Development of the CMACN Online, Asynchronous Course: An Exploration of Professional Practices for Dispersing Digital Information

A Senior Project
presented to
the Faculty of the Architectural Engineering Department
California Polytechnic State University – San Luis Obispo

In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science

By:
Jacob B. Morgan

Faculty Advisor:
Craig V. Baltimore, Ph.D., S.E.

May 2021

INTRODUCTION

PURPOSE

The collaborative development of the CMACN[1] (Concrete Masonry Association of California and Nevada) online course, taught as ARCE-305 at California Polytechnic State University (Cal Poly), fulfills the Architectural Engineering department's vision to "Empower people through the balance of theory and practice to thrive professionally." The collaboration used a team format consisting of faculty, undergraduate, and graduate students. The development team approached the creation of this course analogous to how a small firm would approach a project. The review and compilation of theory necessary to teach the course reinforced concepts critical to masonry design and construction. Furthermore, exercising professional practices gave insight to how firms in the construction industry operate. The development team's goal during Fall 2020 was to create video lectures that meet Web Content Accessibility Guidelines (WCAG), such that the course could be taught asynchronously.

BACKGROUND

With the acceleration of how information is shared and the general expectation that the internet provides answers on demand, the ubiquity of virtual educational content has become irrefutable. Virtual educational tools predate the internet with experiments at the New Jersey Institute of Technology in 1987. Using their internal computer network, classroom teaching was blended with online discussion forums and termed "computer-mediated communication" or CMC (Hiltz & Turoff, 1994). The world wide web allowed the expansion of these systems, which gave way to the first learning management systems (LMS) in 1995. Early learning management systems like *WebCT* (now *Blackboard Learning Systems*) served to disperse text and simple graphics among scholars. By 2008 digital multimedia and video compression technologies had advanced enough to expand text and simple graphics to audio-video recordings. The first massive open online course (MOOC) was published that year and quickly gained traction. Recorded lectures and virtual higher education gradually gained recognition among the general public. Furthermore, educational *Youtube* channels and websites like *Khan Academy* and *Skillshare* became widely accepted supplements to institutional education. In 2019, the onset of a global pandemic caused by Coronavirus triggered a spike in virtual education, as mass gatherings were discouraged.

During the Spring quarter of 2020, Cal Poly suspended in-person classes and began adapting courses to be taught in a virtual setting. By the Fall quarter of 2020, all six colleges at

[1] Concrete Masonry Association of California and Nevada
6060 Sunrise Vista Dr., Suite 1990
Citrus Heights, CA 95610
http://cmacn.org/index.htm

Cal Poly offered a combination of synchronous and asynchronous virtual classes. The architectural engineering course, *Masonry Design* (ARCE-305), was taught synchronously at this time. The CMACN, sponsors of this course, showed interest in adapting it to be asynchronous, such that it could be made available to a broader audience. Craig Baltimore, PhD, SE, a professor in the architectural engineering department and industry professional lead the adaptation of this course with the assistance of two architectural engineering students who had previously taken *Masonry Design.*

COURSE CREATION

For the CMACN asynchronous online course to function as ARCE-305, it must fulfill the same learning objectives and bare the same number of credit-hours. The California State University defines credit-hours as "the amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately… ten to twelve weeks for one quarter hour of credit" (California State University). As a two unit, in-person course, ARCE-305 is presented in one-hour lectures, twice per week, over ten weeks. With the additional "two hours of out-of-class student work" per credit-hour, *Masonry Design* is expected to require sixty hours for students to achieve all learning objectives. The number of hours per week varies because the course is administered over ten weeks during the normal academic year and five weeks during the summer quarter.

