**Implementation Regulations CER HZ** 

Bachelor

# INDUSTRIAL ENGINEERING & MANAGEMENT

**Full-time** 

CROHO 34421

2022-2023



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# **CHAPTER 1 GENERAL PROVISIONS**

# 1.1 <u>General</u>

- 1.1.1 The HZ Course and Examination Regulations Bachelor programme full-time (hereinafter: HZ CER ba ft) cover the core of education within the HZ. This document provides a general overview of all programmes taught at the HZ. The HZ CER Ba ft contains institution-specific provisions, i.e. those that apply to the entire HZ. A programme-specific HZ CER Implementation Regulation (hereinafter: Implementation Regulation) is determined for each programme by the executive board each year.
- 1.1.2 The HZ Course and Examination Regulations Bachelor programme full-time applies to this HZ CER Implementation Regulation Bachelor programme full-time.
- 1.1.3 The Dutch Higher Education and Research Act (WHW) as well as the HZ CER ba ft mention study credits. These Implementation Regulations, in addition to the term credits, also refer to ECTS (European Credits Transfer System), where 1 ECTS is equal to 1 credit and thus a study load of 28 hours (article 7.4 paragraph 1 of WHW).

# 1.2 Establishment and evaluation

- 1.2.1 The process of establishment and evaluation of this Implementation Regulation is described in article 1.3.4 CER HZ ba ft.
- 1.2.2 The programme committee evaluates the manner of implementation of the education and examination regulations and the Implementation Regulations in question every year (article 1.3.4 CER HZ ba ft).

# **CHAPTER 2 IMPLEMENTATION REGULATIONS HZ CER**

#### 2.1 Registration, prior educational requirements, and admission policy

2.1.1 Overview of additional prior educational requirements (article 2.3 HZ CER Ba ft in addition to the requirements as listed under article 2.2 and 2.2a and 2.2b of HZ CER Ba ft)

Students with a havo diploma							
Havo profiles:	NT	EM	СМ				
Admissible:	Sufficient	Sufficient	Sufficient	Sufficient*			

Students with a vwo diploma								
Vwo profiles: NT NG EM CM								
Admissible: Sufficient Sufficient Sufficient*								
* if completed with	Mathematics A or B							

if completed with Mathematics A or B

- 2.1.1a Selection criteria Special programme (article 2.2b HZ CER ba ft) Not applicable.
- 2.1.1b Enrolment 180 ECTS track for VWO students (article 2.2a CER HZ Ba ft) Not applicable.
- 2.1.2 **Deficiency investigation** (article 2.4 CER HZ ba ft)

Students who do not meet the legal requirements to enrol the Industrial Engineering and Management programme (e.g. students with a Dutch HAVO or VWO diploma without Mathematics A or B) must demonstrate by the 1st of September of that school year that they have acquired the required level Mathematics. Summer courses in mathematics which can provide the students with the required certificates are offered by HZ.

https://hz.nl/opleidingen/type-schakelcursus

Students older than 21 years will have to pass an entrance exam. https://hz.nl/en/opleidingen/alternative-entrance-exam, https://blog.hz.nl/toelastingsonderzoek-naar-het-hbo-de-21-test

2.2.3 Additional requirements (article 2.5 CER ba ft) Not applicable.

## 2.2 Programme and education structure

### 2.2.1 Programme profile (article 3.2 CER HZ Ba ft)

The study programme Industrial Engineering & Management trains engineers with a broad range of skills who will manage, improve and redesign business processes at companies. The Industrial Engineering & Management professional has a respect for people and their environment and is valuable for our society from a green, sustainable and circular economic perspective. Companies are confronted with constantly changing requirements. Production processes must be modified at an increased rate or new production processes must be designed. The life cycle of products is getting shorter due to the rapid changes in technology and the higher demands of the market. Furthermore, companies are forced to search for sustainable materials and processes because raw materials are becoming scarce.

To manage these changes, you need skilled technical professionals who are capable of integrating and organising these developments into the production processes of organisations. The IE&M professional has a respect for people and their environment and is valuable for our society from a green, sustainable and circular economic perspective. The IE & M deploys people and resources efficiently and effectively to realise the corporate objectives from the vision of the company.

