



Technische
Universität
Braunschweig

Institut für Automobilwirtschaft
und Industrielle Produktion



Announcement of Seminars

Winter Term 2022/23

Seminars Winter Term 2022/23

Seminar topics

- Software Tools: Operations Research
- Software Tools: Sustainability Assessment
- Software Tools: Discrete Event Simulation

Seminars Winter Term 2022/23

Registration

- Registration via Stud.IP
- When? 07/18/22 (07:00 am) to 07/20/22 (12:00 / noon)
- First come first serve
- Mandatory participation in the kick-off meeting of the seminar

Further Information

- Seminars are visible in Stud.IP for „Sommersemester 2022“
- Only register for one seminar! If you register to more than one seminar then we will delete all registrations!
→ Notice: You can delete a registration in Stud.IP yourself
- If you are on a waiting list then we will offer you another seminar

Software Tools: Operations Research

(Language of the seminar: German)

Subject

In the context of operational planning of individual production and logistics systems or entire supply chains, complex interrelationships arise that need to be adequately modeled. This can be achieved, among other things, by using mathematical optimization. For the solution of such optimization models different solvers and standard software are available. These enable a fast implementation as well as the finding of an optimal solution for the derivation of recommendations for action.

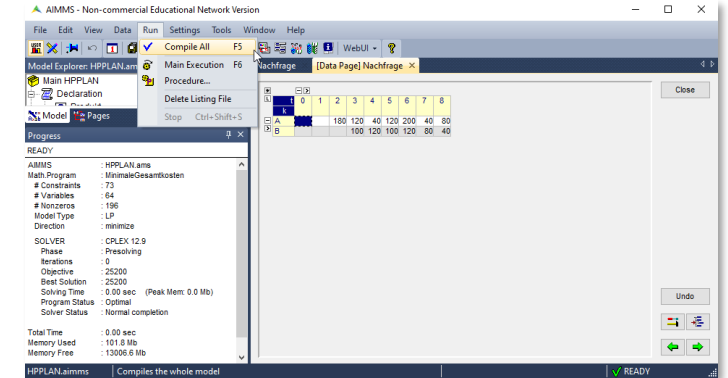
Organization

- Independent preparation of a seminar paper in a seminar groups of 3 persons
- Kick-off: 27.07.2022, 16:45-17:45, digital via BigBlueButton
- Final presentations: 08.02.2023
- Limitation to 18 participants
- Mentoring: Christian Scheller, Patrick Schumacher

Key Topics

- Basics of the software-based implementation of mathematical optimization models
- Conceptual design and implementation of case studies in the context of operations management
- Critical evaluation and interpretation of optimization results
- Focus WiSe 2022/23: Different applications of Assembly Line Balancing

AIMMS in addition with an optional to use spreadsheet program (e.g., MS Excel) is used for the modeling and analysis within this seminar.



Software Tools: Sustainability Assessment

(Language of the seminar: German)

Subject

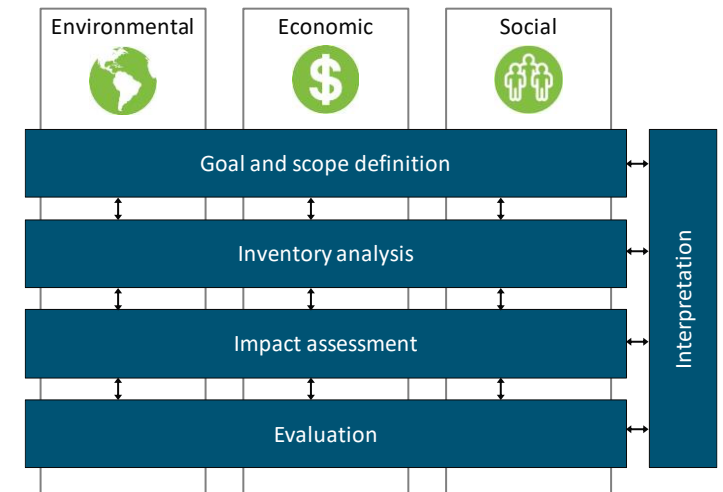
The sustainability of product systems and processes is largely determined by the environmental and socio-economic impacts associated with them. A methodology for assessing and objectively analyzing these impacts is offered by the holistic sustainability assessment. Due to the high complexity of product systems and processes as well as the difficulties in classifying and characterizing the environmental and socio-economic impacts, the use of suitable software is recommended. Thus, this seminar deals in depth with quantitative sustainability assessment and its implementation in software.

Organization

- Independent preparation of a seminar paper in a seminar groups of 3 persons
- Kick-off: 25.07.2022, 17:30-19:00, digital via BigBlueButton
- Final presentations: 09.02.2023
- Limitation to 18 participants
- Mentoring: Jan-Linus Popien, Alexander Barke

Key Topics

- Basics of the software-based implementation of sustainability assessments
- Conceptual design and implementation of sustainability studies
- Critical evaluation and interpretation of sustainability studies



The python-based Brightway2 framework is used for the modeling and analysis within this seminar.

Software Tools: Discrete Event Simulation

(Language of the seminar: German)

Subject

In this seminar, an in-depth examination of the use of simulation in production and logistics systems takes place. In detail, the students deal with the following topics:

- Overview of areas of application of simulation in production and logistics
- Structure of simulation studies
- Stochastic basics for the creation and evaluation of simulation models
- Acquisition of practical experience in the execution of a simulation study

Organization

- 6–7 lecture dates (digital via BigBlueButton or in presence - depending on the pandemic situation - on the following dates: 28.10., 11.11., 18.11., 25.11., 02.12., 09.12., optional: 13.01.). Subsequently, independent processing of a case study with the Plant Simulation™ software and the associated SimTalk script language in seminar groups of 3 persons each and subsequent presentation of the results in a seminar paper and a colloquium on the 14.03.2023.
- No separate kick-off meeting, start and assignment hand-out at the first meeting (attendance required).
- For successful participation in the seminar, basic knowledge in programming is recommended, but not necessary.
- Handling of the software must be self-taught. Recommended literature: *Bangsow (2020) - Tecnomatix Plant Simulation*
- Limited to 18 participants
- Lecturer: Prof. Dr. Sven Spieckermann, Member of the Board of the SimPlan AG
- Teaching assistant: Patrick Oetjegerdes