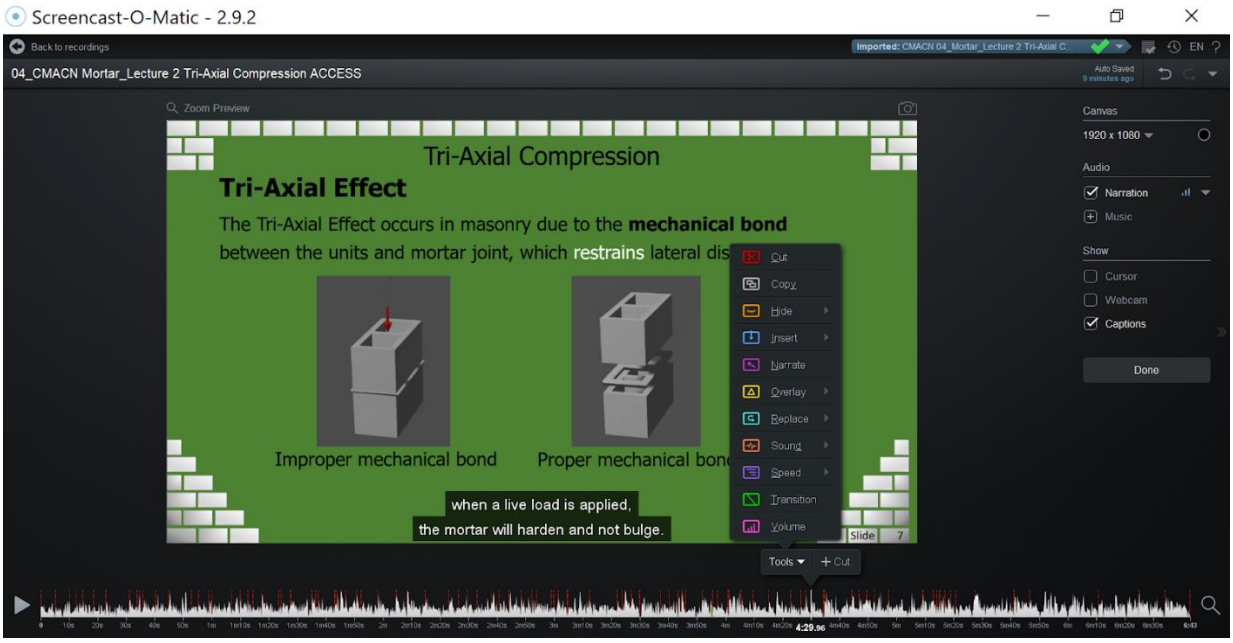
The Cal Poly 2021-2022 Academic Catalog summarizes the key topics of ARCE-305 as "Design of load-bearing walls, shear walls, columns and beams in masonry" (Cal Poly, 2020). Although the course applies to all types of masonry construction, there is a focus on concrete masonry construction in California. The course begins with lessons on the history and general properties of masonry. Next the individual components of masonry construction and the ingredients of masonry units are discussed. Flexural theory is then reviewed and applied to masonry design. Students learn and practice the process of designing a masonry beam for flexure alone. A similar sequence if followed for the review, application, and practice of shear capacity theory in the context of masonry beam design. Next, design for deflection requirements is introduced and practiced in conjunction with previous topics. Focus then shifts to the construction of axial members like columns and walls. The design process for members under pure axial loads is introduced and practiced. The culmination of previous topics brings students to the final lessons on the interaction of axial and flexural capacities.

The first step in converting this existing course to an online, asynchronous format was to create a replacement for in-person lectures. Content for each class session was assembled into PowerPoint slides. The slides contain a combination of text, images, and simple animations. A single class session requires anywhere from 8 to 34 slides depending on the lesson topic. All

slides are checked for accessibility requirements and if needed, corrections are made. A lecture script is developed for each class session. Using the program Screencast-O-Matic (see Figure 1), a voice recording of the lecture script is imposed over the PowerPoint slides. Captions are then added for accessibility requirements. Screencast-O-Matic is capable of detecting speech and automatically generating captions, however the wording is not always accurate. Instead, the lecture script is copied into Screencast-O-Matic and timed such that captions appear as they are spoken in the recording. The prerecorded and captioned audio-visual lectures (see Appendix) are then published and embedded in the online course.

FIGURE 1

PowerPoint Slides in Screencast-O-Matic



Example problems, assignments, and solutions for each lesson were developed along side the prerecorded lectures. The example problems act as an additional learning tool, as well as a standard for the process and presentation of homework assignments. Most assignments are calculation based, so solutions posted after the assignment due date allow students to check their work. Other assignments involve defining masonry terms or drawing masonry units. These assignments accompany lesson topics that appear early in the course, such as the history or the components of masonry.

