CERTIFICATE

The project entitled:

**LAYOUT IMPROVEMENT OF PLASTICS FACTORY**

which is being submitted by the following students:

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In partial fulfillment of the requirements for the award of the B.Sc. degree in Industrial Engineering has been carried out under my supervision and accepted for presentation /examination.

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**ABSTRACT**

Facilities design aims to achieve the ultimate goal of improving productivity and reducing total cost. The objective of this project is to improve the of a plastics factory that produces layout several types of plastic products. In this project we study the whole factory (its departments buildings and utilities) and found the problems in the arrangement of machines, store spaces and doors in the production departments, where they are arbitrary distributed causing problems such as cross traffic, back tracking, long traveled distances and in material handling. These problems waste time and effort, decrease productivity and increase total costs . In department 1 we arrange the machines into three production lines and calculated the efficiency of each line by from- to- chart technique, and the three lines have high efficiencies of (71% ,76 % and 75%) respectively .

We divide department 2 to two sections such that each section contains a group of arranged machines and two store spaces, one for raw material and the other for final products, and each section has its own door or doors. Also we add a crane suspended to the roof in each section to handle the heavy molds and other heavy parts, in order to save effort and time. Results of these improvements in the two departments have revealed that cross traffic and backtracking have been eliminated, traveled distances have been reduced significantly and material handling has been improved. Implementing these improvements would lead to reducing total costs and increase productivity which in turn increase the factory revenue.

**الخلاصة**

يهدف مجال تصميم المرافق إلى تحقيق هدفها الأعلى وهو تحسين الإنتاجية وتقليل التكاليف الكلية هدف هذا المشروع هو تحسين تصميم للبلاستيك ينتج عدة منتجات بلاستيكية .درسنا في هذا المشروع مصنع بالكامل (أقسامه ومبانيه وملاحقاته) و وجدنا المشاكل تكمن في ترتيب الآلات و أماكن التخزين ومداخل الأقسام. حيث أنها وزعت عشوائيا مما يسبب المشاكل مثل (cross traffic, back tracking, long traveled distance and material handling) هذه المشاكل من شانها إن تهدر الوقت والجهد وتقلل الإنتاجية وتزيد التكاليف الكلية.

أعدنا ترتيب الآلات في القسم الأول في ثلاثة خطوط إنتاجية و حسبنا كفاءة كل خط باستخدام تقنية (from- to -chart) فكان للخطوط الثلاثة كفاءة عالية (%71,%76, %75) على التوالي.والقسم الثاني تم تقسيمه إلى جزئيين يحتوي كل جزء على مجموعة مرتبة من الآلات ومكانيين للتخزين احدهما لتخزين المواد الخام والآخر للمنتج النهائي وتم تخصيص لكل جزء مدخله الخاص وإضافة رافعة معلقة بالسقف لمناولة الأجزاء والقوالب الثقيلة لتوفير الوقت والجهد.أظهرت نتائج التحسينات لكلا القسمين التخلص من (cross traffic, back tracking) وتقليل المسافات لكل منتج وتحسين مناولة المواد;تطبيق هذه التحسينات سيؤدي إلى تقليل التكاليف الكلية وزيادة الإنتاجية مما سيؤدي إلى زيادة العائد الربحي للمصنع .