Michigan CTE

# Graphic Communications and Print Technology 10.0301 (2026)

**Apply principles and elements of design, color theory, typography, composition and layout, and imaging to produce high-quality and aesthetically pleasing products.** A1

1. **Explain the difference between additive and subtractive color principles and describe color modes, such as CMYK, RGB, grayscale, and spot colors.** MA2024-3F
2. **Apply principles of typography including legibility, hierarchy, alignment, contrast, emphasis, consistency, and whitespace to project.** MA2024-3I
3. **Explain and apply principles of visual hierarchy in composition to create visually engaging designs.** MA2024-3M
4. **Discuss the role of type as a design element in graphic communications.** DFP001
5. **Identify type selection using font classification, styles, and families and explain their relationship to a design project.** MA2024-3K
6. **Analyze how different font choices affect the emotional impact and effectiveness of a marketing campaign or brand identity.** MA2024-3L
7. **Explain and apply principles of design, including contrast, repetition, alignment, proportion, proximity, balance, movement, rhythm, emphasis, pattern, unity, and gestalt principles.** MA2024-3A
8. **Incorporate the rules of basic color theory to fine art, design, digital media, and imaging projects.** MA2024-3C
9. **Explain the fundamentals of how light and paper characteristics affect color perception.** MA2024-3G
10. **Demonstrate principles of font usage, e.g., spacing, kerning, tracking, leading, horizontal, and vertical scale, line length, and alignments.** MA2024-3J
11. **Demonstrate copy editing skills by proofreading for grammar and spelling errors, including use of proofreading marks.** MA2024-6N
12. **Using industry standard software, demonstrate improving color and tonal balance, retouch, modify, and correct images.** MA2024-3O

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13 **Explain and apply elements of design, including line, shape, form, color, value, texture, space, and size.** MA2024-3B

**Demonstrate mastery of industry-standard software including set up, layout, design, and editing techniques to meet the specification of production projects.** A2

1 **Apply appropriate document settings for printed and onscreen images, e.g., width/height, orientation, artboards, resolution, color mode, bit depth, and background.** MA2024-7B

2 **Demonstrate page layout skills including adding a title, a header, body text, block quote, a footer, a caption, generating a table of contents, an index, page size, page orientation, facing pages, spread, bleed, trim, slug, master page, alternate page layout, columns, gutters, margins, breaks, glyphs, and frames.** MA2024-7EE

3 **Use non-printing design tools in the interface to aid in design or workflow to navigate a document, e.g., panning, zooming, and rotating canvas.** MA2024-7F

4 **Review professional software applications** IGC38

- a Page Layout i.e. Adobe InDesign, QuarkXPress IGC38.A
- b Image Editing i.e. Adobe Photoshop IGC38.B
- c Illustration i.e. Adobe Illustrator IGC38.C

5 **Create original copy and develop draft-quality drawings, including layout dummies, prototypes, thumbnails, roughs, comps, storyboards, and site maps.** MA2024-6C

6 **Integrate photography into design projects by selecting and incorporating appropriate images that enhance the visual storytelling and align with project objectives and branding.** MA2024-6M

7 **Identify and manipulate elements of the software interface including options bar, menus, panels, toolbar, and artboards.** MA2024-7A

8 **Create and manipulate raster images using photo-editing software and tools, e.g., crop, perspective pencil, clone stamp, history brush, eraser, background eraser, magic eraser, gradient, and paint bucket.** MA2024-7AA

9 **Demonstrate techniques for converting raster images to vector art and executing the application of masks, channels, and a clipping path.** MA2024-7BB

10 **Select and configure application preferences utilizing units and rulers, guides, and grids.** MA2024-7C

11 **Explain rasterizing type and the effect it creates.** MA2024-7CC

12 **Apply basic auto-correction methods and tools to repair and reconstruct images, e.g., healing tools, clone tools, content-aware tools, and liquify.** MA2024-7E

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**Demonstrate manipulating and scanning images and materials into appropriate file formats and resolutions.** MA2024-7H

14 **Determine and set the active foreground and background color, e.g., color picker, swatches, eyedropper tool, and hexadecimal value.** MA2024-7I

15 **Demonstrate use of, and organize, gradients, e.g., gradient panel, editing color and transparency stops, and radial and elliptical gradients.** MA2024-7J

16 **Demonstrate creation of, and organize, swatches, e.g., grouping, creating, importing, and exporting.** MA2024-7K

