

Introduction to Electronic and Web Accessibility:

What You Need to Know and How to Self-Assess

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The Illinois Center for Specialized Professional Support (ICSPS) creates, supports, and delivers professional development for career and technical education professionals across Illinois. ICSPS provides technical assistance, develops publications, and facilitates program improvement strategies for our partners as they relate to college transition, recruitment, retention, and completion—encouraging achievement of special populations learners.

Our work with special populations has given us opportunities to work on a number of issues related to supporting students with disabilities in Illinois. We also have extensive work experience related to civil rights compliance. The intersection of these two subject areas in the topic of online accessibility fits perfectly with ICSPS's commitment to assisting the community college system in increasing educational equity across the state.

Purpose of Electronic Accessibility:

“With the rapidly growing use of social media, electronic information and the internet, it is particularly important that our use of web sites, social media, and other electronic information comply with federal legal requirements for accessibility. In addition to our legal obligations, Secretary Duncan has stated that access to information... for all, especially individuals with disabilities, is ‘a necessary step toward fully engaging our colleges in ways that will help address our education system’s greatest challenges and promote the successful work of schools across the country’.”

Department of Education Memorandum to Assistant Secretaries, September, 2011 – Quoting Former Secretary of Education Arne Duncan

- Creating accessible content requires consideration of users with a wide range of disabilities including: visual, auditory, physical, speech, cognitive, language, learning, and neurological disabilities.
- People with disabilities may make use of user agents (devices that allow users to access content) ranging from standard features on web browsers and media players to complex assistive technologies.

Common Onboard Accessibility features:

- Screen magnification
- Screen readers and voice recorders (MS Office)
- Sticky Keys (allows for one hand keyboard operation)
- Ability to disengage page style sheet.

Examples of assistive technology:

- Text-to-speech software
- Audio recording devices
- Screen Magnification programs
- Closed Captioning
- Screen navigation devices

World Wide Web Consortium's 4 Principles of Accessibility

- **Perceivable** - Information and user interface components must be presentable to all users in ways they can perceive. They cannot be invisible.
- **Operable** - User interface components and navigation must be operable. the interface cannot require interaction that a user cannot perform
- **Understandable** - Information and the operation of user interface must be understandable.
- **Robust** - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.
(as technologies and user agents evolve, the content should remain accessible)

Federal Legislation Governing Online Accessibility

Section 504 of the Rehabilitation Act

“No otherwise qualified individual with a disability in the United States... shall, solely by reason of her or his disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”

This statement applies to all programs receiving federal funding. Lack of access to information is considered a form of discrimination.

Section 508 of the Reauthorization of the Rehabilitation Act

This element of the Rehabilitation act clarifies the meaning of 504 related to electronic communication. It is applicable to Federal agencies but outlines, for the first time, an accessibility standard and compliance language for web accessibility.

Its purpose is to ensure “when Federal agencies develop, procure, maintain, or use electronic and information technology, Federal employees with disabilities have access to and use of information and data that is comparable to the access and use by Federal employees who are not individuals with disabilities”

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act does not directly deal with the internet or web based technologies. Yet, both Title II and Title III are applicable.

- Title II: communication with individuals with disabilities to be "as effective as communications with others".
- Title III: provides guidelines for providing public accommodations for individuals with disabilities.

Illinois Legislation Governing Online Accessibility

Illinois Information Technology Accessibility Act (IITAA)

Requires Illinois agencies and universities to ensure that their web sites, information systems, and information technologies are accessible to people with disabilities.

- Specifically defines the a range of disabilities that must be accommodated
 - People with Limited Vision
 - People who are Blind
 - People with Hearing Loss
 - People who are Deaf
 - People with Limited Speech
 - People with No Speech
 - People with No Speech
 - People with No Reach or Touch

The IITAA expands upon the requirements of 508. It provides what, why and how guidance for all of its compliance standards. Additional requirements are drawn heavily from a WC3 guidance document that is cited explicitly in 508 as a standard of accessibility. However, 508 seems to address priority 1 issues while the IITAA expands their guidance to other best practices.

What are the Standards?

The full standards can be found via the following links:

Section 508: <https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards>

IITAA: <http://www.dhs.state.il.us/IITAA/IITAAStandards.html>

WC3: provides web content accessibility guidelines that go beyond the legislative requirements and provide a series of best practices. <https://www.w3.org/TR/WCAG20/>

The IITAA divides its web-based standards into 18 categories.

1. Coding
2. Text
3. Colors
4. Images
5. Image Maps
6. Sound
7. Multimedia
8. Animation
9. Links
10. Forms
11. Tables
12. Frames
13. Scripts
14. Embedded Objects
15. Downloadable Documents
16. Timing
17. Page Layout
18. Alternate Accessible Version

Example of IITAA Guidance

15.1 - Provide natively accessible downloadable documents whenever possible.

