

## JOB DESCRIPTION - DESIGN ENGINEER

### Summary

The Design Engineer works primarily in DSM's Research Division, developing and testing mechanical and/or electrical hardware and software. Demonstrated skill in electronics or machine design is an important qualification for this job. Contributing to the composition of written reports and proposals is also an important part the engineer's role. DSM frequently develops piezoelectric and other specialized positioning systems, but the engineer's contribution will not be confined to these types of applications.

### Essential Functions

- Efficiently perform engineering calculations by hand and using common engineering tools such as ANSYS FEA, MATLAB, SciLab, etc.
- Adhere to company directives and best practices in obtaining quotes, purchasing and receiving materials, protecting IP, interfacing with customers, etc.
- Mechanical Focus – Build solid models and assemblies using mechanical CAD software. Make machining drawings and bills of material from solid models and assemblies. Good understanding is needed of tolerancing, fits, and engineering materials.
- Electrical Focus – Implement circuit diagrams using electronics CAD software. Make PCB layouts from circuit diagrams. Good understanding is needed of PCB design practices, trace width and spacing, wire gauge current ratings, etc.
- Test prototypes and production hardware. Analyze test results by making Excel spreadsheets or more advanced techniques.
- Without oversight, reliably document test results, design configurations, and similar data. Documentation may be in a log book, spreadsheet, formal report, or other method.
- Contribute to proposals and reports by providing well-written summaries, as directed.
- Assist more senior staff, as directed.
- Work on assigned tasks diligently and in a safe manner that protects yourself and others.

### Preferred Qualifications

- Completion of an ABET accredited Electrical or Mechanical Engineering program, minimum of bachelor's degree with GPA of at least 3.0.
- At least three years of experience in applied engineering, with relevant experience in areas such as circuit design, machine design, programming, prototype assembly & test, electrical and mechanical troubleshooting.

- Experience with common laboratory sensors and instrumentation such as encoders, LVDTs, multimeters, digital oscilloscopes, micrometers, and capacitive probes.
- Mechanical Focus – Proficiency with solid modeling and experience making machining drawings, bills of materials, and working with machine shops to produce hardware.
- Electrical Focus – Proficiency with electrical CAD for circuit design and PCB layout and experience getting PCBs fabricated and assembled, along with experience troubleshooting electronics.
- Understanding of good programming practices with application of them in a language such as LabVIEW or C++.

### **Work Environment**

Generally works in climate controlled office or laboratory environment but may occasionally be required to perform duties outside the typical office setting. May at times work in a loud environment with nuisance noise. Limited overnight travel may be required.

### **Behavioral Expectations**

- Internally motivated, “self starter” type personality.
- Reliable, can be trusted to work consistently on tasks without close supervision.
- Able to work on tasks individually or as part of a small team.
- A “life-long learner” that is willing to develop new skills and proficiencies.

### **Physical Demands**

- Can assemble small (e.g. 3 x 3 x 4 mm) delicate components by hand and can manipulate small hand tools.
- Electrical Focus – may at times need to efficiently solder small components (e.g. 7x7 32 TQFP) on printed circuit boards.
- Able to carry up to 25 pounds frequently.

**Overtime Status:** Exempt (Not eligible for “time and a half” or similar increased overtime wage)

Employees may be required to work with ITAR-restricted information, so applicants will be required to acknowledge their eligibility and acceptance of responsibility relative to ITAR before beginning employment. All employees must execute an employee non-disclosure agreement before beginning work at DSM. DSM is an equal opportunity employer.