## **Course Catalogue Engineering and ICT**

## **EXCHANGE PROGRAMME**

**Operational Management in Industry 2024-2025** 



Course sum	mary				
VOE Code: EDPC	OMI.24 ECTS credits:	15 Lev	el: Bachelor's degree (full-time)		
Course Title	Project Operational Management in Industry	+ Operations Stra	itegy		
Туре	Compulsory				
Learning					
competences					
Learning outcomes	The student demonstrates the ability to convert customer demand into a design/implementation/ management assignment by means of an analysis in an Operational Management in Industry context. A reliable and valid study is conducted based on Operational Management in Industry models. The investigation leads to a diagnosis in which the root causes of the problem are identified. Different solutions are compared and the choice for a definitive solution is substantiated. The final solution is developed in collaboration 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. The student applies project management skills throughout the entire project.				
Course content	<ul> <li>This project is executed within a company or external organization.</li> <li>The language is either Dutch or English depending upon the guest organization.</li> <li>The project will normally be carried out in small groups.</li> <li>Individual assignments are possible in relevant situations.</li> </ul>				
Planned	Lectures				
learning	<ul> <li>Assignments for an external organis</li> </ul>	ation			
activities and					
teaching methods					
Recommended	Nigel Slack (). <i>Operations Strategy</i> . : Pearso	 n			
or required	Triger sidek (). Operations strategy I earso	· •			
reading and					
other learning					
resources /					
tools					
Prerequisites	You are required to have two years of Bache	lor's study experie	ence in a relevant field and		
and co-	English-language skills at B2 level.				
requisites Level	Advanced				
Grading scale	1 up to 10, 1 dec.				
Assessment	Type of assessment	Grade	Criteria		
methods and	13po or doocooment	weighting	Officia		
criteria	P1: Project Operational Management in	0,7	Higher or equal to 5.5		
	Industry	,	3 : : : ; ; : : : : : : : : : : : : : :		
	P2: POMI Operations Strategy	0,3	Higher or equal to 5.5		
	P3: POMI Theme	0	Higher or equal to 5.5		
Language of Instruction	English		, -		
Name of	For information about the lecturers you can	contact Frank Eve	rs		
lecturer					
Mode of delivery	Face to face	-			

Course summary							
VOE Code: EDSI	LOG.24	ECTS credits: 5	Level: Bachelor's degree (full-time)				
Course Title	Smart Logistics						
Туре	Optional						
Learning							
competences							

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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	The lectures consist of theory lectures and lectures				
learning	which mainly will be presented as cases during		•		
activities and	portfolio. Furthermore an excursion to a relevar				
teaching	portrollo. I dittiermore un exodicion to diferent	it logiotic partiter	wiii be organized.		
methods					
Recommended					
or required					
reading and					
other learning					
resources /					
tools					
Prerequisites	Vou are required to have two years of Booksler'	a atudu aynarian	so in a relevant field and		
and co-	You are required to have two years of Bachelor' English-language skills at B2 level.	s study expendent	e iii a reievarit lielu allu		
requisites	Linghantanguaye akina at DZ level.				
Level	Advanced				
Grading scale					
Assessment	1 up to 10, 1 dec.	Crodo	Criteria		
	Type of assessment	Grade	Cinteria		
methods and	D1 Cmart Logistics	weighting	Higher or equal to 5.5		
criteria	P1 Smart Logistics	I	Higher or equal to 5.5		
Language of Instruction	English				
Name of lecturer	For information about the lecturers you can contact Frank Evers				
Mode of delivery	Face to face				
	. 500 10 1000				

