

**Course: BAE2331 Operations Management 1**

This course is part of BAE2330 Operations Management

Course	Credits	SWS
BAE2331   Operations Management 1	1	1
BAE2332   Operations Management 1 Laboratory	1	1
BAE2333   Operations Management 2	3	2
BAE2330   Operations Management (total)	5	4

Language: English; advanced level

**BAE2331 | Operations Management 1: deeping and applying theoretical knowledge**

Tuesdays, 1:45 pm - 3:15 pm,

Room: see LSF (or alternatively –depending on the development of Covid 19 – in the virtual lecture room <https://alfaview.com/join/alfaview-technik/d1b31893-cae0-4c8d-89ab-60beae15a5c7/003ec2ab-c5b8-4370-a525-571d9222b0f4>)

Further details will be announced via moodle (sign in and check regularly)

Please calculate the exercises prior to the session.

First session on October 6<sup>th</sup>!

The tasks are provided in the E-Learning-Course.

**Lecturer:**

Prof. Dr. Ansgar Kühn

Further details: <https://www.hs-pforzheim.de/profile/ansgarkuehn/>

Office: T1.5.23

Colloquium: Tuesday, 3:30 – 5:00 p.m.

The exact dates and registration for the colloquium can be found here:

<https://xoyondo.com/dp/sakabHRXRNYUtVF>

E-Mail: [ansgar.kuehn@hs-pforzheim.de](mailto:ansgar.kuehn@hs-pforzheim.de) (preferred mode of communication)

My aim is to make you acquainted with operations management, where business administration and engineering come together. My goal is to ensure that you succeed in your training. Therefore I want to provide support. In the case of occurring problems or questions, feel free to contact me, for instance by e-mail. I will answer promptly and if required schedule an appointment.

Please be aware that topics presented in the lecture will be deepened during the exercises.

**Temporary time schedule:**

For more information: see LSF/ E-Learning-Course

	Operations Management 1 Laboratory	Operations Management 2 (Lecture) Room: alphaview Room: T1.2.06 (THD)	Operations Management 1 Room: alphaview Room: T1.2.06 (THD)
Date	9:45 am - 11:15 am	11:30 am - 1:00 pm	1:45 pm - 3:15 pm
06.10.2020	Buffer	Basics 1	Basics 2
13.10.2020	Buffer	Basics 1 +2 (Group 1)	Basics 1 +2 (Group 2)
20.10.2020	Buffer	Production Strategy	Supply Network Design 1-2
27.10.2020	No lecture	No lecture	No lecture
03.11.2020	Buffer	Supply Network Design 1 +2 (Group 2)	Supply Network Design 1 +2 (Group 1)
10.11.2020	Buffer	Process & Layout Design 1	Process & Layout Design 2
17.11.2020	Buffer	Process & Layout Design 1 +2 (Group 1)	Process & Layout Design 1 +2 (Group 2)
24.11.2020	Buffer	Production Planning & Control System (PPS)	Time Management
01.12.2020	Buffer	Production Planning & Control System (PPS) + Time Management (Group 2)	Production Planning & Control System (PPS) + Time Management (Group 1)
08.12.2020	OM1 Laboratory (Group 1)		
15.12.2020	OM1 Laboratory (Group 2)		
22.12.2020	Buffer	Buffer	Buffer
29.12.2020	No lecture	No lecture	No lecture
05.01.2021	No lecture	No lecture	No lecture
12.01.2021	Buffer	Calculation of old exams (Group 1)	
19.01.2021	Buffer	Calculation of old exams (Group 2)	

**Brief course description:**

In this course the principles of strategic, tactic and operative operations/production management will be imparted. Exercises for the particular management levels will round off the lecture. The students will learn the theoretical fundamentals and use them in practical exercises and in a business game. The class covers topics from fundamental key figures to production area optimization.

**Requirements:**

At least 50 ECTS from section 1 of the study program

**Learning outcome:**

The students

- are acquainted with the processes and methods in production planning and control and can apply them
- know the importance of operational and strategic perspective in operations management as well as their mutual dependencies
- recognize the interdependences between production and logistics
- know current trends in operations management and understand logistical, organizational, technical and economic implications for the entire organisation
- know the basics of ergonomics and health and safety at work and are in a position to use them
- can apply methods of time management i.e. time tracking and predetermined time systems
- are able to look at operations holistically, master essential techniques and apply them to real tasks.

**Content:**

- Basics
- Strategy process
- Supply network design
- Capacity planning
- Process and layout design
- Production planning and control system (PPS)
- Material Requirements Planning (MRP)
- Time management

