
SE2500 Modeling and analysis of Supply Chain

Professor : Jakob PUCHINGER

Language of instruction : ANGLAIS – **Number of hours :** 36 – **ECTS :** 3,0 - **Quota :** 35

Prerequisites : MA1200 MA1300

Period : S8 elective 8 between february and june

Course Objectives

This course follows two major objectives. First, broad knowledge of various aspects of supply chain management are presented, allowing students to understand the strategic importance of this topic for the performance of companies. Second, various optimisation problems occurring along the supply chain will be analysed in detail. Linear and mixed integer programming will be introduced in order to study supply chain management related optimization problems. This will allow students to acquire the basic skills to solve such problems in practice. Every lecture unit will introduce major concepts and will be followed by case studies and/or practical exercises.

On completion of the course, students should be able to

- understand the challenges of managing production and distribution processes
- use operations research based approaches to model supply chain management aspects
- use excel solver to practically solve numerical supply chain management problems

Course Contents

- Introduction to supply chain management
- Linear and mixed integer programming modelling
- Basics of linear and mixed integer programming solvers
- Networks design
- Demand forecasting and aggregate planning
- Sales and operations planning
- Inventory management
- Transport planning

Bibliography / Teaching Material and Textbooks

- S. Chopra and P. Meindl, Supply Chain Management: Strategy, Planning, and Operation, Global Edition, 6/E, Pearson, 2016.
- H.P. Williams, Model Building in Mathematical Programming, Wiley, 2013.

- This course requires one laptop per 2 students as well as current installation of MS Excel

Evaluation

60% Homework

40% Final Exam