

# Structural Engineering

## What does the role entail?

A structural engineer is responsible for the physical, structural and mechanical design, analysis and development of products and components. They are responsible for ensuring that there is no undesirable twisting, bending, collapse or vibration of the structures that are designed.

The products and components cover a broad spectrum in BAE Systems, and make use of the latest materials, processes and technologies. Structural engineering plays a large part in the projects that BAE Systems undertake and the products that we deliver in all of the sectors where we operate (land, sea, air etc).

The importance of structural integrity is clear for all to see when delivering a product such as a nuclear submarine, a fighter jet, or an armoured combat vehicle.

Structural engineers will utilise a number of skills and processes depending on the projects they are working on or the departments they are working in. These skills could range from some simple hand calculations to complex Finite Element Analysis.

The ultimate goal is to design and deliver a product that meets and preferably exceeds requirements, while keeping costs to a minimum.

## What sort of person would be suited to it?

A structural engineer should:

- Have an interest in the subject
- Have good mathematical background
- Possess strong analytical skills
- Be creative/innovative
- Be self-motivated
- Be willing to learn and develop

## How does the role contribute to the business?

Structural engineering plays a critical role in the business. BAE Systems is a defence contractor and without structural engineers, we would not have physical products to offer our customers.

## What career progression may be possible?

Entering a structural engineering role through the Graduate Development Framework (GDF) provides many career and development opportunities. Throughout the GDF there is the opportunity to undertake up to and around 8 placements throughout the two years. The first placement will be in a structural engineering role and will be spent learning and developing skills while contributing to the projects in the department. The graduate can then decide on future placements with the approval of their mentor and discipline manager to develop themselves further in different roles within the business while obtaining a large variety of competencies.

A structural engineering graduate is encouraged from day 1 to develop themselves and work towards Chartership (CEng) and are registered with the Institute of Mechanical Engineers. The placements undertaken during the GDF are a great opportunity to pick up the wide variety of competencies required to become a Chartered Engineer. Chartership is obtained in a minimum of 4 years, however previous experience such as a year in industry can be claimed back and therefore it can be obtained in an even shorter period of time.

After the GDF, the graduate is assigned a permanent structural engineering role, and from here it is up to them where they want to go, whether it is down a technical route or eventually down a managerial route.

There are plenty of opportunities available in a company the size of BAE Systems; it all depends on the motivation and the aspirations of the employee.

For a graduate to consider working in Structural Engineering; the candidate would have a Mechanical/Marine related degree with a minimum 2:1 result.