Jodie Tonna 4.2A
Web design

Again

Task 1: Research & Design Documentation

Glossary of Terms

Web Server

What is it, and how is it used?

A Web Server is a system (both software and hardware) that stores and delivers the content of a website. This includes content such as images, videos, and various web pages. This is used by users over the internet who utilise HTTP or HTTPS.

The Web Server receives requests from web browsers, which are its clients, and retrieves the requested content, which includes the coding (HTML, CSS, JavaScript) and images/videos of the website. It then processes this information and sends it back to the browser to display the following webpage. Therefore, its main function is to display the content of a website on the user's device.

A Web Server is designed to understand URLs, most of which support and use HTTP, which is a protocol used to transfer data on the internet (www. World Wide Web).

These web servers are used for the following: Building and publishing a webpage, Web hosting, sending and receiving emails (which in some cases use SMTP for simple mail and FTP for file transfer instead of HTTP), and downloading requests for FTP files.

When users visit www.mcast.edu.mt on browsers such as Google Chrome or Safari, the browser requests the file via HTTP. After the request is received, it is then accepted and processed by the server, which finally sends it back to the browser through HTTP.

How the process works step by step for a better understanding:

1. The user types in a URL in the web browser address bar.
2. The web browser then obtains the IP address of the domain by translating the URL or by searching for the cache, which takes the browser to a web server.
3. The browser then initiates an HTTP request to the server, specifying the files.
4. Finally, the Web Server sends the requested page back to the browser via HTTP, allowing the browser to display the webpage

If something goes wrong or the requested page does not exist, a "404 Not Found" error message will show instead of the website.

In the MCAST website, Web servers are used to deliver content like course information and images to its users. When a user visit www.mcast.edu.mt, the MCAST web server processes the request, and it requests the page to load correctly.

Web Hosting

What is it, and how is it used?

Without a web hosting service provider, your website will not be able to be delivered on other people's devices, even if you already have a domain name, so having a web hosting provider is crucial to developing a website. As a developer, web hosting is essential as it makes sure that your website is secure, loads quickly, and is always usable and accessible. Web hosting comes with its management tools, such as being able to monitor the performance of the website and handle domain registration without needing any professional expertise.

Every website is made from a mixture of images, code, text and styles. A web host makes sure that the following are secure and accessible so others can access your website online. When you're subscribing for a hosting plan, it's like you're renting an online space on a physical server that can host your website with the use of all your files by just visiting your domain name.

What if the MCAST website doesn't have a web host?
Having a web host is important, as without it, your content will be offline and will not be accessible to the public. This happens because there is no dedicated server for the MCAST files, management, or to deliver content. When Users search for www.mcast.edu.mt, they will be greeted with an error message, as previously mentioned, because nothing is connected to serve your site. Overall, unless you have a web host, your site will not exist on the Web.

When getting a web host, you have two options: Pay for a subscription or use a free hosting service. Unfortunately, free hosting services can be unreliable as they have their limitations regarding resources and technical support. Your website may have slow loading times, downtimes and even data loss, which can negatively impact your website performance and visitor credibility. Your website will also not have hosting features like FTP, automated backups, and installation software. This can be a struggle to grow your site in the future. Even though Free hosting services aren't ideal, they are an option for those who can afford to pay for a subscription.

Easy understanding of how to use a web host in steps.

1. Choose a provider to host your website (eg, Subscription: GoDaddy, Blue Host. Free: Wix, InfinityFree.)
2. Upload your website files to the server provided by your host.
3. After that, your web host will do all the work for you, and your website will be functional and live on the internet.

For example, the MCAST website uses a web host to always make the website available for students, staff and the public. The web host makes sure that the website performs properly and is secure enough to be used by other users. All the files, databases and systems on the MCAST website are hosted by its Web host.

IP Address

What is it, and how is it used?

An IP address (short for Internet Protocol address) is a numerical label assigned to a device when it connects to a network, such as the Internet. It is essential for sharing information and enabling communication between computers over the internet or within a local network. There are different types of IP addresses, including public, private, static, and dynamic. Every device connected to the internet has an IP address, regardless of its kind. IP addresses help devices send and receive data, such as emails, videos, or website content, by indicating where the information should be delivered.

Different types of IP addresses:

Private: This is an IP address which is assigned to devices using a private network, such as home Wi-Fi. These are not accessible from the internet, which makes them safer. It is used for your devices to communicate on the same local network.

Static: This type remains the same, meaning that it does not change every time a device connects to the network. This address is ideal for networks that require consistent access, such as web servers, security systems or remote tools. As the IP address remains the same every internet session, it may come with higher security risks and additional costs.

Dynamic: This type of address is automatically assigned to your Wi-Fi router during setup by its DHCP (Dynamic Host Configuration Protocol) server, which is commonly built into home or office routers. When a device connects to the network, it receives an IP address from all of the available addresses. Because of this, the address can change each time the device reconnects or after a certain period. Dynamic IP addresses are easier to manage and offer more flexibility, but they are less ideal for tasks that require a consistent IP address.

An IP address is assigned to the server that is hosting the MCAST website. The DNS translates www.mcast.edu.mt into the server's IP address, and users are then able to access this website from their device.

Domain name

What is it, and how is it used?