The IE & M professional collaborates with almost all disciplines within an organisation to advise on matters or to come up with solutions for issues that the organisation is faced with as a result of a constantly changing environment. To this end, the IE & M professional methodically analyses processes, structures, systems and cultures and gives advice on how to make these more effective and/or efficient.

The starting point of every teaching block (=period of ten weeks) are the actual professional products that the student must deliver in his future profession. In order to deliver these products, the student must carry out assignments at a company. To this end, companies submit cases and projects. The structure of these projects is defined by the study programme. In the first academic year, companies deliver actual cases instead of the actual project. Students learn how to handle real-life cases. The actual assignment/project is formulated by the study programme. As a result, the study programme ensures that first-year students work on level 1, from a non-complex situation.

The study programme Industrial Engineering & Management takes the three pillars of studentoriented and process-oriented learning as the starting point. Furthermore, these three pillars are central to every block within the programme. The pillars are:

- 1. Use of authentic professional situations
- 2. Activate students to reinforce learning from each other
- 3. Develop students into professionals

The study programme uses authentic professional situations in order to translate the learning objectives into actual educational situations. Each block relates to a real professional case which is the central subject of the block. This real professional situation is therefore an intrinsic part of the integrative assignment that the student will carry out as a project. The IE & M students collaborate with other students to answer the integrative assignment. The knowledge and skills required to

succeed in the assignments are provided to the students during the lectures, study assignments and workplace assignments. The execution of workplace assignments takes place at host companies. The integrative assignment is the guiding and connecting element in the educational programme. Each block therefore consists of two differentiated parts: an integral course in which the project is the central element and a variety of conceptual courses to guarantee the required basic knowledge. The learning objectives for each block are clustered in the courses and might be assessed accordingly during the study programme. The courses contained in the blocks must therefore not be viewed as separated entities but as meaningful parts that contribute to the authentic professional cases.

Compe- tence	<u>Sub task</u>	<u>LD Code</u>	Learning objective			
		LD-1.a.1	LD-1.a.1- Analyse the technological level, the level of maintenance, and the level of usage of an asset from a maintenance perspective			
		LD-1.a.2	LD-1.a.2- Analyse the technological, organisational and cultural context of a maintenance situation.			
	DT-1.a-Selection of relevant aspects in respect of the question/issue	LD-1.a.3	LD-1.a.3- Analyse the value, efficiency, the risks and the available controlling mechanisms for a given process.			
		LD-1.a.5	LD-1.a.5- List and describe the characteristics of a given asset.			
		LD-1.a.6	LD-1.a.6- Present an analysis to (re-)design and/or change a given process			
		LD-1.b.1	LD-1.b.1- Analyse the technological, organisational and cultural context of a new and complex maintenance situation, taking into account future developments			
	DT-1.b-Indication of the possible influence on	LD-1.b.2	LD-1.b.2- Apply knowledge of market positioning and market developments			
	commercial, social and specialist subject-related		LD-1.b.3- Assess the importance of the creation of			
		LD-1.b.4	1.b.3       business strategies and their impact on technology         1.b.4       LD-1.b.4- Describe the value and risks for a given asset.         1.b.5       LD-1.b.5- Evaluate a choice for the long-term on			
C1-Analysis		LD-1.b.5 LD-1.b.5- Evaluate a choice for the long-term on relevant criteria.				
-Ar		LD-1.b.6	LD-1.b.6- Justify make-or-buy decisions.			
5	DT-1.c-Formulating a clear problem outline, objective and assignment according to the wishes of the customer	LD-1.c.1	<ul> <li>LD-1.c.1- Compare the existing structures,</li> <li>procedures and behaviour in a maintenance situation with the results of the analysis</li> </ul>			
		LD-1.d.1	LD-1.d.1- Demonstrate understanding of assets maintenance and optimisation during the asset lifecycle			
	DT-1.d-Drawing up a schedule of (technical and non-	LD-1.d.2	LD-1.d.2- Evaluate tactical and strategic choices based on relevant criteria			
	technical) requirements and laying down those requirements	LD-1.d.3	LD-1.d.3- Explain interrelations and differences between long-term performance and short-term performance			
		LD-1.d.4	LD-1.d.4- Prepare and validate multi-criteria-analysis			
		LD-1.e.1	LD-1.e.1- Apply statistics and probabilities in the analysis of an existing product, process or service.			
		LD-1.e.2	LD-1.e.2- Assess business processes and propose improvements including process redesign			
	DT-1.e-Modelling an existing product, process or service	LD-1.e.3	LD-1.e.3- Describe business processes (including maintenance processes) and systems and their performance.			
		LD-1.e.4	LD-1.e.4- Describe degradation mechanisms			
			LD-1.e.5- Make appropriate (Asset Management) information available for decision making			

