**Sullivan University Online Course Accessibility Guidelines**

508 and WCAG 2.1 Compliance

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# Abstract

In the course of reviewing the [Section 508 Accessibility Standards](https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards), and the [WCAG 2.0](https://www.w3.org/TR/WCAG20/) Instructional Design & Technology uncovered several areas where further action must be taken to ensure compliance of online courses. Kathleen Decker, Instructional Designer, served as Lead Author of these guidelines.

The actions noted in this document have been or are being implemented by the Instructional Design & Technology Team. Instructional designers (ID) have implemented changes in development procedures, online documentation, and departmental websites in order to comply with accessibility guidelines to the Level AA requirements.

# Compliance Issues and Instructional Design & Technology’s Current Compliance Status

In the course of reviewing the [Section 508 Accessibility Standards](https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards), and the [WCAG 2.0](https://www.w3.org/TR/WCAG20/) Instructional Design & Technology has uncovered several areas where further action was taken to ensure compliance of online courses.

While our current learning management system (LMS), Blackboard Ultra claims 508 compliance, this compliance is in *functional accessibility areas* such as keyboard functionality, use of <alt> tags for buttons, or navigation features. Use of the compliant LMS does not automatically ensure that content hung within the system is, in itself, compliant. That compliance requires *authors of content* - in our case instructional designers (ID) as well as subject matter experts (SME) who supply content during course rebuilds, and of teaching faculty who may supplement content in their sections by uploading web based content – to be aware of, and comply with, applicable standards. We have now begun a conscious effort to understand and disseminate those requirements to ensure that we are compliant through content development and course review processes.

Instructional Design & Technology has not yet had students who are visually or hearing impaired. However, lack of current students does not, nor should not, preclude taking a *proactive approach* to accessibility compliance (rather than waiting to use accommodation as the need arises). With the current litigious environment surrounding these issues a proactive approach seems prudent and worthwhile.

Instructional Design & Technology is making several recommendations and has implemented changes required in internal processes to ensure compliance with relevant standards. We have identified six areas of noncompliance:

* Tables that have not used styles and specific attributes for screen readers
* Graphic files without appropriate alt tags
* Math formulas that are graphics or that may lack tags to make them readable
* Audio files/slide narrations without transcripts
* Videos without captioning
* Multimedia that may not have alternate representations/captioning, may have too many things going on at once, do not meet all related guidelines

More background on the accessibility and compliance issues is found in Appendix A. The relevant specific 508 standards are provided in Appendix B.

## Three-Pronged Approach

Our current approach is three-pronged, based upon specified roles and ease of implementation:

* Instructional designers (IDs) have implemented several changes in course development procedures.
  + Tables, Images, Handouts (e.g., Word, PDF), PPT
    - Change in procedures, for example, to include table style/headings for data tables or using image <alt> tags to increase compatibility with screen readers
    - Checking all SME provided handouts for compliance through native accessibility testing
      * Note that portable document files (pdfs) from journal articles or websites pose specific issues that will not be addressed at this stage; see discussion of [pdf files](#PDF) below
  + Research/train on Multimedia requirements
    - Many of our Commercial-Off-The-Shelf (COTS) programs used to develop course enhancements are also ‘compliant’- but authors must ensure compliance during development in similar issues as those cited above
  + Required compliance issues have been documented in our department standards, style guide, internal quality review forms, and procedure manual (in process of development)
* The Department (primarily instructional designers but not limited to) have revised Instructional Design & Technology’s Subject Matter Expert (SME) Training and Instructor Training to include compliance content.
  + Overview of 508 Compliance and WCAG 2.0
  + Specific“how-tos” related to video, audio, handouts, ppts
* Potential Department/University level actions (identified to date). See Appendix C for further recommendations.

### The Special Case of Adobe© Portable Document Files (PDF)

Many of the handouts that are received from SMEs for use within master courses use .pdf format. Once believed to be a necessary format to prevent student edits of master file content, this is now known to not be the case. Any document downloaded onto a student computer to be read/reviewed if edited by the student only edits *the copy* of the file that was downloaded. Edits are not saved to the original file. Thus, as a course development procedure the pdf format is not required.

However, use of pdf format persists. Of primary concern to accessibility is how the pdf file was originally created. Some pdfs are black boxes to screen readers: Scanning a document or a magazine article to pdf creates a picture of the document which is not readable. Converting a document to pdf without taking steps to make the document accessible *before* conversion, also results in a pdf that a screen reader cannot read correctly. Additionally, before conversion you can check to run optical character recognition (OCR) to indicate the document should be accessible, but the result is not perfect.

While one could hope that educational journal articles have been created by publishers and database creators to be accessible, this would be false hope. Regulations concerning accessibility were not originally directed to such documents and databases. Recent department testing of several such journal article pdfs received for a course determined they had many accessibility issues that would be quite time consuming to edit/correct. Thus pdf files become a pain point and raise the question whether it is feasible or too costly to proactively edit such documents for all courses, courses which may never be used by a blind student, or whether the editing/conversion of such pdfs *should be an accommodation process* when an enrolled student requires it.

The following WCAG 2.1 requirements and Instructional Design & Technology’s actions are included in the table below.

## Web Content Accessibility Guidelines (WCAG 2.1) Compliance Standards and Recommended Actions

### Understanding the Four Principles of Accessibility

The guidelines and criteria are organized using four principles that constitute the foundation necessary for anyone to access and use Web content. These four principles are:

Perceivable - Information and user interface components must be presentable to users in ways they can perceive; users must be able to perceive the information being presented (it cannot be invisible to all of their senses).