A domain name is a human-friendly address used instead of the numbers in an IP address. It helps people find websites easily without having the need to remember a long combination of numbers. Even though IP addresses are easily read by computers, we use Domain names instead of IP addresses as they are hard to remember and might change over time.

A domain name comes in its structure, for example: www.mcast.edu.mt. These names are separated by dots, and each word provides information about the domain itself.

There are 3 main parts to a domain name:

1. Subdominal: This is optional, meaning not every domain name has to have this, for example, the www before a name. This is used to separate sections.

2. Second-Level Domain (SLD): This is the primary registered name; in the previously given example, it is 'mcast'.

3. Top-Level Domain (TLD): This tells the users the general purpose of the service for the domain name. The most commonly used are .com, .org, and .net. In this case, it is. Using edu.mt as it is the official education domain for Malta.

Domain names work by first typing the link in your chosen browser (www.mcast.edu.mt). The browser then sends a request to the DNS server, which looks up the corresponding IP address. This IP address is sent back to the browser, which then connects you to that IP address and loads the website.

You can get a domain name by registering for it on a domain registrar like GoDaddy or Namecheap. You can create any domain name that suits your needs—it can be for anything from personal websites to businesses, although you have to keep in mind that your domain name is unique, as two domains with the same name can't exist. You can check if a domain name already exists by going to any registrar website, going to the 'Whois' feature and checking from there.

Other ways of using a domain name are in an email address and hosting services like online apps, Cloud services (Google Drive, iCloud) and as previously mentioned, Websites.

The domain name www.mcast.edu.mt is used by MCAST as an easy way to be read by humans instead of having a long IP address.

DNS

What is it, and how is it used?

DNS stands for Domain Name System. As previously mentioned, it translates domain names into IP addresses, making it easier for computers to locate and access the mcast website. DNS servers allow users to search using familiar words (in this case, they can use mcast) instead of memorising the numerical IP addresses of the website.

A DNS server is a computer database that contains all the public IP addresses associated with the names of websites. Every time someone searches www.mcast.edu.mt in the address bar of a web browser, the DNS finds the allocated IP address of that domain name.

DNS servers are important because they help computers understand domain names, which makes the internet fast and easy to use for its users.

HTTP/HTTPS protocol

What is it, and how is it used?

HTTP is a set of rules followed by web browsers in order to request and deliver a web page and other content. HTTPS does the same thing as HTTP, but it encrypts the data that moves between browsers, which makes it more secure and protects you from hackers.

HTTP is a fundamental protocol used to transfer data over the Internet, including web pages, images, and other resources. It typically communicates in plaintext, meaning the data is not encrypted. As a result, HTTP is not suitable for transmitting sensitive information such as passwords or credit card details.

HTTPS is the secure version of HTTP It encrypts data transmitted between the client and the server. This encryption is achieved through SSL (Secure Sockets Layer) or TLS (Transport Layer Security), making personal information difficult for hackers to intercept or read. Additionally, HTTPS often uses digital certificates to verify the identity of the web server, helping to prevent impersonation and other types of cyber attacks.

HTTPS is used for website security for those that contain sensitive data, like online banking and e-commerce (in this case, the MCAST website uses it to encrypt personal information, course applications, etc). This is done to make sure that communication with users is secure and encrypted. You can know if a browser is using HTTPS and is secure by seeing the padlock icon in the address bar. HTTPS is important because it prevents a lot of cyberattacks, eavesdropping and impersonation attempts.

https://mcast.edu.mt/ uses HTTPS, which means that the website is secure, and it ensures that the information that is sent and received is safe and encrypted.

SSL/TLS certificate

What is it, and how is it used?

An SSL/TLS certificate is a type of digital credential that ensures secure data exchange between a website and a user's browser. It is important for securing personal sensitive data like passwords and credit card information. TLS is the newer and more secure version of SSL, and it is the most commonly used of the two.

The certificate contains details about the website's domain name and organisation, which are validated by a trusted third party (includes: Website name, Company/organisation name, Certificate Authority that issues it, Expiration date and a public key which is used to create an encrypted connection). The encryption provided by SSL/TLS ensures that data exchanged between the browser and the server remains private and secure. Additionally, SSL/TLS helps protect online transactions. As mentioned earlier, HTTPS relies on SSL/TLS to secure web communications.

When you visit the MCAST website, which uses HTTPS (Hypertext Transfer Protocol Secure), your browser examines the site's SSL/TLS certificate to confirm its authenticity and establish a secure connection. If the certificate is valid, the browser sets up an encrypted link, allowing you to safely enter sensitive information such as passwords or credit card numbers.

Without this certificate, the website will not be secure, and the user's data will be at risk of being intercepted or stolen, which leads to the website losing users due to trust issues and a lack of safety. Users can know if a website is secure or not by looking at the browser bar and seeing if there is a padlock icon or if it says 'Not Secure'.