### 2.2.2 *Learning outcomes* (article 3.2 CER HZ Ba ft)

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Compe-	Sub task	LD Code	Learning objective		
tence					
		LD-2.a.1	LD-2.a.1- Find technological developments applicable to design		
	DT-2.a-On the basis of the requirements imposed,	LD-2.a.2	LD-2.a.2- Identify and consider guidelines and norms		
	the ability to elaborate and select a concept solution (architecture)	LD-2.a.3	LD-2.a.3- Translate strategic choices into required characteristics of technology, maintenance and usage		
		LD-2.a.4	LD-2.a.4- Translate strategic choices into preferred characteristics for the processes designing, maintaining and using assets		
		LD-2.b.1	LD-2.b.1- (re-)design of assets		
-		LD-2.b.2	LD-2.b.2- Apply methodical design		
C2-Design	DT-2.b-Producing detailed designs according to the selected concept solution (architecture)	LD-2.b.3	LD-2.b.3- Create an adequate plan to put the chosen (re)design into operation		
Ċ		LD-2.b.4	LD-2.b.4- Describe the operational characteristics of processes and assets		
		LD-2.c.1	LD-2.c.1- Define testing procedures and instruments.		
	DT-2.c-The ability to take account of the makeability and testability of the design	tis imposed, a concept LD-2.a.2 LD-2.a.2- Identify and consider guidelines and no characteristics of technology, maintenance ar usage LD-2.a.3 Translate strategic choices into requi characteristics of technology, maintenance ar usage LD-2.a.4 Translate strategic choices into prefer characteristics for the processes designing, maintaining and using assets LD-2.b.1 LD-2.b.1- (re-)design of assets LD-2.b.3 LD-2.b.3- Create an adequate plan to put the ch (re)design into operation LD-2.b.4 LD-2.b.1- (re-)design of assets LD-2.b.4 LD-2.b.2- Apply methodical design LD-2.b.4 LD-2.b.2- Apply methodical design LD-2.b.4 LD-2.b.2- Create an adequate plan to put the ch (re)design into operation LD-2.b.4 LD-2.c.1 LD-2.c.1- Define testing procedures and instrumm and limitations of technological processes LD-2.c.2 LD-2.c.2- Describe functional demands, perform: and limitations of technological processes LD-2.c.3 into the design of processes and choices in technology mg to the LD-2.d.1 Manage maintenance (re)design tasks methodical adequate way LD-2.d.2 LD-2.d.2- Use technogical developments LD-3.a.3 Describe methods and tools for usage technical systems LD-3.a.4 Describe safety and environment requirements including laws, guidelines and no that need to be taken into consideration in a gi situation a complete LD-3.a.5 Describe social, ethical and society-reli- aspects that need to be taken into consideration a given situation a complete LD-3.a.5.1 Explain the relation between use of a maintenance on assets LD-3.a.5.2 Create an adequate plan for implementation. LD-3.c.2 Create an adequate plan for implementation. LD-3.c.3 LD-3.c.2-Create an adequate plan for implementation.	LD-2.c.2- Describe functional demands, performance and limitations of technological processes		
	DT-2.d-Verifying the design according to the schedule of requirements		LD-2.d.1- Manage maintenance (re)design tasks in a methodical adequate way		
	schedule of requirements	LD-2.d.2	LD-2.d.2- Use technogical developments		
	DT-3.a-Making suitable use of materials, processes, norms and standards	LD-3.a.3	LD-3.a.3- Describe methods and tools for usage of technical systems		
		LD-3.a.4	requirements including laws, guidelines and norms that need to be taken into consideration in a given		
			LD-3.a.5- Describe social, ethical and society-related aspects that need to be taken into consideration in a given situation		
isation	DT-3.b-Assembling components into a complete product, service or process	LD-3.b.1	LD-3.b.1- Explain the relation between use of and maintenance on assets		
C3-Realis		LD-3.c.1	LD-3.c.1- Apply knowledge of USE (usage, safety and environment) aspects in maintenance situations		
	DT-3.c-Verifying and validating the product, service or process in respect of the requirements imposed	LD-3.c.2			
		LD-3.c.3	LD-3.c.3- Create proposals for improvement on technological, maintenance or usage level		
	DT-3.d-Documenting the realisation process		LD-3.d.1- Recall and explain existing asset and process documents and write them down when required		
			LD-3.d.2- Verify policies on product and process mix and the relation to usage and maintenance		

