Interpretive Structural Modeling of Functional Objectives (Criteria's) of Assembly Line Balancing Problem

Abstract

Use of interpretative structural modeling (ISM) is inspired by the versatility displayed by this method, as reported by researchers, across a wide spectrum of economic and competitive complexities affecting businesses. The aim of this paper is to develop and analyze the relationship among the identified various functional /technical objectives (criteria's) of assembly line balancing problem using interpretative structural modeling (ISM) and classify these objectives (criteria's) depending upon their driving and dependence power. A Criteria Survey Sheet of objectives (criteria's) of assembly line balancing problem was prepared on the basis of literature review. A total of ten functional/technical objectives (criteria's) of assembly line balancing problem were identified on the basis of industrial survey. And a structured structural- self interaction and reach ability matrices were formed and iterated to yield levels of hierarchical influence of each objectives (criteria's). MICMAC analysis was also performed to determine dependency and driving power of these objectives (criteria's). Finally, ISM model is constructed. The present study is a hitherto unexplored attempt, using interpretative structural modeling to determine the level of influence of these objectives (criteria's) on the efficiency of assembly line of manufacturing industries.
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References

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Index Terms

Computer Science Operations Research

Keywords

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Driving Power

Interpretive Structural Modeling