**Web Design Analysis**

**of IEEE.org**

Prepared for: Professor Fitzgerald

Prepared by: Cody Wright

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**Executive Summary**

The purpose of this report is to detail my analysis of the Institute of Electrical and Electronics Engineers website, IEEE.org. As the world’s leading professional organization in the tech industry, the organization should employ every opportunity available to set the standard for website design. Currently, the site meets most expectations with good navigational tools and clean appearance. IEEE also does a very good job of being inclusive to its international audience, with various regional sites in their native languages. For further improvement, I recommend a better use and variety of color to create distinct visual cues and content hierarchy, slowing down or stopping images that currently scroll across portions of the page, and for content to be organized more efficiently across webpages to reduce the number of clicks required to navigate the site.

**Introduction**

This report covers my analysis of the Institute of Electrical and Electronics Engineers website, [www.IEEE.org](http://www.IEEE.org). IEEE serves as the world’s largest technical professional organization. IEEE has set many standards and conventions that are now followed in the technology industry. Given that their field of expertise would include web design and internet technologies, I expected to find a very well planned and implemented design.

To analyze the website design, I applied the following criteria from Markel & Selber’s textbook *Practical Strategies*: that reviewed the site’s general goals of design; use of design principles; employment of principles of learning theory; use of accessing aids; use of whitespace, columns, typography, headings/subheadings; site navigation; and reader accommodations. These criteria consider the accessibility and readability of site content, the usability of site features, and the degree that the site reflects the goals of the organization. These criteria are further detailed in the report methodology.

I found that the site generally met expectations and satisfied most design criteria. It immediately establishes the organization’s goals with a mission statement and relative content. It also made good use of navigational tools to help readers traverse the site. The site establishes a clear color scheme and content hierarchy that is kept across all of the pages and children sites (sites not under directly under IEEE.org domain). The site designers were careful in providing as many links to information as possible, without cluttering the space with large blocks of text. The site is also very adaptive to different viewing system dependencies and arranges content based on the screen size. Further objective observations are found in the report’s conclusions and analysis of those observations on the results page.

In the report recommendations, I have suggested that the site use more variety in their color scheme to help draw attention to and distinguish important sections of information. For example, many of the sub headers use a gray-on-gray color scheme. This would be a prime opportunity to use one of the subordinate colors such as green or orange, which will help the reader find and access information more easily. I have also suggested that the scrolling images in the top half of the page be slowed down or made static. While these areas are useful for fitting more information in a confined area, they also distract the reader from other areas. Finally, I have also recommended that the IEEE.org website make better use of website realty and work to make more information on a single topic found on one page. Currently, the vastness of information is spread across hundreds of information. It might be possible to use margin areas and better use of columns and other text components to compact some of the information.

**Methods**

I began my analysis of IEEE.org’s design by using the criteria described in *Practical Strategies*, Chapter 7: “Designing Print and Online Documents”. These criteria, listed below, were used to analyze the appearance and effectiveness of the website’s design.

***Task 1: Determine if the site meets the general goals of design***

I considered the five general goals of design and asked if the site achieved the following goals.

* Making a good impression on readers
* Helping readers understand the structure and hierarchy of the information
* Helping readers locate and access the information they need
* Helping readers understand the information
* Helping readers remember the information

***Task 2: Evaluate the site’s use of design principles***

Drawing from Robin Williams’s *The Non-designer’s Design Book (2015)*, the textbook cites four principles of design.

* Proximity: the spatial relationship between document elements
* Alignment: using alignment to show relationships among elements
* Repetition: using consistent format between information of the same kind to help readers recognize a pattern and identify information
* Contrast: using color and contrast to separate information and direct the reader’s attention

***Task 3: Determine if the site employs principles of learning theory***

The following principles of learning theory consider how people use visual patterns to find, understand, and remember information.

* Chunking: giving information in smaller, more readable, chunks
* Queuing: creating a visual hierarchy of information
* Filtering: using visual patterns to distinguish information

***Task 4: Assess the site’s use of accessing aid***

These navigation aids help readers easily access the information they are searching for.

* Icons: pictures that symbolize actions or ideas
* Color: draws attention to important features

***Task 5: Assess the site’s use of white space, columns, typography, headings/subheadings, etc.***

There are various design features which can make the design of the website appear organized and the information accessible to readers.

* White Space: is the space that is left blank between elements to avoid information appearing cluttered and hard to read
* Columns: organizes information into one or more vertical columns to make text easier to read, allow more information to be fit on the page, and create a visual pattern
* Typography: the use of text-type features such as font, case, and size to present information clearly
* Headings / Subheadings: visual markers that introduce new ideas to the reader and separate information

***Task 6: Determine if the site is easy to navigate, search, and get questions quickly answered***

Various design features can help the reader navigate the site and access information.