What:

Downloadable documents are often provided in formats such as Adobe Acrobat Portable Document Format (PDF), Microsoft Word, Microsoft PowerPoint, etc. Each document format has its own accessibility issues and may or may not provide appropriate techniques to address accessibility. A document is considered natively accessible if it follows the accessibility techniques for its format.

How:

Check with the manufacturer and/or publisher of the format of a downloadable document to determine if and how it can be made accessible. If accessibility techniques exist, ensure that the downloadable document fully implements these techniques and meets the functional performance criteria defined in these standards.

Section 1: Coding

- 1.1 - Use valid, standard web programming code.
- 1.2 - Use appropriate markup to convey document structure.
- 1.3 - Provide meaningful page titles.
- 1.4 - Use headings to introduce sections and sub-sections, and use them in the correct order.
- 1.5 - Use lists to identify series of related items, including navigation menus.

Examples of text formatting in WordPress editor



The screenshot shows the top toolbar of the WordPress Visual Editor. It includes options for heading levels (Heading 1), text alignment (left, center, right), text color, link, unlink, bold, italic, strikethrough, insert, image, list creation (bulleted, numbered), undo, redo, and help. Below the toolbar, the document content is displayed with the following structure:

Section 1: Coding

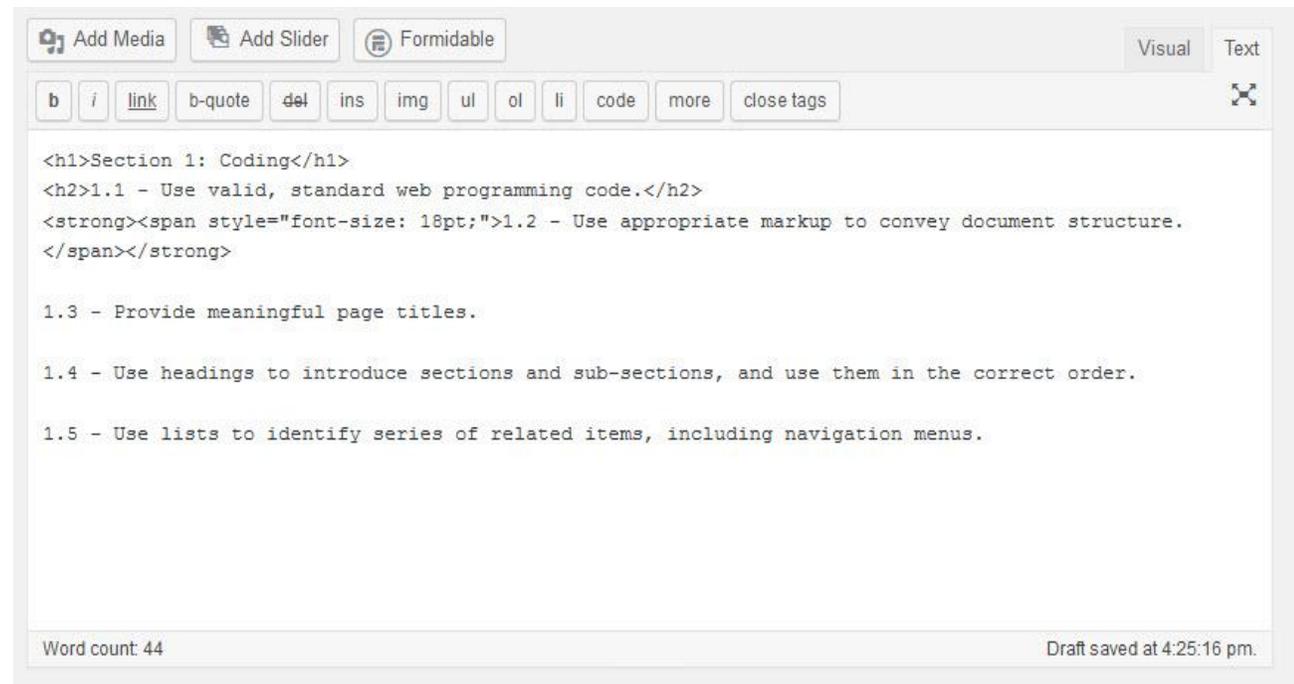
1.1 - Use valid, standard web programming code.

1.2 - Use appropriate markup to convey document structure.

1.3 - Provide meaningful page titles.

1.4 - Use headings to introduce sections and sub-sections, and use them in the correct order.

