Interactive Media CTAG Alignments

This document contains information about eight Career-Technical Articulation Numbers (CTANs) for the Media Arts Career-Technical Assurance Guide (CTAG). The CTANs are:

- 2-D Animation
- Raster Graphics
- Vector Graphics
- Internet and Web Languages
- Graphical Website Design
- Digital Video Production
- 3-D Modeling and Animation
- Electronic Publishing

1. 2D Animation: CTAN alignment with the Tech Prep Interactive Media Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

Course Description: 2-D Animation focuses on the creation and distribution of interactive, computer-based animations. Students create tweened and cell animations as well as interactive animations and navigation structures. Students gain basic knowledge of common scripting languages such as *ActionScript*.

Advising Notes: Students should be able to create animations using software, such as Adobe Flash, and have a basic knowledge of scripting. This class will commonly be taught using Adobe *Flash*.

Semester Credit Hours: 3

Alignment:

Outcomes marked with an asterisk are essential and must be taught.*

Learning Outcomes **The student will be able to:**	**Outcomes and/or Competencies in ODE's REVISED Career Field Technical Content Standards**
1. Utilize the interface and tools of industry standard 2-D Animation authoring software*	7.1.1 Identify the types and uses of interactive media environments (e.g., web-based, kiosks, games, mobile devices, video, print). 7.1.2 Describe the components of interactive media.
2. 2. Create 2-D animations using industry standard authoring software*	7.6.5. Create 2-D or 3-D environments.

Click here to enter proposed Learning Outcome	7.2.1 Choose a navigational menu structure (e.g., rollovers, drop-downs, disjointed). 7.2.2 Construct and place navigational units. 7.2.3 Build in interactive elements. 7.2.4 Determine uses and needs for site maps, multimedia scripts, storyboards, and flowcharts. 7.2.6 Show placement of buttons and navigational graphics. 7.6.4 Create special effects and virtual navigation.
3. Perform advanced editing techniques within 2-D Animations*	7.6.2. Import 2-D or 3-D assets. 7.6.3. Create key frames and apply tweens and paths 7.6.4. Create special effects and virtual navigation. 7.6.5. Create 2-D or 3-D environments.
4. Integrate 2-D animations with other applications*	7.3.1. Select the media elements to be used (e.g., sound, video, graphics, text, animation). 7.3.2. Generate text for multi-image presentations (e.g., title graphics, charts, graphs). 7.3.3. Incorporate graphics (e.g., digital, hand-drawn, photographic).
5. Generate images in the appropriate output format for intended use*	7.6.6 Render and export animations.
6. Incorporate interactive media elements such as sound, video, vector, and raster graphics in a 2-D animation*	7.3.4. Incorporate computer animation. 7.3.6. Incorporate video footage. 7.3.8. Record and/or acquire sound track (e.g., narrative, voiceover, sound effects, music). 7.3.9. Integrate sound with visuals. 7.3.10 Produce, test, debug, and archive final product.

2. Raster Graphics: CTAN alignment with the Tech Prep Interactive Media Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

Course Description: Raster graphics covers the use of editing and creating pixel based images. Students manipulate images by improving image quality, adding graphic design elements, and building compositions for the use in other interactive media projects or as their own documents. Topics range from the capturing of raw images through a completed project.

Advising Notes: This course typically uses Adobe *Photoshop* as its primary application.

Semester Credit Hours: 3

Alignment:

Outcomes marked with an asterisk are essential and must be taught.*

Learning Outcomes **The student will be able to:**	**Outcomes and/or Competencies in ODE's REVISED Career Field Technical Content Standards**
1. Utilize the interface and tools of industry standard raster graphics editing software*	7.4.1 Identify the purpose and intended audience of graphics. 7.4.5 Differentiate between vector and raster images. 7.4.6 Select an appropriate graphic file format and resolution. 7.4.8 Select graphic software applications.
2. Create and edit raster graphics using industry standard hardware and software*	7.4.3 Create or acquire graphics. 7.4.9 Manipulate graphic objects.
3. Perform advanced editing techniques with raster graphics*	7.4.9 Manipulate graphic objects.
4. Integrate raster graphics with other applications*	7.3.1. Select the media elements to be used (e.g., sound, video, graphics, text, animation). 7.3.2. Generate text for multi-image presentations (e.g., title graphics, charts, graphs). 7.3.3. Incorporate graphics (e.g., digital, hand-drawn, photographic). 7.3.5. Prepare and integrate photographic images and special effects with graphic images. 7.3.10 Produce, test, debug, and archive final product.