Course sum	mary				
VOE Code: EDLC	QRM.21	ECTS credits:	5	Level: Bachelor's degree (full-time)	
Course Title	Lean/QRM				
Туре	Optional				
Learning					
competences					
Learning	The student is able to identify the characteristics of Lean and Quick Response Manuf				
outcomes	(QRM) and is able to identify the implications when implementing in practice and managing				
	the operation with Lean an				
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	<ul> <li>Lectures</li> </ul>					
learning	Coaching					
activities and						
teaching						
methods						
Recommended	Rajan Suri (2010). <i>Its About Time</i> . : CRC Press					
or required						
reading and	Lean Game					
other learning						
resources /						
tools			_			
Prerequisites	You are required to have two years of Bachelor	's study experier	nce in a relevant field and			
and co-	English-language skills at B2 level.					
requisites						
Level	Advanced					
Grading scale	1 up to 10, 1 dec.					
Assessment methods and	Type of assessment	Grade weighting	Criteria			
criteria	P1 Lean/QRM	1	Higher or equal to 5.5			
Language of	English	•	· · ·			
Instruction						
Name of	For information about the lecturers you can cor	ntact Frank Evers	S			
lecturer	,					
Mode of delivery	Face to face					

Course sumi	nary
VOE Code: EDAF	PS.21 ECTS credits: 5 Level: Bachelor's degree (full-time)
Course Title	Advanced Planning & Scheduling
Туре	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	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.

	<ul> <li>Linear Programming, Shifting Bottleneck Heuristic, Simulated Annealing, Tabu- and Beam Search</li> <li>Economic Lot Scheduling</li> <li>Interval scheduling, Reservation systems and time tabling, Personnel scheduling problems</li> </ul>					
Planned	Contents:					
learning	<ul> <li>Courses</li> </ul>					
activities and	<ul> <li>Assignments</li> </ul>					
teaching methods						
Recommended	Pinedo, Michael L. ().					
or required	Planning and Scheduling in Manufacture	ing and Sarvicae : Spri	nger			
reading and	Framming and Scheduling in Mandractur	ing and Services Spin	ilgei			
other learning						
resources /						
tools						
Prerequisites	You are required to have two years of Bachelor's study experience in a relevant field and					
and co-	English-language skills at B2 level.					
requisites						
Level	Advanced					
Grading scale	1 up to 10, 1 dec.					
Assessment	Type of assessment	Grade	Criteria			
methods and		weighting				
criteria	T1 Advanced Planning & Schedule 1 Higher or equal to 5.5					
Language of	English					
Instruction	5 . 6					
Name of	For information about the lecturers you	can contact Frank Evei	rs			
lecturer	F					
Mode of delivery	Face to face					

Course sumi	mary			
VOE Code: EDCS	SK.24	ECTS credits:	5	Level: Bachelor's degree (full-time)
Course Title	Consultancy Skills			
Type	Optional			
Learning competences				
Learning outcomes	advisory skills and appropria with an external or internal c	ite project man lient in which th appropriate sol	agement skill ne underlying	tion of research & analysis methods, (s) to enter into a change process customer question or organizational d change process is designed is
Course content	this course is to challenge yo	ou to examine t helps you to ex	he assumption	and communication skills. The aim of ons and interpretations you have ay you communicate to become sultant.
Planned learning activities and teaching methods Recommended or required reading and other learning	<ul><li>Lectures</li><li>Coaching</li></ul>			

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	Type of assessment	Grade weighting	Criteria		
methods and	P1 Consultancy Skills Portfolio	1	Higher or equal to 5.5		
criteria	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	For information about the lecturers you can contact Frank Evers				
lecturer					
Mode of delivery	Face to face	<u>-</u>	<u>-</u>		

