

Taravat Nehzati, PhD candidate

Taravatsadat Nehzati received her Bachelor's degree from Mazandaran University of Science and Technology, Iran in 2008. She started her master studies in the field of Manufacturing Systems Engineering, in University Putra Malaysia, 2009. During her study, she had an opportunity to serve university of her affiliation (UPM) as teaching and research assistant.

Taravat started her PhD study in August 2012 under the SFI Norman Programme. Her research focuses on developing adaptive intelligent model to control production plan. She works at SINTEF Technology and Society and is involved in national and international research projects in close collaboration with industry.

Motivation

Different aspects of production planning and control have been studied in literature over past decades. Christou et al. (2007) and Ferreira et al. (2009) developed a practical production planning approach for a real application in the beverage industry. Blanc et al. (2008) described a holonic approach for Manufacturing Execution System (MES), and illustrated this approach on a real industrial application. Bilgen and Günther (2010) introduced a so-called 'block planning approach' for production scheduling in the fast moving consumer industry. Some recent real life industrial case studies using mathematical programming techniques can be found. Entrup et al. (2005) introduces three MILP model formulations and apply it for a weekly production planning on an industrial case study of yogurt production.

A combination of a discrete and continuous representation of time is used. Kopanos et al. (2010) proposes a MILP model for the simultaneous lot-sizing and production scheduling problem in a multiproduct yogurt production line of a dairy plant in Greece.

In light of literature, it can be interpreted that real-world planning is a highly complex challenge with many constraints. Therefore, an adaptive model needs to be developed to meet the requirements of real world cases.

Aim

The main objective of this research is to develop a new intelligent adaptive model to handle production planning and control of manufacturing line.

Research Questions:

RQ1: What kind of planning and control problems a manufacturing line may face? What is the reason behind the problem? What consequences do the control aspects of manufacturing will face?

RQ2: What technique is currently use in the most of food industries for the planning propose? What are the short comings of the current techniques? Where are the potential points of improvements in current techniques?

RQ3: Which intelligent technique will fit better to face the shortcoming of the current used techniques? Are techniques characteristics meet the needs for overcoming with existing problem?

RQ4: How will these intelligent technique effect on the manufacturing line control? How will the adaptive real time model effect on the plan and control (in terms of performance measures)?



"How will the adaptive real time model effect on performance of the production plan and control ?"

Facts

- PhD period August 2012-2016.
- Supervisor:
Prof. Heidi C.Dreyer
- Co-supervisor:
Prof. Jan Ola Strandhagen
- Thesis title:
Developing Intelligent Adaptive Model for Manufacturing Production Plan

Contributions:

1. Practical model to fit the real case problem situations.
2. Responsive tool to overcome the changing environment while taking advantage of meta heuristic techniques.
3. Improve production plan/schedule in terms of measures like; Makespan, Throughput, etc.