BUSINESS DECISION SUPPORT (NON-IE) elective package

BUSINESS DECISION SUPPORT (NON-IE) (This flyer will be updated soon)		
Offered by	Department of Industrial Engineering and Innovation Science	
Language	English	
Primarily interesting for	All non-IE students interested in (quantitative) decision making in a business setting Not allowed for Major Industrial Engineering	
Prerequisites	Required courses: -	
	Recommended courses: -	
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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 hitech manufacturing to healthcare.

Which decisions do you have to make as a business to optimize your operational processes? How can you make sure that these decisions are not ad-hoc, but backed up by quantitative models of your processes? How can you analyze your data and make your business decisions based on actual facts (data) rather than assumptions? These are some of the questions that contemporary businesses have to deal with.

In this elective package you learn how to address these questions based on techniques from information systems research. In the Fundamentals of Business Information Systems course, you will learn how data and processes models form the basis of the design of business information systems. You will also learn how programming statements can be specified to manage business data. Performance analysis of business processes and their redesign based on simulation methods are studied in the Business Process Simulation course. Finally, Business Analytics and Decision Support discusses how data from business processes can serve as input for optimal business decisions.

Course code	Course name	Level classification
1BV00	Fundamentals of Business Information Systems	3.
1BK20	Business Process Simulation	3.
1BVK00	Business Analytics & Decision Support	2.

Course description

Fundamentals of Business Information Systems (1BV00)

Modern organizations need business information systems to support their internal operations and their interactions with external parties (suppliers, customers, competitors, government, etc). As such, basic knowledge on the concepts of business information system development and management is essential.

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Business processes and information systems are interwoven: changing a business process results in changing the information systems supporting it and vice versa. It is therefore also important that students -as future practitioners- are able to model the complex relation between business processes and information systems. In this relation, data and process models play a key role. A data model specifies which data of the business process the supporting information systems should collect, store and manipulate. A process model specifies the steps in the business process and their interdependencies that have to be supported by the information system. Both types of model can be used to develop or configure information systems that support business processes. In this course, students also learn how programming statements can be specified to query, manipulate, define, and (access) control business data.

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.