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Product rework cost minimization via Industrial Engineering techniques

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A major cause of high manufacturing cost of a product today, is the cost of its rework due to design flaws. Rework cost can rise exponentially during the production phase of a product as compared to catching defects during its design phase. Statistical Process Control techniques that constitute the heart of sound Industrial Engineering practice, assist with the optimum design of a product. In particular, Process Control Charts, Univariate and Multivariate Process Monitoring and Control methods, Full and Fractional Factorial Designs of Experiments avoid rework costs. Beyond these Quality Engineering techniques, optimum product designs can also be secured via other viable Industrial Engineering techniques that include Linear programming, Dynamic Programming, Simulation and Modeling, Analytic Hierarchy Process, etc. Furthermore, these IE techniques allow an industrial engineer to perform systematic sensitivity analysis by tweaking key system parameters. This type of sensitivity analysis further facilitates the industrial engineer in selecting the most practical design solution from a feasible set. Ultimately, this IE approach of optimum product design reduces the overall product cost.

Biography

Muzaffar A Shaikh completed his PhD in Industrial Engineering from the University Of Illinois, Urbana Champagne. Currently, he is Associate Vice President for International Partnerships, Distinguished Professor, and Head of the Engineering Systems Department at Florida Institute of Technology, Melbourne, Florida, USA.

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