Mini-Case Study: Component-Based Aggregate Production Planning System Framework

System Architecture

Change-Ready MPC Framework

Discussion and Conclusions

References

Dynamic Capacity Planning and Modeling Its Complexity

Introduction

The Dynamic Capacity Problem

Complexity vs. Uncertainty

Complexity in Dynamic Capacity Planning

Literature Review

System Dynamic Model for Multi-Stage Production

Multi Stage Production System

Model Nomenclature

Mathematical Model

Numerical Simulation of Industrial Case Study

Overview of the Multi-Stage Engine Block Production Line

Input Data

Numerical Simulation Results

Conclusions

References

Managing and Justifying Change in Manufacturing

Design for Changeability

Production Trends in High-Wage Countries

Introduction of a Target System for Complex Production Systems

Holistic Definition of Production Systems

Target System for Complex Production Systems

Differentiation Between Complicated Systems and Complex Systems

Approach to Mastering Complexity in Production Systems

Object-Oriented Design

Object-Oriented Management of Production Systems

Case Studies

A: Object-Oriented Production Design

B: Release-Engineering in the Automotive Industry

Summary

References

Changeability Effect on Manufacturing Systems Design

Introduction

Synthesis of Manufacturing Systems

Enabling Changeability in Systems Frameworks

References