Instructional Framework

ARIZONA CTE

Digital Photography

50.0605.00

This Instructional Framework identifies, explains, and expands the content of the standards/measurement criteria, and, as well, guides the development of multiple-choice items for the Technical Skills Assessment. This document corresponds with the Technical Standards endorsed on May 1, 2019.

Domain 1: Production Instructional Time: 55-60%	
STANDARD 6.0 APPLY THE ELEMENTS AND PRINCIPLES OF DESIG	ON AND COMPOSITION
6.1 Incorporate the elements of design (e.g., line, shape, form, texture, pattern, color, value, and space) when composing photographs	 Elements Line Shape Form Texture Pattern Color Value Space
6.2 Incorporate principles of design (e.g., contrast, repetition, balance, movement, emphasis, harmony, proportion, and unity) when composing photographs	 Principles Contrast Repetition Balance Movement Emphasis Harmon Proportion Unity
6.3 Incorporate guidelines for composition (e.g., simplicity, framing, rule of thirds, focal point, point of view, camera angle, and symmetry)	 Composition Simplicity Framing Rule of Thirds Focal Point Point of View Camera Angle Balance (symmetry asymmetry)

	 Elements Line Shape Form Texture Pattern Color Value Space Principles Balance Emphasis Contrast, etc.
6.4 Communicate a specific idea through the subject matter and the composition of a photograph	 Composition Elements and principles of design Color psychology Lighting Content, mood, and meaning Theme Visual literacy
6.5 Use critical thinking skills to describe, interpret, analyze, and make judgments about composition	 Critique process- describe, analyze, interpret, judge Composition Elements and principles of design Color psychology Lighting Content, mood, and meaning Theme Visual literacy
6.6 Define basic color schemes (e.g., complementary, analogous, triadic, tetradic, split complementary, monochromatic, and grayscale)	 Color schemes and color wheel Warm and cool colors Complementary Analogous Primary, secondary, tertiary Monochromatic Additive and subtractive color models
6.7 Analyze the psychology and theory of color in images to increase visual literacy	 Color psychology Cultural context (color meanings)

	o Mood
6.8 Utilize posing techniques and product arrangement for visual impact (i.e., portraits, fashion, product, etc.)	 Lighting- natural and artificial, modifiers, etc. Posing Location Lenses Composition
STANDARD 7.0 DEMONSTRATE PROPER EXPOSURE SETTINGS TO	O ACHIEVE DESIRED OUTCOMES
7.1 Describe the basic elements of exposure (e.g., ISO, aperture, and shutter speed)	 Exposure Triangle ISO, aperture, and shutter speed Related camera functions
7.2 Utilize appropriate shutter speed to create panned, blurred, and stop action photos	Shutter speed, panning, blur motion, stop (freeze) action
7.3 Apply the appropriate aperture setting for deep or shallow depth of field	Aperture, f-stops, shallow depth of field, great depth of field
7.4 List the factors that affect depth of field (e.g., aperture, focal length, and distance to subject)	 Aperture, focal length, and distance to subject Secondary consideration Sensor size
7.5 Apply the appropriate ISO settings for various lighting conditions	ISONoise (grain)Sensor quality
7.6 Calculate exposure equivalents	 Equivalent exposure, aperture, shutter speed, ISO Full stop, half stop, third stop
7.7 Utilize in-camera light meter to guide desired exposure	TTL meter, aperture, shutter speed, TV mode, AV mode, program mode
7.8 Discuss various in-camera metering modes (i.e., spot, partial, evaluative, center-weighted, matrix, etc.)	Matrix, evaluative, spot (partial) metering, center-weighted
7.9 Evaluate a histogram	 Histogram Pure Black Pure White Highlights Shadows Grayscale

	。 Clipping
7.10 Discuss active focus points and focusing modes (i.e., Al Servo, single, continuous, 3-D, etc.)	 Al Servo Single Continuous 3-D Auto focus (AF) Manual focus (MF)
7.11 Discuss exposure modes (e.g., aperture priority, shutter priority, manual, automatic, program, bulb, and preprogrammed automatic settings)	 Aperture priority (AV) Shutter priority (TV or S) Manual (M), automatic Program (P) Bulb (B) Preprogrammed automatic settings
STANDARD 8.0 DEMONSTRATE PROPER LIGHTING TECHNIQUES	TO ACHIEVE DESIRED OUTCOMES
8.1 Identify additive colors (RGB – red, green, and blue) and subtractive colors (CMYK – cyan, magenta, yellow, and black/key)	 Additive colors (RGB – red, green, and blue) Subtractive colors (CMYK – cyan, magenta, yellow, and black/key) Print vs Digital
8.2 Explore color spaces (e.g., RGB, CMYK, grayscale, L*a*b, Adobe RGB, sRGB, and ProPhoto)	 RGB, CMYK, grayscale, L*a*b, Adobe RGB, sRGB, and ProPhoto Color calibration
8.3 Explain the importance of "quality of light" (e.g., hard or soft light, fall-off, and color temperature)	 Lighting modifiers Softbox Reflector Diffuser, etc. Lighting qualities Indirect, direct Hard Natural Artificial Fall-off Color temperature, etc.
8.4 Explain key/main, fill, back, hair, and rim light	Key/main Fill Back