Compe-	Sub task	LD Code	Learning objective				
tence	<u>505 (05k</u>	LD COUC					
			recognise the use of information systems				
		LD-4.b.2	,				
	DT-4.b-Delivering a contribution to control systems	LD-4.b.3	•				
	and/or maintenance plans, both corrective		· · · · · · · · · · · · · · · · · · ·				
	(monitoring, identifying and optimising) and	LD-4.b.4	LD-4.b.4- Explain QDC-control for maintenance				
	preventive (anticipating)		processes				
		LD-4.b.5					
		LD-4.b.6					
			-				
		LD-4.c.1	information systems         b.2       LD-4.b.2- Calculate asset reliability         LD-4.b.3- Enumerate and define maintenance         concepts such as corrective, time-based, use-based and condition-based         b.4       LD-4.b.4- Explain QDC-control for maintenance processes         b.5       LD-4.b.5- List the criteria to be taken into account for configuration management         b.6       D-4.b.6- Monitor and review asset improvement progress and asset performance         c.1       indicators in general and performance         c.2       LD-4.c.1- Describe how to define performance         measurements for maintenance assets in particular         c.2       LD-4.c.2- Determine and explain technological system performances and structures         .c.3       LD-4.c.3- Determine and explain the performance of a non-complex maintenance situation         .c.4       LD-4.c.4- Develop and manage quality assurance processes         .c.5       LD-4.c.6- Explain how to determine risks, reliability and availability for a given asset in a maintenance situation         .c.6       maintenance and reliability for an asset in a maintenance situation         .d.1       LD-4.d.1- Apply knowledge of the external context to a maintenance situation         .d.2       LD-4.d.2- Apply PDCA-cycle         .d.3       LD-4.d.3- Learn from incidents         .d.4       LD-4.d.5- Recognise failure behaviour and its				
			· · · · · ·				
		LD-4.c.2					
-		_	· · ·				
C4-Control	DT-4.c-The ability to assess the performance of a	LD-4.c.3					
ပို	product, service or process according to quality						
C4	criteria	LD-4.c.4					
			•				
			•				
		LD-4.c.6	,				
			6 maintenance and reliability for an asset in a maintenance situation				
		LD-4.d.1					
		10410					
		LD-4.d.2	4.b.1       recognise the use of information systems         4.b.2       LD-4.b.2- Calculate asset reliability         4.b.3       LD-4.b.3- Enumerate and define maintenance         concepts such as corrective, time-based, use-based       and condition-based         4.b.3       LD-4.b.4- Explain QDC-control for maintenance         4.b.4       LD-4.b.5- List the criteria to be taken into account         for configuration management       LD-4.b.5- List the criteria to be taken into account         4.b.6       LD-4.b.6- Monitor and review asset improvement         progress and asset performance       LD-4.c.1- Describe how to define performance         4.c.1       indicators in general and performance         4.c.2       LD-4.c.2- Determine and explain technological         system performances and structures       LD-4.c.3- Determine and explain the performance o         4.c.3       LD-4.c.4- Develop and manage quality assurance         4.c.4       LD-4.c.5- Explain how to determine risks, reliability         and availability for a given asset       LD-4.c.6- Explain the relation between use,         4.c.5       LD-4.c.6- Explain the relation between use,         4.c.6       maintenance and reliability for an asset in a         maintenance and reliability for an asset in a       maintenance situation         4.c.4       LD-4.d.2- Apply PDCA-cycle				
	DT 4 d The ability to provide feedback in response	LD-4.d.3					
	DT-4.d-The ability to provide feedback in response to changing circumstances and/or performance of a	LD-4.d.4					
	product, service or process	LD-4.d.5	_				
	product, service or process						
		LD-4.d.6					
			·				
			limitations.				

