



University of Pretoria Yearbook 2020

Manufacturing planning systems 782 (BPZ 782)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	32.00
Programmes	BEngHons Industrial Engineering BSchHons Applied Science Industrial Systems
Prerequisites	Operations Management and Operations Research (advisable but not mandatorily required)
Contact time	36 contact hours per semester
Language of tuition	Module is presented in English
Department	Industrial and Systems Engineering
Period of presentation	Semester 1 or Semester 2

Module content

Review of MPC, Agile Manufacturing Processes, Models of MPC

Section 1: Review of MPC Theories and Framework

Section 2: Research Framework for Problems in Manufacturing Systems

1. Mathematical Model based Problems and their techniques
2. Estimation and Hypothesis based Problems and their techniques

Section 3: Introduction to MPC Problems and sample Models

1. Forecasting models
2. Aggregate planning models
3. Lot sizing and disaggregation models
4. Finite Scheduling models
5. Lean Manufacturing Models
6. Basic Distribution and Replenishment Models
7. Basic Supply Chain Structural Analysis and Performance Models

Section 4: Agile Panning Problems and Techniques

1. Multi-Level Master Scheduling Techniques
2. Constraint Scheduling - (TOC theory, applications and optimisation)
3. Lean Manufacturing Implementation (from Flow Lean to Process Kaizen)
4. Introduction to CONWIP ideology
5. Introduction to Demand Driven MRP

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