Course: Management & Data Control — credits: 5

Course code	WBVB24MDC
Name	Management & Data Control
Study year	2025-2026
ECTS credits	5
Language	English
Coordinator	I.V. Houwing
Modes of delivery	Education
Assessments	Information systems - Assignment Management & Data Control - Assignment

Learning outcomes

The student:

- Operationalizes the performance dimensions of a given process, determines the consequences of volume and variety characteristics for process layout, technology and job design
- Makes a correct process map, calculates a correct economic order quantity and create a correct MRP-schedule
- Recognizes process improvement methods and applies Lean Manufacturing methods
- Describes the data and document management process, the role of CAD / CAM / CAE in the design and production process;
- Describes the information flow and the production planning of a production organization;
- Describes the role and functionalities of product lifecycle management systems (PLM) within a company and apply product and data management in an industrial PLM software (Windchill);
- Describes the role and functionalities of an ERP system within a company and describe the importance, trends and elements of Industry 4.0 – Industrial Internet of Things;

Content

Operations management is the branch of management that defines the complete production timeline of a service/ product from the input stage to the finished stage, including planning, organizing, and supervising the operations, manufacturing and production processes, and service delivery to lead to the desired goals. We will discuss the factors that are important for the design of a process. Concerning the planning and control of operations, topics include capacity management, inventory management and scheduling. Finally, several improvement methods, like Lean Manufacturing and Six Sigma are treated.

Data and data management is the backbone of a production organisation. Within a company, information is used in various ways to achieve a working and controllable (production) process. We will learn about the different information systems. These are the systems where data related to a product, process, and business is collected in order to generate and share information within the company. In more detail: data and documentation management, product document management, product lifecycle management (PLM), Enterprise Resource Planning (ERP) systems and the Industrial Internet of Things (IIoT). This module consists of theory of information models, database systems applied in (manufacturing) companies and practical assignment within the Windchill PLM system.

Included in programme(s)

Mechanical Engineering VWO a 3-year variant

School(s)

Institute of Engineering

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