Job Title - Quality Assurance Engineer - Optical Metrology

Overview:
Strong - Quality Assurance Engineers, assigned to the optical alignment and metrology sub-team within the Hardware Quality Assurance Project Leads Group (5122). Responsible for designing, proposing and implementing optical alignment solutions and methods for complex flight project needs. An important aspect of this assignment involves the application of advanced optical metrology principles to independently conceive plans to solve difficult alignment problems that are multifaceted and cross-disciplinary in nature. Develop test documentation and compose test plans that meet project requirements and work with cross-functional teams to plan work flow. Provide alignment, mapping and measurement services to a variety of customers, help multi-discipline teams solve complex problems, and report results verbally and in writing. Analyze measured data to help engineering teams to verify final system requirements, ensure the integrity of your data, and be able to provide services across multiple projects simultaneously, maintaining both project schedules and measurement dependability. Apply advanced knowledge in field to review engineering drawings and plans, explain and negotiate measurement approaches and work to established plans and schedules. You will also be expected to identify subtle alignment issues early, address them quickly, and provide constructive feedback and recommendations on plans developed by others. Candidates will also assess risks real-time and use engineering judgment to call a Halt/Stop to work when risks are deemed to be unacceptable during fabrication, integration, and/or test.

Responsibilities:

- Advanced knowledge in Optical Metrology and Alignment, along with one or more of the following areas: Geometric Dimensioning & Tolerancing, Dimensional Inspection techniques, Quality Engineering, Configuration Management, or Manufacturing processes.
- Ability to evaluate and understand the special challenges and nuances of 3D alignment equipment and making precision measurements on spacecraft, support and test equipment, facilities, and other associated aerospace hardware.
- An understanding of calibration and measurement errors, and their impacts on results is critical.
- Experience in a large aerospace company.
- Advanced knowledge of applicable industry and standards in design, engineering, fabrication, integration, test and launch of space-flight hardware.
- Demonstrated proficiency in mechanical hardware assurance methods (inspection, test, analysis).
- Advanced experience using Spatial Analyzer software, using theodolites, laser trackers, portable coordinate measuring scan arms, with the ability to effectively interpret measurement results

Required Skills:

- Requires a Bachelor’s degree in Manufacturing, Mechanical Engineering or Electrical Engineering
- 15 years of experience or 20 years equivalent experience. Direct experience in quality assurance engineering required.
- Must be a US Citizen
Job Title: Systems Reliability Engineer

Overview:
Come join us as we analyze the overall spacecraft system reliability for the next Rover mission to Mars, the Europa mission to search for life in the liquid oceans on one of Jupiter’s moons, or one of the many exciting Earth science missions that help us understand more about our own planet. We’re looking for an experienced Reliability Engineer who understands the complexity of analyzing systems that have never been built before. We look to characterize system risk in the absence of concrete reliability prediction and failure data commonly available to other industries. In the System Reliability group, we strive to ensure that our spacecraft risk is well understood, and to reduce the overall risk associated with our incredibly complex designs.

Responsibilities:
The System Reliability group provides system level reliability analyses, coordination, planning guidance, and support throughout the project lifecycle in order to increase confidence in mission success, and help projects understand and manage a wide range of risks associated with each unique mission. As a member of the System Reliability group (5138) within the Reliability Engineering and Mission Environmental Assurance Office (513), the candidate will have the following responsibilities:

- Perform various system level reliability analyses for multiple projects, review these analyses and generate relevant documentation in accordance with standard JPL procedures.
- Apply appropriate techniques and processes to quantitatively assess system risks, and recommend/evaluate architectural changes to system hardware, software, or flight operations in support of institutional and project level risk management processes.
- Apply methods for acquiring quantitative failure statistics such as failure rates and probabilities from flight and test data.
- Develop Model Based Systems Engineering (MBSE) techniques for system reliability and integrate them within the JPL MBSE infrastructure.
- Develop reliability requirements for systems, subsystems, and assemblies in support of risk management activities and the overall Systems Engineering processes.
- Attend project reviews and technical meetings as the representative for the System Reliability Engineering group, and generate required documentation for required decision gates.
- Create new reliability analysis methods or techniques, and suggest improvements to existing methods in order to improve the overall System Reliability products.
- Conduct reliability design analyses for board and box level digital, analog, mixed-signal, and RF electronics.

Required Qualifications:

- Bachelor's degree in Aerospace Engineering, Systems Engineering, Electrical Engineering, Computer Engineering, Industrial Engineering or related technical discipline with typically a minimum of 6 year of related experience; or Masters degree in similar disciplines with 4 years of experience.
- Experience with System Reliability analysis methods such as Fault Tree Analysis, FMECA, Probabilistic Risk Assessment, Root Cause Analysis, etc.
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- Ability to use qualitative reliability analyses to gain insight into overall system risk, support the Risk Informed Decision Making (RIDM) process, and make recommendations to project managers.
- Experience with the Systems Engineering lifecycle process and products associated with system development and operations.
- General knowledge of spacecraft design principles and operational characteristics.
- Understanding of electrical engineering concepts beyond basic foundation courses.
- Demonstrated ability to communicate effectively, work well within a team environment and interact with all levels of the organization, including internal and external customers.
- Good organizational skills and ability to meet deadlines.