Course sum	mary						
VOE Code: EDCI		ECTS credits:	5	Level	: Bachelor's degree (full-time)		
Course Title	Circularity in Supply Chai	Circularity in Supply Chains					
Туре	Optional						
Learning							
competences							
Learning	The student is able to as						
outcomes			rategies to	increase ci	rcularity based on a redesign		
	of supply chain processe						
Course content	The theoretical base is p	rovided in a seri	es of lectur	es and will	be applied in a project.		
Planned	<ul> <li>Lectures</li> </ul>						
learning	<ul> <li>Practicals</li> </ul>						
activities and							
teaching							
methods							
Recommended							
or required							
reading and							
other learning							
resources /							
tools	V	( D	.1174.				
Prerequisites and co-			cneior s stu	ıay experiei	nce in a relevant field and		
	English-language skills a	t B∠ ievei.					
requisites Level	Advanced						
Grading scale	1 up to 10, 1 dec.						
Assessment	Type of assessment		Gra	ade	Criteria		
methods and	Type or assessment			ighting	Citteria		
criteria	P1: Circularity in Supply (	Chains	1	igitung	Higher or equal to 5.5		
Language of	English	J.14.110			1 riigher or equal to 0.0		
Instruction	2.1911011						
Name of	For information about the	e lecturers you c	an contact	Frank Ever	 S		
lecturer		2 .23.4.5.5 , 64 6	00111401		_		
Mode of delivery	Face to face						

