

NPL Training brings geometrical tolerancing skills to Spirit AeroSystems

Spirit AeroSystems, a global organisation with a \$38 billion order backlog, depends on the knowledge and experience of its approximately 15,500 employees to produce complex Aerostructures for the world's leading aerospace companies. The company's position as a global market leader depends on building a high performance team to deliver operational excellence. The Company invests in employee development and is keen to support employees enhancing their skill set for the benefit of both parties.

Design Engineer Laura Rennie, who is based at Spirit's Prestwick site, recently identified The National Physical Laboratory's (NPL) Geometrical Tolerancing Course, delivered by Iain Macleod Associates, as a way to advance her career by developing skills in an area to support the Company's growth. Having completed the course, she was able to join a major new project working on the Airbus A350 programme, a job she particularly aspired to be part of.

Geometrical dimensioning and tolerancing (sometimes referred to as GD&T) is the formal way of defining and tolerancing the geometry of mechanical components. It uses a range of symbols indicating the properties of each aspect of the design, such as the position or angle of a feature on the work piece, and values showing the degree of variation acceptable. Drawings unambiguously define the geometry, so that suppliers can understand the specific features of design and best plan the manufacturing and assembly process.

Precise manufacturing is vital in the aerospace sector. Separate parts made in different places must fit together perfectly. When a manufacturer is sourcing parts from all over the world, it is essential that the entire supply chain is working with the same system.

Over recent decades the aerospace industry has gradually made the transition from bespoke assembly, to making all parts uniformly with a high degree of repeatability. GD&T is therefore becoming increasingly important with most major aircraft manufacturers requiring their suppliers to use the system.

Laura joined Spirit AeroSystems seven years ago on a quality engineer apprenticeship and worked in various roles before moving into design. She was particularly keen to work on the Airbus A350 programme, a job which required an in depth knowledge of geometrical tolerancing.

To fulfil this ambition, Laura and a few colleagues supported by Spirit AeroSystems, enrolled on NPL's Geometrical Tolerancing - Level 1 Course. The course covers the principles of GD&T in detail, explaining how it is applied universally to manufacturing processes, and specifically to issues in the aerospace industry. It is designed to give participants a thorough understanding of GD&T that they can immediately use in their work.

After completing the course, Laura and her colleagues all felt comfortable with the system and were able to apply this learning immediately in their day jobs. Her newfound skills have also allowed the team to deliver GD&T based projects and grow the areas of their business that involves this increasingly important system.

Laura says: "The instructor explained the topic really well, using physical examples as well as presentations. We left with a clear understanding of what the symbols meant, which we could immediately apply to the job."

"The fact that this is an NPL Training Course and the trainer is assessed and validated by them provides a high degree of confidence that it will be based on reliable manufacturing and measurement practices. This assured me that the course would cover what I need to meet industry standards".