* Menu Bar: a drop-down menu at the top of the website with links to important information
* Site Map: a list of pages across the website
* Site Search: allows readers to search the site for keywords and find information
* FAQ: anticipates reader problems and questions and provides a resource for answers
* Home Page Link: a static link back to the home page which is the main hub for accessing other pages
* Navigational Links: links to pages and information featured at the bottom of the page
* Additional Resources: links to both internal and external educational resources
* Connecting Readers with Others: linking to forums, social media, and other helpful communities

***Task 7: Evaluate the site’s accommodations for readers with disabilities, multicultural readers, and/or multilingual readers***

Websites should be inclusive and accommodating to as large an audience as possible. This includes readers with various disabilities and cultural backgrounds.

* Vision Impairment
  + Using textual labels in addition to visual labels
  + Available text-only versions and limitations
  + Use of color and its’ dependencies
  + Provided alternatives to online forms
* Hearing Impairment
  + Provided audio captions and volume control
  + Use of visual feedback in addition to audio feedback
* Multicultural and Multilingual Audiences
  + Use of common and simple wording
  + Avoids clichés and idioms
  + Available in other languages

**Results**

In this section, I will present the results of my analysis. This is an objective observation of the website.

***Task 1: Determine if the site meets the general goals of design***

IEEE.org’s main page immediately presents the reader with its logo and a statement about who they are and what they do. It reads “IEEE: Advancing Technology for Humanity” and “The world’s largest technical professional organization for the advancement of technology”. The site has multiple menu bars with links to separate types of pages. There is a menu bar linking to external webpages still under the IEEE umbrella, a menu bar for internal pages, and a menu bar linking to various social media.

Across the pages internal to the IEEE.org domain, the menu bars and IEEE logo which serves as a link to the home page are static and present on every page. Below the internal menu bar is text that displays your current page. Each tab of the menu bar has a drop-down menu with subgroups of links relating to their respective topic. These drop-down menus also have an area that asks “What do you want to do?” that anticipates what the readers may be looking for and helps them find it.

The homepage has block of scrolling pictures and text that displays new articles and information. These are adjoined with area blocked with color and containing information on how to become a member and become connected to other IEEE members and communities. The blue, orange, and green color scheme is consistent across pages, along with pictures and icons supporting the text fields.

***Task 2: Evaluate the site’s use of design principles***

The scrolling articles on the home page have an opaque text-field overlaying the images. In each of the extending pages, the articles have the text to the left of the image. The home page has gray subheadings that separate different types of information, and the other pages use blue or white subheadings. The information within that area is kept below and between these subheadings. The site relies more on color and contrast to separate test fields than it does alignment. Non-menu hypertext is in blue, or white if overlay a color background. The links are also consistently marked with a right-caret ‘>’ pointing to the link, or a clickable icon.

***Task 3: Determine if the site employs principles of learning theory***

Most of the information on the website is broken into small stand-alone statements. These statements may then link to a new page with supporting information. None of the pages break from this format or have a single, large text field. The site uses blue color headings and dividers to separate different content sections. Since the amount of text is limited on a single page, the hypertext with right-carets is used as bullet points below the headings.

***Task 4: Assess the site’s use of accessing aid***

Most of the leading articles and some of the page links use generic images, while others such as the “How can IEEE help you?” section uses stylized icons related to their respective topics. The color blue is used to highlight headings, hypertext, and is used in many of the icons and images on the site.

***Task 5: Assess the site’s use of white space, columns, typography, headings/subheadings, etc.***

The site has a lot of negative space on the left and right borders of the website. The information centered on the page is broken into two, sometimes three, columns. The site consistently uses a thin, sans-serif font. It uses both bold-type and size to establish a hierarchy of information. The aforementioned section headers keep the information organized, with many hypertext subheadings that link to other pages. The site is adaptive to the window size as well as the reader viewing system, whether online or mobile, and organizes its elements accordingly.

***Task 6: Determine if the site is easy to navigate, search, and get questions quickly answered***

The site’s three menu bars are present on every page. One menu has a link house-icon next to the site name that links back to the homepage. The site also has two different sections of links at the bottom of each page. The first section contains links grouped under “About IEEE”, “Membership”, “Get involved”, “Connect with IEEE”, and “Locations” headings. The site also lists eight different IEEE communities and social media icons in this bottom section, as well as the top of the page. The very last section of information contains links to “Home”, “Sitemap”, “Contact & Support”, “Accessibility”, “Nondiscrimination Policy”, “IEEE Privacy Policy”, and “Feedback”. The sitemap shows just how large reaching the site is with over 200 individual pages for various IEEE regions, services, and publications. Each of these linked sites with their own subpages and information. The site implements the Google search component which uses Google search on its local domain.