The course is organized and presented through Canvas, a learning management system produced by Instructure[2]. Course topics are separated by modules, which are digital folders that allow for hierarchical organization. Within each module are separate pages for lessons, assignment submissions, and tests/quizzes. Each module begins with a summary page that outlines the learning objectives, outcomes, and assessments for a topic. A typical lesson page

[2] https://www.instructure.com/canvas

begins with a page number and lesson title, followed by background information, a list of required reading, specific learning objectives, the prerecorded lecture, comments from the instructor, and a description of the homework.

ACCESSIBILITY

In December 1948, the United Nations General Assembly proclaimed the Universal Declaration of Human Rights (UDHR), which set out to ensure fundamental human rights are "universally protected" (United Nations [UN], 1948). With a globally changing social dynamic and advent of a digital era, the UN convened to pass a "non-binding resolution" in 2016 that "declared internet access a human right" (Barry, 2020). Now recognizing the internet as a human right, it follows that all groups should have equal access to the tools that the internet provides. In July 2019, California law A.B 434 went into effect, requiring websites of state agencies to be digitally accessible (Baker et al., 2017). Cal Poly abides by a stricter set of regulations, defined in their *Website Accessibility Statement.* Efforts to improve Cal Poly's website are "in accordance with federal/state laws, CSU policy (Executive Order 1111), the CSU Accessible Technology Initiative (ATI) and Web Content Accessibility Guidelines (WCAG 2.0 Level AA) of the World Wide Web Consortium (W3C)" (Cal Poly, 2021). Of these entities which prescribe actions to enhance website accessibility, the WCAG 2.0 defines principles of accessibility, levels of conformance, success criteria, as well as techniques to meet these standards.

The WCAG layout four principles that organize their techniques and success criteria, as well as define what accessible web content entails. The first of which is *perceivable* content, such that a "user(s) must be able to perceive the information being presented; it can't be invisible to all of their [available] senses" (Cooper et al.). All components and navigation tools of the user interface must be *operable*. The current interpretation of *operable* asserts that "the interface cannot require interaction that a user cannot perform" (Cooper et al.). The user interface must also be reasonably *understandable*, which simply means "that users must be able to understand the information as well as the operation of the user interface" (Cooper et al.). The last principle is *robust* content, meaning "it can be interpreted reliably by a wide variety of user agents" (Cooper et al.). User agents include not only the personnel accessing the information, but any assistive technologies they may use. The WCAG provides examples of some assistive technologies, like text to speech programs, but does not define the extent of their operation as to include future advancements in this technology. The WCAG has acknowledged that these principles seem trivial through an ableist lens, but are aimed to address "issues that block access or interfere with access to the Web more severely for people with disabilities" (Cooper et al.).

The WCAG define various success criteria to meet three levels of conformance, A (lowest), AA, and AAA (highest). Success criteria must be testable, whether by human, computer, or a combination of the two. A particular success criterion is only accepted if it can be determined by testing that the "Success Criterion has been satisfied with a high level of

confidence" (Cooper et al.). Once accepted, success criteria are assigned to a level of conformance based on a broad range of implementation and interaction issues. Some of the factors considered include how essential a criterion is to accessibility, if the criterion can be applied to all websites, if the criterion can reasonably be achieved by content creators, if the criterion would impose limits on the function of a website, and if there is an absence of alternatives when the criterion is not met. Content creators should note that partial conformance for a webpage is not accepted. For example, if a webpage meets AA success criteria for all guidelines under the *perceivable, operable,* and *understandable* content principles, but only satisfies level A success criteria for any or all guidelines under the *robust* content principle, the webpage only meets level A conformance. The WCAG acknowledges that even the highest level of conformance "will not be accessible to individuals with all types, degrees, or combinations of disability, particularly in the cognitive language and learning areas" (Cooper et al.). Content creators are encouraged to consider the full array of techniques and seek advice on best current practices to adequately serve the community they create for.