	 Hair light Rim light Lighting modifiers Lighting ratios
8.5 Demonstrate traditional studio portrait lighting set-ups (e.g., split, loop, Rembrandt, butterfly/Paramount, short, and broad)	 Lighting patterns Rembrandt Split Paramount Loop Rim Butterfly Broad Short 3-point lighting
8.6 Utilize natural/ambient light (e.g., direct, indirect, reflective, and diffused)	 Lighting modifiers Softbox Reflector Diffuser, etc. Lighting qualities Indirect Direct Hard Artificial Natural, etc.
8.7 Describe how environmental conditions affect the quality of light and its effects on the subject	 Lighting qualities Indirect Direct Hard Artificial Natural, etc. Location scouting Weather conditions Time of day: golden hour, best/worst time to shoot
8.8 Utilize artificial light sources (e.g., flash, strobes, LEDs, and fluorescent)	 Artificial light (Studio) Flash Strobes Speedlights LEDs

	TungstenFluorescent
8.9 Utilize light modifiers (i.e., reflector, umbrellas, soft boxes, grids, honeycombs, gels, etc.) to adjust the quality of light	 Reflector Umbrellas Softboxes Grids Honeycombs Gels Barn doors Gobo Snoot, etc.
8.10 Balance natural/ambient light and artificial light sources	 Field light modifiers Reflectors Flags/cutters Scrims, etc. Light intensity Speed light Light meter
8.11 Use handheld light meter	 Light meters Sync Reflective Channel Exposure settings
8.12 Explain correct sync speed	 Sync speed Channels Troubleshoot sync speed issues

Domain 2: Equipment and Photo Management Instructional Time: 20-25%	
STANDARD 5.0 MANAGE PHOTOGRAPHIC EQUIPMENT AND SOFTWARE	
5.1 Demonstrate proper maintenance and care of equipment (i.e., computers, storage devices, printers, peripherals, cameras, input devices, etc.)	 Appropriate handling Camera parts Equipment maintenance Cameras

	 Lenses Printers, etc. Equipment safety Lens cloths Troubleshooting Studio bulb handling and replacement
5.2 Identify threats to technological devices and computer system networks (i.e., viruses, data breaches, phishing, pirating, etc.)	 Threats Viruses Data breaches Phishing Pirating, etc. Equipment safety Cyber security Firewall
5.3 Utilize software to meet requirements of final product (i.e., page layout, photo manipulation, illustration, etc.)	 Layout consideration Appropriate software White space Use of text/graphics, etc. Web display File types DPI, PPI Monitor calibration
5.4 Apply effective digital file management techniques (e.g., data capture, file transfer, file naming, organization, storage, and backup)	 Digital workflow Data capture File transfer File naming Organization Storage Backup Difference between internet and intranet File transfer protocol (FTP) Upload and download
5.5 Differentiate among file formats based on compatibility, file size, resolution, color gamut, and medium (i.e., JPG, TIFF, RAW, PSD, PDF, INDD, AI, GIF, PNG, etc.)	 File formats RAW PSD TIFF, etc. Appropriate use of file formats for output

	 File type qualities Advantages and disadvantages-size Quality (lossless vs lossy), etc. Client needs Appropriate use of file formats for output
5.6 Apply effective use of menus, buttons, and functions of digital cameras	 Aperture, shutter, ISO Shooting modes Focus modes Light meter White balance Format Hot shoe
5.7 Differentiate among types and uses of digital cameras, equipment, and accessories (i.e., point-and-shoot, mirrorless, DSLR, lenses, filters, tripods, lighting equipment, etc.)	 Camera types Large Medium formats DSLRs, etc. Appropriate handling Lenses External flash Remote triggers Exposure modes Camera parts
5.8 Select appropriate resolution, compression, and format for data capture	 Edit image in photo editing application Resolution Crop, color balance, etc. Lossless vs Lossy
5.9 Explain the importance of an industry standard color management system	Color profilesICC
STANDARD 9.0 IMPLEMENT DIGITAL WORKFLOW PROCESSES	
9.1 Demonstrate digital image input (i.e., camera cards, wireless, tethered, direct download, etc.)	 Input technique Camera cards Wireless Tethered Scanning direct download, etc. Upload/Download files Input devices

