Developing a model for decision support model of equipments maintenance strategy

Dr. Abdulsalam Zidan[*]

Abstract

This research aims to develop a model of decision-making for the selection of the most appropriate strategy of the maintenance methods of equipments. A model has been developed in order to determine the maintenance plan that causes the lowest cost, whether the cost of repairing or losses result from interruptions of work for maintenance.

The model depends on data collected from equipments records during their work on projects, and it requires the monitoring of the equipment work for enough period (long or short depending on the size of the project and the number of equipments). These data are analysed and used in the construction of model. We use Markov chains technique as a mathematical tool adapted to the studied problem.

Keywords: construction projects, maintenance management, decision support systems, Markov chains.

References:

- Buffa Elwools, "Modern Production Management", joh weley and sons in N.Y.1977.
- Monks J.G., "Operation Management Theory And Problems", Mc Graw-Hill 1982.
- Clifton R.H., "Principles Of Planned Maintenance", London Eward Arnold publishers , 1974.
- Corder A.S, "Maintenance Management Techniques''. London Mc Graw Hill Company, Inc.1976.
- A. Sturm, *el al*., "Knowledge-Based Selection of Maintenance Strategies in a Plant Management System", Siemens Energy Market Solutions.
- Hao, Q. et al., "A decision support system for integrating corrective maintenance, preventive maintenance, and condition-based maintenance", Construction Research Congress 2010, Banff, Alberta, May 8-10, 2010, pp. 1-10.
- Wai-Ki Ching, Michael K. Ng., "Markov Chains: Models, Algorithms and Applications", Ed. Springer Science+Business Media, Inc. 2006, 211p.
- D. j. Edwards, *et al*., "Management of off-highway Plant and equipment", Spon Press, London and New York, 2003.
- Anna Maria Gil-Lafuente, "Fuzzy Logic in Financial Analysis", Springer-Verlag Berlin and Heidelberg GmbH & Co. K, 2010,250 P.
- Kontagi S.M. for Business Development, www.kantakji.org
- Weou Mohamad M. A., "Using the scientific manners in maintenance services planning", Master thesis, University of Salahdein, Iraq 2007, p110.
- Soliman H. M., "Production Management", Egyptien Universities Ed., p262.
- Taj L., et Sarhan A., "Introduction in stochasticity operation", King Saud University, 2005, p365.