

# Instructional Framework



## Digital Animation

10.0200.60

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 in July 13, 2020.

<b>Domain 1: Content Creation</b>	
<b>Instructional Time: 50 - 60%</b>	
<b>STANDARD 4.0 UTILIZE TECHNOLOGY TO MANAGE PRINCIPLES, ACTIVITIES, AND TRENDS IN DIGITAL ANIMATION</b>	
4.1 Select appropriate software and hardware for specific work tasks (i.e., time management, customer services records, media projects, etc.)	<ul style="list-style-type: none"><li>● Time management<ul style="list-style-type: none"><li>○ Google Calendar</li><li>○ Trello</li></ul></li><li>● Customer services records</li><li>● Media projects</li><li>● Software package awareness and application<ul style="list-style-type: none"><li>○ Visual development (Photoshop, Gimp, Krita)</li><li>○ 3D Modeling (Maya, 3dsMax, Blender, Cinema 4D, Houdini, modo)</li><li>○ Digital sculpting (ZBrush, Sculptris)</li><li>○ Texturing (Substance)</li><li>○ Rendering (Arnold, Vray, Renderman)</li><li>○ Compositing (After Effects, Nuke, Flame)</li><li>○ Editing (Premiere, Final Cut)</li></ul></li></ul>
4.2 Apply essential commands and knowledge of computer operating systems	<ul style="list-style-type: none"><li>● Computer basics<ul style="list-style-type: none"><li>○ Use of external drives</li><li>○ Logging in/out of a computer</li><li>○ Windows vs. Mac vs. Linux</li><li>○ Saving work</li></ul></li></ul>
4.3 Utilize computer file management techniques for organizing, archiving, and version control	<ul style="list-style-type: none"><li>● Folder naming and hierarchy</li><li>● Unique file names</li><li>● Naming conventions and file sharing</li></ul>
4.4 Maintain equipment and related accessories	<ul style="list-style-type: none"><li>● Equipment sustainability</li></ul>

