TURBINE BLADE & DRIVE TRAIN ENGINEER

As a Turbine Blade & Drive Train Engineer at QED Naval Ltd, you will play a key role in the design, analysis, and optimization of turbine blades for our cutting-edge tidal projects. This is using traditional BEMT methods to develop blade designs but then be familiar with unsteady loading calculations such as Actuator Line Method (ALM) or equivalent OpenFOAM methods. Once the performance of the blades have been assessed then the structural capabilities will be analysed and the necessary modification to the design made in this design loop. Finally, the whole drive train including the Bi-blade hub, shaft, bearing housing, nacelle and transition piece need to be assessed to ensure they are fit for purpose and in accordance with Class rules. You will work closely with cross-functional teams to ensure the reliability, efficiency, and performance of our tidal turbines.

RESPONSIBILITIES:

1. **Turbine Blade Design and Optimization:**
   - Lead the design and optimization of turbine blades for maximum energy capture and structural integrity.
   - Conduct simulations to improve turbine blade performance.
   - BEMT and ALM methods and OpenFOAM or ANSYS Fluent CFD

2. **Drive Train Engineering:**
   - Design, analyse, and optimize drive train components for tidal turbines.
   - Collaborate with mechanical and electrical engineers to ensure seamless integration of drive train systems.
   - Use of Spreadsheets, Matlab or Python analysis methods.

3. **Structural Analysis:**
   - Perform structural analysis and simulations to assess the durability and load-bearing capacity of turbine blades and drive train components.
   - Implement design improvements based on analysis results.
   - Strong FEA skills, specifically, ANSYS Mechanical or equivalent.

4. **Materials Selection and Testing:**
   - Select appropriate materials for turbine blades and drive train components, considering factors such as strength, fatigue resistance, and cost.
   - Good understanding of composite materials design and material properties along with metals and fatigue analysis.
   - Coordinate with materials testing teams to evaluate and validate material performance.

5. **Innovation and Research:**
   - Stay abreast of industry trends, emerging technologies, and research findings related to turbine blade design and drive train engineering.
   - Contribute to the development of innovative solutions to enhance turbine performance.

6. **Collaboration:**
   - Collaborate with cross-functional teams, including control engineers, and project managers, to ensure the successful integration of turbine components.
   - Work closely with external partners and suppliers to optimize turbine blade and drive train designs.

QUALIFICATIONS:
   - Bachelor's or Master's degree in Mechanical Engineering, or a related field.
   - Proven experience in turbine blade design and drive train engineering, preferably in the renewable energy sector.
   - Proficiency in CAD software and simulation tools for structural analysis.
   - Strong analytical and problem-solving skills.
   - Familiarity with materials selection and testing for turbine applications.
   - Excellent communication and teamwork skills.
   - Ability to manage multiple tasks and prioritize effectively.