Gillis, A.S. (2020). *What is a web server, and how does it work?* [online]. Available at: https://www.techtarget.com/whatis/definition/Web-server. [Accessed on 10 June]

https://www.bluehost.com/blog/what-is-web-hosting/?utm_campaign=wordpress_PPC&utm_source=googleads&utm_medium=genericsearch&channelid=P61C101S570N0B5578A2D4499E0000V861&gad_source=1&gad_campaignid=22561436567&gbraid=0AAAADtGWPLPzL3ydSlVyjtqjUvPbhvz-&gclid=CjwKCAjwr5_CBhBlEiwAzfwYuK8GhpUYeMOh7YEqdVa1FBAqxNClL3tAcl4M5maG51_Y_JLQYhf8phoCgSgQAvD_BwE&gclsrc=aw.ds

Fortinet (2023). *What Is an IP Address?* [online] Fortinet. Available at: https://www.fortinet.com/resources/cyberglossary/what-is-ip-address. [Accessed 10 June]

MDN Web Docs. (2024). *What is a Domain Name? - Learn web development | MDN*. [online] Available at: https://developer.mozilla.org/en-US/docs/Learn_web_development/Howto/Web_mechanics/What_is_a_domain_name. [Accessed 11 June]

Fortinet (2022). *What Is DNS? Definition & How DNS Works*. [online] Fortinet. Available at: https://www.fortinet.com/resources/cyberglossary/what-is-dns. [Accessed 11 June]

Cyber Security Agency of Singapore. (2025). *Hypertext Transfer Protocol Secure (HTTPS)*. [online] Available at: https://www.csa.gov.sg/resources/internet-hygiene-portal/information-resources/https. [Accessed 12 June]

Amazon (2025). *HTTP vs HTTPS - Difference Between Transfer Protocols - AWS*. [online] Amazon Web Services, Inc. Available at: https://aws.amazon.com/compare/the-difference-between-https-and-http/. [Accessed 12 June]

Digicert (n.d.). *TLS/SSL Certificates | What are TLS/SSL Certificates and Why do We Need Them? | DigiCert*. [online] www.digicert.com. Available at: https://www.digicert.com/tls-ssl/tls-ssl-certificates. [Accessed 12 June]

Digicert (n.d.). *TLS/SSL Certificates | What are TLS/SSL Certificates and Why do We Need Them? | DigiCert*. [online] www.digicert.com. Available at: https://www.digicert.com/tls-ssl/tls-ssl-certificates. [Accessed 12 June]

Internet Services

Internet services are tools, functions, or platforms that utilise the internet to deliver content, communication, or resources to users' devices. These services enable people to browse websites, send messages, stream videos, access data, and much more.

The two Internet Services I chose that the MCAST website distinctly uses are **CDN** and **SSL/TLS.**

CDN (Content Delivery Network) is a global network of servers that store and deliver website content such as images, videos, scripts, and stylesheets. Instead of routing all requests to a single central server, a CDN delivers content from the server closest to the user, reducing latency and improving load times. On the MCAST website, this is used to import content to its users. It helps by distributing cached copies of static content (PDF, Course information, images) on global servers. CDN also ensures that when a user visits the website, it loads quickly regardless of their location.

Its value to users lies in its ability to load pages quickly, even when they contain high-resolution content. It remains accessible and performs well even during high-traffic times, for example, when enrollment applications open and many users access the site at once.

For administrators, the value of a CDN lies in improved website uptime and availability, even when the main server is experiencing high traffic or undergoing maintenance. Since the CDN handles the delivery of static files, it reduces the load on the main server and helps the website run more efficiently and reliably.

One improvement that could be made to the CDN usage on the MCAST website is enhancing the cache update system. Currently, when content is updated, it may take time to reflect across all CDN servers, which can cause users to see outdated information. I suggest using automatic cache purging to remove outdated content, which immediately allows users to always see the most up-to-date information without delay.

Cloudflare (2023). What is a CDN? | How do CDNs work? | Cloudflare UK. *Cloudflare*. [online] Available at: https://www.cloudflare.com/en-gb/learning/cdn/what-is-a-cdn/. [Accessed 12 June]

Akamai (2020). *What Is a CDN (Content Delivery Network)? | How Do CDNs Work? | Akamai*. [online] Akamai. Available at: https://www.akamai.com/glossary/what-is-a-cdn. [Accessed 12 June]

SSL/TLS is the security protocol used for data encryption between the browser and the MCAST website. It ensures that all sensitive information, such as passwords and application data, entered by users remains private and cannot be accessed by hackers. Since the MCAST website displays the padlock icon, users can be assured that the website is secure and utilises SSL/TLS.

Its value to users is that it protects sensitive information, such as personal details, and helps build trust by making users feel secure when using the website. They don’t have to worry about their information being exposed. Online forms, such as course applications and feedback, are also secured, ensuring that even anonymous submissions remain private and protected from data leaks.

Its value for administrators is that it supports data protection compliance and helps prevent attacks from hackers and the interception of sensitive information.

To enhance your SSL/TLS security, it's best to use the latest version (TLS 1.3), as it offers stronger protection for your website and data while also improving performance.

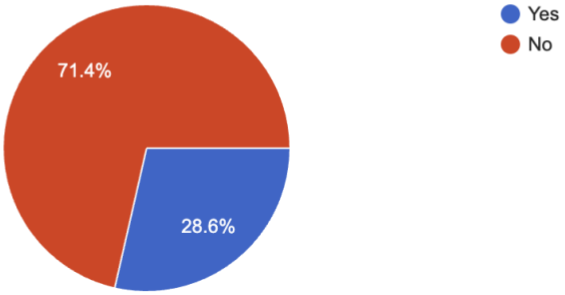
Task 2: Audience Research & Design Plan

Target Audience Research

Are you new to the MCAST website?