The following describes guidelines and techniques considered in the creation of the CMACN online course to meet level AA compliance, as required by the Cal Poly website accessibility statement. This is not an exhaustive description of techniques necessary for level AA compliance. For a complete list of guidelines and techniques, as well as examples of successful and failed applications of them, see *Web Content Accessibility Guidelines (WCAG) 2.0* (Cooper et al.).

Measures to improve the *perceivability* of content begin with text alternatives. Static images on the Canvas webpage that are not purely decorative are accompanied by descriptive captions. The use of captions in this instance allow screen reading programs to describe the image. Time-based media, such as prerecorded audio-video lectures, are also accompanied by captions that can be turned on and off within the video. Images within the audio-video lectures are described by the speaker, thus providing a text description via the captions.

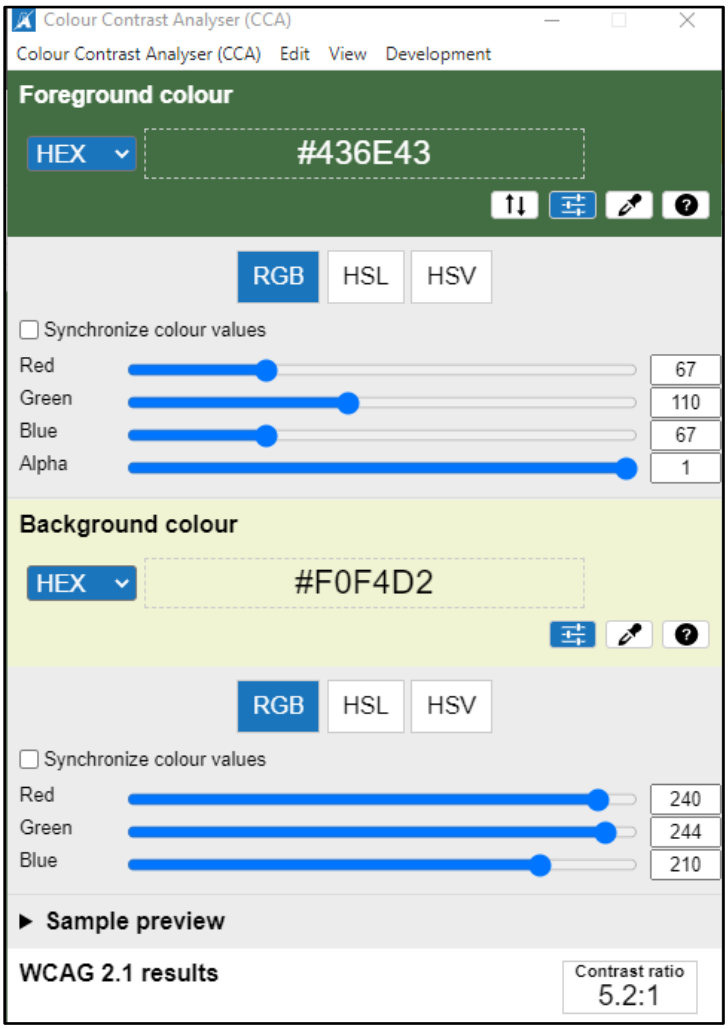
Use of the Canvas developer tools improves *perceivability* of hyperlinks and non-text content on a webpage. Individual webpages presented within the Canvas course are adaptable, meaning the page can be presented in a simpler format without losing content or breaking sequence. Canvas webpages can be copied and pasted into plain text, turning images and videos into hyperlinks within the text. Blocks of text, captions, and hyperlinks pasted as plain text appear in a left to right, top to bottom reading order. The intended sequence of the course is maintained by using numbered modules, which house the individual webpages.