Operable - User interface components and navigation must be operable; users must be able to operate the interface (the interface cannot require interaction that a user cannot perform).

Understandable - Information and the operation of user interface must be understandable; users must be able to understand the information as well as the operation of the user interface.

Robust - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies; users must be able to access the content as technologies advance.

If any of these are not true, users with disabilities will not be able to use the content on the Web.

Under each of the principles are guidelines and criteria that help to address these principles.

### The WCAG Guidelines

There are 12 guidelines, each with some specific success criteria as shown in table below. Note the levels of compliance (Level A, AA, AAA) for each criteria. In order to meet Level AA, all Level A items must be met.

| Principle | Guideline | Success Criteria | Steps Online IDs are using to meet |
| --- | --- | --- | --- |
| 1 Perceivable | 1.1 Text Alternatives Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language. | 1.1.1 Non-text Content: All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed below. (Level A)  Controls, Input: If non-text content is a control or accepts user input, then it has a name that describes its purpose.   Time-Based Media: If non-text content is time-based media, then text alternatives at least provide descriptive identification of the non-text content.   Test: If non-text content is a test or exercise that would be invalid if presented in text, then text alternatives at least provide descriptive identification of the non-text content.  Sensory: If non-text content is primarily intended to create a specific sensory experience, then text alternatives at least provide descriptive identification of the non-text content.  CAPTCHA: If the purpose of non-text content is to confirm that content is being accessed by a person rather than a computer, then text alternatives that identify and describe the purpose of the non-text content are provided, and alternative forms of CAPTCHA using output modes for different types of sensory perception are provided to accommodate different disabilities.  Decoration, Formatting, Invisible: If non-text content is pure decoration, is used only for visual formatting, or is not presented to users, then it is implemented in a way that it can be ignored by assistive technology. | * Images have alt text * Multimedia components have alternate presentation * Video and multimedia have descriptive tags/descriptions * Tests with pictures/charts require descriptions of the pictures/charts * If there is a sensory element (such as musical experience) include a description * Decorative content such as images that are not instructional use a null alt tag |
|  | 1.2 Time based media Provide alternatives for time-based media. | 1.2.1 Audio-only and Video-only (Prerecorded): For prerecorded audio-only and prerecorded video-only media, the following are true, except when the audio or video is a media alternative for text and is clearly labeled as such: (Level A)  Prerecorded Audio-only: An alternative for time-based media is provided that presents equivalent information for prerecorded audio-only content.  Prerecorded Video-only: Either an alternative for time-based media or an audio track is provided that presents equivalent information for prerecorded video-only content.  1.2.2 Captions (Prerecorded): Captions are provided for all prerecorded audio content in synchronized media, except when the media is a media alternative for text and is clearly labeled as such. (Level A)  1.2.3 Audio Description or Media Alternative (Prerecorded): An alternative for time-based media or audio description of the prerecorded video content is provided for synchronized media, except when the media is a media alternative for text and is clearly labeled as such. (Level A)  1.2.4 Captions (Live): Captions are provided for all live audio content in synchronized media. (Level AA)  1.2.5 Audio Description (Prerecorded): Audio description is provided for all prerecorded video content in synchronized media. (Level AA)  1.2.6 Sign Language (Prerecorded): Sign language interpretation is provided for all prerecorded audio content in synchronized media. (Level AAA)  1.2.7 Extended Audio Description (Prerecorded): Where pauses in foreground audio are insufficient to allow audio descriptions to convey the sense of the video, extended audio description is provided for all prerecorded video content in synchronized media. (Level AAA)  1.2.8 Media Alternative (Prerecorded): An alternative for time-based media is provided for all prerecorded synchronized media and for all prerecorded video-only media. (Level AAA)  1.2.9 Audio-only (Live): An alternative for time-based media that presents equivalent information for live audio-only content is provided. (Level AAA) | * Provide transcripts * Provide Closed Captioning |
|  | 1.3 Adaptable Create content that can be presented in different ways (for example simpler layout) without losing information or structure. | 1.3.1 Info and Relationships: Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. (Level A)  1.3.2 Meaningful Sequence: When the sequence in which content is presented affects its meaning, a correct reading sequence can be programmatically determined. (Level A)  1.3.3 Sensory Characteristics: Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, size, visual location, orientation, or sound. (Level A)  1.3.4 Orientation: Content does not restrict its view and operation to a single display orientation, such as portrait or landscape, unless a specific display orientation is essential. (Level AA)  1.3.5 Identify Input Purpose: The purpose of each input field collecting information about the user can be programmatically determined when:  The input field serves a purpose identified in the Input Purposes for User Interface Components section; and  The content is implemented using technologies with support for identifying the expected meaning for form input data.  1.3.6 Identify Purpose: In content implemented using markup languages, the purpose of User Interface Components, icons, and regions can be programmatically determined. (Level AAA) | * First two are programmatic level, require no action on our part * Do not use any one means to convey information |