	<ul style="list-style-type: none"> <li>● Equipment care</li> </ul>
4.5 Explain methods of protecting computer systems against data loss and external threats (e.g., on-premise and in the cloud)	<ul style="list-style-type: none"> <li>● Understand tech security <ul style="list-style-type: none"> <li>○ Clicking unknown .exe or links in emails</li> <li>○ On-premise</li> <li>○ In the cloud</li> </ul> </li> </ul>
4.6 Identify software and hardware that supports data capture (i.e., digital image, video, 3D models, motion, facial, and camera tracking, etc.)	<ul style="list-style-type: none"> <li>● Hardware <ul style="list-style-type: none"> <li>○ Cameras</li> <li>○ Scanners</li> <li>○ Microphones</li> <li>○ Tablets</li> <li>○ Greenscreen</li> </ul> </li> <li>● Software <ul style="list-style-type: none"> <li>○ Modeling software (3D models)</li> <li>○ Post-production software (video)</li> <li>○ Photo-editing (digital images)</li> <li>○ Motion capture</li> <li>○ Facial</li> <li>○ Camera tracking</li> </ul> </li> </ul>
4.7 Select appropriate standards and formats for data, creation, capture, and exchange	<ul style="list-style-type: none"> <li>● Resolutions</li> <li>● Aspect ratio</li> <li>● Frame rate</li> <li>● File type</li> <li>● Compression</li> </ul>
4.8 Determine efficient methods for converting, editing, exchanging, and ingesting data (i.e., sharing between systems, contractors, clients, etc.)	<ul style="list-style-type: none"> <li>● Sharing between systems, contractors, clients, etc. <ul style="list-style-type: none"> <li>○ External drives</li> <li>○ The cloud</li> <li>○ Adobe Media Encoder</li> <li>○ File converters</li> </ul> </li> </ul>
<b>STANDARD 6.0 IMPLEMENT PLANS FOR THE CREATION OF CONTENT USING MODELING, TEXTURING, AND LIGHTING TECHNIQUES</b>	
6.1 Explain the animation pipeline and its stages	<ul style="list-style-type: none"> <li>● Pre-production/Visual Development <ul style="list-style-type: none"> <li>○ Storyboarding</li> <li>○ Concept art</li> </ul> </li> <li>● Production <ul style="list-style-type: none"> <li>○ Modeling</li> <li>○ Texturing</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Lighting</li> <li>○ Animation</li> <li>○ Visual effects</li> <li>○ Rendering</li> <li>● Post-production <ul style="list-style-type: none"> <li>○ Compositing</li> <li>○ Editing</li> <li>○ Sound</li> </ul> </li> </ul>
6.2 Construct 3D models using appropriate techniques and geometric principles (e.g., Boolean, polygonal, NURBS/hyper-nurbs, subdivision surfaces, sculpting, and symmetrical)	<ul style="list-style-type: none"> <li>● Modifiers <ul style="list-style-type: none"> <li>○ Boolean, etc.</li> <li>○ Non-linear deformers</li> </ul> </li> <li>● Polygonal <ul style="list-style-type: none"> <li>○ Box modeling</li> </ul> </li> <li>● Curves <ul style="list-style-type: none"> <li>○ NURBS/hyper-nurbs</li> </ul> </li> <li>● Subdivision surfaces</li> <li>● Sculpting</li> <li>● Symmetrical <ul style="list-style-type: none"> <li>○ Mirroring</li> </ul> </li> </ul>
6.3 Classify organic vs. hard surface modeling	<ul style="list-style-type: none"> <li>● Difference between organic and hard surface <ul style="list-style-type: none"> <li>○ Efficient meshes</li> <li>○ Edge flow</li> </ul> </li> </ul>
6.4 Create texture maps on polygon objects using planar, cylindrical, spherical mapping, and the UV texture editor	<ul style="list-style-type: none"> <li>● Unwrapping the UV in various ways</li> <li>● Seamless textures</li> </ul>
6.5 Evaluate and correct UVW maps and surface normals	<ul style="list-style-type: none"> <li>● Apply textures through UV mapping</li> <li>● Stretching and pinching</li> </ul>
6.6 Differentiate among types of surface shaders for various rendering techniques [i.e., Phong, ray tracing, Physically Based Rendering (PBR), High Dynamic Range Imaging (HDRIs), etc.]	<ul style="list-style-type: none"> <li>● Shader types <ul style="list-style-type: none"> <li>○ Phong</li> </ul> </li> <li>● Rendering techniques <ul style="list-style-type: none"> <li>○ Ray tracing</li> <li>○ Physically Based Rendering (PBR)</li> <li>○ High Dynamic Range Imaging (HDRIs)</li> </ul> </li> </ul>
6.7 Create complex textures and reflections using process/nodal maps with commercial software	<ul style="list-style-type: none"> <li>● Node structures <ul style="list-style-type: none"> <li>○ Image vs. Procedural</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>● Combination of node construction</li> <li>● Shader networks</li> </ul>
6.8 Simulate fire, hair, cloth, crowds, and fluids using particles and dynamic systems	<ul style="list-style-type: none"> <li>● Simulations <ul style="list-style-type: none"> <li>○ Cloth</li> <li>○ Fire</li> <li>○ Fluids</li> <li>○ Hair</li> <li>○ Crowds</li> </ul> </li> <li>● Particle systems</li> <li>● Fields/forces</li> </ul>
6.9 Differentiate among types of lights and their attributes	<ul style="list-style-type: none"> <li>● Light types <ul style="list-style-type: none"> <li>○ Spot</li> <li>○ Area</li> <li>○ Point/Omni</li> <li>○ Ambient</li> <li>○ Directional</li> <li>○ High Dynamic Range Image (HDRI)</li> </ul> </li> </ul>
6.10 Explain the three lights in the three-point lighting system	<ul style="list-style-type: none"> <li>● Three-point light setup <ul style="list-style-type: none"> <li>○ Key light</li> <li>○ Rim light</li> <li>○ Fill light</li> </ul> </li> </ul>
6.11 Compare white and colored lights and shadows to create mood in a scene	<ul style="list-style-type: none"> <li>● Color palettes <ul style="list-style-type: none"> <li>○ Warm vs. Cool</li> </ul> </li> <li>● Color definitions</li> <li>● Color psychology <ul style="list-style-type: none"> <li>○ Blue = loyal; Red = love/anger, etc.</li> </ul> </li> <li>● Natural vs. Artificial light</li> <li>● Day vs. Night</li> </ul>
<b>STANDARD 7.0 IMPLEMENT PLANS FOR THE CREATION AND DELIVERY OF CONTENT USING VARIOUS RIGGING AND ANIMATION TECHNIQUES AS WELL AS DYNAMIC SIMULATION AND RENDERING</b>	
7.1 Explain the efficiencies at render time for pre-baking lighting solutions and shadows	<ul style="list-style-type: none"> <li>● Rendering and time factors <ul style="list-style-type: none"> <li>○ Faster processing</li> </ul> </li> <li>● Baking <ul style="list-style-type: none"> <li>○ Lighting</li> <li>○ Textures</li> </ul> </li> </ul>

