

# University of Pretoria Yearbook 2022

## Manufacturing planning systems 782 (BPZ 782)

<b>Qualification</b>	Postgraduate
<b>Faculty</b>	Faculty of Engineering, Built Environment and Information Technology
<b>Module credits</b>	32.00
<b>NQF Level</b>	08
<b>Programmes</b>	BEngHons <i>Industrial Engineering</i> BScHons (Applied Science) <i>Industrial Systems</i>
<b>Prerequisites</b>	Operations Management and Operations Research (advisable but not mandatorily required)
<b>Contact time</b>	36 contact hours per semester
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Industrial and Systems Engineering
<b>Period of presentation</b>	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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