عنوان مقاله:

Determining Maintenance Significant Items Using Fuzzy Delphi, AHP and Fuzzy TOPSIS Methods: Case Study of a Gas Refinery

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خلاصه مقاله:

Equipment failure can cause severe consequences for the environment, people, equipment, production, as well as quality, and even increase expenditures in a manufacturing company. In this respect, the purpose of maintenance management is to maximize useful life, reliability, and efficiency of equipment. In maintenance management, companies prefer to make use of limited maintenance resources such as manpower and capital only on critical equipment. To identify critical equipment, determining maintenance significant items (MSIs) has been recognized as one of the essential steps in reliability-centered maintenance (RCM). After determining MSIs, other RCM steps apply only on this equipment. Accordingly, a systematic approach was proposed in this study to determine the criticality of system equipment and prioritize them as MSIs. To determine the criticality of the system equipment, Fuzzy-Delphi Method (FDM), Analytic Hierarchy Process (AHP) and Fuzzy Technique for Order of Preference by Similarity to Ideal Solution (FTOPSIS) methods were employed. Collecting real data from a gas refinery company and using them in the proposed approach verified the applicability of such developed approach.

کلمات کلیدی:

Maintenance Significant Items (MSIs), Reliability-Centered Maintenance (RCM), Multi-Criteria Decision-Making (MCDM), Gas Refinery