17 **Demonstrate use of layers to manage design elements and complex projects, e.g., adding, deleting, merging, flattening, hiding/showing, locking/unlocking, duplicating, renaming layers, and creating layer groups.** MA2024-7M

18 **Create, apply, and manipulate masks, layer masks, and clipping masks.** MA2024-7O

19 **Identify the difference between destructive or non-destructive editing.** MA2024-7P

20 **Demonstrate essential image editing techniques, such as cropping, expanding, resizing, and resampling.** MA2024-7Q

21 **Demonstrate making, managing, and manipulating selections using a variety of tools.** MA2024-7R

22 **Demonstrate the use of illustration software tools, palettes, options, clipping masks, and compound paths to manipulate and edit images.** MA2024-7T

23 **Apply photographic changes to images using tools and adjustments, e.g., burn tool, dodge tool, smudge tool, blur tool, sharpen tool, desaturate options, and photo filters.** MA2024-7U

24 **Demonstrate rotating, flipping, modifying individual layers, objects selections, groups, and graphical elements, e.g., transforming, warping, distorting, and skewing.** MA2024-7X

25 **Evaluate or adjust the appearance of objects, selections, or layers using various tools., e.g., adjustments, adjustment layers, histogram, opacity, and Eyedropper tool.** MA2024-7Y

26 **Design and manipulate a vector image using a variety of tools, e.g., drawing tools, painting tools, pencil tool, brush tool, vector shapes, shape tools, and vector selection tools.** MA2024-7Z

27 **Identify the physical characteristics of type:** DFPO07

- a X-Height DFPO07.A
- b Mean-Line DFPO07.B
- c Baseline DFPO07.C

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d Ascender DFPO07.D

e Descender DFPO07.E

f Leading (spacing) DFPO07.F

g Tracking DFPO07.G

h Kerning DFPO07.H

28 **Demonstrate the use of peripheral devices, such as scanners, external hard drives, printers, tablets, and cameras.** MA2024-6O

29 **Explain the importance of using vector graphics for scalability and precision in sign making.** MA2024-12G

30 **Demonstrate opening or importing images from a file, camera, scanner, or using Adobe Camera Raw interface.** MA2024-7D

31 **Use filters, Smart filters vs. filters, to modify images destructively or non-destructively.** MA2024-7DD

32 **Create frames to layout visual elements, e.g., graphic frame, text frame, or unassigned frame.** MA2024-7FF

33 **Demonstrate placing assets in a document, e.g., embedding, linking, and relinking.** MA2024-7G

34 **Demonstrate manipulating graphics in frames including placing graphics into documents or into existing frames and using frames to affect visibility of the content.** MA2024-7GG

35 **Create, use, edit, and organize brushes, styles, and patterns.** MA2024-7L

36 **Use opacity and blending modes to modify layer visibility.** MA2024-7N

37 **Modify, refine, and save selections using various methods, e.g., keyboard modifiers, feather, expand, contract, inverse, select and mask workspace, refine hair, add to, and subtract from selection, deselect, save, and load as channels.** MA2024-7S

38 **Demonstrate color correction and grading skills to enhance the overall color balance, color mode, bit depth, gamut, and CMYK vs. RGB vs. grayscale.** MA2024-7V

39 **Demonstrate proficiency in using different types of cameras and lenses, e.g., DSLR, mirrorless, smartphone cameras, and their respective functionalities to achieve specific creative effects.** MA2024-4B

