



وهو الذى سخر البحر لتأكلوا منه  
لحماً طرياً وتستخرجوا منه حلية  
تلبسونها وترى الفلك مواخر فيه  
ولتبتغوا من فضله ولعلكم تشكرون

(صدق الله العظيم)

(سورة النحل (الآية ١٤) )



## **Dedication**

I dedicate this research to my parents and family, who have provided the motivation for me to write this thesis and who sacrificed thousands of hours of their time to allow me to have a chance to learn and record this information?

Elhussien Mohamed Eltom.  
October 2010

## **Acknowledgment**

First, all thanks to my God, for my amazing supervisor Dr. Elkhawad Ali Alfaki for all the assistance and help he provided to me during my research.

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## **Abstract**

Maintenance should be economized, and to do that we should look at it from a terotechnological point of view, all its practices (Engineering, management and financial) , from asset specification up to its disposal or replacement interact to pursuit its economic life cost, using necessary tools to develop maintenance procedures.

This study is directed mainly towards use of terotechnology techniques for sea ports corporation dockyard workshop physical assets maintenance optimization.

- Microsoft office Accesses (xp) soft ware program for system information.
- Primavera project planner (p3) soft ware program for project planning and managing.
- Statistic and reliability theory for asset performance measurement.
- Root cause analysis for fault diagnoses and optimize machine utilization.
- Microsoft office excel program for replacement analysis.

The application of terotechnology concept in assets maintenance, total life time cost is minimized.

Ultimately through application of terotechnology tools we achieve:-

- 1) Good planning and controlling for the project.
- 2) Optimum utilization of resources.
- 3) More information for decision making. (See reports attached.)
- 4) Information provided can provide a basis for forming long-term plans.
- 5) Improved in availability system.
- 6) High product quality.
- 7) Improve in system efficiency and effectiveness.

## ملخص

الصيانة يجب أن ترشد وعلية يجب النظر إليها من منظور علم التيروتكنولوجيا وهو العلم الذي يختص بدراسة ومتابعه الأصول (هندسيا، إداريا وماليا) منذ وضع المواصفات لها وحتى الاستغناء عنها أو استبدالها وتتداخل هذه العوامل معا من اجل الوصول إلى استخدام اقتصادي للأصل باستخدام أدوات هذا العلم المناسبة.

وجهت هذه الدراسة لتطبيق هذا العلم كالآتي:-

- برنامج الحاسوب اكسس اكس بى لنظام المعلومات.
  - برنامج برايمافيرا لإداره المشاريع.
  - نظريات في الإحصاء و قياس الاعتمادية، ل قياس الأداء للمعدات.
  - البحث في الأسباب الحقيقية للأعطال، لمعرفةا ومعالجتها لرفع الأداء للمعدات.
  - برنامج الحاسوب اكسل لحساب الاستبدال للمعدات.
- تطبيق علم التيروتكنولوجيا في صيانة الأصول خفض التكلفة الكلية طوال فتره حياتها.

من خلال تطبيق أدوات علم التيروتكنولوجيا تحقق الآتى:-

1. تم التخطيط والمتابعة الجيدة للمشروع
2. تم الاستغلال الأمثل للموارد.
3. توفر المعلومات لاتخاذ القرار.(انظر التقارير المرفقة).
4. المعلومات المتوفرة تساعد في وضع خطط طويلة المدى.
5. تحسن معدل التوافر للمعدات.
6. تحسن الجودة.
7. رفع كفاءة وفاعليه النظام.



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