<p>7.2 Compare exposure sheet with Graph and Curve Editor for manipulating keyframe interpolation</p>	<ul style="list-style-type: none"> <li>● Exposure sheets</li> <li>● Graph editor/Curve editor <ul style="list-style-type: none"> <li>○ Slow-in/Slow-out</li> </ul> </li> </ul>
<p>7.3 Create animation using motion paths and constraints [i.e., Set Dynamic Keys (SDKs)/action constraints, Artificial Intelligence (AI), etc.]</p>	<ul style="list-style-type: none"> <li>● Motion paths</li> <li>● Constraints</li> <li>● Set Dynamic Keys (SDKs)/action constraints</li> <li>● Artificial Intelligence (AI)</li> </ul>
<p>7.4 Explain the use of bones, armatures, and constraints for rigging and skinning techniques [i.e., forward kinematics and inverse kinematics (FK/IK)]</p>	<ul style="list-style-type: none"> <li>● Rigging <ul style="list-style-type: none"> <li>○ Forward kinematics and inverse kinematics (FK/IK)</li> <li>○ Skinning</li> <li>○ Painting weights</li> </ul> </li> </ul>
<p>7.5 Explain how cinematic decisions [i.e., Field of View (FOV), camera angles, paths, etc.] for capturing images from a 3D scene can be used to make an aesthetically pleasing composition that reinforces the story</p>	<ul style="list-style-type: none"> <li>● Field of View (FOV)</li> <li>● Depth of Field <ul style="list-style-type: none"> <li>○ Rack focus</li> </ul> </li> <li>● Rule of Thirds</li> <li>● Camera angles <ul style="list-style-type: none"> <li>○ Extreme long</li> <li>○ Long shot</li> <li>○ Medium shot</li> <li>○ Close up</li> <li>○ Extreme close up</li> <li>○ Bird's eye</li> <li>○ High</li> <li>○ Over the shoulder</li> <li>○ Eye-level</li> <li>○ Canted</li> </ul> </li> <li>● Camera Movement (Path) <ul style="list-style-type: none"> <li>○ Pan</li> <li>○ Dolly</li> <li>○ Crane</li> <li>○ Zoom</li> <li>○ Tilt</li> </ul> </li> </ul>
<p>7.6 Export assets to real-time rendering engine in the appropriate format and inspect/correct UVW maps, textures, and lighting to emphasize the most important aspects of the scene</p>	<ul style="list-style-type: none"> <li>● Preview before final render</li> <li>● Real-time rendering engine best practices</li> </ul>

7.7 Test assets in the real-time engine to ensure animations and deformations work as intended	<ul style="list-style-type: none"> <li>● Preview before final build</li> <li>● Quality control</li> </ul>
7.8 Compare the benefits of different rendering methods (e.g., real-time rendering, or offline as an image sequence, or video file)	<ul style="list-style-type: none"> <li>● Rendering methods <ul style="list-style-type: none"> <li>○ Real-time rendering</li> <li>○ Offline as an image sequence, or video file</li> </ul> </li> </ul>
7.9 Explain how exposing parameters of digital assets can enhance their utility and value [i.e., programmatic access, creating user interfaces (UI), repurposing assets, etc.]	<ul style="list-style-type: none"> <li>● Utility and value <ul style="list-style-type: none"> <li>○ Programmatic access</li> <li>○ Creating user interfaces (UI)</li> <li>○ Repurposing assets</li> </ul> </li> </ul>

