

Process Optimization

A Mathematical Approach

by D. James Benton

In this text we will discuss the mathematical analysis of various processes, which are often used in manufacturing. The objective of this analysis is to optimize one or more aspects of the processes, with the goal of maximizing output (or profit) while minimizing waste (or cost). This type of process optimization supports mathematically based (objective, quantitative) decision-making and ultimately better outcomes. Several approaches are presented through increasingly complex examples. I taught this material for the East Tennessee State University Department of Technology as course ENTC-4247 Industrial Operations Analysis.