5. Generate images in the appropriate output format for intended use*	7.4.6 Select an appropriate graphic file format and resolution. 7.4.7 Optimize and export graphics files for intended use.
6. Use various methods of acquiring raster graphics including digital cameras, scanning, and stock media*	7.9.5 Shoot photographs. 7.9.6 Edit photographs (e.g., color corrections, cropping, enhancements).

3. Vector Graphics: CTAN alignment with the Tech Prep Interactive Media Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

Course Description: Vector Graphics focuses on the creation and editing of resolution-independent images. Students use digital drawing techniques to create vector graphics for the use in other interactive media projects or as independent compositions. Topics range from the creation of vector graphics through choosing the appropriate output method for their intended use.

Advising Notes: *Adobe Illustrator* is the most likely software used for this class.

Semester Credit Hours: 3

Alignment:

Outcomes marked with an asterisk are essential and must be taught.*

Learning Outcomes **The student will be able to:**	**Outcomes and/or Competencies in ODE's REVISED Career Field Technical Content Standards**
1. Utilize the interface and tools of industry standard vector graphics editing software*	7.4.1 Identify the purpose and intended audience of graphics. 7.4.5 Differentiate between vector and raster images. 7.4.6 Select an appropriate graphic file format and resolution. 7.4.8 Select graphic software applications.
2. Create vector graphics using drawing tools with industry standard tools*	7.4.3 Create or acquire graphics. 7.4.9 Manipulate graphic objects.
3. Edit vector graphics using industry standard hardware and software*	7.4.9 Manipulate graphic objects.

4. Perform advanced editing techniques with vector graphics*	7.3.1. Select the media elements to be used (e.g., sound, video, graphics, text, animation). 7.3.2. Generate text for multi-image presentations (e.g., title graphics, charts, graphs). 7.3.3. Incorporate graphics (e.g., digital, hand-drawn, photographic). 7.3.5 Prepare and integrate photographic images and special effects with graphic images. 7.3.10 Produce, test, debug, and archive final product .
5. Integrate vector graphics with other applications*	7.4.6 Select an appropriate graphic file format and resolution. 7.4.7 Optimize and export graphics files for intended use.
6. Generate images in the appropriate output format for intended use*	7.4.1 Identify the purpose and intended audience of graphics. 7.4.5 Differentiate between vector and raster images. 7.4.6 Select an appropriate graphic file format and resolution. 7.4.8 Select graphic software applications.

4. Internet and Web Languages: CTAN alignment with the Tech Prep Interactive Media Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

Course Description: Internet and Web Languages is an introductory course in Internet technologies and creating Web sites using markup, styling, and scripting languages such as HTML and CSS. Students understand the general nature, function, and structure of the Internet and World Wide Web and develop a simple, static, Web site using a text editor.

Advising Notes: Please note that this course is NOT a pre-requisite for Graphical Web Design. Students need not fulfill the requirements for this class to receive credit for the Graphical Web design class if they meet the outcomes of Graphical Web Design.

Semester Credit Hours: 3

Alignment:

Outcomes marked with an asterisk are essential and must be taught.*

Learning Outcomes **The student will be able to:**	**Outcomes and/or Competencies in ODE's REVISED Career Field Technical Content Standards**
1. Articulate how the Internet and World Wide Web function, including the client/server architecture, the role of Internet Service Providers, and apply basic Internet applications*	6.1.1 Describe the basic principles of Hypertext Markup Language (HTML) and its functional relationship with web browsers.
2. Understand the issues related to interface design for the World Wide Web*	6.1.2 Plan a webpage considering subject, devices, audience, layout, color, links, graphics, and Americans with Disabilities Act (ADA) requirements.
3. Explain the nature and functions of Web various Web languages, including but not limited to HTML, XHTML, XML, CSS, JavaScript*	Select and apply scripting languages used in Web development. 6.5.3 Utilize standard Web programming languages (e.g., markup, scripting languages) in Web site development.
4. Create a Web page using a text editor, and standard Web languages*	6.1.5 Create and format ordered and unordered lists on a webpage using HTML list formatting tags. 6.1.6 Create and format a table in a webpage using HTML table formatting tags and attributes 6.1.7 Integrate styles (e.g., inline or external Cascading Style Sheets [CSS]). 6.2.1. Create absolute links and relative links. 6.2.2. Write a Hypertext Markup Language (HTML) anchor that links to another section of the same webpage. 6.2.3. Create hyperlinks that send e-mail messages and download files. 6.2.4 Insert image and wrap text around the image using Cascading

