6.1.2. Compare how digital and interactive media are used in different environments (e.g., kiosks, electronic billboards, Digital Out of Home [DOoH] signage, games).
- 6.1.3. Select an application according to its capabilities in meeting the purpose and budget.
- 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 digital assets through organizational techniques (e.g., metadata, keywords, file/folder structure, name conventions).

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Pathways	Х	Media Arts	Х	Performing Arts	Х	Visual Design
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Outcome 6.2. Scanning

Apply scanning techniques and procedures to capture images for design.

Competencies

- 6.2.2. Describe the relationship between resolution and file size.
- 6.2.4. Scan images.
- 6.2.5. Save images in various modes, resolutions and formats.
- 6.2.6. Scale, size and adjust file resolution for multiple uses.

An "X" indicates that the pathway applies to the outcome.

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Outcome 6.3. Graphics

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

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

An "X" indicates that the pathway applies to the outcome.

Pathways	Х	Media Arts	Performing Arts	Х	Visual Design

Outcome 6.4. Animation

Create digital animation.

Competencies

6.4.6. Render and export animations.

An "X" indicates that the pathway applies to the outcome.

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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.
- 6.5.2. Explain how bandwidths affect data transmission.
- 6.5.3. Describe the basic principles of Hypertext Markup Language (HTML) and its functional relationship with web browsers.
- 6.5.4. Select a web page template based on website characteristics.
- 6.5.5. Design a web page based on subject, devices, audience, layout, color, navigation, graphics and Americans with Disabilities Act (ADA) requirements.
- 6.5.6. Organize assets for a functional web page.
- 6.5.7. Create and format ordered and unordered lists on a web page.
- 6.5.8. Create and format a table on a web page.
- 6.5.9. Integrate inline styles.
- 6.5.10. Create and attach cascading style sheets (CSS).
- 6.5.11. Design a data entry form from specifications that will accept a variety of user inputs (e.g., radio buttons, text entry fields, check boxes, drop-down menus).
- 6.5.12. Incorporate audio, video, graphics and animations into a web page.
- 6.5.13. Create rollovers, text wraps and hyperlinks.
- 6.5.14. Draft, revise, edit and proofread to check for format and text accuracy.
- 6.5.15. Execute usability tests on a completed web page, checking for information accessibility, ease of use and navigation on multiple platforms and devices.
- 6.5.16. Publish a functioning web page for multiple devices, including advanced functionalities (e.g., database, ecommerce).
- 6.5.17. Collect and interpret data analytics.
- 6.5.18. Transfer files using file compression for transfer or storage.

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