

# **Impact of Cutting Forces on Machining Quality**

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## **Abstract**

This paper is about continuous monitoring for machining processes in order to optimize the machining process in terms of power utilization and machined parts quality characteristics. The focus is on CNC machining center to study the cutting forces using dynamometer apparatus that measures all the forces during the cutting process. Also a continuous temperature measurement is captured via an infra-red temperature measuring device connected via a data acquisition to a PC. Data is collected about the forces and temperature and the quality of the machined part is evaluated based on the surface finish. The feed and speed setting for the machined workpiece are changed to get the resulting forces.

**Keywords: CNC milling, cutting forces, surface finish**

## **Biography**

Dr. Basel Alsayyed is an assistant professor at the department of mechanical engineering in the United Arab Emirates University. With over 16 years of experience in academia in many colleges and universities, and over 12 years of industrial experience, most of which are in the American automotive industry, Dr. Alsayyed has a passion for education in general and teaching in particular. Teaching is an art, a trust, a valuable transformation of students using certain methods and tools, and it is holy, are all part of his belief. He practices it in all aspects of his life, and to Dr. Alsayyed, students are the most valuable element in the education process; their needs have to be addressed in any continuous improvement discussion of the education process. Integration of academia and industry goals and activities are paramount. Sensing the industry needs and prepare future engineers to meet the challenges is an important dimension of Dr. Alsayyed's activities.

Dr. Alsayyed research interests are in the areas of advanced manufacturing, quality & reliability, renewable energy, engineering education and knowledge management.