## Course contributions to degree program targets

	Learning result	Contribution
1.1	Students demonstrate key knowledge in Technical Basics.	Knowledge building of the interdependencies between technical and commercial requirements as well as knowledge building of the basics of production management (like balancing of a production line; time management (with MTM and Refa); optimal layout-decision)  Vermittlung von Grundlagen der Produktionsorganisation und Produktionsprozesse
1.2	Students demonstrate key knowledge in Mechanical Engineering.	Vermittlung von Grundlagen der Produktionsorganisation und Produktionsprozesse
1.3	Students demonstrate key knowledge in Business Administration.	Knowledge building of basic know how of strategic, tactic and operative Production Management. The imparted contents range from the design and implementation of a production strategy to a balancing of a flow production or an evaluation of time data via time or motion studies.  Vermittlung von betriebswirtschaftlichen Grundlagen der Produktionswirtschaft, aber auch Strategie, Teilkostenrechnung
1.4	Students demonstrate key knowledge in Economics.	
1.5	Students demonstrate key knowledge in Mathematics.	Working on exercises, including utilizing heuristics and statistical methods  Begleitende Rechnungen - i.d.R. lineare Gleichungssysteme, NPV
1.6	Students demonstrate key knowledge in Quantitative Methods.	
1.7	Students demonstrate key knowledge in Computer Science.	
2.1	Students demonstrate proficiency in using current computer programs to solve business and technical problems.	
2.2	Students demonstrate the ability to use information systems effectively in real world business settings.	
3.1	Students are able to apply analytical and critical thinking skills to complex problems.	Studierende werden aufgefordert, das Zusammenspiel/ Spannungsfeld von Technik und Betriebswirtschaft, strategischer und operativer Sicht zu durchdenken.
4.1	Students are able to develop business ethics-based strategies and are able to apply them to typical business decision-making problems.	
5.1	Students demonstrate their ability to express complex issues in writing.	
5.2	Students demonstrate their oral communication skills in presentations and lectures.	
6.1	Students show that they are able to work successfully in a team by performing practical tasks.	
7.1	Students demonstrate key knowledge and methodological know-how in international management and engineering.	
7.2	Students demonstrate their ability of analytical and critical reflection and their capacity to work out viable solutions for challenges in international management and engineering.	
7.3	Students show that they are able to apply their international management and engineering competencies in specific situations.	

## Teaching and learning concept

The teaching and learning concept is divided into **three phases**.

In **Phase I** the students have to work through chosen passages of given lecture notes and have the opportunity to broaden their knowledge by reading recommended literature. With this previously-gained knowledge the students attend the lecture.

In **Phase II** the knowledge from *Phase I* will be illustrated and rounded off in lectures and also broadened with background knowledge by means of sample calculations, tasks, application examples and question and answers.

Following on from Phase II (usually on the same day) in **Phase III** the students work on exercises as group work or as individual performance. In this context the acquired knowledge, methods and principles from the lectures in phase I and II, will be used in a complex, realistic but manageable issue and thereby strengthened. After task assignment the students solve these practical cases independently by applying the acquired theory. The students are encouraged to find solutions autonomously but after a certain time period they will be directed in their solution process in one-on-one conversations with the lecturer. The next step is to solve the task in the audience and to discuss the learning targets and purpose of the task collectively. Large groups will be divided in order to maintain the quality of the lessons.

The continuous reflection of the learned topics and the review of the given mind set are also indispensable for the successful learning process as continuous working on the exercises and collaboration. At the same time with that approach the exam preparation effort is minimized and spread over the semester. Therefore an active collaboration in the lessons is a crucial part of the teaching and learning concept.

In a team-oriented and several hours long business game (in groups of about 8 students) the students have to optimize their own production system through the criteria efficiency and customer orientation.

Thereby the system will be optimized iteratively in the following course of action:

1. Operating the given system
2. Identification of system features (including key figures)
3. Discussion about the lessons learned and the pros and cons
4. Optimization of the given system
5. Operating of the new system

The students learn the advantages of a flow production and instruments to optimize a production system. As well they gain experience in solving problems under pressure situation, group purposefully and target oriented.

The lecturer is always available within all phases of the course as a dialogue partner to give support and suggestions. Furthermore the communication takes place in personal conversations or via e-mail.

## **My self-perception as lecturer**

My aim is to establish a fundamental comprehension for the common topics in operations / production management in order that you may perform planning activities independently. Thereby you should be enabled to adapt the production management mind set in order to deal with real tasks in a production environment in a professional manner.

Comprehension questions and comments with a contribution to the learning effect to all students are always welcome and should be raised immediately. The purpose is that you complete the course successfully. Nevertheless you have to do the essential part of the work and hence your success is down to your own personal responsibility.

### **Code of behaviour:**

- read the syllabus
- practice fair play to your fellow students
- print and read the abstracts/notes before the lecture/exercise and take a look at them
- be on time and don't leave the lectures/exercises earlier
- contribute to a pleasant atmosphere (i.e. silence)
- solve your exercises independently
- raise a question if you don't understand something
- build up your knowledge continuously

### **Rules for proper academic work**

The lecturer appreciates a substantial exchange between the students, because the fellow students may have valuable contributions to the comprehension of occurring problems or questions.

Exercises and lectures form a whole. As a result of this, coherences will be analysed from different points of view in order to create a broader understanding about the topic. Therefore active thinking and collaboration in the lecture and also autonomous exercise solving is fundamental for a clearer understanding of the subject matter.

The 'production business game' is run on the basis of teamwork. Thus all group members must acknowledge the results. In case of a lack of decision conformity the differing opinions must be communicated clearly in the outcomes.

Teamwork always means that all team members have their equal contribution to the work result. 'Copycats/free riders' disrupt collaboration.

Especially large class sizes and foreign languages imply a risk of a high noise level, which has a strong negative influence on the work climate, knowledge acquisition and collaboration. Predominantly a high noise level is caused by a few group members. These 'troublemakers' hinder the other ones from being able to concentrate and therefore won't be tolerated and will be ejected from the class.