Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Process Optimization 2024-2025

University of Applied Sciences Windesheim

Course summary

VOE Code: EDPPO.24 ECTS credits: 15 Level: Bachelor's degree (full-time)

Course Title	Project Process Optimization + Six Sigma		
Type	Compulsory		
Learning competences			
Learning outcomes	The student demonstrates the ability to transform company problem into a design/implementation/monitor assignment through analysis in a Process optimization (PO) context. A reliable and valid research is conducted based on PO models. The research leads to a diagnosis in which the root causes of the problem are identified. Different solutions are compared and the choice of a definite solution is substantiated. The definitive solution is worked out in cooperation with stakeholders. The student knows how to convince stakeholders of the final advice. The student explains how the learning experience from the project contributes to personal development. Throughout the project the student applies project management skills.		
Course content	Doing research into the quality of a business process and to find improvements in a structured way.		
Planned learning activities and teaching methods	Students work in small project groups on an improvement project in a company.		
Recommended or required reading and other learning resources / tools	Gitlow, Levine (2012). *Six Sigma for Green Belts and Champions*. Upper Saddle River, New Jersey, USA: Financial Times Press (Pearson)		
Prerequisites and co-requisites	You are required to have two years of Bachelor's study experience in a relevant field and English-language skills at B2 level.		
Level	Advanced		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	**Type of assessment**	**Grade weighting**	**Criteria**
	P1 Project Process Optimization	0,7	Higher or equal to 5.5
	P2 PPO Theme	0	Higher or equal to 5.5
	T1 PPO Six Sigma	0,3	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Paul Touw		
Mode of delivery	Face to face		

Course summary

VOE Code: EDSLOG.24 ECTS credits: 5 Level: Bachelor's degree (full-time)

Course Title	Smart Logistics
Type	Optional
Learning competences	
Learning outcomes	The student is able to analyze the degree of data-driven operation in logistics professional practice. The students are able to write an exploratory study on the possibilities of data use within logistic organizations. This describes the technological trends within the industry and how they relate to current practice. Based on existing business data, a relevant analysis can

	be made using various different tools and techniques such as Power BI, machine learning, simulation tooling, etc. Based on this, a recommendation can be made for the logistics process.		
Course content	After this course, the young professional is capable of explaining and identifying the impact of latest developments in Warehousing, smart logistics and Last-mile Logistics based on the latest insights of technology and emerging markets. Both warehousing and smart logistics have a huge impact on the success of an organization. As ICT developments press onwards, Supply Chain Functions and Strategies are changing very rapidly. Markets and consumer behavior change accordingly to the newly given possibilities. Also new technologies lead to highly interconnected production and logistics; we refer to this as Industrial Internet of Things (USA, UK) or Smart Industry (Netherlands) or Industry 4.0 (Germany, Austria). These innovations are changing the world and technology seems to be developing faster and faster Many innovative concepts are gaining influence such as: robotics, artificial intelligence, machine learning, big data, internet of things... etc.		
Planned learning activities and teaching methods	The lectures consist of theory lectures and lectures where the students do assignments which mainly will be presented as cases during the course and are part of the overall portfolio. Furthermore an excursion to a relevant logistic partner will be organized.		
Recommended or required reading and other learning resources / tools			
Prerequisites and co-requisites	You are required to have two years of Bachelor's study experience in a relevant field and English-language skills at B2 level.		
Level	Advanced		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	**Type of assessment**	**Grade weighting**	**Criteria**
	P1 Smart Logistics	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Paul Touw		
Mode of delivery	Face to face		

Course summary

VOE Code: EDLQRM.21 ECTS credits: 5 Level: Bachelor's degree (full-time)

Course Title	Lean/QRM
Type	Optional
Learning competences	
Learning outcomes	The student is able to identify the characteristics of Lean and Quick Response Manufacturing (QRM) and is able to identify the implications when implementing in practice and managing the operation with Lean and QRM.
Course content	In many organizations numerous improvement projects are started. The projects tie up people for considerable amounts of time on top of their normal responsibilities. Each individual project assesses a current problem within the organization as a whole. The question is, is there also improvement in the bottom-line performance of the organization after completing a project. If there is no process to address the constraint in the organization, there is also no focus which areas should be addressed.

	In this course you will learn to setup a process to address the constraint in the organization and increase the performance of an organization as a whole using Lean, Value Stream Mapping and Quick Response Manufacturing Tooling.		
Planned learning activities and teaching methods	• Lectures • Coaching		
Recommended or required reading and other learning resources / tools	Rajan Suri (2010). *Its About Time*. : CRC Press Lean Game		
Prerequisites and co-requisites	You are required to have two years of Bachelor's study experience in a relevant field and English-language skills at B2 level.		
Level	Advanced		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	**Type of assessment**	**Grade weighting**	**Criteria**
	P1 Lean/QRM	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Paul Touw		
Mode of delivery	Face to face		

Course summary

VOE Code: EDAPS.21 ECTS credits: 5 Level: Bachelor's degree (full-time)