	Style Sheets (CSS). 6.2.5 Resize a graphic image in a webpage using CSS. 6.2.6 Insert audio and video files into a webpage using HTML tags. 6.2.7 Build a hover or mouse-over effect to change the style of a link. 6.4.1. Design a data entry form from specifications that will accept variety of user inputs, (e.g., radio buttons, text entry fields, check boxes, drop-down menus). 6.4.2. Write the Hypertext Markup Language (HTML) code to add a form to a webpage. 6.4.3. Write the HTML code to add text entry fields, radio buttons, check boxes, drop-down menus, and other user inputs to a form. 6.4.4. Explain the concept of a form action. 6.4.5. Write the HTML code to add a working button (e.g., submit, reset) to a form. 6.4.6. Format a completed form using HTML and Cascading Style Sheets (CSS) (e.g., fieldset, tabindex). 6.4.7 Code scripting to interact with data sources (e.g., database, web services).
5. Design a static Web site including page layout and navigation using a text editor*	6.5.1. Implement web programming standards and protocols (e.g., World Wide Web Consortium [W3C], Hypertext Markup Language [HTML] 5). 6.5.2. Plan a website's structure for navigation and usability. 6.5.3. Utilize standard web programming languages (e.g., markup, scripting languages) in website development. 6.5.4. Install and configure a content management system (CMS). 6.5.5. Select an integrated development

	environment (IDE). 6.5.6. Create and edit a webpage template. 6.5.7. Create and attach cascading style sheets (CSS). 6.5.8. Format website layout (e.g., targeted platforms, text formatting, background color, text, tables, lists, iframes). 6.5.9. Incorporate audio and video, forms, and links on a website. 6.5.10. Develop and execute usability tests on a completed website, checking for information accessibility, ease of use, and navigation. 6.5.11. Code a website for cross-platform and cross-browser compatibility and validation. 6.5.12 Publish the completed website to a web server.

5. Graphical Web Site Design: CTAN alignment with the Tech Prep Interactive Media Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

Course Description: Graphical Web Site Design concentrates on the development and Management of Web sites using a WYSIWYG Web site management tool. Students create a multimedia Web site from the project planning stage through usability testing.

Advising Notes: Graphical Web Site Design is a course designed to use software such as Adobe Dreamweaver to create and manage a Web site.

Semester Credits: 3

Alignment:

Outcomes marked with an asterisk are essential and must be taught.*

Learning Outcomes **The student will be able to:**	**Outcomes and/or Competencies in ODE's REVISED Career Field Technical Content Standards**
1. Understand customer needs, information requirements and project scope for Web site development*	7.1.1 Identify the types and uses of interactive media environments (e.g., web-based, kiosks, games, mobile devices, video, print). 7.1.8 Analyze the social and cultural implications of

	interactive media. 7.1.9 Identify major applications for interactive media (e.g., sales and marketing, interactive advertising, education, corporate training, corporate communications, distance learning, news, entertainment). 7.1.10 Identify specific uses for interactive media in each potential market.
2. Create and maintain a Web site using industry standard Web development and management software*	6.1.3 Format the text of a webpage in a WYSIWYG(What You See Is What You Get) editor and in a text editor using HTML formatting tags (e.g., hyperlink, e-mail, table formatting, graphic attributes). 6.1.5 Create and format ordered and unordered lists on a webpage using HTML list formatting tags. 6.1.6 Create and format a table in a webpage using HTML table formatting tags and attributes. 6.1.7 Integrate styles (e.g., inline or external Cascading Style Sheets [CSS]). 6.2.1. Create absolute links and relative links. 6.2.2. Write a Hypertext Markup Language (HTML) anchor that links to another section of the same webpage. 6.2.3. Create hyperlinks that send e-mail messages and download files. 6.2.4 Insert image and wrap text around the image using Cascading Style Sheets (CSS). 6.2.5 Resize a graphic image in a webpage using CSS. 6.2.6 Insert audio and video files into a webpage using HTML tags. 6.2.7 Build a hover or mouse-over effect to change the style of a link. 6.4.1. Design a data entry form from specifications that will accept variety of user inputs, (e.g., radio buttons, text entry fields, check boxes, drop-down menus). 6.4.2. Write the Hypertext Markup Language (HTML)