All content in both video lectures and Canvas webpages are made to be easily distinguishable from their respective backgrounds. Visual acuteness and perception of colors vary from person to person, so the WCAG 2.0 sets minimum requirements for font sizes and color contrast ratios associated with each compliance level. For level AA, all text that is not purely decorative meets a minimum contrast ratio of 4.5:1, or 3:1 if it is considered large-scale text. The WCAG 2.0 defines large-scale text as "at least 18 point or 14 point bold or font size that would yield [an] equivalent size" (Cooper et al.). The contrast ratio is a comparison of the relative luminance of the background and foreground colors on a scale from 1:1 to 21:1. Any

color will have a 1:1 contrast ratio with itself, whereas pure black and pure white will have a 21:1 contrast ratio. The Colour Contrast Analyser (CCA Version 3.1.1, TPGi) tool was used to check contrast ratios of all adjacent elements on slides used for prerecorded audio-video lectures.

FIGURE 2

Colour Contrast Analyser (CCA Version 3.1.1)



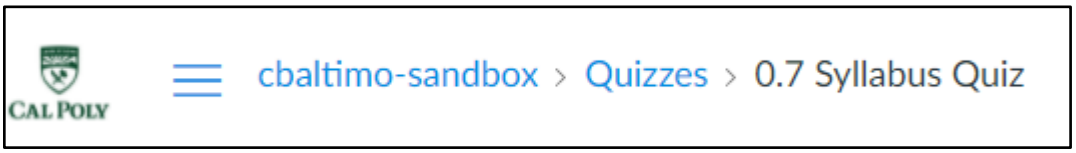
For the development of Canvas webpages, the Accessibility Checker, a built-in feature of Canvas's Rich Content Editor, was used to verify contrast ratios. The Canvas Accessibility Checker ensures the minimum 4.5:1 and 3:1 ratios against the default, white background for regular and large text, respectively. A combination of regular and large-scale text is used on Canvas webpages for visual hierarchy. With the exception of captions and images of text, the prerecorded audio-video lectures exclusively use large-scale text. To maintain consistent color-palettes, even large-scale text in the prerecorded audio-video lectures meet the 4.5:1 contrast ratio, as this is the most restrictive criteria. The WCAG 2.0 requires text to be resizable up to 200% without loss of content or functionality for level AA compliance. As a by-product of designing the course to exist on Canvas, all visual media, not just text, can be resized within the

browser window. To date the top five internet browsers, Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, Apple's Safari, and Opera, have *zoom* or *rescale* features that reach a minimum of 400% the original content size. Any loss of content or functionality by resizing text in this manner is a product of poor screen resolution, or an inability to scroll laterally and longitudinally across the screen. Both factors are beyond the control of the development team. The collective use of these techniques make the CMACN online course *perceivable* for a wide array of users with visual and auditory impairments.

Operability of the CMACN online course is largely dependent on the Canvas user interface. Even for the lowest level of compliance, the WCAG 2.0 requires that "all functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes" (Cooper et al.). As the function of the Canvas webpage is to present course content, the only operation of concern is navigation of the webpage. The Canvas user interface is navigable by keyboard alone, however operation by a mouse or touchscreen is generally faster. The varied convenience of operation methods is acceptable because the WCAG 2.0 specifies that the applicable guideline "does not forbid and should not discourage providing mouse input" (Cooper et al.). Enabling keyboard operation provides multiple methods for a user to interact with on-screen navigation tools. The WCAG 2.0 also suggests having multiple methods of on-screen navigation, such that there is more than one route between two webpages. When operating by mouse or touchscreen, the Canvas user interface provides multiple routes to any given page that is accessible on the website. Navigation is further improved by headings, subheadings, and the use of *breadcrumbs*. The *breadcrumbs* are in the form a sequential chain of hyperlinks at the top of the webpage (see Figure 3). The chain of hyperlinks shows each page or folder that was accessed to reach the current page.

FIGURE 3

Hyperlink Chain (Breadcrumbs)



The time spent on any webpage varies between users, so time constraints and time-based actions are discouraged. However, providing enough time to read and use content is a minor concern, as the course is designed to be asynchronous and navigated at the student's desired pace. Prerecorded audio-video lectures can be paused and played at the viewer's will. The playback speed of the lectures may also be adjusted depending on the chosen video player. Tests and quizzes administered through Canvas may have time restrictions applied by the instructor. To meet the lowest level of compliance, the instructor is able to adjust or remove time restrictions as necessary. Proficiency with the Canvas user interface weighs heavily on the *operability* of the CMACN online course; work by the development team marginally improves this principle of accessibility for the course.

