FESC redesign project

Objective

The objective for this redesign project is to create an aesthetically pleasing, functional, and intuitive website for the FESC to increase viewership and ultimately an awareness for modern/sustainable practices of energy usage among industry professionals.

State of current site

- **Accessibility**

  While performing the accessibility audit, I used this site as my main resource.

  As I navigated through the site with the dev tools open, I did not notice any **alt** tags on any of the images. To fix this in the redesign, I will add **alt** tags to every image and make sure to add **alt** tags with an empty string for images that are purely decorative, so as not to confuse those using screen readers.

  The current site uses tables for both page layout and data, which can be very confusing for people using screen readers. To change this, I will simply only use tables for data and not as containers for layout purposes.

  The current link text is passable and either explains the link, immediately proceeding or in the link text itself.

  The top nav is currently utilizing very poor contrast between the background color and the nav links. To improve on this (for those who are visually impaired), I will use https://webaim.org/resources/contrastchecker/ as a reference to make sure all content(especially links and body copy) meet contrast ratio standards.

  For the embedded video on the homepage there's currently no caption, which can be very confusing for people using screen readers who are aware that there is a video, but are unaware of the content. To remedy this, I will add a caption to all videos on the site.

  You are currently able to tab through the site's content, which is useful to those using screen readers.

- **Mobile friendliness**

  The online resource, https://search.google.com/test/mobile-friendly, says that,"this site is not mobile friendly" for the reasons listed below.

  - **"Clickable elements are too close together."**
    I found a solution to this issue from a Google provided resource. It is recommended that all clickable links have at least 8 px of space between them(for mobile layouts) and that there is a target size of 48 x 48px for each link, as it can be difficult to click links that are below those requirements on a mobile device.

- **“Viewport not set”**
  This is a simple fix, and I was shocked to learn that the existing site did not incorporate this meta tag, as it is standard practice to add the following code to the head of the document:

  ```
  <meta name= "viewport"  content= "width =device-width, initial-scale=1">
  ```

- **“Text too small to read”**
  In order to resolve this issue, I will add relative sizing units(REM and EM) in conjunction with media queries to make sure all of the text is large enough to read on mobile devices and not sized too large for desktop usage. The key is to optimize text (especially paragraph copy) so that it does not run longer 10-15 words per line on any device. Google reference.

- **“Content wider that screen”**
  To fix this, I will use percentages instead of pixels for content containers. I will also utilize a responsive grid system that responds to the width of the browser window, as well as incorporating **flexbox** when necessary.

- **Performance**

  To determine the performance of the FESC site I used https://www.webpagetest.org/.
  The results and solutions are listed below.

  - ***First Byte time – Grade C***
    A majority of the performance grades were affected by the fact that the current FESC site was built with Wordpress. For this reason the browser is spending extra time looking through the WP database for the relevant code and images to display, thus slowing down the first byte time. This should not be an issue for the version our class is building since(as of now) we are building the site out only using client side languages.

    References: https://www.searchenginepeople.com/blog/16081-time-to-first-byte-seo.html
    https://www.pluralsight.com/blog/creative-professional/static-dynamic-websites-theres-difference

  - ***Keep Alive Enabled – Grade A***
    As of now, I’m not sure who hosts the current site, but their servers are utilizing a consistent connection with the browser. Since we will be hosting this site via Github Pages, I took an old project from last quarter(hosted on GH Pages) and ran it through webpagetest.org. I found that the “keep-alive” for this site garnered an A, so this would imply that any page we create on GH pages will, by default, utilize keep-alive successfully.

    Reference:https://blog.stackpath.com/glossary/keep-alive/

- ***Compress Transfer – Grade A***
  The server that this site is hosted from is currently using **gzip** to increase transfer speed of compressible files. I also tested this on the same GH pages that I referred to previously and it passed with an A as well. This would also imply that the server is compressing when possible to increase the performance of the site.

  Reference:
  https://betterexplained.com/articles/how-to-optimize-your-site-with-gzip-compression/

- ***Compress Images – Grade C***
  To improve on this grade, I will format images to meet their desired output size in the browser. For instance, not formating a thumbnail at the same pixel dimensions as the main/hero image would be the type of logic I would employ while editing and saving images for the redesign of the site. To avoid using oversized images for mobile layouts, I could also utilize the image attribute **srcset,** which allows the browser to load a specific image size, conditionally, based on screen dimensions.

  Reference: smashingmagazine_scrset

- ***Cache static content – Grade F***
  Again, the current site was created using Wordpress, which uses dynamic/server side languages(PHP) to create its CMS, so it would be difficult to cache static content from a site that doesn't have any. I did do a little research and found a plugin for Wordpress that takes PHP files and converts them into (lighter) html files before sending to the browser, which is really neat and I am totally in awe of someone who can write code like that. As for our site, typically there wouldn't be an issue caching static content from the, HTML, CSS, and JS site we are building, but GH Pages sets a limit on cached files. I would assume a major reason for this being that the majority of GH Pages users are utilizing this free hosting platform to test/work on websites that will be constantly updated, in which case it is in the user's best interest to have the browser pull the most up to date content from the server. This however, would not be ideal if you had a real/live site with many visitors — where caching would be ideal, so that each user(especially those who have recently visited) do not need to repeatedly pull the same content from your server and in effect, slow down the performance speed for all users.