Copy chart

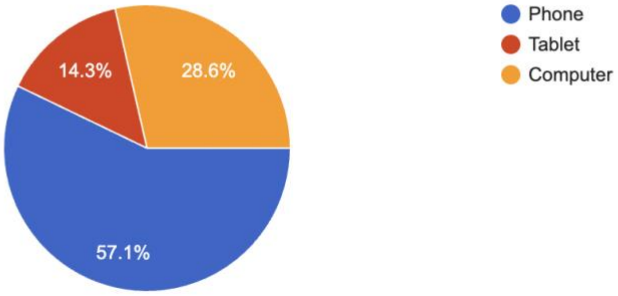
7 responses



Did you view the website on a phone, tablet, or computer?

Copy chart

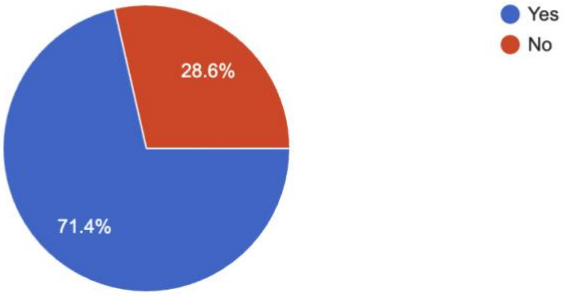
7 responses



Is the text easy to read and well-organised?

Copy chart

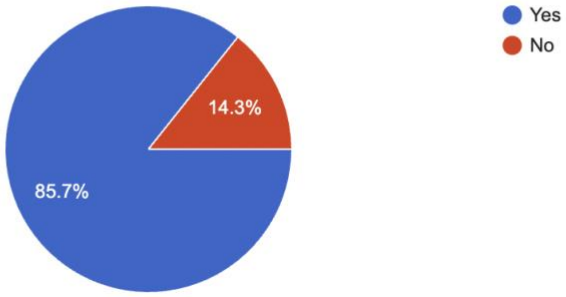
7 responses



Was finding the full-time course section straightforward?

Copy chart

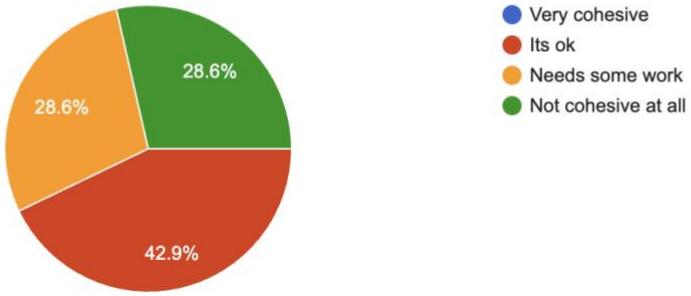
7 responses



In your opinion, how cohesive is the website's overall design and layout?

Copy chart

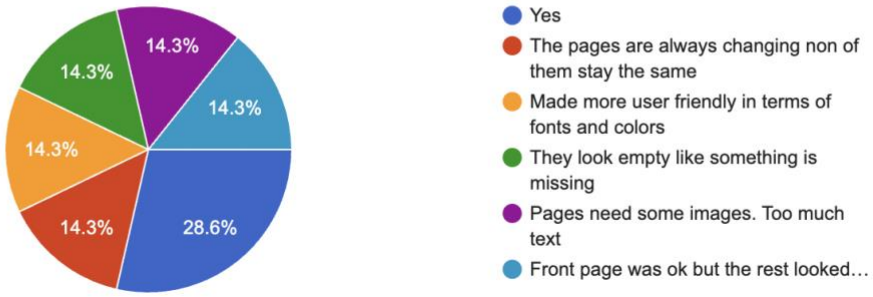
7 responses



Based on the pages you visited, do you find the pages visually appealing? If no, please write what you would change.

Copy chart

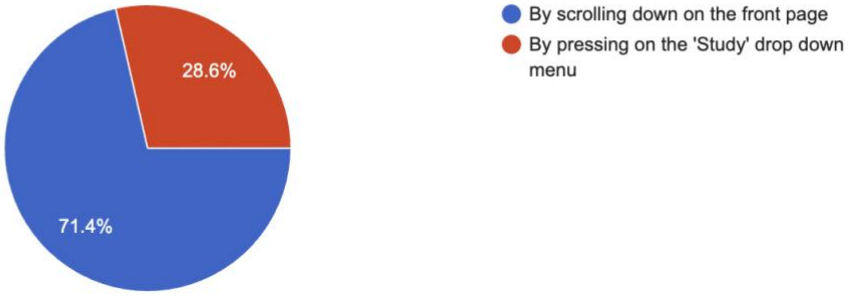
7 responses



Upon opening the website, how did you find the full-time course section?

Copy chart

7 responses



If you could change something on the pages you visited, what would it be and why?