Compe- tence	<u>Sub task</u>	LD Code	Learning objective		
		LD-5.a.1	LD-5.a.1- Apply management accounting principles		
	DT-5.a-Organising a (sub)project: quantifying time and money, assessing and quantifying risks, drawing		LD-5.a.2- Coach a multi-party group in the process of choosing between alternatives, evaluating tactical and strategic choices and using relevant multidimensional criteria		
		DT-5.a-Organising a (sub)project: quantifying time and money assessing and quantifying risks drawing		LD-5.a.3- Create relevant criteria for the choice between proposals for improvement and create a plan for the implementation of the choice made.	
	(human and material)	LD-5.a.4	LD-5.a.4- Determine the strategic value of a complex asset, taking into account the long-term strengths, weaknesses, opportunities and threats of the business using the asset		
		LD-5.a.5	LD-5.a.5- Describe and apply the RACI model to identify roles and responsibilities during an organizational change process		
		LD-5.b.1	LD-5.b.1- (Re-)Design structures and procedures and propose changes in management style and organisational behaviour, in a complex maintenance situation		
	DT-5.b-Monitoring and readjusting activities in	LD-5.b.2	Situation LD-5.b.2- Analyse the interrelations between business processes to create proposals for provements (esp. the design process, the usage and the maintenance process) taking into sideration the possibility of conflicting interests of stakeholders		
	terms of time, money, quality, information and organisation		LD-5.b.3- Assess the importance of knowledge		
Gement		LD-5.b.3     LD-5.b.3- Assess the importance of knowledge management       LD-5.b.4     LD-5.b.4- Define learning behaviour and apply knowledge of change management			
C5-Management		LD-5.b.5- Determine new alternative opportunities and translate these opportunities into a new process or product			
			LD-5.b.6- Evaluate performance, competence and training needs to meet operational strategies and objectives		
		LD-5.b.7	LD-5.b.7- Explain elementary maintenance concepts, tasks, guidelines and norms as well as technological components and its characteristics to optimise usage and maintenance-related choices during the asset life cycle		
	DT-5.b-Monitoring and readjusting activities in terms of time, money, quality, information and organisation	LD-5.b.8	LD-5.b.8- Explain in a non-complex maintenance situation the qualitative relations between performances, related to the design of the asset, the business processes (esp. the maintenance process) and the USE-aspects		
		LD-5.b.9	LD-5.b.9- Identifying human resources needs to meet operational strategies and objectives		
	DT-5.d-Supervising employees, encouraging cooperation and the ability to delegate	LD-5.d.1	LD-5.d.1- Describe aspects of human behaviour		
		LD-5.e.1	LD-5.e.1- Assess an organisation and its development (Culture, change,)		
	DT-5.e-Communication and cooperation with others in a multicultural, international and/or	LD-5.e.2	LD-5.e.2- Cooperate in multicultural, international and/or multidisciplinary project groups		
	multidisciplinary environment, and fulfilling the requirements imposed by participation in a labour organisation	LD-5.e.3	LD-5.e.3- Create approval and support for the plan for implementation including data gathering among those directly involved		
	, , , , , , , , , , , , , , , , , , ,	LD-5.e.4	LD-5.e.4- Describe methods for assessment in HRM- systems		