## Domain 2: Pre-Production and Basic Principles

Instructional Time: 15-20%

### STANDARD 5.0 ENGAGE IN PRE-PRODUCTION/PLANNING PHASE OF CONTENT CREATION IN DIGITAL ANIMATION

5.1 Interpret a design brief (e.g., art styles, platform specifications, asset lists, and priorities)	<ul style="list-style-type: none"> <li>● Art styles</li> <li>● Platform specifications</li> <li>● Asset lists</li> <li>● Priorities</li> </ul>
5.2 Select creative approaches that meet the needs of the design brief (e.g., time scales, polygon counts, and texture sizes)	<ul style="list-style-type: none"> <li>● Time scales</li> <li>● Polygon counts</li> <li>● Texture sizes</li> </ul>
5.3 Develop a plan to efficiently develop, reuse, and repurpose assets for use on the project	<ul style="list-style-type: none"> <li>● Develop and repurpose resources</li> <li>● Modular construction of models</li> <li>● Kit-bashing</li> </ul>
5.4 Create a folder hierarchy and organize project files within folders using consistent naming conventions (e.g., naming layers in Photoshop and naming objects in a 3D program)	<ul style="list-style-type: none"> <li>● Naming conventions <ul style="list-style-type: none"> <li>○ Naming layers in Photoshop</li> <li>○ Naming objects in a 3D program</li> <li>○ Folders and files</li> </ul> </li> </ul>
5.5 Apply the elements and principles of design to all drawings, models, environments, and projects	<ul style="list-style-type: none"> <li>● Elements of Art <ul style="list-style-type: none"> <li>○ Line</li> <li>○ Shape</li> <li>○ Value</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Space</li> <li>○ Form</li> <li>○ Value</li> <li>○ Texture</li> <li>○ Color</li> <li>● Principles of Design <ul style="list-style-type: none"> <li>○ Contrast</li> <li>○ Balance</li> <li>○ Variety</li> <li>○ Repetition</li> <li>○ Emphasis</li> <li>○ Movement</li> <li>○ Pattern</li> <li>○ Rhythm</li> <li>○ Unity</li> </ul> </li> </ul>
5.6 Apply drawing skills (i.e., shading, perspective, and gesture drawing)	<ul style="list-style-type: none"> <li>● Shading</li> <li>● Perspective</li> <li>● Gesture drawing</li> <li>● Composition/Rule of thirds</li> <li>● Drawing from observation</li> <li>● Light sources and chiaroscuro</li> <li>● 1-, 2-, and 3-point perspective</li> </ul>
5.7 Apply basic anatomy to figure drawing and character design	<ul style="list-style-type: none"> <li>● Human proportions <ul style="list-style-type: none"> <li>○ Vitruvian man</li> </ul> </li> <li>● Primitive shapes make up humans and animals</li> <li>● Muscular and skeletal structure</li> <li>● Gesture drawing</li> </ul>
5.8 Develop concept art for all key (priority) assets (e.g., thumbnails and silhouette sketches)	<ul style="list-style-type: none"> <li>● Thumbnails</li> <li>● Silhouette sketches</li> <li>● Roughts</li> <li>● Character sheets</li> <li>● Visual development for environments and props</li> </ul>
5.9 Apply the 12 principles of animation to all animated projects (e.g., The Illusion of Life)	<ul style="list-style-type: none"> <li>● <i>The Illusion of Life</i> <ul style="list-style-type: none"> <li>○ Straight Ahead and Pose to Pose</li> <li>○ Solid Drawing</li> <li>○ Appeal</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Staging</li> <li>○ Timing</li> <li>○ Arcs</li> <li>○ Slow in and Slow Out</li> <li>○ Squash and Stretch</li> <li>○ Exaggeration</li> <li>○ Anticipation</li> <li>○ Follow Thru and Overlapping Action</li> <li>○ Secondary Action</li> </ul>
5.10 Create detailed comprehensive storyboards for a project	<ul style="list-style-type: none"> <li>● What is a storyboard</li> <li>● Purpose of a storyboard</li> </ul>