Desired Qualifications:

- Project leadership experience leading small teams to complete projects with cost/schedule/technical management.
- Experience in Statistics or Probability theory or analysis, including Bayesian Statistical Analysis.
- Experience with Risk Management and quantitative risk assessment.
- Continuous Process Improvement mindset.
- Familiarity with Model Based System Engineering (MBSE) practices or system modeling techniques.
- Understanding of PSpice circuit simulation analysis tool.
- Experience working with data mining or manipulation of large data sets from multiple repositories.
- Programming skills in JAVA, Python or similar programming language.

Job Title: Hybrids Parts Engineer

Responsibilities
- This section is responsible for reviewing all Electrical, Electronic and Electromechanical Parts (EEE) parts for reliability related performance and advises the projects on part selection, conducts scientific experiments or theoretical analysis to determine the physical behavior of parts in a space-like radiation environment, oversees part procurement to ensure compliance with engineering requirements and maintains part inventories. As an Electronic Project Parts Engineer, you will be responsible for the following:
  - Implement the electronic parts program for flight projects.
  - Advise projects on the electronic part selection that maximizes reliability while considering schedule and cost constraints.
  - Oversee electronic part procurement to ensure compliance with engineering requirements and maintain part inventories.
  - Apply advanced understanding of electronic parts and project risk to define part quality requirements at onset of project work.
  - Estimate budgets for projects or large instruments that reflect multifunctional and/or multidisciplinary scope and monitor expenditures to assess the need for technical changes.
  - Report on screening and/or failure test results and advise senior management and project.
  - Advise project management on highly complex electronic part selections that maximize reliability while considering schedule and cost constraints.
Report status for all elements of the electronic parts program to project management at monthly and project reviews.

Utilize the Part Acquisition and Review System (PARS) to manage the parts program.

Serve as an essential team member within the Group, ensuring part reviews, screening, testing, and procurement meet project schedule and budget.

**Qualifications**

This position requires a Bachelor’s degree in Electrical Engineering, Physics, Materials Science/Engineering, Applied Mathematics or related technical discipline with typically a minimum of 6 years of related experience; a Master’s degree in similar disciplines with a minimum of 4 years of related experience; or a PhD in similar disciplines with a minimum of 2 years related experience.

Extensive understanding and experience in the selection, procurement, manufacture, use and testing/screening of high reliability electronic parts for space-flight applications.

- Ability to multi-task with an established track record of meeting milestone schedules.
- Excellent written and oral communication skills.
- Deep understanding and substantial use of common computer tools.
- Demonstrated leadership skills.

Preferred qualifications:

- Knowledge of Military, NASA, and JEDEC specifications and requirements related to electronic parts.
- Ability to work well with cross-functional teams, design engineers, line management, and project management.
- Contract Technical Management experience.

**Job Title: Digital Parts Engineer**

**Overview**

The Jet Propulsion Laboratory, based in Pasadena, CA is NASA’s lead center for robotic exploration of the solar system. We have an unmatched history creating groundbreaking advances in science and technology, and we’ve been in the space exploration business since the beginning. JPL builds rovers for Mars, landers for Europa, and spacecraft to study our changing Earth. How would you like to be part of a team that wants to make a difference within the universe?

**Responsibilities**

Are you passionate about evaluating potential approaches and solutions to new and unusual problems? How would you like to be a member of JPL’s Component Engineering & Assurance Office (CEAO)? This section is responsible for reviewing all Electrical, Electronic and Electromechanical Parts (EEE) parts for reliability related performance and advises the projects on part selection, conducts scientific experiments or theoretical analysis to determine the physical behavior of parts in a space-like radiation environment, oversees part procurement to ensure compliance with engineering requirements and maintains part inventories.

As a Digital Microelectronics Engineer, you will be responsible to:

- Evaluate, select and approve digital microelectronics from design, construction, quality and reliability perspectives for use in space missions.
- Advise project management on highly complex electronic part selections that maximize reliability while considering schedule and cost constraints.
- Develop part engineering specifications and drawings.
Interface with Mission Assurance Managers, Cognizant Engineers, and part manufacturers.
Support technical surveys and audits of digital microelectronics part suppliers.
Perform statistical data analysis and risk assessments.
Disposition test and inspection failures, including those during screening, destructive physical analysis (DPA), lot qualification, and receiving inspection.
Develop screening methods that effectively reduce risk in space and during manufacturing of digital microelectronics.
Drafting Source Control Drawings (SCDs)
Understand potential failure mechanisms affecting digital microelectronics and participate in failure investigations and reliability assessments.
Utilize the Part Acquisition and Review System (PARS) to review project parts lists and assess part compliance to project requirements.
Serve as an essential team member within the Group, ensuring part reviews, screening, and testing, and procurement meet project schedule.

Qualifications
This position requires a Bachelor’s degree in Electrical Engineering, Physics, Materials Science/Engineering, Applied Mathematics or related technical discipline with typically a minimum of 9 years of related experience; a Master’s degree in similar disciplines with a minimum of 7 years of related experience; or a PhD in similar disciplines with a minimum of 5 years related experience.
Other requirements include:
- Extensive understanding and experience in the review, selection, procurement, manufacture, use and testing/screening of high reliability digital microelectronics for space-flight applications.
- Strong working knowledge of circuits, packaging, and wafer fabrication.
- Knowledge of Mil-Std-883, Mil-Std-1580 and Mil-Prf-38535 and relevant JEDEC specifications and requirements related to electronic parts.
- Ability to multi-task with an established track record of meeting schedule milestones.
- Excellent written and oral communication skills.
- Ability to work well with cross-functional teams with design engineers, line management, and project management.
- Deep understanding and substantial use of common computer tools.