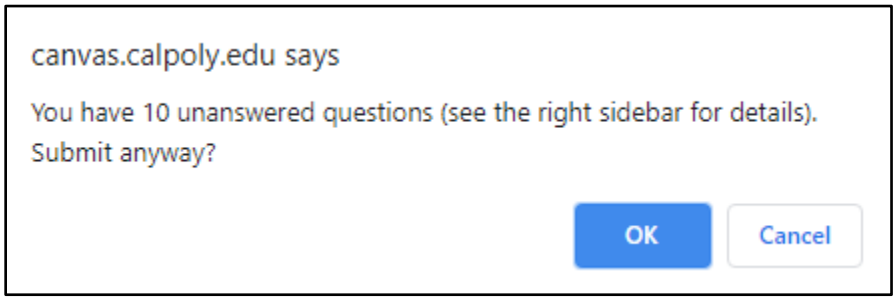
Understandability is an especially important principle, as a critical function of the course is to ensure students' understanding of technical information regarding concrete masonry. The Canvas user interface satisfies most minimum requirements by default. However, level AA compliance requires supplemental action by the development team. Excluding "proper names, technical terms, words of indeterminate language, and words or phrases that have become part of the vernacular of the immediately surrounding text" all language must be "programmatically determinable" (Cooper et al.). Proper and consistent use of the English language is the predominate factor in satisfying this guideline because it allows assistive technologies to more reliably extract and present information in different modalities. As a course that is technical in nature, "technical terms" and "vernacular of the immediately surrounding text" are one in the same. Although both are exempt from guidelines on *understandability*, the *Masonry Terminology* assignment acts as a tool for comprehension of the technical terms. Each student is given a masonry term to define and provide an image and example for. Rather than the drop-box tool, this assignment uses the discussion forum application provided by Canvas to create a searchable database of terminology within the course.

Beyond being *understandable*, navigation of the course and how information is presented must be predictable. The navigation tools provided by the Canvas user interface are consistent across all webpages within the Canvas course. Tools that serve a general purpose within Canvas, like the video player and inbox, use iconography that is commonly used among major websites. Canvas also ensures that information is consistent among changes in focus and user inputs. That is, the information and any relevant context the development team chose to include on a webpage is not changed by on-screen pop-ups, resized windows, changes in color balance, or any other inputs beyond the development team's control.

When user input is required for the course, it is necessary to "Help users avoid and correct mistakes" (Cooper et al.). In the context of an online course, user input comes in the form of virtual tests, quizzes, and assignment submissions. Canvas provides basic labeling for the type of input required, such as "drag and drop .jpg, .pdf, or .png" for assignment submittals. Further descriptions are added to assignments by the development team when a more specific input is necessary. Canvas will also identify errors in user input and prompt subsequent attempts. For assignment submittals, a recognizable user error may be an incorrect file type. Canvas will prevent the submission and suggest how to correct the error.

FIGURE 4

Canvas Pop-up Preventing User Error



During virtual tests and quizzes, Canvas will warn students of unanswered questions when submitting. Again, Canvas will suggest which questions have yet to be answered (see Figure 4). However, in this case the user can opt to leave the error unresolved. After an assignment, test, or quiz is successfully submitted, Canvas provides a confirmation page to indicate that the user input process has been completed. For the Canvas user interface *understandability* is another principle that depends largely on the user's fluency with the software and general internet vernacular. Clear and concise instructions provided upfront by the development team can improve the user's understanding of subsequent content, particularly for inexperienced users of Canvas.

