

ECHILIBRAREA LINIEI DE ASAMBLARE A CABLAJELOR LA FIRMA S.C. ABC S.R.L.

BALANCING OF A HARNESS ASSEMBLY LINE AT S.C. ABC S.R.L.

Drd.ing. Andreea Ana-Maria BĂLAN (CIUPAN)

Conf.dr.ing. Radu Constantin VLAD
Universitatea Tehnică din Cluj-Napoca

Abstract: This case presents an initiative that aimed to balance a harness assembly line using a traditional mathematical model in order to minimize the financial loss of the company. ABC is a Japanese company that works in the automotive field. Its main activity is the production of automotive harnesses, and its the most important provider for one of the biggest German automobile manufacturer. Currently, the company does not have a software product to balance the assembly line, although it is more than necessary. Each week the harness provider receives over 1000 options with a different structure, which means that if the work station balancing is not carried out on a similar harness, there is the risk of stopping the assembly line, thus delaying the order delivery, eventually leading to financial loss. The problem is solved with the help of a mathematical model that has its objective function defined by two terms. The first one minimizes the number of stations while the second one minimizes the largest idle time of a station.

Keywords: assembly line balancing problem, harness manufacturer, linear programming, multiple objectives