<b>Domain 3: Post-Production and Distribution</b> <b>Instructional Time: 15-20%</b>	
<b>STANDARD 8.0 PERFORM TASKS IN POST-PRODUCTION PHASE OF REFINEMENT IN DIGITAL ANIMATION</b>	
8.1 Animate layers of footage in a compositing program	<ul style="list-style-type: none"> <li>● Compositing software <ul style="list-style-type: none"> <li>○ Sequencing</li> <li>○ Setting keyframes</li> </ul> </li> </ul>
8.2 Create cinematic transitions and atmospheric effects	<ul style="list-style-type: none"> <li>● Effect vs. Preset</li> <li>● Applying effects</li> </ul>
8.3 Generate masks and track mattes	<ul style="list-style-type: none"> <li>● Masks vs. Track mattes</li> <li>● Layer transparency</li> </ul>
8.4 Choose color-keying techniques (i.e., Keylight, color difference, difference mattes, spill suppressors, etc.)	<ul style="list-style-type: none"> <li>● Chroma keying <ul style="list-style-type: none"> <li>○ Keylight</li> </ul> </li> <li>● Color difference</li> <li>● Difference mattes</li> <li>● Spill suppressors</li> </ul>
8.5 Track motion and apply the data to footage	<ul style="list-style-type: none"> <li>● Motion tracking</li> <li>● Stabilizing footage</li> <li>● Tracking objects</li> </ul>
8.6 Combine sound files and image sequences into a movie file	<ul style="list-style-type: none"> <li>● Audio codecs</li> </ul>



	<ul style="list-style-type: none"> <li>○ .mp3</li> <li>○ .wav</li> <li>● Video codecs <ul style="list-style-type: none"> <li>○ .mp4</li> <li>○ .mov</li> </ul> </li> <li>● Editing and exporting finished sound and image files <ul style="list-style-type: none"> <li>○ Media encoder</li> <li>○ Premiere</li> </ul> </li> </ul>
<b>STANDARD 9.0 DELIVER/DISTRIBUTE CONTENT USING VARIOUS MEDIA IN ACCORDANCE WITH CLIENT EXPECTATIONS IN DIGITAL ANIMATION</b>	
9.1 Identify various file formats and their advantages and disadvantages	<ul style="list-style-type: none"> <li>● File extensions</li> <li>● Advantages and disadvantages <ul style="list-style-type: none"> <li>○ .jpg vs. .png</li> <li>○ .mp4 vs. .mov vs. .avi</li> <li>○ .exr</li> </ul> </li> </ul>
9.2 Select video or audio codecs for various file formats and target delivery platforms	<ul style="list-style-type: none"> <li>● Difference between delivery options</li> <li>● Identify codecs <ul style="list-style-type: none"> <li>○ Audio</li> <li>○ Video</li> </ul> </li> </ul>
9.3 Create or convert 3D modeling/animation to be viewed through Virtual Reality (VR) (i.e., Oculus, HTC Vive, etc.), Augmented Reality (AR), and Mixed Reality (MR), and a merging of VR with AR (i.e., MS Hololens2, Magic Leap, etc.)	<ul style="list-style-type: none"> <li>● Oculus</li> <li>● HTC Vive</li> <li>● MS Hololens2</li> <li>● Magic Leap</li> </ul>
9.4 Identify security considerations when using the internet as a delivery system (i.e., Dropbox, Google Drive, GitHub, etc.)	<ul style="list-style-type: none"> <li>● Security considerations <ul style="list-style-type: none"> <li>○ Resolution</li> <li>○ Watermark</li> </ul> </li> <li>● Dropbox</li> <li>● Google Drive</li> <li>● GitHub</li> </ul>

## Domain 4: Presentation and Critique

### Instructional Time: 5-10%

#### STANDARD 10.0 MONITOR QUALITY ASSURANCE OF CONTENT CREATION CONCURRENT WITH ALL PHASES OF PRODUCTION IN DIGITAL ANIMATION

10.1 Critique delivered content for artisanship, effectiveness, and tone (i.e., concept art, storyboards, textures, models, images, rendered animations, etc.)