|  | 1.4 Distinguishable Make it easier for users to see and hear content including separating foreground from background. | 1.4.1 Use of Color: Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element. (Level A)  1.4.2 Audio Control: If any audio on a Web page plays automatically for more than 3 seconds, either a mechanism is available to pause or stop the audio, or a mechanism is available to control audio volume independently from the overall system volume level. (Level A)  1.4.3 Contrast (Minimum): The visual presentation of text and images of text has a contrast ratio of at least 4.5:1, except for the following: (Level AA)  Large Text: Large-scale text and images of large-scale text have a contrast ratio of at least 3:1;  Incidental: Text or images of text that are part of an inactive user interface component, that are pure decoration, that are not visible to anyone, or that are part of a picture that contains significant other visual content, have no contrast requirement.  Logotypes: Text that is part of a logo or brand name has no minimum contrast requirement.  1.4.4 Resize text: Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality. (Level AA)  1.4.5 Images of Text: If the technologies being used can achieve the visual presentation, text is used to convey information rather than images of text except for the following: (Level AA)  Customizable: The image of text can be visually customized to the user's requirements;  Essential: A particular presentation of text is essential to the information being conveyed.  1.4.6 Contrast (Enhanced): The visual presentation of text and images of text has a contrast ratio of at least 7:1, except for the following: (Level AAA)  Large Text: Large-scale text and images of large-scale text have a contrast ratio of at least 4.5:1;  Incidental: same as above  Logotypes: same as above  1.4.7 Low or No Background Audio: For prerecorded audio-only content that (1) contains primarily speech in the foreground, (2) is not an audio CAPTCHA or audio logo, and (3) is not vocalization intended to be primarily musical expression such as singing or rapping, at least one of the following is true: (Level AAA)  No Background: The audio does not contain background sounds.  Turn Off: The background sounds can be turned off.  20 dB: The background sounds are at least 20 decibels lower than the foreground speech content, with the exception of occasional sounds that last for only one or two seconds.  Note: Per the definition of "decibel," background sound that meets this requirement will be approximately four times quieter than the foreground speech content.  1.4.8 Visual Presentation: For the visual presentation of blocks of text, a mechanism is available to achieve the following: (Level AAA)  Foreground and background colors can be selected by the user.  Width is no more than 80 characters or glyphs (40 if CJK).  Text is not justified (aligned to both the left and the right margins).  Line spacing (leading) is at least space-and-a-half within paragraphs, and paragraph spacing is at least 1.5 times larger than the line spacing.  Text can be resized without assistive technology up to 200 percent in a way that does not require the user to scroll horizontally to read a line of text on a full-screen window.  1.4.9 Images of Text (No Exception): Images of text are only used for pure decoration or where a particular presentation of text is essential to the information being conveyed. (Level AAA)  1.4.10 Reflow: Content can be presented without loss of information or functionality, and without requiring scrolling in two dimensions for:  Vertical scrolling content at a width equivalent to 320 CSS pixels;  Horizontal scrolling content at a height equivalent to 256 CSS pixels.  Except for parts of the content which require two-dimensional layout for usage or meaning. (Level AA)  1.4.11 Non-text Contrast: The visual presentation of the following have a contrast ratio of at least 3:1 against adjacent color(s):  User Interface Components  Visual information required to identify user interface components and states, except for inactive components or where the appearance of the component is determined by the user agent and not modified by the author;  Graphical Objects  Parts of graphics required to understand the content, except when a particular presentation of graphics is essential to the information being conveyed. (Level AA)  1.4.12 Text Spacing: In content implemented using markup languages that support the following text style properties, no loss of content or functionality occurs by setting all of the following and by changing no other style property:  Line height (line spacing) to at least 1.5 times the font size;  Spacing following paragraphs to at least 2 times the font size;  Letter spacing (tracking) to at least 0.12 times the font size;  Word spacing to at least 0.16 times the font size.  Exception: Human languages and scripts that do not make use of one or more of these text style properties in written text can conform using only the properties that exist for that combination of language and script. (Level AA)  1.4.13 Content on Hover or Focus: Where receiving and then removing pointer hover or keyboard focus triggers additional content to become visible and then hidden, the following are true:  Dismissable: A mechanism is available to dismiss the additional content without moving pointer hover or keyboard focus, unless the additional content communicates an input error or does not obscure or replace other content;  Hoverable: If pointer hover can trigger the additional content, then the pointer can be moved over the additional content without the additional content disappearing;  Persistent: The additional content remains visible until the hover or focus trigger is removed, the user dismisses it, or its information is no longer valid.  Exception: The visual presentation of the additional content is controlled by the user agent and is not modified by the author. | * Do not use only color to convey information * Use good color contrast levels in all pages and multimedia * Check ppt templates for contrast * Test web pages/sites for resizing functionality * Maintain a way to control width of text on screen * No horizontal scrolling * No images of text |
| 2 Operable | 2.1 Keyboard accessible Make all functionality available from a keyboard. | **2.1.1 Keyboard:** All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints. (Level A)  2.1.2 No Keyboard Trap: If keyboard focus can be moved to a component of the page using a keyboard interface, then focus can be moved away from that component using only a keyboard interface, and, if it requires more than unmodified arrow or tab keys or other standard exit methods, the user is advised of the method for moving focus away. (Level A)  2.1.3 Keyboard (No Exception): All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes. (Level AAA)  2.1.4 Character Key Shortcuts: If a keyboard shortcut is implemented in content using only letter (including upper- and lower-case letters), punctuation, number, or symbol characters, then at least one of the following is true:  Turn off: A mechanism is available to turn the shortcut off;  Remap: A mechanism is available to remap the shortcut to use one or more non-printable keyboard characters (e.g. Ctrl, Alt, etc);  Active only on focus: The keyboard shortcut for a user interface component is only active when that component has focus. (Level A) | * Functional N/A |