Creating *robust* content for the CMACN online course relies on the proper use of tools within the Canvas interface by development teams. A large function of Canvas's Rich Content Editor is to automatically write the HTML code necessary to publish the webpage based on simpler inputs available to the developers of the course. Most assistive technologies rely on metadata that exists in the code. Metadata is data that provides information on other data and is often not visually identifiable on a webpage. Examples of metadata include start and end tags, location markers, and element IDs; all of which are used by text to speech programs to read and present information in the correct order. The proper use of metadata on Canvas makes content *robust* by WCAG 2.0 standards. Using font size and typeface hierarchies suggested by the Rich Content Editor, only embedding supported file types, not embedding custom scripts, and not manually editing the HTML code are actions taken by the development team that support the generation of metadata for a webpage. Although these actions are not inherent to Canvas's course development tools, they are easily implemented and often the simplest way to go about content creation. The minimal effort to create *robust* content reflects the minimal success criteria for *robust* content. The WCAG 2.0 only provides level A success criteria for this principle because *robust* content entails compatibility with future assistive technologies; a facet that cannot be reliably tested and "satisfied with a high level of confidence" (Cooper et al.).

It is worth noting that the development team did not consider accessibility in the initial phases of content creation. The requirements for web content discussed above were discovered and implemented as the course developed. A significant amount of time was spent editing fonts and color palettes on slideshows used in prerecorded audio-visual lectures. These efforts intended to improve *perceivability* of the lectures imposed limits on the stylistic choices of the development team. Subtle accent colors, small text, and instances of tight line spacing were eliminated. For some lecture slides these were miniscule changes, while other slides required substantial alterations in the layout to accommodate the new requirements. Although these modifications allow a narrow range of stylistic freedoms, they create notable consistency across the individual lectures. The imposed uniformity should not be seen as a drawback of accessible content, as improved consistency and *perceivability* benefits all users, not just those with disabilities. These attributes allow users with visual or auditory impairments equal access to the content, while reducing visual strain for nondisabled users. Understanding both the legal requirements and needs of the intended audience prior to creation greatly improves the development of accessible content. Time can be saved by reducing troubleshooting and rework.

Furthermore, the finished product feels more authentic, as it was created around the accessibility requirements, rather than altered to be accessible.

PROFESSIONAL PRACTICES

The development team implemented practices commonly used in the construction industry to get a better feeling of how small firms operate. The most impactful practices on the project include holding consistent meetings, keeping meeting minutes (see Appendix), and peer reviewing work. Meetings were held every Monday throughout the Fall 2020 quarter. These consistent meetings kept the development team at the same pace and encouraged weekly goals to be set. Large tasks would often be broken into smaller deliverables that would be assigned or reviewed during these Monday meetings. Linking deliverables to the Monday meetings created frequent, but manageable due dates. Secondary meetings were held on Thursdays to ask questions and clarify expectations. Having a dedicated meeting for this allows the whole team to answer questions and troubleshoot problems before they become significant delays in the project. If all deliverables went as expected and there were no questions, this secondary meeting could be cancelled.

At all meetings, minutes were kept to summarize what was discussed. Minutes act as a reference to specific topics over the lifespan of the project. They encourage the use of similar language and solidify project specific terms, thus improving written communication amongst the team. Additionally, noting the allocation of tasks creates accountability. Furthermore, a written account of expectations for a deliverable instills a standard of work on team members.

All content that was developed throughout the project was peer reviewed. Meeting minutes were checked by all members before archiving. Presentation slides and scripts were reviewed before recording lectures. The practice of peer reviewing work acts as a quality assurance measure. As consistent meetings and meeting minutes help to create standards, peer reviews ensure those standards are met.

CONCLUSION

As we march further into a digital era, virtual classes like this will find a permanent place amongst the tools of institutional education. Moreover, the growing audience will become increasingly diverse. Creating course content to work for a wide array of users and their potential disabilities increases the quality and value of the material.

Aiding in the development of the CMACN online course was an empowering experience as a student. Reviewing concepts from *Masonry Design* and creating coursework around it built a greater understanding of the mechanics and theory behind masonry construction. Furthermore,

developing this course was a practice in professional communication. The tools we used and methods we applied as a development team allowed us to gain proficiency in graphical communication software, as well as practice soft skills necessary for effective communication in a firm. Habits developed over the course of this project will prove to be useful in future careers.

CITATIONS

"Accessibility Web Standards." *Web Site Information (CA Dept of Education)*, Feb. 2021, www.cde.ca.gov/re/di/ws/accessibility2017.asp.

Baker et al. "Bill Text." *AB-434 State Web Accessibility: Standard and Reports.*, Oct. 2017, leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB434.

