University of Pretoria Yearbook 2016

Inventory modelling 780 (BEE 780)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Prerequisites	No prerequisites.
Contact time	24 contact hours
Language of tuition	English
Academic organisation	Industrial and Systems Eng
Period of presentation	Semester 1 or Semester 2

Module content

• Theory of Inventory Systems:
Inventory models and modelling including time and certainty complexities, linear and non-linear systems and feedback systems
• Review of inventory models:
Types and representations (classic, shortage, capacity constraint, time value of money, deterioration, time varying, stochastic inputs, imperfect quality, integrated scheduling and lot sizing models, service systems and retrial queues)
• Review of important inventory papers, their approaches and their foci:
• Modelling and Solution techniques:
Characterisation and assumptions
Mathematical Modelling, Mathematical Programming, Heuristics, Simulation Models, Control Theory and other approaches
• State of the art of modelling:
Current challenges and research trends
• Technological solutions of inventory modelling and management:
Algorithms and software, integration to MRP, ERP and scheduling modules, integration to WMS modules, and demonstrations