	code to add a form to a webpage. 6.4.3. Write the HTML code to add text entry fields, radio buttons, check boxes, drop-down menus, and other user inputs to a form. 6.4.4. Explain the concept of a form action. 6.4.5. Write the HTML code to add a working button (e.g., submit, reset) to a form. 6.4.6. Format a completed form using HTML and Cascading Style Sheets (CSS) (e.g., fieldset, tabindex). 6.4.7 Code scripting to interact with data sources (e.g., database, web services).
3. Create a page layout using industry standard Web development and management software*	6.5.1. Implement web programming standards and protocols (e.g., World Wide Web Consortium [W3C], Hypertext Markup Language [HTML] 5). 6.5.2. Plan a website's structure for navigation and usability. 6.5.3. Utilize standard web programming languages (e.g., markup, scripting languages) in website development. 6.5.4. Install and configure a content management system (CMS). 6.5.5. Select an integrated development environment (IDE). 6.5.6. Create and edit a webpage template. 6.5.7. Create and attach cascading style sheets (CSS). 6.5.8. Format website layout (e.g., targeted platforms, text formatting, background color, text, tables, lists, iframes). 6.5.9. Incorporate audio and video, forms, and links on a website. 6.5.10. Develop and execute usability tests on a completed website, checking for information accessibility, ease of use, and navigation.

	6.5.11. Code a website for cross-platform and cross-browser compatibility and validation. 6.5.12 Publish the completed website to a web server.
4. Add multimedia elements to a Web site*	7.2.8. Describe music, video, and special effects to be used. 7.2.9. Provide a sample layout to stakeholders for review. 7.2.10. Select and create visual design elements appropriate for the intended audience and use.
5. Understand a Web site usability test*	2.12.2. Develop a test system that accurately mimics external inte 2.12.3. Develop test cases that are realistic, compare with expect targeted platforms and device types. 2.12.4. Develop, perform, and document usability and testing inte 2.12.5. Make corrections indicated by test results.

6. Digital Video Production: CTAN alignment with the Tech Prep Interactive Media Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

Course Description: Digital Video focuses on the development of video from the pre-production process through the production and post-production phases. Students plan, shoot, edit, and distribute a video as part of a production team. Topics include preparing a script, developing a shot list, videography, editing footage, adding sound tracks, exporting and rendering video for various uses in various formats.

Advising Notes: This course may use several editing platforms and equipment.

Semester Credit Hours: 3

Alignment:

Outcomes marked with an asterisk are essential and must be taught.*

Learning Outcomes **The student will be able to:**	**Outcomes and/or Competencies in ODE's REVISED Career Field Technical Content Standards**
1. Provide technical support tasks of video pre-production*	7.7.1. Identify equipment and other production needs. 7.7.2. Analyze the script and storyboard to develop a production schedule.

	7.7.5 Select a linear or nonlinear editing system and edit the video.
2. Analyze the relationship between the various members of a video production team*	Production: Produce interactive media. 7.3.4. Select the media elements to be used (e.g., sound, video, graphics, text, animation). 7.3.5. Generate text for multi-image presentations (e.g., title graphics, charts, graphs). 7.3.6. Incorporate graphics (e.g., digital, hand-drawn, photographic). 7.3.7. Incorporate computer animation. 7.3.8. Prepare and integrate photographic images and special effects with graphic images. 7.3.9. Incorporate video footage. 7.3.10. Edit video footage. 7.3.11. Record and/or acquire sound track (e.g., narrative, voiceover, sound effects, music). 7.3.12. Integrate sound with visuals. Produce, test, debug, and archive final product.
3. Operate video cameras, camcorders, and other equipment*	7.7.4 Select a video recording format and shoot the video.
4. Identify video formats characteristics, benefits, and limitations*	7.7.4 Select a video recording format and shoot the video.
5. Edit digital video including adding sounds, still images, and sound*	7.7.3. Add transitions (e.g., dissolves, wipes, cuts), titles, special effects, and digital effects. 7.7.4. Add a sound track, narration, and/or voiceover.
6. Import and export digital video*	7.7.8 Export video to desired medium.
7. Utilize a video production cycle for pre-production, production, and post-production*	7.7.2. Analyze the script and storyboard to develop a production schedule. 7.7.8 Export video to desired medium.

