

ABSTRACT:

Assembly line is a means of mass production of discrete items such as radio, television, automobile etc. The problem of assembly line balancing has received a good deal of attention. The approaches have ranged from strict optimizing techniques to heuristic techniques. But the formalized techniques are still not widely used in industrial firms. This research is concerned with some aspects of assembly line balancing. Attempt has been made to develop line balancing techniques which can be applied to industrial problems. Both the stochastic and deterministic approaches have been developed. The developed techniques have been applied to real-life industrial problems. Thirteen other 'simple assembly line balancing techniques' have also been extended, converted to 'general assembly line balancing techniques' and a comparative study has been made. An approach has also been suggested to develop line balancing problems randomly and to identify the factors on which the runtime of line balancing problems depends.

Key words : Line balancing, Precedence diagram, Dual precedence matrices, Smoothness index, TF-ratio, Flexibility ratio, Batch sequencing.