5 responses

- The pages are all changing I would make them have different information but look the same
- Pages seem too boring for a school website
- I would add something to them maybe add some images or resort them so it doesn't look bland
- I had a hard time finding the courses because there was a lot of options to choose from. I would make it easier to find
- I would change some lay outs because they look different from each other

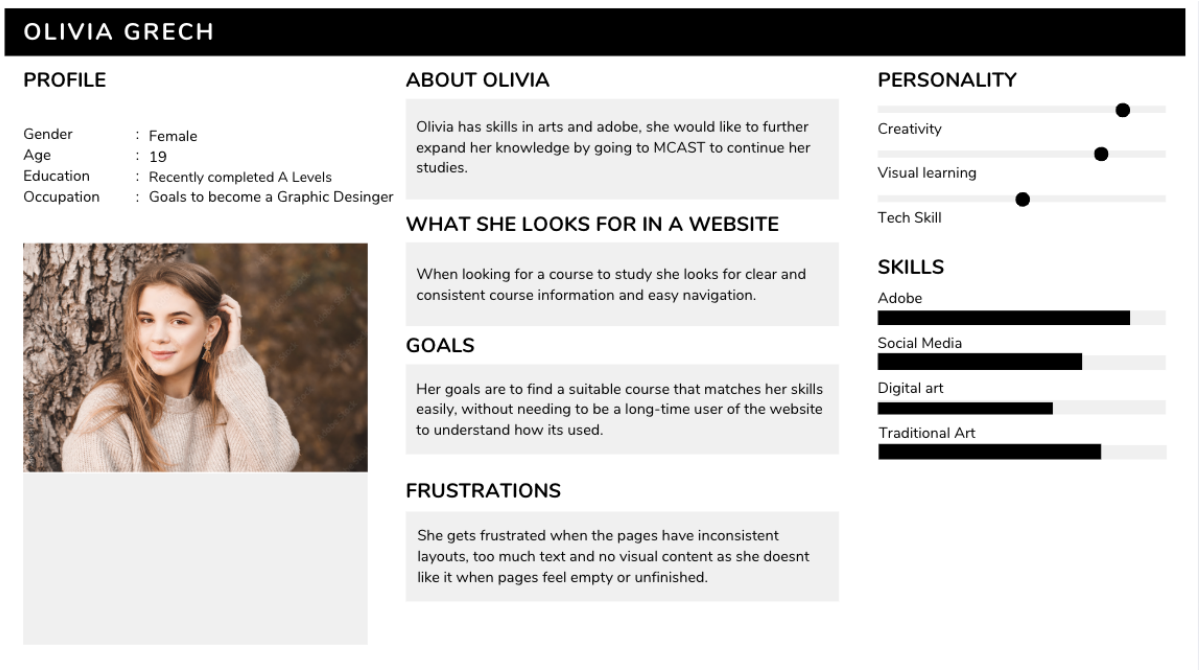
What would you not change on the pages you visited and why?

5 responses

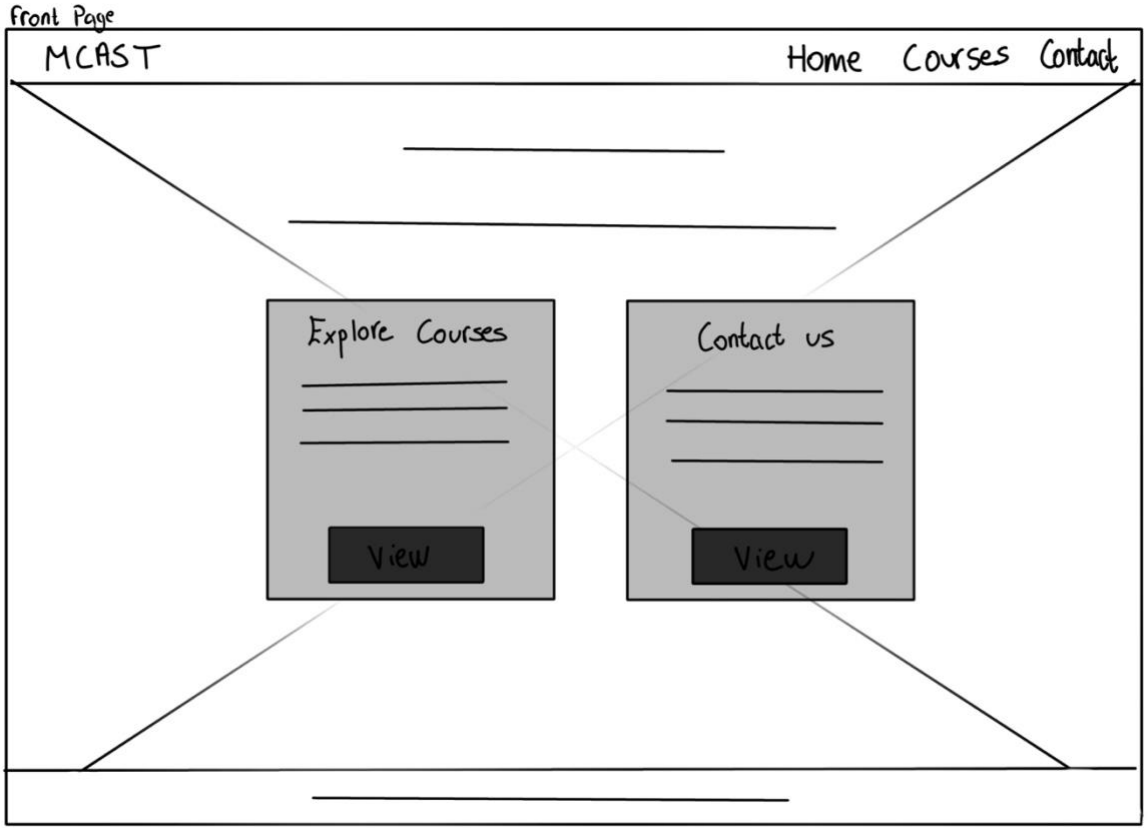
- The information is neath like on the course page I like that
- Rather than pressing on the list of courses button, have it show immediately the list
- I like how everything is sorted like for example the courses
- I like how there is an image with the institute page and how the courses are listed
- Everything is sorted I would keep the text like that