1.5 - Use lists to identify series of related items, including navigation menus.



The screenshot shows the Text Editor view of the same document. The top toolbar includes 'Add Media', 'Add Slider', and 'Formidable' buttons, along with 'Visual' and 'Text' tabs. The text editor toolbar contains buttons for bold, italic, link, b-quote, del, ins, img, ul, ol, li, code, more, and close tags. The document content is shown as raw HTML code:

```
<h1>Section 1: Coding</h1>
<h2>1.1 - Use valid, standard web programming code.</h2>
<strong><span style="font-size: 18pt;">1.2 - Use appropriate markup to convey document structure.
</span></strong>

1.3 - Provide meaningful page titles.

1.4 - Use headings to introduce sections and sub-sections, and use them in the correct order.

1.5 - Use lists to identify series of related items, including navigation menus.
```

At the bottom, it shows 'Word count: 44' and 'Draft saved at 4:25:16 pm.'

- Editors are not designed to work like word processor
- Font options separate from formatting options
- Multiple options produce same look

Section 2: Text

- 2.1 - Use text to display text (instead of images of text to get a specific style or font), unless formatting that cannot be achieved with CSS is required.
- 2.2 - Use relative sizes for fonts.
- 2.3 - Identify the language of text.
- 2.4 - Use images instead of "ASCII art." ASCII art is art created with typed characters. For example- :-) is typed to indicate a smile.

Section 3: Colors

- 3.2 - Use contrasting foreground and background colors.
- 3.1 - Do not convey information with color alone.
 - Text must have a contrast ratio of at least 3:1. (7:1 is best)

Section 4: Images

4.1 - Provide appropriate "alternate text" for all images.* (1194.22 A)

- For images that contain words or letters - use alternate text that includes the same words or letters.
- For image links - use alternate text that identifies the link's destination or function. You do not need to include the words "link to."
- For images that are invisible, purely decorative, do not convey meaning, or are completely redundant with text that is already on screen use alt= "". (empty string) to indicate that the image can be safely ignored by a screen reader.

4.2 - Provide full descriptions for graphs, diagrams, and other meaningful images.

- Present a full description of a meaningful image either on the page on which the image appears or through a link immediately preceding or following the image. Use alternate text to provide a concise name for the image. For example, the alternate text of a graph should state its title and the full description should summarize its trends and/or present a table of its data. This is especially important when copying tables or screen captures from other programs.

Alt text must provide equal access to information. The description must be highly contextualized, focus on relevant information, and inform the user of any elements that are important.

Possible Alt text elements of this picture:

- Description of the website, its purpose and content.
- Provide a list of the writing, pictures, and layout.
- Conceptual description of how the picture fits into the presentation.

In this case I decided on the final option writing, “Picture provided to show the multiple considerations that go into creating alt text for screen captures of websites. The focal areas of the screen capture include a navigation bar that a screen reader could not read and icons across the bottom that have meaning that would not be evident to assistive technology.”



Section 5: Image Maps

5.1 - Provide alternate text for each area in client-side image maps.

5.2 - Use client-side image maps instead of server-side image maps unless areas cannot be defined with available shapes.



Section 6: Sound

6.1 - Do not convey information with sound alone.

6.2 - Do not automatically play audio.

6.3 - Provide text transcripts for audio containing speech when it is provided to the public and/or required to be viewed by employees.

Section 7: Multimedia

7.1 - Provide synchronized captions for all multimedia that contains essential auditory information when it is provided to the public and/or required to be viewed by employees.

7.2 - Provide audio descriptions for all multimedia that contains essential visual information when it is provided to the public and/or required to be viewed by employees.

Section 8: Animation

8.1 - Provide a means of pausing any moving, blinking, scrolling, or auto-updating information.

8.2 - Do not include content that flashes faster than 3 times per second.

Section 9: Links

9.1 - Ensure that links are understandable out of context.

9.2 - Provide a means of skipping past repetitive navigation links.

9.3 - Avoid using small links.

- 16 pixels by 16 pixels minimum picture size, standard or enlarged font sizes for text links, and avoid using text links that are shorter than 4 characters in length.

9.4 - Ensure that same-page links move keyboard focus as well as screen focus.

Section 10: Forms

10.1 - Provide labels or titles for all form fields.

10.2 - Provide legends for groups of form fields.

10.3 - Ensure that form fields are in a logical tab order.

10.4 - Avoid placing non-focusable text between form fields.

- Instructions should be given within field labels if possible. If instructions are too long to fit within labels, they should be provided in an instructions section before the beginning of the form. If neither of these approaches works, consider using a technique to make the text elements focusable.

10.5 - Ensure that text in form fields can be enlarged.