- ***Effective use of CDN – Not in use***
  The current site does not use a CDN. The benefits of using a CDN can make a huge difference for people who are trying to access your site from a great distance. With a CDN, they are able to access a "proxy server" much closer to their geographic location, which cuts down on load times. As a CDN service is usually an added cost, I can see why a state-run consortium would not have it in the budget to add this feature to their website. However, for our version, Github pages does use a CDN service — which is not crucial for our purposes of creating the redesign, but it's a nice feature.

  Reference: https://en.wikipedia.org/wiki/Content_delivery_network

- **Functionality**
  Although there is not much in the current site that you can test for functionality, the few elements of the site that need to be functional are not. There is one field that asks if you would like to sign up for their newsletter and does not have a submit button(really frustrating). I will give them some credit, I did find this same form at the bottom of the “contact us” page, and it did have a button below, however, it said “go,” which doesn’t make any sense. I would like to “submit” my email to the newsletter list not “go” my email to the list. Also, once you click the button you are brought to an entirely new site where you are asked to fill out more information, which is really strange and even more off putting than the verbiage that takes you there. Also, there is one very crucial error that is almost unspeakable — there is a section, placed in what is the most valuable “real-estate” of the site (above the fold on the landing page) that asks if you would like to download the PDF brochure for the FESC(which is frustrating, because this is a brochure style site, where you should be able to find all of that information anyway), but what happens when you click the link? You are immediately taken to a 404 error page. This is a very embarrassing mistake, given the location of this link(most heavily trafficked area of the site) and it is completely broken.

- **Usability**
  The usability of this site is substandard for many reasons, but the one mistake central to the site’s awkward feel, is the lack of and poor planning of the site’s architecture. If a site has terrible architecture all of the other elements will follow suit, as it is the structure/skeleton from which you build a great site with excellent usability. As was mentioned in class, the navigation on this site is extremely overwhelming and needs serious consideration on how to consolidate all of these links. It was also mentioned in class that the **nav** changes depending on which page you have navigated to, which is really disorienting for a user. For these reasons I would not rate this site very high on the usability scale, because when the user is unable to navigate through a site effectively and efficiently, the website will only serve to annoy/frustrate and most certainly lose traffic.

  Reference: 11-characteristics-user-friendly-website

Device support necessary

The Pew Research Center states that in 2018, “The share of Americans that own smartphones is now 77%, up from just 35% in Pew’s first survey of smartphone ownership conducted in 2011.” If these statistics are accurate that makes smartphones the most popular device used by Americans. The desktop computer is not too far behind at 75% of American adults who own one. However, this statistic only includes the adult population, which makes the 77%(smartphone) statistic even more staggering, since it was calculated from the entire U.S. population. Pew also found that 50% of adults in the U.S. own a tablet of some kind.

These statistics would show that the highest priority for this redesign would be to make this site mobile friendly and perhaps look at the design from a “mobile first” perspective, since it is the most heavily used. This however, would only be true if you’re accounting for the statistics on ownership. It is commonly understood, that smartphones are often used for leisure related sites: sports, social media, news, and the FESC definitely does not fall into that category. If I were to use an educated guess, based on reading the content on the current site, I would say that the FESC website will most likely be visited by adults, who

are professionals in the energy field and most likely going to visit this site on their desktop computers at work. So, with these statistics and usage patterns in mind, I will attempt to put an equal amount of consideration into both the desktop and mobile versions during the redesign process.

Reference: http://www.pewinternet.org/fact-sheet/mobile/

Recommendations for improvement

To improve this site, the first step would be to overhaul the site architecture – it needs to be simplified and consolidated. Once that step in the process has been refined, I would then do the same to the nav. There is no need for a sidebar nav, which unless it's used in an online marketplace ends up making the site look very dated. Using one(top nav) I would use dropdown menus to incorporate any navigation items that are absolutely necessary from the original sidebar nav. I would also move the search field so that it is no longer at the very top of the page and keep it on the same baseline as the primary nav. To add to the issues with the site's header, I feel like the logo is completely oversized and what is going on with the weird slideshow in a bubble floating to the right of that?! I would definitely move the slideshow to the center of the page and push the dims to 80%-100% of the browser window, so it makes more of a statement. I would also get rid of the brochure download link(that doesn't even work) and put it somewhere more suitable — I'm thinking a tasteful link in the footer's navigation. Which brings me to my next recommendation — I feel as though the footer is the wrong place to list all the Universities that are affiliated with the FESC. It would be my suggestion that this information deserves a dedicated page of its own, being that the coordination between academic facilities is a core tenet of the FESC's mission statement. Also, I feel as though the footer should not, be a place for a lot of new information, it should basically be where you mimic the top nav and maybe add social media links.

Besides the navigation and major landing page issues that need to be redesigned, this site is also lacking in basic design principles. The paragraph text on every page needs to be edited, so that each line of copy does not run longer than, approximately 15 words or less. At the moment the copy runs at least 18+ words per line, and often looks very arduous as a result. I would also break up the text with images to make it look more appealing and less intimidating. There's also the issue of color palette, which we discussed in class, but there definitely needs to be more contrast in the nav. The tone of the orange and blue seem to wash together when placed on top of eachother and the orange is mutated into a really off-putting brown color. I also found the use of three different hex colors of blue on FESC research page — which really makes the design look careless. This is a simple fix — pick one shade of blue and use that consistently, in addition to other colors you've picked for your palette and the site will instantly have a more professional feel.

Although I'm sure I will come up with more adjustments and improvements to the site as we work through it in our homework assignments, I do believe this was a valuable exercise to begin thinking about website redesign in a more analytical, conceptual frame of mind, because although coding is, obviously, imperative to great websites, it is easy to get stuck in the grind of writing code without making any of the critical considerations beforehand.