

Logistic Information Systems (non IE)

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Logistic Information Systems (non IE)	
Offered by	Department of Industrial Engineering and Innovation Sciences
Language	English
Primarily interesting for	All non-IE students interested in logistic decision making, simulation and analytics. (Not allowed for Major Industrial Engineering)
Prerequisites	Required courses: - Recommended courses: -
Contact person	Dr. Jeroen Middelhuis (j.middelhuis@tue.nl)

Content and composition

Information systems are the primary enabler of digital transformation in business. Organizations increasingly depend on their information systems to align internal organization structures and deal with the complexity and changeability of markets. As overseeing operations becomes too complicated for humans, business requirements related to information systems are growing exponentially. Up-to-date, complete and accurate information from big data has become a necessity to survive in an increasingly competitive world. Rapid developments in information technology enable application types unimaginable a few years ago. Increasing complexity and dependence on information systems are driving significant changes across many sectors, from logistics, mobility services and hi-tech manufacturing to healthcare.

In this elective package, you study principles of logistic systems and their quantitative analysis. In particular, inventory management and production planning systems are discussed in Production & Inventory Control. In Business Process Simulation, you analyze logistic systems quantitatively by using process simulation as a technique. Analysis of such systems can also be done based on data, which is discussed in Business Analytics & Decision Support. In all courses, the analysis is used to determine the optimal decisions for improving the logistic processes.

Course code	Course name	Level classification
1CK50	Production & Inventory Control (non IE)	3. Advanced
1BK20	Business Process Simulation	3. Advanced
1BVK00	Business Analytics & Decision Support	2. Deepening

Course description

Production & inventory Control (non-IE) (1CK50)

In this course basic concepts and techniques in inventory management and production planning are introduced. Upon successful completion of the course, the student should be familiar with the analysis and modeling of inventory management and production planning systems.

Content:

Functional classifications of inventories, forecasting methods, deterministic inventory models, stochastic inventory models, framework for production planning, aggregate production planning, material requirements planning, production scheduling, project scheduling.

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Business Process Simulation (1BK20)

Business Process Simulation is a tool for analyzing the performance of a business process and the impact of certain changes to these processes. Simulation is used when analytical techniques such as queuing theory or a direct experiment in practice cannot be used. A model of the business process is built and executed in a simulation tool in order to get insights in the performance indicators and bottlenecks in the process. Based on this information ideas for redesigning the process (to make it more efficient) can be generated or checked for their impact. In this course, you work in a group on a simulation project for a realistic case. You will apply a simulation methodology to arrive at recommendations for improvement and redesign of the business processes.

Business Analytics & Decision Support (1BVK00)

Agile organizations can gain competitive advantage through timely, thorough and relevant analysis of their (past) performance data. Coupling the results of this analysis to operational and management decisions leads to operational excellence. In this course, students learn about advanced methods of data analysis and information processing, as well as their link to decision making models. Both individual and group decision making is discussed.