

R&D Mechanical Engineer Job Description

- Conduct literature reviews and patent searches to evaluate mechanical technologies and research trends
- Investigate customer and market requirements, for new mechanical products or applications
- Develop theoretical designs and mathematical models to simulate mechanical systems and components
- Use CAD software for mechanical prototype, device, and equipment design
- Perform engineering calculations manually or with computer tools to analyze designs
- Develop detailed technical drawings, schematics, and specifications for prototypes and products
- Design and coordinate prototype machining and fabrication in workshop facilities
- Set up instrumentation and sensors to record test conditions and collect data
- Initiate test apparatus and perform tests on mechanical prototypes and systems
- Review test data, compare to predictions, and identify areas for design changes
- Document experimental methods, tests, results, and conclusions in reports
- Refine prototypes and modify mathematical models based on test results
- Collaborate with engineers and technicians to implement prototype modifications
- Consult with manufacturing engineers to transition prototypes into production.

- Evaluate prototype performance in terms of quality and durability through field testing
- Oversee engineering projects using the product development cycle
- Share presentations on research methodology, findings, and recommendations
- Participate or lead engineering design reviews throughout the development process
- Make engineering support available during patent application processes
- Provide supervision and mentorship for entry-level mechanical engineers
- Keep up with updating knowledge in mechanical engineering best practices and technologies
- Write and publish technical publications and research papers
- Team up cross-functionally with teams in design, quality, manufacturing, etc.
- Uphold safety protocols and make sure laboratory and prototype testing adhere to regulations
- Make sure engineering projects aligns with budget, timeline, and quality standards.