- Critique for quality and efficiency
  - Concept art
  - Storyboards
  - Textures
  - Models
  - Images
  - Rendered animations

10.2 Review a project workflow after completion and determine areas for improvement

- Critique the workflow
  - Pre-production
  - Production
  - Post-Production
- Self-reflection

10.3 Identify organizational and communication factors that contribute to the relative success of the project

- Redefine and solidify the workflow
- Meeting deadlines
- Meeting client expectations
- Producing quality work

#### STANDARD 11 PRESENT TO SELECTED AUDIENCE(S) USING DIGITAL ANIMATION

11.1 Structure and develop a portfolio and/or demo reel of an appropriate subject matter and quality

- Portfolio/Demo Reel requirements
  - Maximum 3 minutes
  - Quality over quantity
  - Strongest piece first

11.2 Explore methods of distributing portfolios and demo reels for the purpose of work, employment, or investment

- Web portfolio sites
  - Art Station
  - Behance
  - Squarespace, Wix, Adobe Spark, etc.
  - Delivery
  - Exposure
- Social media
- Printed portfolio books

<p>11.3 Research industries and companies as potential employers; develop job-specific cover letters and résumés</p>	<ul style="list-style-type: none"> <li>● Relevant industry or company information <ul style="list-style-type: none"> <li>○ Research</li> </ul> </li> <li>● Grammar/spelling</li> <li>● Positive self-promotion <ul style="list-style-type: none"> <li>○ Passion</li> <li>○ Ability to contribute</li> </ul> </li> <li>● Cover Letters <ul style="list-style-type: none"> <li>○ Business letter format</li> <li>○ Letter of application vs. Letter of inquiry</li> </ul> </li> <li>● Resume <ul style="list-style-type: none"> <li>○ Contact info (name, email, portfolio site, phone number)</li> <li>○ Tailored to specific jobs, organization/order</li> <li>○ References</li> </ul> </li> </ul>
<p>11.4 Explore interviewing techniques for professional placement</p>	<ul style="list-style-type: none"> <li>● Proper interview techniques <ul style="list-style-type: none"> <li>○ Making eye contact</li> <li>○ Taking notes</li> <li>○ Being engaged</li> <li>○ Ask good questions of the interviewer</li> <li>○ Appropriate attire</li> <li>○ Etiquette</li> </ul> </li> </ul>
<p>11.5 Explain how to create an effective pitch and/or animatic</p>	<ul style="list-style-type: none"> <li>● Purpose of a pitch <ul style="list-style-type: none"> <li>○ Generate interest</li> <li>○ Secure finances</li> </ul> </li> <li>● Purpose of an animatic <ul style="list-style-type: none"> <li>○ Work out timing, dialog, and sound</li> <li>○ “First draft” of the project</li> </ul> </li> </ul>

## Domain 5: 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**

<p>1.1 Investigate the history and evolution of the Communication Media Technologies industry (i.e., technology, processes, production, etc.)</p>	<ul style="list-style-type: none"> <li>● Technology</li> <li>● Processes</li> </ul>
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	<ul style="list-style-type: none"> <li>● Production</li> <li>● Early devices <ul style="list-style-type: none"> <li>○ Magic lantern</li> <li>○ Thaumatrope</li> </ul> </li> <li>● Early animators <ul style="list-style-type: none"> <li>○ Muybridge</li> <li>○ Walt Disney</li> <li>○ Windsor McCay</li> <li>○ J. Stuart Blackton</li> </ul> </li> <li>● Chronological order of media development</li> </ul>
1.2 Examine the impact of social media and emerging technologies on the Communication Media Technologies industry	<ul style="list-style-type: none"> <li>● Business practices <ul style="list-style-type: none"> <li>○ Meetings, proposals, professional etiquette</li> </ul> </li> <li>● Increased exposure</li> <li>● Variation in quality</li> <li>● Networking and public relations</li> </ul>
1.3 Research the societal and economic impact of the Communication Media Technologies industry	<ul style="list-style-type: none"> <li>● Business practices <ul style="list-style-type: none"> <li>○ Business plan, budgeting</li> </ul> </li> <li>● Societal impact <ul style="list-style-type: none"> <li>○ Cultural understanding, diversity, representation, entertainment</li> </ul> </li> <li>● Cross-industry career options <ul style="list-style-type: none"> <li>○ Medical animation, architectural visualization</li> <li>○ Product prototyping, 3D printing</li> </ul> </li> </ul>
1.4 Examine the impact of the Communication Media Technologies Industry on marketing practices (i.e., delivery systems, monetization, etc.)	<ul style="list-style-type: none"> <li>● Delivery systems</li> <li>● Monetization</li> <li>● Advertising practices</li> <li>● Ways of exposure and creating income flows</li> <li>● Micro economies <ul style="list-style-type: none"> <li>○ YouTube, Etsy, TurboSquid, Art Station</li> </ul> </li> </ul>
1.5 Define cultural diversity and the need for awareness and sensitivity in creative and professional decision-making	<ul style="list-style-type: none"> <li>● Best practices when working with other cultures <ul style="list-style-type: none"> <li>○ Non-verbal cues</li> </ul> </li> <li>● Inclusion and representation</li> </ul>

