

**TECO-Westinghouse Motor Company, Round Rock, TX**

**Position: System engineer of Power Electronics**

**Title: Principal engineer**

**SUMMARY**

The Power Electronic System Engineer is a high-impact and dynamic role, which will engage in the electrical and systems engineering disciplines to design motor drive and renewal power conversion as well as provide guiding to other engineers. In this role, you will be part of the power electronics design team where you will demonstrate leadership supporting silicon carbide inverter and converter designs for motor control, electric vehicle charger and energy storage applications.

**ESSENTIAL DUTIES AND RESPONSIBILITIES**

- Apply innovative design techniques to medium voltage motor drive and high-power converters.
- Work in a fast-paced team environment on a variety of R&D and production programs.
- Provide technical leadership to personnel / multi-functional teams supporting the assigned project.
- Recommend approaches to meet the technical and program requirements.
- Participate and/or present in program reviews.
- Perform power electronics topology study and circuit design for advanced converter and inverter.
- Design analog and digital control circuit and provide guideline for board layout.
- Conduct worst case analysis of circuit implementations and system functional performance.
- Perform circuit and system level modeling and analysis using spice, MATLAB, Simulink, or other comparable tools.
- Investigate control algorithms utilizing computer simulation or HIL tools for motor control, power conversion and grid connection.
- Work with firmware team to translate algorithms into software implementation.
- Test, validate, and troubleshoot controller implementation.
- Document the requirements, designs and test reports.
- Develop control/protection logic and program PLC for system level integration and commission.

**Minimum Qualifications:**

- Appropriate combination of degree & experience developing, implementing, and testing power electronics and motor controls (BS + 5 years, MS + 3 years, or PhD + 0 years)
- Working knowledge in the following areas: medium voltage system, motor drive and control, solar array, and battery storage system, EV charger.
- Knowledge of device characteristics relevant to power electronics, such as: MOSFET, GaN, SiC, IGBT, diodes, capacitor, laminated bus, FPGAs, DSP, etc.
- Experienced in sampling theory and ADC/DAC implementation for feedback and closed-loop control a plus.
- Strong analytical skills with solid device, circuit, and controls theory fundamentals
- Strong hands-on testing and troubleshooting skills.
- Experience with MATLAB, Simulink, or other system simulation tools.

- Experience with embedded firmware development for real-time controls systems.
- Familiarity with safety and compliance standards for grid-connected power electronics.
- Familiarity with grid operation is a strong plus.
- Regular attendance is an essential function of this position.
- Other functions as required (non-essential functions).

#### **SCOPE, PURPOSE, AND FREQUENCY OF CONTACTS**

The position requires daily contact with all levels of TWMC and customers including Engineering, Marketing, Factory Operations, Supply Chain, Service and Accounting.

#### **QUALIFICATIONS**

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required.

#### **EDUCATION AND EXPERIENCE**

- Bachelor's degree (B.S.) from four-year college or university in Electrical Engineering with five plus years of related work experience, or Master's or PhD. degree preferred, or equivalent combination of education and experience.
- Three to five years of experience using relevant EAD, CAD, and simulation software.
- Three to five years of experience using applicable industry standards.
- Three to five years of experience managing projects or leading a team.