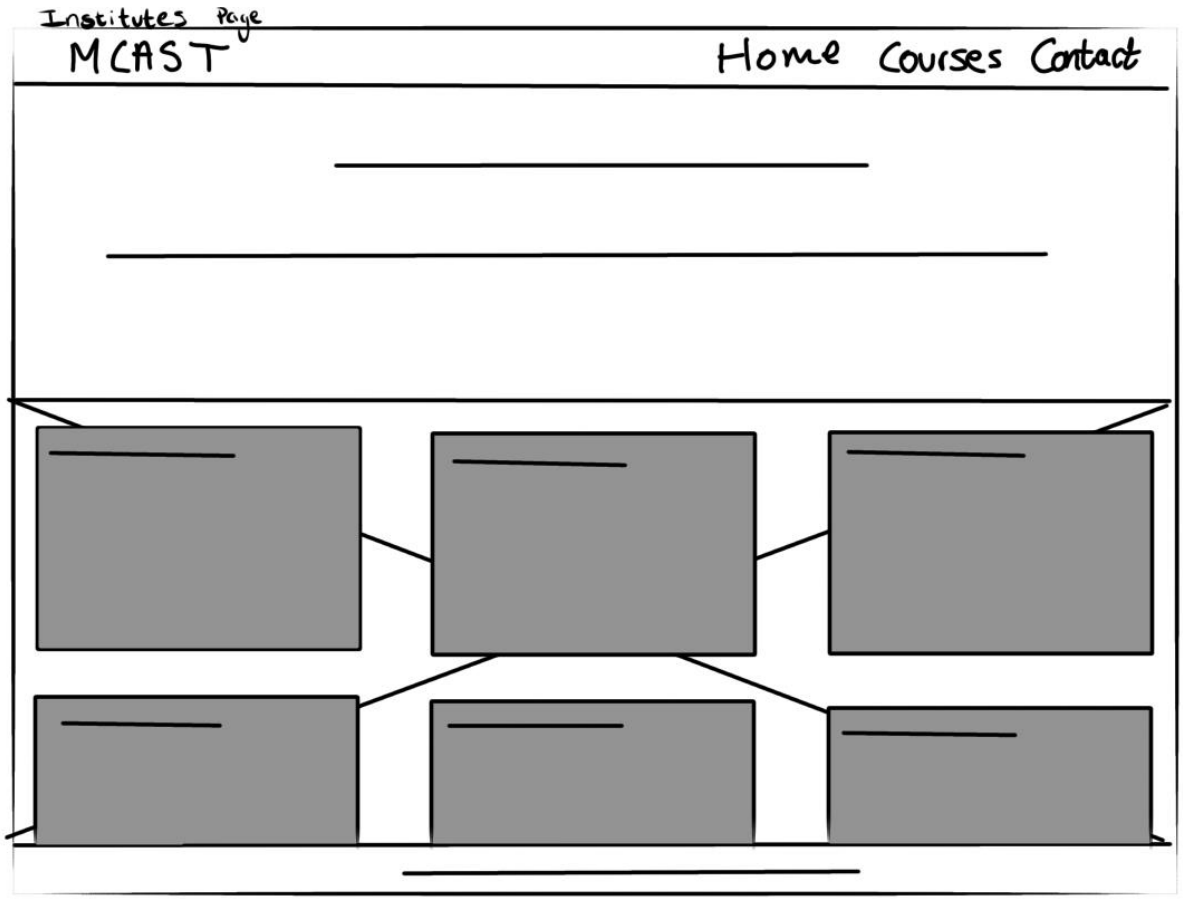
User persona

This user persona was created using feedback gathered from the survey results. Most users accessed the MCAST website through their phones. This question was important as the MCAST website appears differently on a phone, so the drop-down menu does not show up. A majority found the website somewhat cohesive but noted a lack of visual appeal, suggesting that users prefer modern, image-rich content. The user persona captures common frustrations and preferences of the surveyed users, offering a realistic profile that represents the average student exploring the MCAST website, looking for a full-time course to study.