	 Scanner Camera Keyboard Tablet, etc. Archive
9.2 Evaluate metadata	 Time, date Exposure data GPS Keyword Author EXIF Lens type/correction
9.3 Apply keywords to images	 Workflow Metadata Keyword Organization Sorting
9.4 Demonstrate nondestructive editing techniques	 Layers, masking techniques, smart objects, etc. Destructive vs Nondestructive editing Nondestructive editing software (e.g. Lightroom, Camera RAW, etc.)
9.5 Apply image adjustments (e.g., sizing, cropping, retouching, orientation, and resolution adjustment)	 Tools, adjustments, and adjustment layers Spot healing, clone, red eye, etc. Sizing, cropping, ratios, retouching, orientation, and resolution adjustment Levels, contrast, filters, etc.
9.6 Apply color correction (i.e., white balance, saturation, hue, luminance, etc.)	 White balance Saturation Hue Luminance Levels, etc. Adjustments and adjustment layers
9.7 Explain the benefits of batch processing	 Workflow Time management Naming and sequence protocols

	File formatsArchiving
9.8 Export images for final output	 Deliverable files PrintingTIFF General deliveryJPG PublicationsPDF Appropriate use of file formats for output File format pros/cons
9.9 Mount, matte, and frame a print	 Mount, matte, frame, and prep for hanging Basic measuring skills Visual center vs Actual center

Domain 3: Photography Culture Instructional Time: 10-15%	
STANDARD 4.0 ANALYZE THE DIGITAL PHOTOGRAPHY PROFESSION	ON
4.1 Identify art movements that have impacted the photography profession	 Pictorialism Photo-Secession Surrealism Pop culture Abstraction
4.2 Research technologies that have impacted the Digital Photography profession (i.e., smart phone cameras, etc.)	 History evolution Silver plates Wet plates Film Digital Mass consumption availability
4.3 Describe photography's influence on society	News mediaPhotojournalism
4.4 Differentiate among photographic genres and styles (i.e., portrait, landscape, macro, street, editorial, sports, journalistic, architectural, fine art, commercial, lifestyle, events, etc.)	 Genres Landscape Portrait Fashion Documentary

	∘ War ∘ Travel
4.5 Examine the role and cultural significance of photographers	 Inventors Joseph Niepce Louis Daguerre Henry William Fox Talbot George Eastman Edwin Land Historic Photographers Ansel Adams Alfred Stieglitz Henri Cartier-Bresson Eadweard Muybridge Dorothea Lange Mathew Brady Robert Capa Contemporary Photographers Diane Arbus Annie Leibovitz Richard Avedon Jerry Uelsmann Cindy Sherman
4.6 Describe past and present graphic design styles and trends	 Modernism Art Deco Pop Art Realism Surrealism
4.7 Research how demographic and cultural awareness influence photographic decisions	 Cultural, ethnic, and multigenerational awareness Client interactions Target audience
4.8 Identify components required in establishing a freelance business (i.e., taxes, contracts, expenses, billing, licenses, etc.)	 Target client/market Budget Legal forms: quotes, contracts, etc. Professional communication Branding: logos, advertising, business cards Pricing formulas and sheets, cost analysis Business license/LLC

Domain 4: Business and Industry Instructional Time: 5-10%

STANDARD 1.0 ANALYZE THE COMMUNICATION MEDIA TECHNOLOGIES INDUSTRY, ITS BUSINESS PRACTICES, AND ITS ROLE IN THE ECONOMY

THE ECONOMIT	
1.1 Investigate the history and evolution of the Communication Media Technologies industry (i.e., technology, processes, production, etc.)	 History evolution Silver plates Wet plates Film Digital Genres: Landscape Portrait Fashion Documentary, etc.
1.2 Examine the impact of social media and emerging technologies on the Communication Media Technologies industry	 Impact and use of social media platforms Ethical responsibility
1.3 Research the societal and economic impact of the Communication Media Technologies industry	 Credible media sources Branding and advertisement Social media, photojournalism, fine art, etc.
1.4 Examine the impact of the Communication Media Technologies Industry on marketing practices	 Customer service High quality products Competitive pricing Business cycle (off/on season)
1.5 Explain how diversity and inclusion are managed in the workplace to create a supportive culture	 Cultural, ethnic, and multigenerational awareness and sensitivity Professionalism Workplace benefits of inclusivity and diversity
1.6 Define cultural diversity and the need for awareness and sensitivity in the workplace	 Cultural, ethnic, and multigenerational awareness Professionalism Workplace benefits of inclusivity and diversity
1.7 Explain the acceptance of multiculturalism in the workplace (i.e., treating impartially and fairly each ethnic group, etc.)	 Cultural, ethnic, and multigenerational awareness Professionalism Workplace benefits of inclusivity and diversity

