

# Quantitative Methods for Digital Production Management

The decision-making in digitized production systems is often supported by quantitative methods. In addition to the solution quality, strict time constraints regarding the computation time have to be met, especially for operational planning problems.

The course gives an overview of different planning problems in production management. For these problems, various types of heuristics and analytical approaches for solving linear and nonlinear optimization problems are introduced. In particular, various meta-heuristics are presented.

## Learning Goals

- Students gain an overview of different types of heuristic solution methods for optimization problems in digital production systems.
- After completing the module, students will be able to evaluate heuristic methods with respect to their applicability to new problems, select suitable heuristic and adapt them if necessary.

## Prerequisites:

Mandatory module: *Produktionsmanagement*

Recommended module: *Leistungserstellung*

## Dates and Times

This course will be taught regularly in the summer term. In the summer term 2026 at the following times:

**Lecture:** Monday 10:00 (c.t.) - 12:00, Room H6

**Exercise:** Monday 12:00 (c.t.) - 14:00, Room H13\*

## General Information\*



Lecturer	Prof. Dr. Justus Arne Schwarz
Course Format	Lecture and exercise
Credit Points	6 ECTS
Language	English
Applicability	SPMG Value Chain Management, Electives
Exam	Written exam (90 min)
Term	Summer term
Registration	Not required

\* All data are informative in nature. The module description in the module catalog is binding.