

## **A material and product audit method for determining the level of quality**

*S. Avakh Darestani<sup>a</sup>, M.Y. Ismail<sup>b</sup>, N. Ismail<sup>a</sup>, R.M. Yusuff<sup>a</sup>*

<sup>a</sup>Department of Mechanical and Manufacturing Engineering, Universiti Putra Malaysia (UPM),  
43400, Selangor, Malaysia

<sup>b</sup>Department of Manufacturing Engineering, Universiti Malaysia Pahang (UMP), 26300, Malaysia

### **ABSTRACT**

This paper introduces a method for evaluating material and product quality. The method is developed based on the normal distribution. For quantitative variable, the method divides the tolerance zones to 3 parts according to normal distribution  $\pm 3\sigma$  and assigns different scores to tolerance region. For qualitative variables, the method take decision base on the fact that the measurement result can be occurred on two states as accept or reject. Therefore, a Level of Quality (LOQ) will be measured for the product quality based on the measurement of different samples of lot by quantitative and qualitative variables. The method is validated by a numerical example included 2 dimensions.

### **KEYWORDS:**

Level of Quality (LOQ); Normal Distribution; Quality Audit; Quality Management System; Tolerance

## REFERENCES

1. Yu, H., & Fang, W. (2009).
2. Kumar, U., Kumar, V., Grosbois, D. d., & Choisine, F. (2009). Continuous improvement of performance measurement by TQM adopters. *Total Quality Management & Business Excellence*, 20(6), 603-616.
3. ISO. (2002). *Quality management system-Particular requirement for the application of ISO9001: 2000 for automotive production and relevant service part organizations (2 ed.)*: ISO copyright office.
4. Sower, v. E., Savoie, M. J., & Renick, S. (1999). *An Introduction to quality management and engineering*: Prentice Hall.
5. Tunner, J. R. (1990). *A quality technology primer for managers* Milwaukee: WI: ASQC Quality press.