

## Summary:

Position is member of a highly specialized staff of professionals providing mathematical and statistical consulting and analysis services primarily to Ph.D. scientific researchers, plant engineers, and business managers.

Responsible for developing, conducting and participating in technical studies involving chemical process and product development with emphasis on process optimization, and robust product design, through predictive modeling and statistical techniques. Additional responsibilities include plant data mining for performance monitoring, productivity, quality control and cycle time optimization to support plant operations. Primary customers are located in the technology, operations and business areas. Works independently on key projects, but most often participates in cross-functional team efforts. In addition, it is important to seek out new application areas, where business needs and data-driven technologies can be brought together profitably and possibly innovatively. A typical project will require the incumbent to understand a particular chemical/business process, aid in establishing the goals of analysis; identify/collect data needed for understanding the opportunity; formulate a mathematical model to achieve those goals, decide on an appropriate method of analysis, and report the results in a clear fashion. Frequently, the goal of such a project is that of productivity improvement, process optimization, and the incumbent must be familiar with sigma tools and methodologies techniques in order to provide effective technical assistance. The methodology employed in any particular problem may be a classical one, but often, the problem will dictate the development of a creative methodology which is not found in the literature. The incumbent will collaborate across multi-functional teams, communicate regularly and effectively within the technical communities and business management teams, and manage a portfolio of projects with various durations, different technologies and risk profiles.

## BACKGROUND AND QUALIFICATIONS:

- 5-10 years of experience in industrial problem solving with emphasis on analyzing process and business data coming from multiple sources. **Must have some business applications experience as well as process.**
- Position requires a Ph.D. in Chemical / Industrial / Mechanical Engineering with background in engineering sciences, applied statistics and computational modeling techniques.
- Must have strong knowledge of the state-of-the-art methods in data mining, numerical analysis, computational statistics and simulation techniques.
- Strong expertise in Sigma methodologies with emphasis on productivity improvement and quality control applications. Experience with real-time monitoring and fault diagnosis technologies is a big plus.
- Proficiency with stochastic modeling and optimization techniques for business data mining and reliability engineering.
- Strong programming skills with proficiency in SAS, MATLAB, Clementine and other data mining tools.
- Candidates should have a track record of accomplishments demonstrating technical proficiency, independent thought, scientific creativity, successful collaboration with others, and excellent communication skills.

## POSITION RESPONSIBILITIES:

1. Provide integrated consulting services in statistical modeling, numerical analysis and computational engineering sciences to the internal technology, engineering and business communities.
2. Perform process data analysis from plants for performance monitoring, quality control and cycle time optimization.
3. Perform applied research for process and product improvement through the combination of first principles engineering science models and computational techniques.
4. Develop mathematical and statistical models, solve numerical problems, write specific code as needed, and effectively perform applications testing to ensure robust performance.
5. Communicate technical results to a wide audience in a manner that the solution strategy and business impact are readily understood.
6. Work with universities and external research organizations to maintain technology leadership.
7. Teach in-house courses on topics including, DOE, Regression Analysis, Quality Control and Data Mining Techniques.
8. Participate in regular reviews of projects with business technology managers and business managers

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