**MSA Cloud Fundamentals Report**

**Initial issues:** This website is not personal, it has generic themes, background, and text. It also is not optimised for images and lacks a SEO ranking/strategy. This site does not have a cache management system and does not have authentication security protocols. There is no data analytics tool to track engagement within a website. To build a successful website, it needs to be optimised for visitors to see content quickly, appear unique and be able to monitor traffic. In the future, there will be a need for users to interact with my website in different ways, such as sharing or commenting. Further plug ins will be needed to allow for a better visitor experience.

**Current Issues:** Image sizes need to be slightly readjusted for appearance. Social media sharing needs to be implemented; SEO needs to be optimised to rank higher when searched, keywords need to be added in specific areas of the website such as posts or timeline. Initial loading takes time due to cache management system, but once logged into the website, the load times between site pages is low.

**Plug-in Implementation**

**Front end theme builder:** These types of plugins will allow my website to be personal and promote a unique style. It will also allow me to add widgets and design my website more efficiently than going through WordPress itself. **Elementor**: This plug in is versatile, many elements built into one site editor with the use of templates and block style user input. It features an option to edit and design to mobile users, making it compatible to more users. Themify and Divi are similar editors but require a learning curve and are sometimes priced for certain useful features. On the bottom left there is a Responsive mode to uniquely edit the appearance on a desktop, tablet, and phone. After changing devices, the webpage did not work in certain devices. After adjusting spacing and sizes, the webpage was similar across all devices. Going into advanced settings in each block, changing margin settings to allow for appropriate space between content. Each page was built with sections first, added in images and then filled in the text last. Some blocks needed margin alteration and colours needed to be changed. This was done through changing margin values for each block structure. Animations were also added at the end, via the advanced editing tab. Timeline and Happy addons were installed to add useful widgets such as experience timelines.

**Cache Management – Code:** These types of plugins allow to minimise the amount of data being sent through the structure and page design created by programming. By minimising the amount of inbound and outbound data, the website will appear to be faster in loading pages. Creating a cache system based on browsers will also allow visitors to have a smoother experience once on the site. **Autoptomise:** Automatically optimises images being displayed, easy to use and does not require high level knowledge of cache and image processing. If needed, future expansion is available via high level programming and extra advanced features for CSS, JavaScript, and HTML optimisations. These features include aggregation of files, in-lining and generating data for URLs. All relevant options were ticked on the WordPress dashboard. Auto-optimise has better cache management for whitespace, unlike WP Fastest Cache. Ticked Gzip to minimise file sizes. Created a rule to clear cache every day at 5am server time. Set the homepage cache deletion every 3 hours. This should result in faster loading times and easier navigation for site visitors

**Cache Management – Image:** Images contain a lot of metadata and size. Reducing the inbound and outbound data is especially important for fast loading times and user experience. Optimising image cache will reduce the amount of data stored for an image and lead to a smoother experience. Lazy loading can also be enabled to only load the image when the visitor scrolls to it; this will also save data. **Smush Plugin**: Image compression made easier through bulk compression, do not need to individually compress images to increase speeds. Also gets rid of Image metadata to increase loading times. Lazy loading is enabled to stop image loading unless a site visitor scrolls down to the image. This decrease loading time and uses less bandwidth. Applied this setting to all images. This plugin also automatically compresses files upon upload. There are other plugins which have these features; however, this is the most appealing visually and easier to navigate, whilst having core useful features as compared to “ShortPixel Image optimizer” and “Imsanity”, which do not have data removal features for metadata nor backups. After implementation, Images should appear faster in the page and would only be slowed down when the visitor scrolls down to the image, meaning the website should be more responsive for loading times.

**All in one Search Engine Optimisation:** By having an all in one SEO plugin, optimisation becomes easier as relevant information and services will be provided to you by analytics. Extra information will be present, and it will encourage more research into page optimisations. **Squirly SEO 2020:** This plugin controls SEO Automation. Adding focus pages to track traffic and SEO goals. Connecting Google Search to SEO to monitor impressions and clicks. This plugin has a tutorial for SEO beginners and has a comprehensive step by step process to develop SEO. This process also includes weekly audits which is sent by email, to keep track of goals and status of SEO. This plugin also has Google Analytics and Search Console integration. Went through daily SEO goals. Squirly has built in 100% SEO protection, meaning it protects against negative scoring and google penalties because of duplicate content and no visibility. Went to focus pages to turn all red columns into green by completing relevant tasks such as entering keywords. Keyword research task was set up and added “Engineering Student”, “Mechatronics Engineer” into search. Downloaded a csv file and uploaded it with Keywords and went into options and selected “Optimise for this”. Website prompted for adding specific keywords into areas of the page.

**Authentication Security:** Security is essential when running a blog or personal website. By being able to add layers of security, these plugins create barriers to those who wish to access critical website details. This website already has https enabled; however, it is vulnerable to brute force attacks and needs authentication security. **Loginizer:** Protects against brute force login attempts. Fully customisable with error messages as well as the timing and attempts before locking down. Multistage prevention using lockdown and timers before another login attempt. Login attempts were set to 3 before lockout and other cool down timers were set for 1 hour and larger timers to 24 hours through drop down selection

**Indexing Plugin:** These types of plugins allow for ranking and indexing optimisation when a visitor uses a specific search engine. By creating a sitemap, the browser can identify and rank certain websites better and can lead to more visitors. **XML Sitemap Generator** was used to create a sitemap which allows google and Bing to accurately identify the website. This information is also linked to Squirly SEO which allows for further optimisation. Ticked the homepage, posts, and static pages to be included, updates on the homepage being highest priority as it will have timeline updates.

**File Management:** These types of plugins keep a record of files being uploaded and downloaded. Alongside this record, backups can be made of all files in an event of deleted or corrupted files. Paid versions of these plug ins allow for site management in the form of roles, given specific access to certain site administrators. **WP File Manager** was used to have a clear interface with all files. A backup was used in case data was wiped while experimenting with themes and plugins. This plugin was used consistently when constructing the initial design and features. The benefits of this plugin would be safety of information being kept on the website and also an interface to add or delete future files.

**Header and Footer:** This plugin was used to put in code for google search console. Several other plug ins and external services require verification via scripts. This plug in allows for an easy copy and paste solution for site verification.

Created Vector art on MS publisher to display as website icon and logo/favicon. Changing front end structure using CSS. Changed the header size to remove whitespace using following code. Steps were as follows: WordPress login -> customize -> Additional CSS

*Code added:*

. singular .entry-header {

padding-top: 0.1rem! important;

padding-bottom: 4rem! important;

}