Advanced Simulation   Optional	Course sum	mary					
Dourse Title Advanced Simulation Optional  Astudent 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.  Theory  Simulation: what, why and when?  Inside simulation software.  Simulations twiner.  Simulations			ECTS credits:	5	Level: E	Bachelor's degree (full-time)	
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.    Theory	Course Title						
	Туре	Optional					
Astudent 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.  Theory  Simulation sudies: an overview.  Simulation sudies: an overview.  Developing the conceptual modelling.  Developing the conceptual model.  Data collection and analysis.  Model coding.  Experimentation: obtaining accurate results.  Experimentation: earching the solution space.  Implementation.  Verification, validation and confidence.  Practical  Tutorial layout.  Enterprise Dynamics background.  Enterprise Dynamics background.  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.  Planned earning activities and eaching methods  Recommended or required eading and tyther learning esources / cools  Practicals  Software: Siemens Plant Simulation  Software: Siemens Plant Simulation  Trequired eading and tyther learning esources / cools  Practicals  Software: Siemens Plant Simulation  Type of assessment  English-language of skills at B2 level.  English-language of assessment  Play of assessment	Learning						
course content Theory Simulation: what, why and when? Inside simulation and validates with the case. The advice is substantiated with relevant matters from Operations Management. Theory Simulation: what, why and when? Inside simulation software. Simulation software. Simulation software. Simulation and analysis. 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.  Practicals  Lectures Practicals  Software: Siemens Plant Simulation  Lectures Practicals  Verification  Advanced  Trequired reading and other learning esources / cools  Prerequisites and acongulates and congulates and congulates. Advanced  Treading scale Advanced  Treading scale  Advanced  Treading	competences						
simulation and validates with the case. The advice is substantiated with relevant matters from Operations Management.  Theory  Simulation: what, why and when? 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.  Lectures Practicals  Lectures Practicals  Lectures Practicals  Vu are required to have two years of Bachelor's study experience in a relevant field and the reaming esources / tools  Prerequisites and co-equisites and co-equisites evel Advanced  Type of assessment Plain to the very part of Bachelor's study experience in a relevant field and the relaming esources / tools  Prerequisites Advanced  Type of assessment Plain to the very part of Bachelor's study experience in a relevant field and the required to have two years of Bachelor's study experience in a relevant field and the regulation of the part of the very part of the very part of Bachelor's study experience in a relevant field and the regulation of the very part of Bachelor's study experience in a relevant field and grading scale sasessment  Figure of the very part of the very part of Bachelor's study experience in a relevant field and grading scale sasessment  Plainulation 1 Higher or equal to 5.5  English for information about the lecturers you can contact Frank Evers	Learning						
Simulation: what, why and when?     Inside simulation software.     Stimulation software.     Stimulation software.     Stimulation searching the solution space.     Implementation.     Verification, validation and confidence.  Practical     Tutorial layout.     Experimentation: searching the solution space.     Implementation.     Verification, validation and confidence.  Practical     Tutorial layout.     Experimentation: searching the solution space.     Implementation.     Verification, validation and confidence.  Practical     Tutorial layout.     Experimentation: searching the solution space.     Implementation.     Nodel coding.     Software shading assists and confidence.  Planned     Software shading with strategies.  After the introduction to Siemens Plant Simulation the student will perform several case studies.      Lectures     Practicals      Lectures     Practicals      Lectures     Practicals      Software: Siemens Plant Simulation or required seading and studies.      Vou are required to have two years of Bachelor's study experience in a relevant field and and confidence.  Prerequisites     Advanced  Type of assessment     Type of assessment     Software: Siemens Plant Simulation     Software: Siemens Plant Simulation     Type of assessment     Software: S	outcomes	simulation and validates	simulation and validates with the case. The advice is substantiated with relevant matters				
studies.  Planned earning	Course content	Theory  Simulation: what, why and when? 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.					
Planned earning activities and leaching methods Recommended or required reading and other learning resources / sools Pererequisites and co-requisites and co-requisites Level Advanced Grading scale Assessment methods and corriteria prison of struction  Page 1			Siemens Plant Si	mulation the	student w	viii periorm severai case	
required reading and other learning resources / sools  Prerequisites and co-requisites Revel Advanced  Grading scale 1 up to 10, 1 dec.  Assessment methods and criteria P1 Simulation P1 Simulation  Language of nstruction  Name of ecturer  Pou are required to have two years of Bachelor's study experience in a relevant field and English-language skills at B2 level.  Grade Grade Weighting  P1 Simulation 1 Higher or equal to 5.5  English  For information about the lecturers you can contact Frank Evers  ecturer	Planned learning activities and teaching methods	<ul><li>Lectures</li><li>Practicals</li></ul>					
English-language skills at B2 level.  Pequisites  Level Advanced  Grading scale 1 up to 10, 1 dec.  Assessment methods and criteria P1 Simulation 1 Higher or equal to 5.5  Language of nstruction  Name of ecturer  English-language skills at B2 level.  Advanced  Criteria weighting  P1 Simulation 1 Higher or equal to 5.5  English  For information about the lecturers you can contact Frank Evers	Recommended or required reading and other learning resources / tools						
requisites Level Advanced Grading scale 1 up to 10, 1 dec.  Assessment methods and criteria P1 Simulation 1 Higher or equal to 5.5  Language of nstruction  Name of ecturer  Type of assessment weighting 1 Higher or equal to 5.5  For information about the lecturers you can contact Frank Evers	Prerequisites			helor's study	experien	ce in a relevant field and	
Assessment Type of assessment Weighting P1 Simulation For information about the lecturers you can contact Frank Evers P1 Simulation P2 Simulation P3 Simulation P4 Simulation P5 Simulation P6 Simulation P7 Simulation P8 Simulation P9 Simulation P1 Simulat	and co- requisites		at B2 level.				
Assessment methods and criteria P1 Simulation P1 Simulatio	Level						
methods and criteria P1 Simulation 1 Higher or equal to 5.5  Language of nstruction Name of ecturer  Por information about the lecturers you can contact Frank Evers	Grading scale						
P1 Simulation 1 Higher or equal to 5.5  Language of Instruction  Name of Instruction For information about the lecturers you can contact Frank Evers  Language of Instruction	Assessment	Type of assessment				Criteria	
Language of English  nstruction  Name of English  For information about the lecturers you can contact Frank Evers  ecturer	methods and			weigh	nting		
Language of English  nstruction  Name of English  For information about the lecturers you can contact Frank Evers  ecturer	criteria	P1 Simulation				Higher or equal to 5.5	
Name of For information about the lecturers you can contact Frank Evers ecturer	Language of Instruction			<u>'</u>			
	Name of lecturer	For information about th	For information about the lecturers you can contact Frank Evers				
	Mode of delivery	Face to face					