|  | 2.2 Enough time Provide users enough time to read and use content. | 2.2.1 Timing Adjustable: For each time limit that is set by the content, at least one of the following is true: (Level A)  Turn off: The user is allowed to turn off the time limit before encountering it; or  Adjust: The user is allowed to adjust the time limit before encountering it over a wide range that is at least ten times the length of the default setting; or  Extend: The user is warned before time expires and given at least 20 seconds to extend the time limit with a simple action (for example, "press the space bar"), and the user is allowed to extend the time limit at least ten times; or  Real-time Exception: The time limit is a required part of a real-time event (for example, an auction), and no alternative to the time limit is possible; or  Essential Exception: The time limit is essential and extending it would invalidate the activity; or  20 Hour Exception: The time limit is longer than 20 hours.  Note: This success criterion helps ensure that users can complete tasks without unexpected changes in content or context that are a result of a time limit. This success criterion should be considered in conjunction with Success Criterion 3.2.1, which puts limits on changes of content or context as a result of user action.  2.2.2 Pause, Stop, Hide: For moving, blinking, scrolling, or auto-updating information, all of the following are true: (Level A)  Moving, blinking, scrolling: For any moving, blinking or scrolling information that (1) starts automatically, (2) lasts more than five seconds, and (3) is presented in parallel with other content, there is a mechanism for the user to pause, stop, or hide it unless the movement, blinking, or scrolling is part of an activity where it is essential; and  Auto-updating: For any auto-updating information that (1) starts automatically and (2) is presented in parallel with other content, there is a mechanism for the user to pause, stop, or hide it or to control the frequency of the update unless the auto-updating is part of an activity where it is essential.  Since any content that does not meet this success criterion can interfere with a user's ability to use the whole page, all content on the Web page (whether it is used to meet other success criteria or not) must meet this success criterion  Content that is updated periodically by software or that is streamed to the user agent is not required to preserve or present information that is generated or received between the initiation of the pause and resuming presentation, as this may not be technically possible, and in many situations could be misleading to do so.  An animation that occurs as part of a preload phase or similar situation can be considered essential if interaction cannot occur during that phase for all users and if not indicating progress could confuse users or cause them to think that content was frozen or broken.  2.2.3 No Timing: Timing is not an essential part of the event or activity presented by the content, except for non-interactive synchronized media and real-time events. (Level AAA)  2.2.4 Interruptions: Interruptions can be postponed or suppressed by the user, except interruptions involving an emergency. (Level AAA)  2.2.5 Re-authenticating: When an authenticated session expires, the user can continue the activity without loss of data after re-authenticating. (Level AAA)  2.2.6 Timeouts: Users are warned of the duration of any user inactivity that could cause data loss, unless the data is preserved for more than 20 hours when the user does not take any actions. (Level AAA) | * Time adjustment usually made during accommodation * Time allotted described and warning provided * Multimedia does not automatically advance but allows user control * If there are timing items such as in video, user controls allow pausing, stopping, resuming * Do not use blinking content |
|  | 2.3 Seizures Do not design content in a way that is known to cause seizures. | 2.3.1 Three Flashes or Below Threshold: Web pages do not contain anything that flashes more than three times in any one second period, or the flash is below the general flash and red flash thresholds. (Level A)  2.3.2 Three Flashes: Web pages do not contain anything that flashes more than three times in any one second period. (Level AAA)  2.3.3 Animation from Interactions: Motion animation triggered by interaction can be disabled, unless the animation is essential to the functionality or the information being conveyed. (Level AAA) | * Do not use flashing content |
|  | 2.4 Provide ways to help users navigate, find content, and determine where they are. | 2.4.1 Bypass Blocks: A mechanism is available to bypass blocks of content that are repeated on multiple Web pages. (Level A)  2.4.2 Page Titled: Web pages have titles that describe topic or purpose. (Level A)  2.4.3 Focus Order: If a Web page can be navigated sequentially and the navigation sequences affect meaning or operation, focusable components receive focus in an order that preserves meaning and operability. (Level A)  2.4.4 Link Purpose (In Context): The purpose of each link can be determined from the link text alone or from the link text together with its programmatically determined link context, except where the purpose of the link would be ambiguous to users in general. (Level A)  2.4.5 Multiple Ways: More than one way is available to locate a Web page within a set of Web pages except where the Web Page is the result of, or a step in, a process. (Level AA)  2.4.6 Headings and Labels: Headings and labels describe topic or purpose. (Level AA)  2.4.7 Focus Visible: Any keyboard operable user interface has a mode of operation where the keyboard focus indicator is visible. (Level AA)  2.4.8 Location: Information about the user's location within a set of Web pages is available. (Level AAA)  2.4.9 Link Purpose (Link Only): A mechanism is available to allow the purpose of each link to be identified from link text alone, except where the purpose of the link would be ambiguous to users in general. (Level AAA)  2.4.10 Section Headings: Section headings are used to organize the content. (Level AAA) | * Largely functional, N/A to us * Provide section headings, page titles, in text heading styles * Use descriptive link text that describes the destination, not urls or ‘click here’ text |
