



Full Position Description

Mechanical Engineer – FE Analyst

The position of mechanical engineer – FE analyst is a hands-on position primarily responsible for conducting and/or overseeing all finite element analysis assignments and projects of moderate scope or for a significant portion or a sub-system of a major and diverse project. The successful individual for this position will be capable of operating in a team environment, providing input to design solutions and participating in design reviews.

This position will collaborate with other staff/team members and work closely with clients who may be industrial companies or university researchers. Specific activities include: finite element analysis in ANSYS Classic or Workbench and Pro/Mechanica, hand calculations and engineering analysis, design optimization, test fixture design, laboratory and field testing, design validation.

This position will be responsible for assisting service proposal development (scope of work, budgets, and timelines), client management, and presentations of results.

This position requires a highly motivated, results-driven self-starter who possesses creativity, confidence, excellent communication and analytical problem solving skills.

Specific Qualification:

- Bachelor's degree in mechanical or agricultural engineering, master's preferred.
- One to three years experience with finite element analysis of machine components and/or structures.
- Will require presentation of examples of finite element analysis experience during interview process.

Desirable Attributes:

- Solid understanding of finite element theory and classical analysis techniques; experience with computer-aided-design (CAD: Pro/Engineer and SolidWorks) and a good knowledge of applied/experimental stress analysis.
- Solid mechanical engineering background including the ability to understand mechanics and materials, statics, vibrations, dynamics, load paths, fracture mechanics and material elastic/plastic theory. Perform hand calculations and engineering analysis to analyze structural components and structures.
- Requires ability to think strategically and creatively. Highly motivated, results-driven self-starter with a passion and confidence to learn new finite element analysis techniques as required supporting project work.
- Must be able to work independently in a multi-tasking environment and within cross-functional teams.
- Possess the ability to clearly express ideas and communicate analysis/test results and recommendations both orally and in writing to clients, staff/team members, and management.

Specific Responsibilities:

Mechanical Engineering – Finite Element Analysis (80%)

- Finite Element Analysis (ANSYS and/or Pro/Mechanica)
 - Model Setup and Boundary Conditions
 - Acceptance Criteria and Test Correlation
 - Analysis of Results
 - Conclusions and Recommendations
 - Documentation and Follow-Up
- Linear Statics
 - Stress/Displacement
 - Bolted Joint
 - Durability and Fatigue Life Prediction
- Non-Linear Statics
 - Contact/Friction
 - Material Non-Linearity and Large Displacements
 - Durability and Fatigue Life Prediction
- Structural/Mechanism Dynamics (ANSYS and/or Pro/Mechanisms)
 - Dynamic Stress Analysis
 - Mechanical Linkages
 - Crash/Impact Analysis
- Non-Transient Thermal Analysis (Pro/Mechanica)

Project Coordination/Planning (10%)

- Support the coordination of client projects with respect to scope of work, budgets and timelines. Proactively identify and resolve potential issues concerning client contract completion. Monitor project results against expectations/specifications.
- Coordinate all acceptance/status/priority of client work and current/future resource loading requirements with Supervisory Manager.
- Support the development of client proposals in terms of outlining goals/objectives, scopes of work, budgets, timelines, and deliverables.
- Provide timely and accurate information to the AMI Information System (project management, labor tracking, etc.) to provide management visibility on all assigned projects.
- Coordinate planned work with other staff for coverage during personal absences.

Training/Mentoring (5%)

- Transfer of finite element analysis knowledge to staff and interns.
- Check all critical finite element analysis results and calculations, assumptions that can impact service quality and performance – provide feedback to staff and interns.
- Check/review all finite element analysis documentation for accuracy and technical soundness – provide feedback to staff and interns.
- Ensure all interns employ professional work practices.
- Document performance feedback regularly of interns being mentored.
- Develop/maintain reference materials/manuals for staff and intern training/development.



Professional Development and Internal Support (5%)

- Support design reviews/technical requests by other AMI staff as required.
- Identify skill development opportunities for future personal development.
- Participate in planning/selection of future technical personnel (interns/staff).

Note: The duties, responsibilities, and qualifications in this job description are representative categories only. These general guidelines do not constitute an exhaustive list of qualifications or essential functions for the position. There may be duties assigned or requests made of the person employed in this position that is not listed above.