Barry, Jack J. "COVID-19 Exposes Why Access to the Internet Is a Human Right." *OpenGlobalRights*, May 2020, www.openglobalrights.org/covid-19-exposes-why-access-to-internet-is-human-right/.

California Polytechnic State University. (2020). *2021-2022 Catalog: Architectural Engineering (ARCE)*. Cal Poly. https://catalog.calpoly.edu/coursesaz/arce/.

Color Contrast Checker. TPGi. (2021, March 8). https://www.tpgi.com/color-contrast-checker/.

Cooper et al. "Web Content Accessibility Guidelines 2.0." *Web Content Accessibility Guidelines (WCAG) 2.0*, World Wide Web Consortium (W3C), Dec. 2008, www.w3.org/TR/WCAG20/.

Hiltz, S. R., & Turoff, M. (1994). *Network Nation: human communication via computer*. MIT Press.

The California State University. (2011). PolicyStat. https://calstate.policystat.com/.

"Universal Declaration of Human Rights." *United Nations*, United Nations, www.un.org/en/about-us/universal-declaration-of-human-rights.

"Website Accessibility Statement." *Accessibility*, Cal Poly, 2021, accessibility.calpoly.edu/website-accessibility-statement

APPENDIX

EXAMPLE CONTENT

The following link directs to an example of a prerecorded, accessible audio-visual lecture. Note that English captions / subtitles are enabled, but must be turned on within the Youtube video player.

https://youtu.be/YTbcUbVNS1Q

Figure A1 (following page)

Example of meeting minutes kept by the development team.

Online Summer Course Weekly Meeting Notes

Date: October 19, 2020 **Time**: 2:00 PM – 3:00 PM

Location: Office 108-B, Building 21, Engineering West, Cal Poly San Luis Obispo

Project Name: CMACN Online Summer Masonry Course

Attendees:

Name	Position	Email
Dr. Craig Baltimore (CVB)	Advisor	cbaltimo@calpoly.edu
Dolores Herrera (DH)	Student	doherrer@calpoly.edu
Jacob Morgan (JM)	Student	jmorga16@calpoly.edu

Meeting Notes

Discussion

1. Pause on creating lecture videos this week as CVB is attending an accessibility workshop for videos.
2. Accessibility in Word Documents:
   a. Do not underline text in Word; underlines are for hyperlinks. CVB now uses italicized font.
   b. Default headers must be used in Word, but font, font size, color, and spacing can be modified.
   c. DH took notes on "How to Make an Accessible Document in Microsoft Word" YouTube videos (See "Reference Documents" folder in Google Drive).
3. PowerPoint Color Contrast Study: (See "Reference Documents" folder in Google Drive)
   a. 75-115-50 [darker] background gives us 6 text colors to use, but does not allow for black text smaller than 24 point font.
   b. 75-130-50 [brighter] background gives us 6 text colors to use, but does allow for colored/highlighted text smaller than 24 point font. We will use this background.
4. All PowerPoint tasks should be done by Monday, 10/26/20. Upload by Sunday night, 10/25/20. – JM
5. In project report, write about the significance of the skills required to create video lectures, especially as engineers. An associate principal stated: "Many soft skills are not strong with engineers--writing, editing, presenting, organization, understanding of risk, etc." (Angie Sommer, ZFA Structural Engineers). Ask permission from Angie to use her name in report.
6. All PowerPoints up-to-date are uploaded to Google Drive "PowerPoint Presentations" folder.
7. Continue to work on "Column Interaction Diagram" PowerPoint: – DH
   a. Have calculations for balance point (with TMS 402 references) written by Thursday, 10/22/20.

Deliverables

Item	Description	RP	Due
1	Modify all PowerPoints for color contrast.	JM	10/26
2	Finish composing "Column Interaction Diagram" PowerPoint.	DH	10/26

Deliverables Description

1. See Items 3-4 for details.
2. See Item 7 for details.

Please notify of any revisions, clarifications, or additions within 48 hours of receipt.

Respectfully Submitted,

Dolores Herrera & Jacob Morgan