|  | Guideline 2.5 Input Modalities  Make it easier for users to operate functionality through various inputs beyond keyboard. | 2.5.1 Pointer Gestures: All functionality that uses multipoint or path-based gestures for operation can be operated with a single pointer without a path-based gesture, unless a multipoint or path-based gesture is essential. (Level A)  Note: This requirement applies to web content that interprets pointer actions (i.e. this does not apply to actions that are required to operate the user agent or assistive technology)  2.5.2 Pointer Cancellation:For functionality that can be operated using a single pointer, at least one of the following is true:  No Down-Event: The down-event of the pointer is not used to execute any part of the function;  Abort or Undo: Completion of the function is on the up-event, and a mechanism is available to abort the function before completion or to undo the function after completion;  Up Reversal: The up-event reverses any outcome of the preceding down-event;  Essential: Completing the function on the down-event is essential. (Level A)  2.5.3 Label in Name:For user interface components with labels that include text or images of text, the name contains the text that is presented visually.  Note  A best practice is to have the text of the label at the start of the name. (Level A)  2.5.4 Motion Actuation: Functionality that can be operated by device motion or user motion can also be operated by user interface components and responding to the motion can be disabled to prevent accidental actuation, except when:  Supported Interface: The motion is used to operate functionality through an accessibility supported interface;  Essential: The motion is essential for the function and doing so would invalidate the activity. (Level A)  2.5.5 Target Size: The size of the target for pointer inputs is at least 44 by 44 CSS pixels except when:  Equivalent: The target is available through an equivalent link or control on the same page that is at least 44 by 44 CSS pixels;  Inline: The target is in a sentence or block of text;  User Agent Control: The size of the target is determined by the user agent and is not modified by the author;  Essential: A particular presentation of the target is essential to the information being conveyed. (Level AAA)  2.5.6 Concurrent Input Mechanisms: Web content does not restrict use of input modalities available on a platform except where the restriction is essential, required to ensure the security of the content, or required to respect user settings. (Level AAA) |  |
| 3 Under-standable | 3.1 Readable Make text content readable and understandable. | 3.1.1 Language of Page: The default human language of each Web page can be programmatically determined. (Level A)  3.1.2 Language of Parts: The human language of each passage or phrase in the content can be programmatically determined except for proper names, technical terms, words of indeterminate language, and words or phrases that have become part of the vernacular of the immediately surrounding text. (Level AA)  3.1.3 Unusual Words: A mechanism is available for identifying specific definitions of words or phrases used in an unusual or restricted way, including idioms and jargon. (Level AAA)  3.1.4 Abbreviations: A mechanism for identifying the expanded form or meaning of abbreviations is available. (Level AAA)  3.1.5 Reading Level: When text requires reading ability more advanced than the lower secondary education level after removal of proper names and titles, supplemental content, or a version that does not require reading ability more advanced than the lower secondary education level, is available. (Level AAA)  3.1.6 Pronunciation: A mechanism is available for identifying specific pronunciation of words where meaning of the words, in context, is ambiguous without knowing the pronunciation. (Level AAA) | * Some programmatic N/A * Define jargon, acronyms, abbreviations * Foreign/difficult words (such as medical terms) could provide pronunciation guides |
|  | 3.2 Predictable Make Web pages appear and operate in predictable ways. | 3.2.1 On Focus: When any component receives focus, it does not initiate a change of context. (Level A)  3.2.2 On Input: Changing the setting of any user interface component does not automatically cause a change of context unless the user has been advised of the behavior before using the component. (Level A)  3.2.3 Consistent Navigation: Navigational mechanisms that are repeated on multiple Web pages within a set of Web pages occur in the same relative order each time they are repeated, unless a change is initiated by the user. (Level AA)  3.2.4 Consistent Identification: Components that have the same functionality within a set of Web pages are identified consistently. (Level AA)  3.2.5 Change on Request: Changes of context are initiated only by user request or a mechanism is available to turn off such changes. (Level AAA) | * Most functional N/A * Change of focus user controlled |
|  | 3.3 Input assistance Help users avoid and correct mistakes. | 3.3.1 Error Identification: If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text. (Level A)  3.3.2 Labels or Instructions: Labels or instructions are provided when content requires user input. (Level A)  3.3.3 Error Suggestion: If an input error is automatically detected and suggestions for correction are known, then the suggestions are provided to the user, unless it would jeopardize the security or purpose of the content. (Level AA)  3.3.4 Error Prevention (Legal, Financial, Data): For Web pages that cause legal commitments or financial transactions for the user to occur, that modify or delete user-controllable data in data storage systems, or that submit user test responses, at least one of the following is true: (Level AA)  Reversible: Submissions are reversible.  Checked: Data entered by the user is checked for input errors and the user is provided an opportunity to correct them.  Confirmed: A mechanism is available for reviewing, confirming, and correcting information before finalizing the submission.  3.3.5 Help: Context-sensitive help is available. (Level AAA)  3.3.6 Error Prevention (All): For Web pages that require the user to submit information, at least one of the following is true: (Level AAA)  Reversible: Submissions are reversible.  Checked: Data entered by the user is checked for input errors and the user is provided an opportunity to correct them.  Confirmed: A mechanism is available for reviewing, confirming, and correcting information before finalizing the submission. | * Mostly functional for tests and forms * Online forms use labels |
| 4 Robust | 4.1 Compatible Maximize compatibility with current and future user agents, including assistive technologies. | 4.1.1 Parsing: In content implemented using markup languages, elements have complete start and end tags, elements are nested according to their specifications, elements do not contain duplicate attributes, and any IDs are unique, except where the specifications allow these features. (Level A)  Note: Start and end tags that are missing a critical character in their formation, such as a closing angle bracket or a mismatched attribute value quotation mark are not complete.  4.1.2 Name, Role, Value: For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. (Level A)  Note: This success criterion is primarily for Web authors who develop or script their own user interface components. For example, standard HTML controls already meet this success criterion when used according to specification.  4.1.3 Status Messages: In content implemented using markup languages, status messages can be programmatically determined through role or properties such that they can be presented to the user by assistive technologies without receiving focus. (Level AA) | * HTML used within Blackboard checked for errors |
| Source: [Web Content Accessibility Guidelines (WCAG) 2.0](https://www.w3.org/TR/WCAG20/) | | | |

