

**Title: Production management****Lecturer:** Prof. Dr. Gasper Music**Aim of the course:**

To acquire basic knowledge of higher management and control levels in technological processes, to present components of integrated production control, to obtain functional understanding of software and related information technologies in support of production management, to give understanding of basic principles of performance monitoring in production processes.

**Required (pre)knowledge:**

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**Contents:**

Integrated production control. Management and control hierarchy, multi-level control. Classification of production systems and related management requirements. Production information systems. Computer networks. Network types and architectures. Network management software. Databases. Database architectures. Relational data model. Query language SQL. Database management systems. Production control software. ERP, MRP II and MES systems, SCADA systems, batch control systems, PLC programming software. Industrial process control software life cycle. Analysis and design methods and tools, rapid prototyping and testing tools. Specialized process control software. Web technologies in production control. Production efficiency monitoring. Key performance indicators and performance metrics. Total productive maintenance (TPM). Overall equipment efficiency (OEE). Development of performance monitoring systems. Integration and standardisation in production process control and re-engineering. Production control system trends and developments.

**Selected references:**

W. J. Stevenson, Operations management, McGraw-Hill/Irwin, 2012.  
T. Boucher, A. Yalcin, Design of Industrial Information Systems, Academic Press, 2006.  
R. Zurawski, The Industrial Information Technology Handbook, CRC Press, 2005.  
F. Franceschini, M. Galetto, D. Maisano, Management by Measurement, Designing Key Indicators and Performance Measurement Systems, Springer, 2007