7. 3D Modeling and Animation: CTAN alignment with the Interactive Media Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

General Course Description: This course covers the basics of 3-D modeling and animation techniques, including lighting/shadow, textures and cameras. Students learn to identify and use an industry standard 3-D development environment to create characters and graphics.

Semester Credit Hours: 3

Alignment:

Outcomes marked with an asterisk are essential and must be taught.*

Learning Outcomes **The student will be able to:**	**Competencies and/or Descriptors from the Interactive Media Pathway of the Career Field Technical Content Standards – New 2014 Version**
1. Utilize the interface and tools of industry standard 3-D Animation development environments*	7.6.2. Import 2D or 3D assets. 7.6.3. Create key frames and apply tweens and paths. 7.6.4. Create special effects and virtual navigation. 7.6.5. Create 2D or 3D environments. 7.6.6. Render and export animations.
2. Apply the principles of 3-D modeling*	7.6.5. Create 2D or 3D environments. 7.6.7 Create objects using polygon modeling techniques and apply edge loops to complex surfaces.
3. Create, Texture and Render 3-D models using industry standard development environments*	7.6.5. Create 2D or 3D environments. 7.6.6. Render and export animations. 7.6.2. Import 2D or 3D assets. 7.6.8 Apply textures to environments and objects.
4. Perform basic and advanced 3-D animation and image generation techniques*	7.6.3. Create key frames and apply tweens and paths. 7.6.6. Render and export animations. 7.6.9 Apply principles of animation.

8. Electronic Publishing: CTAN alignment with the Tech Prep Interactive Media Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

Course Description: Electronic publishing focuses on the creation of print and electronic documents using industry-standard page-layout software. Students learn to plan, create and distribute electronic publications.

Semester Credit Hours: 3

All Learning Outcomes are essential, and must be taught.

Alignment:

Learning Outcomes **The student will be able to:**	**Competencies and/or Descriptors from the Tech Prep Interactive Media Pathway of the Career Field Technical Content Standards**
1. Plan page-layout projects*	2.9.1. Identify and incorporate branding strategies. 2.9.2. Determine the scope and purpose of the project. 2.9.3. Determine the target audience, client needs, expected outcomes, objectives, and budget. 2.9.4. Develop a conceptual model and design brief for the project. 2.9.5. Develop a timeline, communication plan, task breakdown, costs (e.g., equipment, labor), deliverables, and responsibilities for completion. 2.9.6. Develop and present a comprehensive proposal to stakeholders. 7.4.1. Identify the purpose and intended audience of graphics. 7.2.5. Make preliminary sketches showing placement of images and text on screen. 7.2.9. Provide a sample layout to

	stakeholders for review.
2. Choose appropriate media elements to meet project output needs*	7.4.2. Select color, shape, size, and texture of objects. 7.4.3. Create or acquire graphics. 7.4.4. Manipulate and layer objects. 7.4.5. Differentiate between vector and raster images. 7.4.6. Select an appropriate graphic file format and resolution. 7.4.7. Optimize and export graphics files for intended use. 7.4.8. Select graphic software applications. 7.4.9. Manipulate graphic objects. 7.4.10. Compress and decompress graphic files. 7.2.10. Select and create visual design elements appropriate for the intended audience and use.
3. Understand color models *	7.4.11. Describe and select color profiles (e.g., Red Green Blue [RGB], Cyan Magenta Yellow Key [CMYK], Pantone) 7.2.7. Provide information on color schemes. 7.4.12 Apply color theory.
4. Apply graphic design principles*	7.3.2. Generate text for multi-image presentations (e.g., title graphics, charts, graphs). 7.3.3. Incorporate graphics (e.g., digital, hand-

	drawn, photographic). 7.4.13 Apply principles of design, including unity, variety, balance, movement, emphasis, visual hierarchy and proportion/scale.
5. Integrate knowledge of typography in interactive media projects*	7.5.1. Identify typographic measurements (e.g., picas, points, pixels, and ems). 7.5.2. Mix families of type within a project. 7.5.3. Select appropriate kerning, leading, tracking, and other related formatting. 7.5.4. Identify appropriate typefaces (e.g., serif, sans serif, Web Safe, screen, print). 7.5.5. Prepare a type style guide.