## Video Policies

Video captioning remains the largest issue that currently impedes compliance to Level AA. We have taken/adopted these actions in order to identify steps required to comply:

* Captioning – research has been conducted
  + Vet captioning providers to ascertain services, accuracy, process, and cost
  + Investigate legal issue – Copyright vs compliance, see discussion below
* Develop a department level Video policy
  + Create training aids for 508 Compliance in video captioning for subject matter experts (SME)
  + Create a “Guideline for Selection and Use of Video in Online Master Courses,” see Appendix C

### The Special Case of Video Captions

The department has researched and vetted vendors for video captioning compliance. We continue to discuss options for creating a video use policy for online courses. To date most videos used within online courses have not been created by University personnel, but are third-party videos such as those from TEDTalks or YouTube.

#### Video Caption Services

There are several issues identified with closed captioning requirements. First, all videos that exist on the web are not automatically captioned. We can and will train subject matter experts to search for already captioned videos, but that will not preclude finding, or wishing to use, some videos that are of good educational quality but are not captioned or captioned to the required accuracy level.

Additionally, on Feb. 20, 2014 the FCC revised their [captioning requirements](https://www.fcc.gov/document/closed-captioning-quality-report-and-order-declaratory-ruling-fnprm) to raise the accuracy level to 99%. While this is for the broadcast medium such as television shows per se, it appears to have become the standard within the vendor captioning arena. Some video sites already caption all videos and state they are 99% accurate. However for sites such as YouTube, their captioning option is known to only be 70-80% accurate (machine captioned only), if used by the video creator at all.

Copyright Issues  
A second issue is of course copyright ownership of third party video. Either we restrict our video use to those videos whose owners allow us to use them, or we find a way to overcome this issue such as proving ‘fair use’ for educational purposes. Finding copyright owners of YouTube videos for example could quickly become unfeasible - time consuming to locate the owner, the likely untimely response of some creators to our request for permission, and in some cases denial of that permission, all would confound course creation.

It is however possible to caption third party videos without breaking copyright laws. If you create captions but do not break the original video’s digital rights management (DRM) codes, you are not then breaking copyright. We have found a vendor who has just such a solution using a free plugin and a special embed code that superimposes (what would be our) closed captions (once we purchase them) over the video as our students watch the videos. These captions are guaranteed to be at the FCC recommended 99% accuracy rating. Also only our students would be able to see this captioning when watching the video, therefore copyright is no longer an issue.

### **Proposed Actions**

Video captioning services could be expensive based on the quantity of legacy video needing captions in our approximately 550 courses. The vendor mentioned above charges $2.50 per minute of video but includes captions, transcripts, and multiple download formats for using them in that price. Vendor prices range from $1.00 per minute (for captions only, no transcripts or interactive captioning and sometimes machine only captioning) to $5-6.00 per minute.

Our current thoughts to control costs include:

1. Encourage use of already captioned video from sites such as TEDTalks or Khan Academy. SMEs (and faculty) can search for closed captioned video even on sites such as YouTube (simply add “, cc” after your search term).
2. Require SMEs to vet videos for the existence, and the accuracy of, captions in any newly identified video during course development. This requires we adopt a video policy that can be clearly communicated to SME when contracted for course development.
3. Determine if there are any limits to how much video any one course may request to be captioned. Create a request form to provide an educational rationale for using a video that is not already captioned to the level required or that is longer than the recommended time length for online to caption the video.
4. Ensure faculty and subject matter experts are trained in how to create captioning when developing their own videos.
5. Utilize student interns to assist in developing transcripts and captioning using mechanical and do-it-yourself methods.
6. Implement a plan to caption legacy video in courses currently being used.
   1. Begin by captioning video in recently completed development, working backwards for 2 years from term when process begins.
   2. Develop captions for courses during their regular 3-year cycle redevelopment if legacy videos are to continue to be used.

These are all potential elements of a department level video guideline/policy not yet finalized. We have implemented items 1 and 2, and item 4 is in process.

In a recent [update to the specific NAD vs. Harvard/MIT court case](https://www.insidehighered.com/news/2019/04/08/mit-and-harvard-fail-get-out-video-captioning-court-case) that centers on the use of closed captioning we are currently focusing on those videos being *created by our SMEs* within our online courses. The university currently uses the Panopto platform which has video creation capabilities, among which is a closed captioning, machine capture, option. While this option must be turned on, and its results are not 99% accurate, training our SMEs to use this feature is our current priority. Depending on the eventual rulings and resolution of the Harvard case we may not be liable for the captioning of third-party videos linked to within our courses. We continue to monitor this issue.

## Testing for Compliance

Testing for compliance needs to occur at several levels. The first defense is of course to test at the individual document/content page level. Many of the document creation applications we already use contain a “Check for Accessibility” feature that will test and inform the author of items that are not compliant. We have included this as part of the SME training as well as part of the SME responsibility to complete prior to content submission. However, we know that not all documents received will be compliant (such as most PowerPoint presentations). This will be an ongoing training issue for SMEs.

We are currently searching for free online testing apps to potentially use for this purpose.

