Partner Spotlight

A Junior Engineer Case Study



Introducing Zaryab Hussain...

Design Engineer for Fluor who has held ambitions of becoming an engineer since childhood. Zaryab tells us about his challenging yet rewarding journey into STEM in our latest Junior Engineer Case Study.

In conversation with... Zaryab Hussain - Design Engineer for Fluor

When did you decide to become an engineer?

I decided to become an engineer because I have always been interested in math and science, and I enjoy using my analytical skills to solve problems. In my GCSEs, I excelled in physics and calculus, and I found myself drawn to the practical applications of these subjects.

As I began to research different career paths, I realised that engineering would allow me to combine my passion of science and math with my desire to make a tangible impact on the world. I was excited by the prospect of designing and building new softwares, machines, and systems that could make people's lives better.

Ultimately, my decision to become an engineer was driven by my passion for problemsolving, my love of science and math, and my desire to make a difference in the world. I believe that engineering will provide me with the tools and opportunities to achieve these goals, and I am excited to see where this career path will take me.

Was there anything during childhood or education that influenced your career choice?

Yes, there were several experiences during my childhood and education that influenced my decision to become an engineer. As a child, I was always interested in how things worked and loved taking things apart to see how they functioned. I was constantly tinkering with toys and gadgets, and this curiosity drove my interest in science and technology.

In school, I excelled in math and science courses, and I found myself drawn to the practical applications of these subjects. I enjoyed solving complex problems and was fascinated by the way engineers used their knowledge to create new technologies and solve real-world challenges.

In addition, I had a few inspiring teachers who encouraged me to pursue engineering. They helped me see the practical applications of the subjects I was studying and showed me how engineering could be used to make a real difference in people's lives.

As I continued my education and learned more about the field of engineering, I became even more convinced that this was the right career path for me. The opportunities for innovation, problem-solving, and collaboration in engineering are truly exciting, and I am grateful for the experiences and opportunities that have led me to this career.

In conversation with... Zaryab Hussain

How have you found your journey in STEM so far?

My journey in STEM has been challenging but rewarding. I have always been fascinated by science and technology, and pursuing a career in STEM has allowed me to explore my passion for these subjects and make a tangible impact on the world.

One of the biggest challenges I have faced has been the steep learning curve and the constant need to keep up with the latest developments in the field. STEM is a constantly evolving field, and staying up-to-date with new technologies and methodologies requires a lot of dedication and hard work.

However, the rewards of working in STEM make it all worth it. I have had the opportunity to work on exciting projects that have the potential to make a real difference in people's lives. Seeing my work come to life and having a positive impact on society is incredibly fulfilling.

Another aspect that I have found rewarding about my journey in STEM is the collaborative nature of the work. Working with other experts in the field and learning from their experiences has been a valuable part of my journey. STEM is a field where teamwork and collaboration are essential, and I have been fortunate to work with some incredibly talented and inspiring individuals.

Overall, my journey in STEM has been challenging, but the rewards have made it all worthwhile. I look forward to continuing to explore my passion for science and technology and making a positive impact on the world through my work.

What has been your biggest success in your career so far?

Recently I attended a Factory Acceptance Test (FAT) for a Safety Instrumented System (SIS) for a hydrogen furnace. This experience has been my biggest success in my career so far. In preparation for this FAT, I did a lot of research into safety systems and how they are critical in plant operation. This was a two-part test which comprise of hardware and software testing.

The hardware part included testing the physic. Software testing required testing the logic thoroughly to make sure it operates in a safe manner and performs as per the specifications. This experience allowed me to develop a deeper understanding and appreciation of safety systems and how they play vital role in industrial plant operations.

What has been your biggest challenge in your career?

As an engineer who has recently transitioned from an office-based design role to a field role, my biggest challenge has been adapting to the site conditions and work environment. In the office, my work primarily involved designing and development of control systems and instrumentation deliverables. However, in the field, I am required to undertake a wide range of responsibilities and be more physically active and to work in a variety of environments, be able to work with a wide range of stakeholders including the client and various subcontractors.

The physical demands of the job have required me to develop new skills, such as understanding the use of specialised equipment, working in confined spaces, and following safety protocols. Additionally, the field work requires more flexibility and adaptability than my previous officebased role, as I often have to adjust my plans to accommodate changing conditions or unexpected challenges.

Another challenge I have faced in my new field role is communication. In the office, I had frequent interactions with colleagues and clients, but these were primarily through email, phone calls, and video conferences. In the field, I need to communicate effectively with my team members and clients in person, often in noisy or distracting environments.

Overall, while transitioning from an office-based design role to a field role has been challenging, it has also been a rewarding experience. The field work has allowed me to gain a deeper understanding of the construction industry and has provided me with valuable hands-on experience that will inform my future design work. I am confident that I will continue to adapt and grow as I gain more experience in this exciting new role.

Are there any exciting projects you are currently working on?

I am currently working as a Field Engineer on installation of a new hydrogen-powered furnace project at Stanlow, the first of its kind at any refinery in the UK. This furnace is capable of running on 100% hydrogen, the furnace paves the way to decarbonising client's operations and cutting emissions at Stanlow by more than 240,000 tonnes each year from 2026.

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What advice would you give to young people looking at careers in engineering and technology.?

Explore your interests: Engineering and technology are broad fields with many different areas of focus. It's important to think about what interests you most and how you can apply your skills and passions in a way that will be meaningful to you.

Learn about the different types of engineering and technology careers: There are many different types of engineering and technology careers, including mechanical, electrical, control systems and instrumentation, computer, and civil engineering, as well as roles in software development, data science, and more. It can be helpful to research the different types of careers to get a sense of what might be a good fit for you.

Get hands-on experience: Engineering and technology careers often involve practical, hands-on work. Consider participating in internships, co-op programs, or other opportunities to gain real-world experience in the field.

Seek out mentors and role models: Find people who are already working in the field and ask for their advice and guidance. They can help you understand what it's really like to work in engineering and technology, and they may be able to provide valuable insights and connections.

Don't be afraid to ask for help: If you're interested in pursuing a career in engineering or technology, it's okay to admit that you don't know everything. Seek out resources and support to help you learn and grow as you explore this exciting and rewarding field.

What does the future look like and what are your goals?

Control systems and instrumentation engineering is a crucial field that plays a vital role in various industries, including manufacturing, energy, aerospace, and automotive. With the increasing demand for automation and control systems, the future of control systems and instrumentation engineering looks bright. Some of the trends that may shape the future of control systems and instrumentation engineering include:

Renewable Energy - With the increasing demand for renewable energy sources, engineers will be needed to design and implement control systems for solar, wind, and other renewable energy systems.

Automation - The adoption of automation in various industries will create a demand for engineers who can design and implement automated control systems along with integrated Machine Learning features.

As a Control system and instrumentation engineer, I'm eager to develop engineering and management skills and achieve engineering chartership. I want to contribute to asustainable future and be a part projects which would a positive impact on the world.