<p>1.6 Explain the importance of multiculturalism in creative and professional decision-making (i.e., treating impartially and fairly each ethnic group, etc.)</p>	<ul style="list-style-type: none"> <li>● Treating impartially and fairly each ethnic group</li> <li>● Inclusion and representation</li> <li>● Awareness and avoidance of negative stereotypes</li> </ul>
<p>1.7 Analyze client/service provider interaction practices appropriate to the Communication Media Technologies industry (e.g., customer service)</p>	<ul style="list-style-type: none"> <li>● Customer service</li> <li>● Proper business etiquette <ul style="list-style-type: none"> <li>○ Importance of deadlines</li> <li>○ Communication</li> <li>○ Follow-up</li> </ul> </li> <li>● Customer relationships</li> </ul>
<p>1.8 Determine budgets for various media projects and/or specific sub-tasks (e.g., personnel requirements, labor costs, and expenses)</p>	<ul style="list-style-type: none"> <li>● Personnel requirements</li> <li>● Labor costs</li> <li>● Expenses/overhead</li> <li>● Proposal/business plan</li> <li>● Freelance pricing</li> </ul>
<p>1.9 Examine time management practices appropriate to the Communication Media Technologies industry (i.e., scheduling, hourly tracking, task management, managing deadlines, etc.)</p>	<ul style="list-style-type: none"> <li>● Scheduling</li> <li>● Hourly tracking</li> <li>● Task management</li> <li>● Managing deadlines</li> </ul>
<p>1.10 Identify professions that comprise the Communication Media Technologies industry (i.e., animation, broadcasting, filmmaking, graphic design, illustration, music and audio production, digital imaging, printing, publishing, etc.)</p>	<ul style="list-style-type: none"> <li>● Animation</li> <li>● Broadcasting</li> <li>● Filmmaking</li> <li>● Graphic design</li> <li>● Illustration</li> <li>● Music and audio production</li> <li>● Digital imaging</li> <li>● Printing</li> <li>● Publishing</li> </ul>
<p>1.11 Describe how diversity (cultural, ethnic, multigenerational) and ethics affect the selection of programs, projects, and creative choices</p>	<ul style="list-style-type: none"> <li>● Inclusion and representation</li> <li>● Diversity of perspective <ul style="list-style-type: none"> <li>○ Multiple points of view</li> </ul> </li> </ul>