**Produce printed projects by**

1 **Demonstrate outputting a file to a digital device.** DFPO139

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| equipment in the production process. A3 | 2 | Troubleshoot common issues encountered in screen printing, such as ink bleeding, registration errors, and screen clogging. MA2024-12M |
| | 3 | Demonstrate plotter operation, including loading vinyl rolls, setting cutting parameters, and sending designs for cutting, as well as the process of weeding and transferring vinyl decals onto substrates. MA2024-12F |
| Identify and implement professional ethics and legal responsibilities as it related to business and industry. A4 | 1 | Apply legal and ethical considerations for using third-party content, such as copyright, permissions, and licensing, e.g., creative commons, public domain, intellectual property, derivative work, commercial use, attribution, work for hire, fair use, fair dealing, and stock images. MA2024-5B |
| | 2 | Identify when and how to obtain permission to use images of people and locations. MA2024-5C |
| Demonstrate health and safety, including the management of tools and equipment, use of personal protective equipment (PPE), and workspace ergonomics. A5 | 1 | Identify, describe, and demonstrate the effective use of Safety Data Sheets (SDS) to meet documentation requirements. MA2024-1A |
| | 2 | Locate emergency equipment, first aid kit, and emergency action and response plan, including labels and signage that follow OSHA Hazard Communication Program (HAZCOM). MA2024-1B |
| | 3 | Demonstrate safety habits to protect vision, such as wearing safety glasses when photographing areas that require them and by minimizing time spent focusing on computer screens. MA2024-1D |
| | 4 | Demonstrate proper handling of utility knives, safe storage of blades, and safe disposal of used blades. MA2024-1E |
| | 5 | Demonstrate the proper use of paper cutters to avoid injury. MA2024-1F |
| | 6 | Demonstrate safe handling using cords or studio lighting to avoid electric shock and power shortages. MA2024-1J |
| | 7 | Demonstrate proper disposal of hazardous waste, including solvents and sealants regulated under the Resource Conservation and Recovery Act (RCRA) and enforced by the EPA. MA2024-1K |
| | 8 | Comply with appropriate fire protection regulations, local permit regulations, and state/federal regulations. MA2024-1L |
| Analyze the roles of graphic design and printing technology in society, examining their evolution and modern ap dig assessing their impact | 1 | Compare various digital printing technologies commonly used in the industry, including inkjet, digital, laser, offset, web offset, flexography, wide format, dye-sublimation, and screen printing; explain how each technology works, including the principles of ink or toner application, image formation, and substrate compatibility. MA2024-11A |

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| on communication practices and technological advancements. B1 | 2 Demonstrate and apply an understanding of the color wheel and its component parts, including primaries, secondaries, tertiaries, compliments, and color schemes. MA2024-3D |
| | 3 Examine the history of typography, including its origins, the development of typefaces, and how technological advances, e.g., the invention of movable type and digital fonts, have influenced design. MA2024-3H |
| | 4 Describe the role of communication and printing, including moveable type, in the rapid dissemination of information ushering in the Age of Enlightenment. MA2024-2B |
| | 5 Explain the significance of communication and printing in relation to the First Amendment of the United States Constitution. MA2024-2C |
| | 6 Evaluate the intended message and target audience of a project ensuring that design elements effectively communicate the intended message and resonate with the audience's expectations. MA2024-3T |
| | 7 Apply the regulatory roles of the Federal Trade Commission (FTC) in advertising practices and consumer protection, as well as the functions of the Copyright Office and Trademark Office in intellectual property rights and their application to graphic design and visual communications practices. MA2024-2D |
| | 8 Assess the impact of the internet and social media on modern graphic design and visual communications within contemporary marketing and communication strategies. MA2024-2E |
| Analyze and execute innovative design solutions that meet client needs and expectations and adapt appropriately to a range of devices ensuring optimization for the targeted output device. B2 | 1 Develop a cohesive brand identity by creating visual elements such as logos, color schemes, and typography that align with brand messaging. MA2024-6F |
| | 2 Explain how concepts, such as resolution, scalability, color modes, and file formats relate to raster and vector images and impact image choice. MA2024-3Q |
| | 3 Explain and apply key steps in the design process: 1) Understand project purpose; 2) research and analyze; 3) establish goals and objectives; 4) brainstorm ideas; 5) develop sketches or prototypes; 6) refine and iterate; and 7) finalize and produce. MA2024-6A |
| | 4 Utilize digital editing software, e.g., Photoshop, to enhance photographs, applying techniques such as cropping, color correction, and retouching to achieve desired design outcomes. MA2024-4G |
| Demonstrate proficiency in prepress procedures encompassing res col ma...pulation, and the | 1 Demonstrate imposing a project for proper layout, ensuring that the printed materials will be in the correct sequence and alignment when they are completed and assembled. MA2024-11L |
| | )iscuss the use of trapping an image for print. DFP092 |

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**format selection, preparing and exporting documents or assets tailored for distinct printing processes.** B3

3 **Identify quality control marks** DFPO137

- a register marks DFPO137.A
- b trim marks DFPO137.B
- c fold lines DFPO137.C
- d color bars DFPO137.D
- e plate control DFPO137.E

4 **Examine the benefits and perform package operations, the process of organizing and transferring design files, fonts, images, and other assets associated with a project into one folder or package.** MA2024-11C

5 **Discuss the role of color management in a print workflow.** DFPO099

6 **Describe color management techniques used in different steps of a print workflow** DFPO100