Further we recommend adding a compliance check to the internal course QA review processes in the department.

At this time this area of research is not complete and would be part of our ongoing efforts to achieve compliance.

## Projected Timeline for Implementation

The WCAG 2.0 guidance outlines three levels of compliance:

* Level A: minimum level of conformance, the Web page satisfies all the Level A Success Criteria, or a conforming alternate version is provided.
* Level AA: the Web page satisfies all the Level A and Level AA Success Criteria, or a Level AA conforming alternate version is provided.
* Level AAA: the Web page satisfies all the Level A, Level AA and Level AAA Success Criteria, or a Level AAA conforming alternate version is provided.

In some guidelines Instructional Design & Technology is already compliant. Our goal is to establish a new baseline of being Level A compliant wherever possible within the next 6 months. Level AA compliance may be possible as a long-term goal but will require a video captioning solution.

We have implemented new procedures in all new master course content development. It is not feasible to examine over 600 existing courses in a timely manner. Therefore existing courses will be examined/edited for compliance issues during the next redevelopment of the course. In the event of an enrolled student who requires compliant materials within a specific course, that course will be examined/edited in time for use during the term required.

## Implications for Sullivan University

Many of the standards apply to other online content such as videos or forms used on the university’s website: videos require captioning, forms require keyboard and error preventing actions (among other things). These are beyond Instructional Design & Technology’s span of control but we recommend that key individuals be made aware of 508 compliance issues (if they are already not aware).

Also at this time every face-to-face class has an online presence through the LMS. The university needs to facilitate a process to ensure faculty creating/posting videos for students to view through the LMS comply with the video captioning requirements. This could be a large issue (as it is the same issue being faced by Harvard at this time), as lecture capture and Camtasia creations/demonstrations require the same captions as all other video.

This and other potential accessibility issues remain outside the scope of this document.

# Appendix A: Background

In 1973 the government of the United States set in motion a series of Civil Rights laws designed to eliminate discrimination on the basis of disability beginning with [Section 504 of the Rehabilitation Act](https://www.dol.gov/agencies/oasam/centers-offices/civil-rights-center/statutes/section-504-rehabilitation-act-of-1973" \t "_blank). (You could also review: [The Civil Rights of Students with Hidden Disabilities Under Section 504 of the Rehabilitation Act of 1973](https://www2.ed.gov/about/offices/list/ocr/docs/hq5269.html) for a shorter synopsis.) Followed by the [Individuals with Disabilities Education Act (IDEA)](http://www2.ed.gov/policy/speced/leg/idea/history.html) in1975, the [American with Disabilities Act (ADA)](http://www.ada.gov/2010_regs.htm) in 1990, [Section 508 of the Rehabilitation Act in 1998](http://www.section508.gov/content/learn), and the [ADA Amendments Act in 2008](http://www2.ed.gov/about/offices/list/ocr/docs/dcl-504faq-201109.html), our government has continued to clarify and expand not just the definition of disability or disabled persons but also the actions required to eliminate discrimination beyond the sphere of government agencies and the K-12 public education arena.

In 2010 the Justice Department and the Education Department crafted a [joint letter](http://www.ada.gov/kindle_ltr_eddoj.htm) to College and University presidents to outline their concerns regarding the accessibility of emerging technologies in educational settings. In part they stated that

“Congress found when enacting the ADA that individuals with disabilities were uniquely disadvantaged in American society in critical areas such as education… Providing individuals with disabilities full and equal access to educational opportunities is as essential today as it was when the ADA was passed.  In a Proclamation for National Disability Employment Awareness Month, President Obama underscored the need to "*strengthen and expand* the educational opportunities for individuals with disabilities," noting that, "[i]f we are to build a world free from unnecessary barriers . . .we must ensure that every American receives an education that prepares him or her for future success."  <http://www.whitehouse.gov/the-press-office/presidential-proclamation-national-disability-employment-awareness-month> (September 30, 2009) (emphasis added).”

Citing multiple laws and sections of these laws aforementioned, they asked the presidents to “…ensure that America's technological advances are used for the benefit of all students.” (<http://www.ada.gov/kindle_ltr_eddoj.htm>).

In this same timeframe we witnessed the arrival and maturity of the World Wide Web. A [consortium (W3C) of volunteers](https://www.w3.org/TR/WCAG20/) arose to outline standards and actions to be taken to ensure the future of the web, and accessibility of web content for all users of the web (<https://www.w3.org/> ). Subsequently there is now a set of standards, the [Web Content Accessibility Guidelines (WCAG) 2.0](https://www.w3.org/TR/WCAG20/) that is due to be incorporated into a 508 ‘refresh’ - currently slated for completion in 2018. Section 508 will cross reference to the specific guidelines of the WCAG 2.0.

Further, there have now been a series of lawsuits against universities and private businesses based upon accessibility issues (http://www.d.umn.edu/~lcarlson/atteam/lawsuits.html). These have led to settlements as well as judgements against the businesses/universities over a variety of accessibility issues to include: video captioning, inaccessible documents such as Microsoft Word, PowerPoint, or Excel handouts used in both face-to-face and online content, or inaccessible learning management systems and other software applications being used in course content. Currently Harvard and MIT have been sued by the National Association for the Deaf (NAD) charging that the schools discriminate against deaf and hard of hearing people by failing to caption the vast and varied array of online content they make available to the general public. This decision is pending but the U.S. [Department of Justice has issued a statement of interest](http://www.3playmedia.com/2015/06/26/usdoj-sides-with-nad-in-web-accessibility-lawsuit-against-harvard-mit/%3e.) and has sided with the NAD

In light of these issues, Instructional Design & Technology embarked upon research into the requirements/standards to be addressed in order for Instructional Design & Technology to be 508 and WACG 2.0 compliant.

