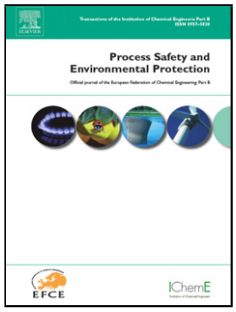

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Dynamic Maintenance Planning Approach by Considering Grouping Strategy and Human Factors

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Abstract

This paper proposes a novel maintenance planning approach by considering grouping strategy as well as human factors. The proposed approach describes various steps from boundary definition to execution of maintenance plan. Positive and negative economic dependencies are considered for series and parallel components, respectively. In this work, a special attention is paid to human factors during maintenance planning. In order to show the applicability of the proposed approach a power plant is selected as a case study. Two human factors including time pressure and fatigue are identified and quantified through an extensive data mining. According to the results of the case study, grouping maintenance activities by considering human factors provides a considerable cost saving. Also, it is shown that ignoring human factors could decrease the cost saving. The proposed approach suggests the importance of human factors in maintenance planning, however, for various cases and in different industries this impact may be different. The proposed approach would minimize maintenance costs while human error as well as risks of delaying maintenance activities are taken into account.

Keywords: Maintenance Planning; Human factors; Dynamic Grouping Strategy; Multi-Component System.

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