Course Title	Advanced Planning & Scheduling
Type	Optional
Learning competences	
Learning outcomes	**Objectives:** The student shows how to apply planning and scheduling as forms of decision-making to play an important role in manufacturing and services industries. Detailed course objectives: see study guide.
Course content	**Lectures and main topics** Advanced Planning and Scheduling is an introduction to advanced planning and scheduling techniques. The course delves into advanced analysis and calculation techniques. These techniques aid in optimizing production and planning schedules, sales and operations management, economic lot sizing and the construction of reservation systems and personal rosters. The course requires a basic understanding of the use of heuristics and simple linear programming techniques. The main topics of the course are: • Sales and Operatins, Manufacturing models, NP Hard problems and Dispatching rules • Characteristics of service industries, Project planning and scheduling. • Linear Programming, Shifting Bottleneck Heuristic, Simulated Annealing, Tabu- and Beam Search • Economic Lot Scheduling • Interval scheduling, Reservation systems and time tabling, Personnel scheduling problems

Planned learning activities and teaching methods	• Courses • Assignments		
Recommended or required reading and other learning resources / tools	Pinedo, Michael L. (). *Planning and Scheduling in Manufacturing and Services*. : Springer		
Prerequisites and co-requisites	You are required to have two years of Bachelor's study experience in a relevant field and English-language skills at B2 level.		
Level	Advanced		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	**Type of assessment**	**Grade weighting**	**Criteria**
	T1 Advanced Planning & Schedule	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Paul Touw		
Mode of delivery	Face to face		

Course summary

VOE Code: EDCSK.24 ECTS credits: 5 Level: Bachelor's degree (full-time)

Course Title	Consultancy Skills		
Type	Optional		
Learning competences			
Learning outcomes	The student is able to use consultancy skills (a combination of research & analysis methods, advisory skills and appropriate project management skills) to enter into a change process with an external or internal client in which the underlying customer question or organizational problem is clarified and the appropriate solution-oriented change process is designed is based on provided (study) cases..		
Course content	This course helps you to develop effective consultancy and communication skills. The aim of this course is to challenge you to examine the assumptions and interpretations you have about yourself and others. It helps you to examine the way you communicate to become more effective in getting your message across as a consultant.		
Planned learning activities and teaching methods	• Lectures • Coaching		
Recommended or required reading and other learning resources / tools			
Prerequisites and co-requisites	You are required to have two years of Bachelor's study experience in a relevant field and English-language skills at B2 level.		
Level	Advanced		
Grading scale	1 up to 10, 1 dec.		
	Type of assessment	**Grade weighting**	**Criteria**

Assessment methods and criteria	P1 Consultancy Skills Portfolio	1	Higher or equal to 5.5
	P2 Consultancy Skills Assessment	1	Higher or equal to 5.5
	P3 Consultancy skills - Attendance	0	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Paul Touw		
Mode of delivery	Face to face		

Course summary

VOE Code: EDCISC.24 ECTS credits: 5 Level: Bachelor's degree (full-time)

Course Title	Circularity in Supply Chains		
Type	Optional		
Learning competences			
Learning outcomes	The student is able to assess circular opportunities within business models and supply chains of organizations and advice on strategies to increase circularity based on a redesign of supply chain processes.		
Course content	The theoretical base is provided in a series of lectures and will be applied in a project.		
Planned learning activities and teaching methods	• Lectures • Practicals		
Recommended or required reading and other learning resources / tools			
Prerequisites and co-requisites	You are required to have two years of Bachelor's study experience in a relevant field and English-language skills at B2 level.		
Level	Advanced		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	**Type of assessment**	**Grade weighting**	**Criteria**
	P1: Circularity in Supply Chains	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Paul Touw		
Mode of delivery	Face to face		

Course summary

VOE Code: EDASIM.24 ECTS credits: 5 Level: Bachelor's degree (full-time)

Course Title	Advanced Simulation
Type	Optional
Learning competences	
Learning outcomes	A student analyzes and designs business processes in a simulation of an industrial environment using learned methods and provides advice based on the results of the simulation and validates with the case. The advice is substantiated with relevant matters from Operations Management.
Course content	Theory • Simulation: what, why and when?

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Inside simulation software.
Simulation studies: an overview.
Conceptual modelling.
Developing the conceptual model.
Data collection and analysis.
Model coding.
Experimentation: obtaining accurate results.
Experimentation: searching the solution space.
Implementation.
Verification, validation and confidence.

Practical

Tutorial layout.
Enterprise Dynamics background.
First contact with Enterprise Dynamics.
Model building basics.
Analysing the results.
Playing with strategies.

After the introduction to Siemens Plant Simulation the student will perform several case studies.
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<tr><td>Planned learning activities and teaching methods</td><td colspan="3">

Lectures
Practicals

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<tr><td>Recommended or required reading and other learning resources / tools</td><td colspan="3">Software: Siemens Plant Simulation</td></tr>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">You are required to have two years of Bachelor’s study experience in a relevant field and English-language skills at B2 level.</td></tr>
<tr><td>Level</td><td colspan="3">Advanced</td></tr>
<tr><td>Grading scale</td><td colspan="3">1 up to 10, 1 dec.</td></tr>
<tr><td rowspan="2">Assessment methods and criteria</td><td>Type of assessment</td><td>Grade weighting</td><td>Criteria</td></tr>
<tr><td>P1 Simulation</td><td>1</td><td>Higher or equal to 5.5</td></tr>
<tr><td>Language of Instruction</td><td colspan="3">English</td></tr>
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