



DEPARTMENT OF MECHANICAL ENGINEERING
Purdue School of Engineering and Technology

Summer 2003 Seminar Series

Date: Friday, June 6, 2003
Time: 10:00 am – 11:30 am
Room: SL 165

Everyone is invited

**Application of Statistical Methods
in Industry for Quality Engineering**

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Statistical methodologies and methods have been applied in industry for several years. The applications are rapidly developing as product quality can be improved effectively and dramatically by involving the concepts and technologies derived from statistics into design and manufacturing process. This study fulfills two applications of statistical methods in industry. In the first part of this study, the effects of tolerance and manufacturing cost on failure rate of an alternator were investigated and the tolerance chain was optimized so that both the failure rate and the cost could be kept at a low level. Design of experiments (DOE), i.e., classical fractional factorial design and Taguchi's method, were used as the strategy to conduct the experiments. Monte Carlo methods were utilized to simulate the experiments. In the second part of this study, the critical process control parameters which affect the quality of a die casting part was identified by conducting experiments using DOE technology. The study shows successful application of statistical methods in industry and it encourages wider and more in-depth utilization of these methods to improve product quality and reduce cost.