- a Monitor DFPO100.A
- b Proofer DFPO100.B
- c Digital Press DFPO100.C
- d Offset Press DFPO100.D
- e Wide Format inkjet Press DFPO100.E

7 **Evaluate the significance of file sizes and their impact on output quality and efficiency.** MA2024-11J

8 **Explain the principles of variable data printing (VDP) and how to implement personalized content or variable information in printed materials.** MA2024-11K

9 **Analyze the specific purpose, advantages, and limitations of these common file types: .jpeg, .tiff, .eps, .psd, .pdf, EPUB, and HTML.** MA2024-11G

10 **Explain the benefits of PDF documents and their settings.** MA2024-11H

11 **Describe and follow gripper margin requirements as needed to accommodate intended output device.** MA2024-11M

**Explore the production process by following the workflow steps of a printed project.** B4

1 **Explain the applications of wide-format printing in the industry and compare various types of wide-format printers (inkjet, solvent, UV, dye-sublimation) with respect to ink types, print quality, substrate compatibility, and durability of output.** MA2024-12D

2 **Describe the workflow steps of screen printing process (Single color/Inline or Rotary press)** SP06

- File creation SP06.A
- Film output SP06.B

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c Screen creation SP06.C

d Mounting screen on press SP06.D

e Print production SP06.E

f Clean up SP06.F

3 **Demonstrate an understanding of printing operations on an offset press including prepress preparation, press setup, printing process, quality control, troubleshooting, maintenance and cleaning, and safety protocols.** MA2024-12A

4 **Compare offset press printing and web offset printing and identify the optimal choice for specific projects based on factors, such as print volume, substrate type, job requirements, and budget considerations.** MA2024-12B

5 **Explain the purpose and function of screen-printing equipment and materials, e.g., screens, emulsion, squeegees, inks, and demonstrate techniques such as flatbed, rotary, and garment printing.** MA2024-12H

6 **Explain the differences between manual and automatic screen-printing presses, as well as multi-color printing and special effects like halftones, gradients, and metallic inks.** MA2024-12J

7 **Explain the importance of proper registration, ink coverage, and print quality control in screen printing.** MA2024-12K

8 **Compare the print characteristics of digital, offset and ink jet imaging technologies: a) Types of suitable substrates used in each technology, b) How solids reproduction compare, c) How screen tints compare, d) How halftone resolution compares** DPP04

9 **Explain resolution requirements for wide format printing, such as dots per inch (DPI), image interpolation, and raster image processing (RIP) software used to optimize image quality for large-format prints.** MA2024-12E

10 **Describe the importance of paper conditioning prior to running the digital press.** DPP37

11 **List advantages of screen printing process versus offset lithography or digital printing:** SP02

a Size of image SP02.A

b Type of substrate SP02.B

c Ink density (Four Color Process vs. Spot PMS colors SP02.C

d Special inks SP02.D

e Cost of equipment SP02.E

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elect appropriate formats and save images for the intended purpose, e.g., ector/raster, file format, bit depth, color space, resolution, and pixel

**to check for potential printing or technical errors.** C1

**dimensions.** MA2024-11F

2 **Explain the use of an ICC profile in a print workflow** DFPO103

3 **Identify the features and functions of a Raster Image Processor (RIP)** DFPO128

4 **Perform preflight operations, optimizing files for the intended printing method, whether it is offset, digital, or large-format printing.** MA2024-11B

5 **Demonstrate final inspection of document for errors and alignment to project specifications, including setting color space, resolution, pixel dimensions, and metadata.** MA2024-11D

6 **Export or save digital images to various file formats, understanding compatibility, saving as a copy, and saving locally vs. in the Cloud.** MA2024-11E

**Compare, select, and perform finishing and binding processes in post production.** C2

1 **Describe bindery and finishing options** IGC86

- a Loose leaf IGC86.A
- b Saddle Stitch IGC86.B
- c Perfect Bind IGC86.C
- d Case Binding IGC86.D
- e Lay Flat Binding IGC86.E
- f Die Cutting g IGC86.F
- g Embossing / Debossing IGC86.G
- h Foil Stamping IGC86.H

2 **Demonstrate understanding and application of post-printing finishing techniques such as trimming, folding, perforating, gluing, stitching, binding, laminating, and wide-format specific techniques like mounting and grommeting.** MA2024-12C

3 **Explain the role of trimming to create a bleed effect.** OPBF131

4 **Identify in-line finishing systems.** OPBF101

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5 **Identify off-line finishing systems: Describe specialty finishing techniques** OPBF102

