

# Job Specification

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## Senior Design Engineer

**Responsible to:** Head of Engineering

**Grade of post:** Senior

**Salary:** To be agreed

**Hours of work:** 37 hours per week

**Work location:** Oakley, Bedford

### Role Purpose:

Is to support the mechanical design, testing and integration of electric power and propulsion system for electric aircraft applications.

### Key Responsibilities

- Design of integrated electric propulsion mechanical elements, power transfer systems and mechanical and thermal interfaces.
- Derive specifications from product requirements for sub-systems such as cooling system, mounting system including ant-vibration, bearing housings, fastener systems, support structures, sensors and monitoring systems, etc.
- Design of composite static and rotating structures (both monolithic and sandwich types).
- Perform conceptual and detail design of composite blades.
- Modelling and drafting using Solidworks CAD design software.
- Carry out trade studies and generate design concepts to meet the design requirements and to arrive optimum design configurations.
- Interact with other teams/ partners to understand their mechanical challenges and propose solutions.
- Collaborate across varying engineering disciplines such as electrical and controls.
- Innovate mechanical solutions for fast, light weight and cost-effective product development.
- Carry out tolerance analysis on components and assemblies and ensure proper fit and function.
- Evaluation of structural behaviors, selection of materials and design for manufacturing (DFM).
- Structural design to accommodate passive and actively cooled thermal management system.

- Create and maintain documentation supporting product development including tolerance studies, analysis and assembly.
- Prepare and present stage gate reviews.
- Data and configuration management using product life cycle management software.

### **Other Duties and Responsibilities**

- To actively participate in Blue Bear's Performance Management Scheme.
- To undertake such other duties and responsibilities as may be reasonably required within the grade and level of the post.
- You will be expected to perform different tasks as necessitated by your evolving role within the company and the overall business objectives of the company. Some travel within the UK may be required.

### **Equality and Diversity**

We are committed to the promotion of equality of opportunity in all of our activities and to encouraging access to our organisation from all groups irrespective of the equality strands. We are working to create an environment in which cultural diversity and individual difference are positively valued in an atmosphere free from harassment and discrimination. We take our legal and moral obligations with respect to equal opportunities seriously and welcome dialogue with individuals on ways in which our equal opportunities policies and practice can be enhanced.

### **Health and Safety**

The organisation together with the assistance of all employees are fully committed to developing a positive safety culture.

We encourage and support employees becoming involved in and participating in health, safety and welfare matters. Our goal is to motivate and empower all employees to work safely and protect their long-term health, not simply to avoid accidents.

## PERSON SPECIFICATION

<b>Education/Qualifications</b>	<b>S/L</b>	<b>I</b>	<b>A</b>
<i>Essential:</i>			
• BS in Mechanical/ aerospace or equivalence	X		
<i>Desirable:</i>			
• MS/ PhD in Mechanical/ Aerospace or equivalent	X		
• Background in Mechatronics and/or Robotics	X		
<b>Knowledge and Experience</b>			
<i>Essential:</i>			
• 10 years of design experience in aerospace/ automotive domain	X		
• 3D CAD modelling proficiency using Solidworks	X		
• Design of composite structures	X		
• Experience with turbine blade design and manufacturing	X		
• Knowledge of rotating systems and their associated design and implementation challenges	X		
• Familiar with digital design tools and automation of design process	X		
• Experience in working with multi-disciplinary team	X		
• Ability to interpret material and process specifications	X		
• GD&T and tolerance stack analysis	X		
• Basic understanding of material, mechanical, thermal and structural behaviours and issues	X		
• Good understanding of gas turbine components and materials requirements	X		
• Knowledge of metallic and composite materials, types, specifications, properties and their applications	X		
• Manufacturing experience of rotating machines and test evaluations on vibration, noise and temperatures	X		
• Experience of using design tools such as PLM and DFMEA	X		
• Ability to work in a fast pace design and development process	X		
<i>Desirable:</i>			
• Understanding of gas turbine physical and functional characteristics	X		
• Testing to ensure reliability	X		
• Experience of AS9100 quality system	X		
• Experience with electrical machinery	X		
• Experience of working with electrical and electronic systems	X		
• Experience with passive and actively cooled thermal management system	X		
• Experience with gas turbine certification	X		
<b>Personal/Behavioural Attributes</b>			
<i>Essential:</i>			
• Communication and presentation skills	X	X	
• Personal drive with interpersonal skills	X	X	
• Open to develop new technologies	X	X	
<b>Other Requirements</b>			
<b>Safety Critical Role</b>			
<b>Subject to security vetting to a minimum SC level</b>	X		

**S/L = Short Listing      I= Interview      A=Assessment**