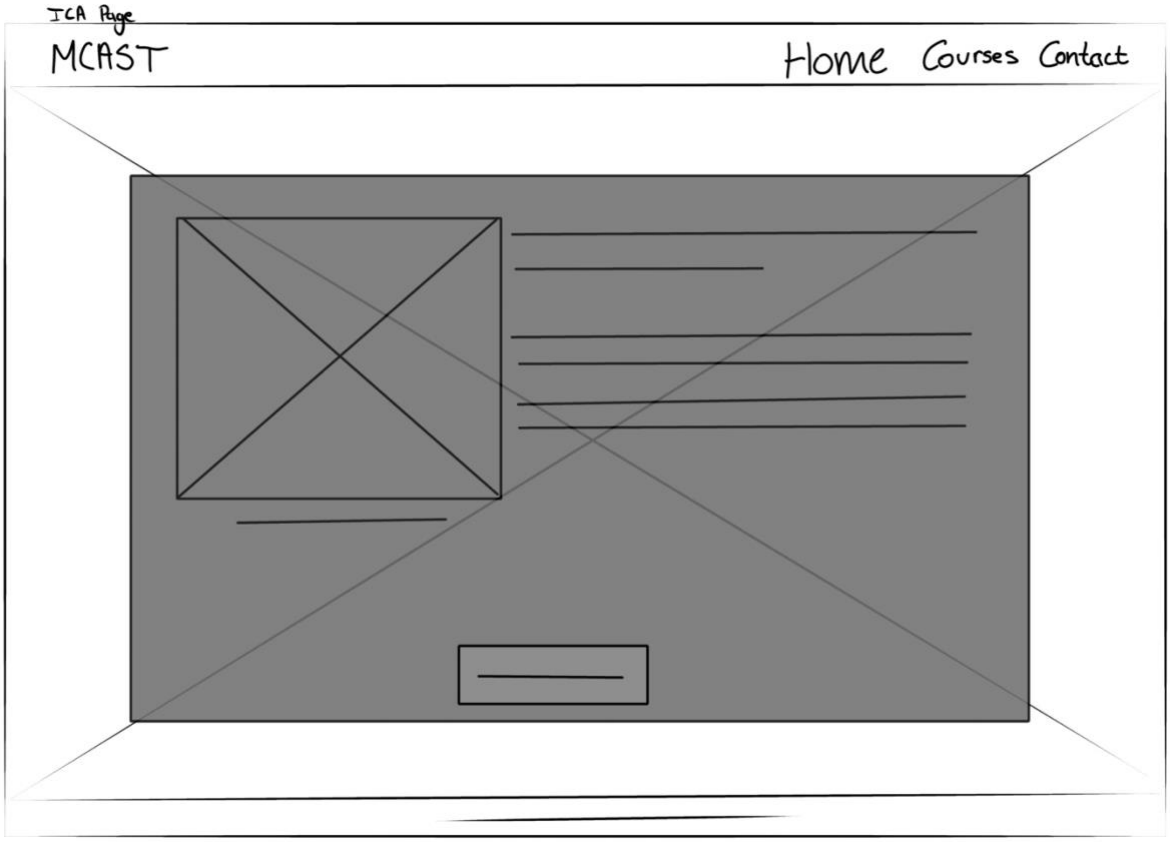


Low-Fidelity Wireframes

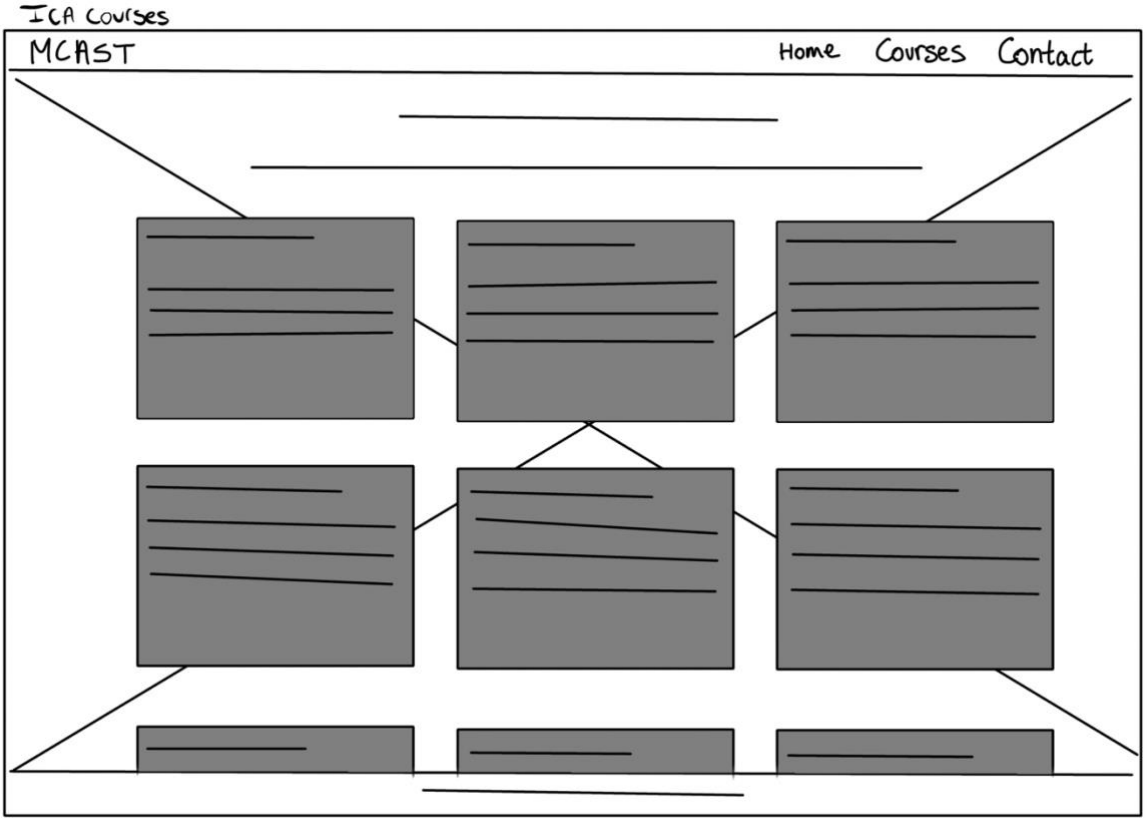


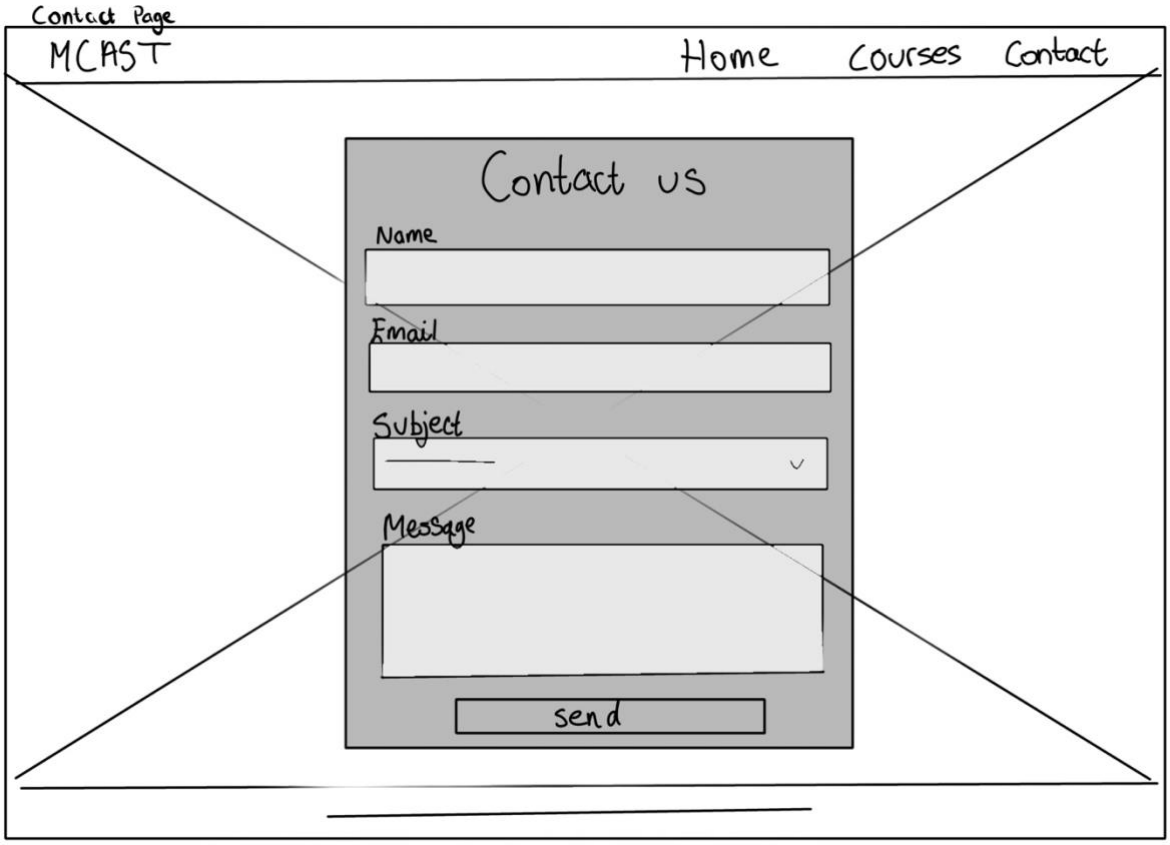


ICA Page



ICA Courses




Contact Page
MCAST
Home
Courses
Contact
Contact us
Name
Email
Subject
Message
send

Design plan

FONTS

PRIMARY

Aa **Montserrat Classic**

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

FALLBACK

Aa **Arial**

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

abcdefghijklmnopqrstuvwxyz
1234567890

Element	Font size	Front Weight	Usage
h1	3 rem	Bold	Hero headers, page titles
h2	2rem	Semi-bold	Section headings
h3	1.5rem	Semi-bold	Subheadings
Paragraph	1rem	Normal	Body text
Small Text	0.9rem	Normal	Captions, footer text
Navigation	1rem	Medium	Menu links

COLOR PALETTE

#000043 PRIMARY

#F9F9F9 SECONDARY

#333366 ACCENT WHEN HOVERING

#333333 TEXT

#888888 TEXT HOVER

SPACING

- Over all Padding (section blocks): 2rem (top & bottom), 1.5rem (sides)
- Card/Internal Containers: 1.5rem padding inside
- Spacing between elements (vertical rhythm):
- Headings and paragraphs: 1rem margin-bottom
- Between sections: 3rem margin-top
- Grid gaps (features or icons): 2rem

IMAGE STYLE

- Use high-quality, professional photos with good lighting
- Style: MCAST school and director.
- Slight border-radius: 8px
- Box-shadow: 0 2px 10px rgba(0, 0, 0, 0.1);
- Add opacity (0.3) and blur to the background image

BUTTON STYLE

Normal: Uses the colour #000043 for the button and white for the text inside
When hovering: Uses the colour #333366 for the button and #888888 for the text inside
Padding: 0.8rem 1.5rem;
Font-weight: bold;
Border: none;
Border-radius: 5px;
Transition: background-color 0.3s ease;
Text-decoration: none;
Display: inline-block;

LINK STYLE

```
Color: #000043;
  text-decoration: none;
  transition: colour 0.2s ease;

hover color: #333366;
active {
  color: #222255;
```

High-fidelity Mock-up