Modelling of Simple Assembly Line Balancing Problem Type 1 (SALBP-1) with Machine and Worker Constraints

N.H. Kamarudin, M.F.F. Ab. Rashid
Faculty of Mechanical Engineering, Universiti Malaysia Pahang, 26600 Pekan, Malaysia

Email : ffaisae@ump.edu.my

***Abstract*—This paper presents a mathematical model for Simple Assembly Line Problem Type 1 (SALBP-1) with resource constraints; machine and worker. The existing model of SALBP-1 assumes that all the workstations have similar capability, while in reality the workstation has different capability because of limitation in term of machines and worker skills. The proposed model is aimed to mathematically represent the SALBP-1 with resource constraints. Besides that, three objective functions which to minimize number of workstation, machine used and number of worker are also presented. The machine considered to have different types of machine needed to produce a product in an assembly line while worker are considered to have different abilities and skills. The model is then illustrated and validated using some examples. The proposed model for SALBP-1 with machine and worker constraints is able to minimize the resources in assembly. Therefore, the assembly cost can be reduced.**