# Appendix B. Extract From Section 508: Relevant to Instructional Design & Technology Content

**1194.22 Web-based intranet and internet information and applications.**

(a) A text equivalent for every non-text element shall be provided (e.g., via “alt”, “longdesc”, or in element content).

(b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.

(c) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.

(d) Documents shall be organized so they are readable without requiring an associated style sheet.

(e) Redundant text links shall be provided for each active region of a server-side image map.

(f) Client-side image maps shall be provided instead of server-side image maps except where the regions cannot be defined with an available geometric shape.

(g) Row and column headers shall be identified for data tables.

(h) Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.

(i) Frames shall be titled with text that facilitates frame identification and navigation.

(j) Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.

(k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.

(l) When pages utilize scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology.

(m) When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with §1194.21(a) through (l).

(n) When electronic forms are designed to be completed on-line, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.

(o) A method shall be provided that permits users to skip repetitive navigation links.

(p) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.

Note to §1194.22: 1. The Board interprets paragraphs (a) through (k) of this section as consistent with the following priority 1 Checkpoints of the Web Content Accessibility Guidelines 1.0 (WCAG 1.0) (May 5, 1999) published by the Web Accessibility Initiative of the World Wide Web Consortium:

| Section 1194.22 Paragraph | WCAG 1.0 Checkpoint |
| --- | --- |
| (a) | 1.1 |
| (b) | 1.4 |
| (c) | 2.1 |
| (d) | 6.1 |
| (e) | 1.2 |
| (f) | 9.1 |
| (g) | 5.1 |
| (h) | 5.2 |
| (i) | 12.1 |
| (j) | 7.1 |
| (k) | 11.4 |

2. Paragraphs (l), (m), (n), (o), and (p) of this section are different from WCAG 1.0. Web pages that conform to WCAG 1.0, level A (i.e., all priority 1 checkpoints) must also meet paragraphs (l), (m), (n), (o), and (p) of this section to comply with this section. WCAG 1.0 is available at http://www.w3.org/TR/1999/WAI-WEBCONTENT-19990505.

**1194.24   Video and multimedia products.**

(a) All analog television displays 13 inches and larger, and computer equipment that includes analog television receiver or display circuitry, shall be equipped with caption decoder circuitry which appropriately receives, decodes, and displays closed captions from broadcast, cable, videotape, and DVD signals. As soon as practicable, but not later than July 1, 2002, widescreen digital television (DTV) displays measuring at least 7.8 inches vertically, DTV sets with conventional displays measuring at least 13 inches vertically, and stand-alone DTV tuners, whether or not they are marketed with display screens, and computer equipment that includes DTV receiver or display circuitry, shall be equipped with caption decoder circuitry which appropriately receives, decodes, and displays closed captions from broadcast, cable, videotape, and DVD signals.

(b) Television tuners, including tuner cards for use in computers, shall be equipped with secondary audio program playback circuitry.

(c) All training and informational video and multimedia productions which support the agency’s mission, regardless of format, that contain speech or other audio information necessary for the comprehension of the content, shall be open or closed captioned.

(d) All training and informational video and multimedia productions which support the agency’s mission, regardless of format, that contain visual information necessary for the comprehension of the content, shall be audio described.

(e) Display or presentation of alternate text presentation or audio descriptions shall be user-selectable unless permanent

# Appendix C. Guidelines for Selection and Use of Video in Online Master Courses

* Instructional Design & Technology ensures videos used in online master courses comply with closed caption requirements. Sullivan University library videos sources are already being captioned by library staff.
* SMEs should search for already closed captioned third party videos appropriate for their topics. Do this by adding “,cc” to the end of the search terms being used on the video site.
* If videos are created by Subject Matter Experts (SME) they must include closed captions within the video during its development.
* The automatic/machine captioning capabilities of Panopto and Camtasia may be used to caption videos. After captioning is completed, the SME is responsible for listening to the completed video and editing captions as needed to make them accurate. If other applications are used, they must be capable of editing captions.
* All videos must be fully vetted by the SME for content relevance and captioning accuracy. SME should identify whether each video has accurate captions (or not) within the Weekly Content Template when content is submitted for use.
* Videos should be no more than 30 minutes in length.
  + If longer video is requested for use the SME indicates the video within the Weekly Content Template when submitting content for development.
  + The ID will send SME a “Request for Video Use” that includes an opportunity for the SME to explain why the video should be used despite its length/lack of captioning, for example if it provides direct instructional content for a stated course goal, or if it was created by/includes a leader in the field being studied.
  + This request is then returned to the Instructional Designer, who will forward to the Associate Provost for Instruction & Online Learning for approval.

**Video Request Form**

**Course Name and Number:  
Date:  
Requested by:**

The purpose of this form is to identify use of videos that exceed the suggested time limits or otherwise require an exception to Instructional Design & Technology’s Video guidelines. Requested use will be reviewed and considered. If the number and length of videos is excessive, the Associate Provost for Instruction and Online Learning retains the right to determine if the video requirements needs to be rescheduled for future development.

|  |  |  |
| --- | --- | --- |
| **Video Title and Topic** | **URL (Source of the Video)** | **Educational Justification for Use of the Video** |
|  |  |  |
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