1.8 Analyze customer service practices appropriate to the Communication Media Technologies industry	 Customer surveys/reviews Social media and advertising algorithms Professional communication
1.9 Examine time management practices appropriate to the Communication Media Technologies industry	 Workplace professionalism Shoot scheduling Deadlines Workflow Collaboration tools: online calendars, call sheets, etc.
1.10 Identify professions that comprise the Communication Media Technologies industry (i.e., animation, broadcasting, filmmaking, graphic design, illustration, music and audio productions, photography, printing, publishing, etc.)	 Animation Broadcasting Filmmaking, graphic Design, illustration Music and audio production Photography Printing Publishing, etc.
1.11 Comply with the safety standards and regulations specific to OSHA	Equipment safetyCyber securityOSHA
STANDARD 2.0 ANALYZE ETHICAL AND LEGAL ISSUES RELATED TO THE COMMUNICATION MEDIA TECHNOLOGIES INDUSTRY	
2.1 Distinguish among copyright, intellectual property, and proprietary rights	 Copyright process Patent Trademark Plagiarism Lawsuit, royalties, etc. Fair use Public domain
2.2 Investigate copyright, intellectual property, proprietary rights, plagiarism, and software licensure	 Copyright process Patent Trademark Plagiarism Lawsuit, royalties, etc. Fair use Public domain

2.3 Discuss consequences in violating copyright, privacy, and data security laws (i.e., monetary penalties, prison, injunctions, financial restitution, etc.)	 Watermark Trademark Copyright Fair Use Public domain Lawsuit Consequences Monetary penalties Prison Injunctions Financial restitution, etc.
2.4 Explain fair use (i.e., authorships, credit lines, parody, news reporting, criticism and commentary, etc.)	 Authorships Credit lines Parody News reporting Criticism Commentary, etc.
2.5 Differentiate between legal and ethical standards as they apply to decision-making in the Communication Media Technologies industry	CopyrightPlagiarismEthical responsibility
2.6 Explain libel, privacy, censorship, and first amendment rights	 Copyright Plagiarism Freedom of speech Freedom of the press Case law
2.7 Explain the difference and usage of release forms (e.g., model, minor, and property)	 Components and use of release forms Model, minor, and property
STANDARD 3.0 ANALYZE FACTORS THAT CONTRIBUTE TO PERSONAL SUCCESS IN THE COMMUNICATION MEDIA TECHNOLOGIES INDUSTRY	
3.1 Employ written, verbal, and non-verbal communications that are appropriate to the target audience and situation	 Appropriate word choice Grammar, spelling, punctuation, etc. Professionalism
3.2 Apply formatting, editing, and proofreading skills to all forms of writing	Appropriate word choiceGrammar, spelling, punctuation, etc.

	CitationsCopy editing
3.3 Prepare and deliver a presentation using terminology standard to the Communication Media Technologies industry	 Professionalism Industry vocabulary Public speaking and formal communication skills
3.4 Use interpersonal skills when communicating with colleagues, clients, and vendors (i.e., active listening, empathy, body language, openness, negotiation, problem-solving, conflict resolution, assertiveness, positive attitude, etc.)	 Active listening Empathy Body language Openness Negotiation Problem-solving Conflict resolution Assertiveness Positive attitude, etc.
3.5 Identify professional "dress for success" standards and practices for the Communication Media Technologies industry	 Workplace professionalism Dress Canners Communication
3.6 Explain basic types of résumés and their use (e.g., chronological, functional, combination, targeted, and creative)	 Chronological Functional Combination Targeted Creative
3.7 Identify the basic parts of a résumé (e.g., contact/address section, objective, profile, career summary, experience section, education section, and reference section)	 Profile/contact information Experience Education Skills Reference format (separate sheet)
3.8 Explain considerations for résumé format (i.e., simple font; plenty of white space; personalize and customize to reflect your skills and abilities, etc.)	 Type of job Simple font, white space, personalization, includes skills and abilities, etc. Chronological format Reverse chronological format Functional format Hybrid format

3.9 Define a professional portfolio (e.g., organized collection of relevant writing, graphics, and projects; artifacts showcasing talents and relevant skills; and summary of professional growth)	 Professional Portfolio Organized collection Relevant writing Graphics Projects Artifacts showcasing talents Relevant skills Summary of professional growth
3.10 Describe portfolio types serving different purposes (i.e., working portfolios, display portfolios, assessment portfolios, etc.)	 Types of portfolios Working portfolios Display portfolios Assessment portfolios
3.11 Describe ways to build a professional portfolio [i.e., binder, digital (iPad), online portfolio, etc.]	 Binder, digital (iPad), online portfolio, etc. Critique: peer, mentor, etc. Presentation

