

# **Changeover Optimization on Cupcake Production Line at Gandour Factory**

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## **Abstract**

Gandour factory is one of the leading manufacturers in the Middle East that produces multiple products of sweets, snack, and baked goods. The factory aims to increase the responsiveness to customers' demand. Gandour factory has many production lines, one of these lines is a line that produces different flavors of cupcakes. When the factory changes from one flavor to another, 4 hours are lost to change the flavor and run the production line again, this time is known as the changeover time. Moreover, the factory changes the cupcake flavor five times a week, which results in 20 hours/week of time loss due to changeovers. The purpose of this project is to minimize the changeover time, and help the factory in increasing their productivity. Single-Minute Exchange of Dies (SMED), a lean manufacturing technique that dramatically reduces the changeover time, was used to reduce the time. The changeover time was minimized from 240 minutes to 108 minutes, which shows a reduction of 55%. Additionally, the results will increase the profit of the factory by an average of 1.5 million SR per year.

## **Keywords**

Changeover time, internal activities, external activities, lean manufacturing, SMED.

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## **Biographies**

**Abeer Gholam** is an industrial engineer fresh graduate from King Abdulaziz University in Jeddah, KSA. She won the first award in the scientific forum at King Abdulaziz University by doing a research that compares the hydroponic system and soil system in watering plants. Abeer took her internship at Gandour factory as a production engineer for a 3-month period. She worked on two projects to increase the efficiency of the production lines at the factory.

**Majedh Alzahrani** is an industrial engineer fresh graduate from King Abdulaziz University in Jeddah, KSA. She has taken extensive workshops in Six-Sigma. She took her internship at DB Engineering and Consulting for three months. She participated in the project of the metro between Jeddah and Makkah.

**Batool Bajkhaif** is an industrial engineer fresh graduate from King Abdulaziz University in Jeddah, KSA. She took her internship at Indomi factory for three months. She worked on a project that minimizes the losses on one of the production lines at the factory.