

## Electrical Systems Engineer (Modeling & Simulation)-00004885

### Description

The Electrical Systems Engineer (Modeling & Simulation) will support an Integrated Product Team by design and development of dynamic and steady state simulation models of electric machines, power converters, and other electrical apparatus used in integrated gas turbine based applications which include electrical power, propulsion, and thermal management systems. This position will complete phased model development, documentation, verification, error remediation, validation, version control, and configuration management; dynamically respond to evolving objectives and emerging opportunities while working in coordination with a multidisciplinary, energetic team of engineers and scientists; complete phased model development, documentation, verification, error remediation, validation, version control, and configuration management and may be assigned projects that range from research and development of new technologies to design and support of production equipment. Additionally, this position will recommend and maintain rules, tools, methods and design guidelines specific to model and simulation design and integrate with other Rolls-Royce sites as needed; provide technical support for mentoring to enable a cross functional group of engineers; participate in technical audits and customer design reviews and be accountable for the technical quality of the work package deliverables.

### Qualifications and experience

**Basic:**  
BSEE with 9+years of electrical systems modeling experience. Prior experience to include creating time domain models electric machines in the qd-reference frame and power converters, inverters, and rectifiers. US Citizenship is required and must be able to obtain a secret security clearance.

**Preferred:**  
Masters or PhD in Electrical Engineering is preferred. Experience with MATLAB® and Simulink® and related toolboxes.  
Ability to perform steady state and dynamic trade studies for preliminary / conceptual design activities. Ability to quickly perform conceptual studies to support proposals / acquisition of new business. Demonstrate a broad knowledge of mechanical, electrical, and thermal systems and devices, functionality and performance.  
Knowledge of numerical methods for the solution of differential, partial differential, and nonlinear systems of governing equations, methods and techniques for the integration and simulation of isolated model descriptions, and cross disciplinary technologies and knowledge of theory related to average-value and/or reduced order models of various electric machine and power electronics topologies. Experience with circuit based dynamic simulation tools such as Simplorer, PLECS, and SABER; designing control algorithms for electric machinery, drive systems, and power converters and optimization techniques for component and system level optimization. Experience with verification and validation of simulation models for electric machines and power electronics. Knowledge of gas turbine engines and requirements of gas turbine driven generators.  
Cross disciplinary understanding including mechanical, thermal, and/or electrochemical systems, functions, and performance.  
Knowledge of simulation language standards such as VHDL-AMS, Verilog, Verilog A, MAST, SystemC, SysML and simulation languages such as C, C++, FORTRAN, etc.

**Job** Electrical

**Primary Location** US-IN-Indianapolis

**Schedule** Full-time

**Opening Date** 17-Mar-2010

**Closing Date** 17-Apr-2010