<p>1.12 Compare various business models for generating income (i.e., employment, entrepreneurship, the gig economy, social media monetization, etc.)</p>	<ul style="list-style-type: none"> <li>● Employment</li> <li>● Entrepreneurship</li> <li>● The gig economy</li> <li>● Social media monetization</li> </ul>
<p>1.13 Describe how production processes, cycles, and deadlines affect media businesses and career pathways</p>	<ul style="list-style-type: none"> <li>● Professional responsibilities</li> <li>● Project based contracts</li> <li>● Project management and deadlines <ul style="list-style-type: none"> <li>○ Crunch Time</li> </ul> </li> </ul>
<p>1.14 Comply with the safety standards and regulations specific to OSHA (specific to OSHA 10)</p>	<ul style="list-style-type: none"> <li>● OSHA <ul style="list-style-type: none"> <li>○ Safety standards</li> </ul> </li> <li>● Lab safety <ul style="list-style-type: none"> <li>○ Wiring and cables</li> </ul> </li> <li>● Workplace Injuries <ul style="list-style-type: none"> <li>○ Carpal Tunnel</li> <li>○ Sedentary</li> <li>○ Eye strain</li> <li>○ Posture</li> </ul> </li> </ul>
<p>1.15 Describe how the Americans with Disabilities Act (ADA) affects creative professionals in various roles (e.g., employees/employers, subordinates/managers, and customers/suppliers)</p>	<ul style="list-style-type: none"> <li>● Employees/employers</li> <li>● Subordinates/managers</li> <li>● Customers/suppliers</li> <li>● Technology based accommodations <ul style="list-style-type: none"> <li>○ Programmable gaming mouse</li> <li>○ Voice recognition</li> </ul> </li> </ul>
<p><b>STANDARD 2.0 INVESTIGATE INTELLECTUAL PROPERTY (IP) LAW AND RIGHTS MANAGEMENT</b></p>	
<p>2.1 Identify current legal issues in media professions</p>	<ul style="list-style-type: none"> <li>● Legal issues that affect media professions</li> <li>● Workplace diversity</li> <li>● Intellectual property</li> <li>● Video game violence</li> </ul>
<p>2.2 Examine intellectual property law and its ramifications (e.g., copyright, free and fair use, and licensing)</p>	<ul style="list-style-type: none"> <li>● Copyright</li> <li>● Free and fair use</li> <li>● Licensing</li> <li>● Trademark</li> </ul>

2.3 Explain plagiarism and its effects in business	<ul style="list-style-type: none"> <li>● Plagiarism <ul style="list-style-type: none"> <li>○ Negative effects</li> </ul> </li> </ul>
<b>STANDARD 3.0 DEMONSTRATE CLIENT/SERVICE PROVIDER PRACTICES APPROPRIATE TO DIGITAL ANIMATION</b>	
3.1 Use industry terminology appropriate to the work environment	<ul style="list-style-type: none"> <li>● Animation and business terminology <ul style="list-style-type: none"> <li>○ Professional communication</li> <li>○ Etiquette</li> <li>○ Software</li> <li>○ Foundational concepts</li> </ul> </li> </ul>
3.2 Employ written, verbal, and nonverbal communications that are appropriate to the target audience and situation (i.e., active listening, empathy, body language, openness, negotiation, problem solving, conflict resolution, assertiveness, positive attitude, etc.)	<ul style="list-style-type: none"> <li>● Professional characteristics employers' value <ul style="list-style-type: none"> <li>○ Active listening</li> <li>○ Empathy</li> <li>○ Body language</li> <li>○ Openness</li> <li>○ Negotiation</li> <li>○ Problem solving</li> <li>○ Conflict resolution</li> <li>○ Assertiveness</li> <li>○ Positive attitude <ul style="list-style-type: none"> <li>■ Motivation/passion</li> </ul> </li> <li>○ Meeting deadlines</li> </ul> </li> </ul>
3.3 Practice verbal, nonverbal, and listening communication skills for effectiveness with people of diverse cultures, generations, and situations (i.e., email, text, phone call, video conferencing, interpersonal meetings, etc.)	<ul style="list-style-type: none"> <li>● Professional etiquette when using <ul style="list-style-type: none"> <li>○ Email</li> <li>○ Text</li> <li>○ Phone call</li> <li>○ Video conferencing</li> <li>○ Interpersonal meetings</li> </ul> </li> </ul>
3.4 Conduct formal and informal research to collect information, verify the accuracy of information, and authority of sources	<ul style="list-style-type: none"> <li>● Surveys</li> <li>● Focus groups</li> <li>● Screenings</li> <li>● Source authority and citations</li> <li>● Fact checking</li> </ul>

3.5 Assess the stated purpose and audience when making content choices and developing communications	<ul style="list-style-type: none"><li>● Know your audience</li><li>● Know your content</li></ul>
3.6 Apply editing and proofing skills when reviewing any communication	<ul style="list-style-type: none"><li>● Proofreading skills</li><li>● Editing skills</li><li>● Quality control</li></ul>