Resources: <http://webaim.org/techniques/forms/controls> - creating accessible form labels

<http://www.afb.org/afbpress/pub.asp?DocID=aw050204> – overview of common issues

Section 11: Tables

- 11.1 - Identify a header cell for each column and row in simple data tables.
- 11.2 - Identify relationships in complex data tables using id and headers attributes.
- 11.3 - Provide summary attributes for data tables.

Section12: Frames

- 12.1 - Provide concise, unique, and understandable titles for frames.
- 12.2 - Avoid using hidden, empty, or non-essential frames.

Section 13: Scripts

13.1 - Ensure that scripted functions are usable with assistive technologies.

- err on the safe side by ensuring that the essential elements of the page do not rely on scripts.

13.2 - Ensure that significant interactions can be performed with both keyboard and mouse.

13.3 - Avoid changing focus unexpectedly.

13.4 - Avoid changing content unexpectedly.

Section 14: Embedded Objects

14.1 - Use accessible embedded objects whenever possible.

14.2 - If an inaccessible embedded object must be used, provide an accessible alternative that includes the same content and functionality.

Section 15: Downloadable Documents

15.1 - Provide natively accessible downloadable documents whenever possible.

- The next webinar in this series will discuss how to create natively accessible documents.

15.2 - If a downloadable document cannot be made natively accessible, provide an accessible alternative that includes the same content and functionality.

Important Note: Some programs cannot be made fully accessible. For example, fillable forms on a MS word document cannot be accessible. For any PDF to be accessible it must be have tags enabled.

Section 16: Timing

- 16.1 - Notify users of time limits and provide a means to extend time if possible.
- 16.2 - Do not automatically refresh the current page.

Section 17: Page Layout

- 17.1 - When using tables for layout, ensure that reading order is logical.
- 17.2 - When using style sheets for layout, ensure that reading order is logical.
- 17.3 - Avoid horizontal scrolling.

Section 18: Alternate Accessible Content

- 18.1 - Use separate accessible versions only as a last resort.

Self-Assessing Accessibility

Free Accessibility Checkers

- Wave- Web Accessibility Evaluation Tool: <http://wave.webaim.org/>
 - Identifies potential issues and creates a visual markup of your site to highlight where problems occur.
 - Identifies structural elements that may be problematic, but will require closer examination.
- Many other options. Resource list at <https://www.w3.org/WAI/ER/tools/>

- Onboard Tools for MS Office:

Accessibility Checker

- Located under the “File” menu – Info – Check for Issues – Check Accessibility
- Checks alt tags, structural elements, contrast ratios, and other accessibility issues and prompts directs you on how to fix them.

Save With Active Tags

- Located under the “File” menu – Save As– More Options– PDF from drop down – Options –check Document Structure Tags for Accessibility
- Without this enabled PDFs of this content cannot be made accessible and accessibility features build into word will not be present.

Onboard Tools for Adobe:

PDF Accessibility Checker

- Located under the “Advanced” menu – Accessibility – Quick Check
- Checks alt tags, structural elements, contrast ratios, and other accessibility issues and prompts directs you on how to fix them.

Touchup Reading Order

- Located under the “advanced” menu – Accessibility – Touchup Reading Order
- Allows you to edit reading order of text for a text reader. Order usually set by order in which content was created, not by logical structure.

Touch Up Object

- Located under the “tools” menu – Advanced Editing - Touch Up Object
- Allows adjustment of images, their alt text, and tags.

Sources

Illinois Department of Human Services. "Illinois Information Technology Accessibility Act Implementation Guidelines for Web-Based Information and Applications 1.0." *Illinois Information Technology Accessibility Act Implementation Guidelines for Web-Based Information and Applications 1.0*. Illinois Department of Human Services, n.d. Web. 06 Sept. 2016.

Microsoft. "Accessibility in Microsoft Office 2013." *Accessibility in Microsoft Office 2013*. Microsoft, n.d. Web. 06 Sept. 2016. <<https://www.microsoft.com/enable/products/office2013/>>.

USAB. "Home." *Section 508 Standards*. United States Access Board, n.d. Web. 06 Sept. 2016. <<https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards>>.

United States Department of Education. "Sept 2011 Memorandum to Assistant Secretaries." *ED Accessibility Requirements for Electronic Documents*. United States Department of Education, n.d. Web. 6 Sept. 2016.

World Wide Web Consortium. "Web Content Accessibility Guidelines (WCAG) 2.0." *Web Content Accessibility Guidelines (WCAG) 2.0*. World Wide Web Consortium, n.d. Web. 06 Sept. 2016. <<https://www.w3.org/TR/WCAG20/>>.

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