- a Foil stamping OPBF102.A
- b embossing/ debossing OPBF102.B
- c perforation OPBF102.C
- d drilling/ punching OPBF102.D
- e scoring OPBF102.E
- f die cutting OPBF102.F
- g coating OPBF102.G
- h lamination OPBF102.H

6 **Describe specialty finishing techniques** OPBF103

- a Foil stamping OPBF103.A
- b Embossing / Debossing OPBF103.B
- c Perforation OPBF103.C
- d Drilling / punching OPBF103.D
- e Scoring OPBF103.E
- f Die cutting OPBF103.F
- g Coating OPBF103.G
- h Lamination OPBF103.H

7 **Describing folding configurations** OPBF115

- a Half fold OPBF115.A
- b Tri fold OPBF115.B
- c Z fold OPBF115.C
- d Accordion fold OPBF115.D
- e Gate fold OPBF115.E
- f French fold OPBF115.F

8 **Describe binding** OPBF124

- a Side stitch OPBF124.A
- b Saddle stitch OPBF124.B
- c Perfect bind OPBF124.C
- d Coil bind OPBF124.D
- e Wire bound OPBF124.E
- f Comb binding OPBF124.F
- g Velo binding OPBF124.G

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h Padding OPBF124.H

9 **Review USPS postal regulations** OPBF136

a Size OPBF136.A

b Weight OPBF136.B

c Rates OPBF136.C

**Apply principles of project management to effectively address client needs, manage projects efficiently, and ensure successful outcome.** C3

1 **Demonstrate applications of marketing and advertising principles, such as target audience, demographics, psychographics, branding, and advertising campaigns.** MA2024-5A

2 **Assess whether content is relevant to the purpose, audience, audience needs, user experience, and has an appropriate design for target devices.** MA2024-6E

3 **Apply criteria used to analyze and critique a product and participate in the critique process from both the client's and designer's perspective.** MA2024-6J

4 **Implement feedback received during critique sessions to refine and finalize design solutions for production.** MA2024-6K

5 **Apply basic project management concepts, including project scope, scope creep, cloud utilization, and file management.** MA2024-5D

6 **Develop and implement a comprehensive project plan, defining the roles and responsibilities of the creative team, establishing project timelines and goals, and providing regular updates to the clients.** MA2024-5G

7 **Demonstrate presentation skills, presenting original design pieces that meet client objectives and timeline.** MA2024-5I

8 **Evaluate project success, seeking customer and team member feedback, and plan for future improvements.** MA2024-6Q

9 **Collect needed information and complete necessary steps to complete a project from design to delivery by actively interacting with a client to include:** GD84

a Project Initiation (determine the client's needs) GD84.A

b Research (explore information provided at the initial client meeting) GD84.B

c Strategy (analyze the research gathered and decide on design and functionality criteria) GD84.C

d Development (mind mapping, storyboarding, free writing, layout creation) GD84.D

e Presentation (review with client; make changes) GD84.E

f Production/launch (implement finished piece across all deliverables) GD84.F

g Completion (turn over completed project to client) GD84.G

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10 **Demonstrate fluency with cloud-based client proofing systems and procedures.** MA2024-5L

11 **Develop a high-quality professional portfolio and resume that effectively showcase your design and communication skills, experience, and achievements, tailored to attract potential clients, employers, or collaborators in the graphic design and visual communications industry.** MA2024-13E

12 **Demonstrate techniques used to monitor production quality.** MA2024-6P

**Utilize math, including measurement skills, cost estimating, budget creation, and project production time.** C4

1 **Apply accurate weight and measurement techniques and basic mathematical principles in design tasks to ensure accuracy and precision.** MA2024-3S

2 **Compare raster and vector images, identify their distinct characteristics and applications.** MA2024-3P

3 **Review common paper types, weights, grades and classifications commonly used in the printing industry** IGC75

4 **Demonstrate estimating costs, establishing a budget, and producing a quotation for the customer.** MA2024-5F

5 **Develop a typical estimate for several different types of projects.** DPP139

6 **Apply practices of scheduling project workflow, managing both personal time and team time allocations, to optimize productivity and project efficiency.** MA2024-5E

7 **Monitor and assess the performance of yourself, other individuals, and team progress to make improvements or take corrective action.** MA2024-5J

8 **Explain time-based, fixed fee and value-based pricing of a graphic design project.** GD85

9 **Identify and mitigate potential delays or obstacles in the design process and implement cost-effective solutions.** MA2024-5K