Production Process Optimization

Code: MK5TFOPG04G117_EN

ECTS Credit Points: 4

Evaluation: exam

Year, Semester: 2nd year, 2nd semester

Its prerequisite(s): Applied Statistics

Further courses are built on it: Yes/<u>No</u>

Number of teaching hours/week (lecture + practice): 2+2

Topics:

The goal of the subject is to develop a process-oriented view in the students. During the lectures and practices the students get acquired with the evaluation, meaning and principles of Lean management. They acquire the definition of the added value, the waste in the production and administrative processes, the methods of mapping and analysis of material- and information-flow. The students get routine in problem solving and in Kaizen team-work. Detailed analysis of production systems, and their design methodology. Definition of goals, and determination of key indicators. During practices students get routine in valuation of processes, determination of process- and time-data, methods of time-recording. Basics of quality management, and process control. Operational cost calculations, process costs. Material flow. Basics of ergonomics and the principles of ergonomically correct workplace-design.

Literature:

Compulsory:

- William J. Stevenson: Operations management 10th ed. Boston: McGraw-Hill/Irwin

Recommended:

- James P.W.: Lean thinking, Free press, 2003
- Olhager, Jan - Persson, Fredrik: Advances in Production Management System. Springer-Verlag GmbH, 2007

Schedule

1st week: Registration week	
2nd week: **Lecture:** Basics and principles of the Lean management. **Practice:** Introduction to the methods of process analysis.	**3rd week:** **Lecture:** Definition of waste. Waste in the production processes. **Practice:** Identification of waste in production process. Simulation in teamwork.
4th week: **Lecture:** Work system, organization of the work, taxonomy of planning. **Practice:** Identification of waste in production process. Simulation in teamwork.	**5th week:** **Lecture:** Valuation of processes. Valuation of processes, Key indicators. **Practice:** Issuing the home assignment.
6th week: **Lecture:** Determination of process-data.	**7th week:** **Lecture:** Determination of time features of a process.

Practice: Building up the work system of a production process.	**Practice:** Analysis of a production process.
8th week: 1st drawing week	
9th week: **Lecture:** Determination of planned times. **Practice:** Analysis of a production process.	**10th week:** **Lecture:** Quality management. Statistical process control. **Practice:** Time recording techniques of processes in the practice.
11th week: **Lecture:** Ergonomics. Introduction to the principles of ergonomically correct workplace-design. **Practice:** Time recording techniques of processes in the practice.	**12th week:** **Lecture:** Operational cost calculations, calculation with process costs. **Practice:** Presentation of the home assignment.
13th week: **Lecture:** Material flow design. **Practice:** Presentation of the home assignment.	**14th week:** **Lecture:** End-term test. **Practice:** Supplement of missing or not sufficient assignments. Pre-exam.
15th week: 2nd drawing week	

Requirements

A, for a signature:

Participation at practice is compulsory. Student must attend the practices and my not miss more than three practice during the semester. In case a student misses more than three, the subject will not be signed and the student must repeat the course. If student's behavior doesn't meet the requirements of active participation, the teacher may evaluate their participation as an absence due to the lack of active participation in class.

Students have to submit the home assignment as scheduled minimum on a sufficient level.

During the semester there is one test in the 14th week.

B, for grade:

The course ends in exam.