***Task 7: Evaluate the site’s accommodations for readers with disabilities, multicultural readers, and/or multilingual readers***

The default text size on the website is small to fit the amount of information needed on each page. There is no descriptive hover text over any of the elements, and I was unable to find any text-only versions. The site headings, links, and logos all share the color blue to highlight important information. I was unable to find an alternate method of submitting feedback other than the text field forms.

The site largely does not use any video on the websites; however, one of the children sites, IEEE Spectrum, does have a “Video Friday” segment. These videos use an embedded YouTube Video Player which does not show closed caption by default but does have volume control and an expandable window.

The main IEEE.org site is in English; however, many of the distinct region’s sites are in their respective languages. For example, the IEEE Latin America site is in Spanish, IEEE China in Chinese, and IEEE Japan in Japanese.

**Conclusions**

In this section, I present my conclusions on the effectiveness of IEEE.org’s design based on the results of my observation.

***General goals of design***

The site makes a generally good impression on the reader by clearly stating the organization’s purpose. One thing that was noticeably lacking was the definition of the organization’s 4-letter acronym-name. The menu bars were comprehensive in their content, but the number and hierarchy of the multiple menu bars could be confusing for some readers.

The carousel images that scroll across the homepage move too fast for the text overlay to be read; although, the feature does make good use of the space to fit in a lot of information. The site makes good use of color on the front page by showing information in separate blue, green, and orange text areas; but fails to use as much color variety across the other pages.

***Design principles***

The homepage image carousel uses text overlay that can be hard to read. The site does a better job on the extending pages that have the same section of material rotating, but instead has the text to the left adjacent. Another area of concern is that the site uses the same blue color for so many elements. The blue is meant to highlight important areas such as headers and hyperlinks, but when too much of the content is blue it loses its effect. The site offsets some of the lost effectiveness of color contrast by adding a right-carat to the text. The site otherwise does a good job employing uniform design elements and making the website clear and accessible.

***Principles of learning theory***

The site does a good job of not overwhelming the reader with large bodies of text. However, sometimes this means that useful information is stretched across many different pages. The site has adequate visual cues, but better use of color and typography could help give specific elements unique distinction.

***Accessing aids***

The front page displays good and bad examples of icons and graphics. “What’s Happening at IEEE” used images that didn’t contribute anything to their topic, but took up valuable real estate. In contrast, the “How Can IEEE Help You?” section used small but topical icons to help readers find material. While many headings are colored blue, others are a light gray or even plain white/black text block that does not grab the reader’s attention.

***White space, columns, typography, headings/subheadings, etc.***

The desktop version of the website is too generous with white space. There are large margins on the left and right sides of the website that could be used to unpack some of the site material. However, the site does a good job of leaving a buffer between sections and text within the allowed area. Pages with a lot of information do a good job of breaking the material up into smaller sections and columns. The website does a good job of rearranging various components as the browser window is resized.

***Navigation, searching, and getting questions quickly answered***

The site’s main menu bar is easy to use and navigate but has some redundancy with the other menu bars. As expansive as the IEEE.org umbrella is, it’s impressive that they made room to link to so many of the children sites. The sitemap is a necessary and helpful tool for this reason. The Google searching tool was also a great help in finding information. However, these are very strong dependencies as traditional hyperlink navigation through the pages is difficult.

***Accommodations for readers with disabilities, multicultural readers, and/or multilingual readers***

The site uses small text that could be difficult to read for some readers. The use of sans-serif font does help with the readability. The site seemed to conform with standard website accessibility standards, but I was unable to find any alternate formats available that could be used by the visual or hearing impaired. The pages for the international chapters of IEEE did a good job of fully integrating into the region’s language and culture while maintaining the parent sites theme and design.

**Recommendations**

I recommend that IEEE improve their site design by implementing the following changes.

First, the site has an established hierarchy of color using primarily blue to highlight important sections and information; however, it sparsely uses the colors that are also established in the hierarchy. I would suggest the site looks for opportunities to make use of orange and green color to further separate types of information and make them more accessible and easier to find. For example, some subheadings that are currently using grayscale color schemes could use green to compliment the blue color scheme and make the text more readable, especially for those with bad vision.

Second, I would slow down the automatic image carousel at the top of the pages. Some sections currently wait for the reader to scroll, so this may be an opportunity to make the site more uniform and increase repetition as well. Currently, the images and text scroll too fast for the reader to parse. It is also very distracting from other areas on the page, and other workspaces the user may have open on their desktop.

Finally, I would suggest that the site not rely on a large number of subpages and children sites. While it is good that so much has been made available, it can be overwhelming to look through the hundreds of links to associated pages for information. Each page does a good job of condensing material into smaller, digestible chunks of information, but does so by spreading information across multiple pages. Taking advantage of all the extra whitespace in the left and right margins of the website may be able to allow more material to be displayed while maintaining design balance.