Compe- tence	<u>Sub task</u>	LD Code	Learning objective		
		LD-6.a.1 LD-6.a.1- Apply knowledge about stakeho understand their position			
	DT-6.a-Empathy with the position of the (internal or external) customer LD-6.a.2 LD-6.a.2 LD-6.a.2 busin LD-6.a.3 LD-6.a.3 and performance to u		LD-6.a.2- Asses internal and external relations of business functions		
			LD-6.a.3- Distinguish and interpret human behaviour and performance to understand the position of the (internal or external) customer		
		LD-6.c.1	LD-6.c.1- Apply and encourage multi-party cooperation		
C6-Advice		LD-6.c.2	LD-6.c.2- Describe technological contexts and systems		
6-Ac	DT-6.c-In consultation with relevant parties,	ID 6 c.4. Explain aparational hobaviour and			
0	translating the customer requirements into technically & economically viable solutions	LD-6.c.4	LD-6.c.4- Explain operational behaviour and performances from choices in the design of processes and structures, and from actual operational management		
		LD-6.c.3LD-6.c.3- Explain asset value and riskLD-6.c.4LD-6.c.4- Explain operational behaviour and performances from choices in the design of processes and structures, and from actual operational managementLD-6.c.4LD-6.c.5- Suggest improvements in the maintenance process and the maintenance planning and control in a given context.LD-6.d.1LD-6.d.1- Coach a process of choosing between alternative opportunities for the long term, involving all relevant stakeholdersLD-7.a.1LD-7.a.1- Formulate a problem statement (which comprises the problem description, research question and objective).LD-7.a.2LD-7.a.2- Conduct a literature review.			
	DT-6.d-The ability to underpin advice with arguments, and duly convince the client	LD-6.d.1	alternative opportunities for the long term,		
	DT-7.a-Research preparation. You are able to make LD-7.a.1 comprises a proposal for (applied) research and set up a	LD-7.a.1	comprises the problem description, research		
		LD-7.a.2- Conduct a literature review.			
	situations.	LD-6.C.2systemsLD-6.C.3LD-6.C.3- Explain asset value and riskLD-6.C.4LD-6.C.4- Explain operational behaviour and performances from choices in the design of processes and structures, and from actual operational managementLD-6.C.4LD-6.C.5- Suggest improvements in the maintenance process and the maintenance planning and control in a given context.LD-6.d.1LD-6.d.1- Coach a process of choosing between alternative opportunities for the long term, involving all relevant stakeholdersLD-7.a.1LD-7.a.1- Formulate a problem description, research question and objective).LD-7.a.2LD-7.a.2- Conduct a literature review.LD-7.a.3LD-7.a.3- Set up a research project and define it in research proposal.it 			
C7-Research (HZ)	DT-7.b-You are able to conduct research (or have it conducted), as described in the research proposal, monitor progress and quality and make adjustments where necessary.	LD-7.b.1	LD-7.b.1- Collect the required data and process it accordingly to enable a meaningful interpretation.		
C7-Rese	DT-7.b-You are able to conduct research (or have it conducted), as described in the research proposal, monitor progress and quality and make adjustments where necessary.	LD-7.b.2	LD-7.b.2-Monitor progress and implementation and make adjustments where necessary.		
	DT-7.c-Completing research: You are able to interpret data and draw conclusions regarding the		processed data.		
	research question. Additionally, you are able to	LD-7.c.2			
	DT-7.d-Researcher's attitude: You act in accordance with the (ethical) code of conduct associated with research.		professional ethics, attitude and responsibilities		

Compe- tence	<u>Sub task</u>	LD Code	Learning objective		
	DT-8.b-Adopting a flexible approach in a range of professional situations	LD-8.b.1	LD-8.b.1- Design and manage organisational change		
			LD-8.c.1- Determine the evaluation criteria for a given task and reflect on one's own and other members' qualification elements using the evaluation criteria		
ation	DT-8.c-When faced with professional and ethical dilemmas, making sound considerations and making a decision, taking account of accepted standards and values	LD-8.c.2	LD-8.c.2- Interrelations between social developments, ethical considerations, strategic choices and norms for performance		
C8-Professionalisation		LD-8.c.3	c.3 LD-8.c.3- Reflect on the choices made and the results from a social and ethical point of view taking into account the presence or absence of a social basis for approval and support		
C8-P1	DT-8.e-The ability to reflect on own actions, thoughts and outcomes	LD-8.e.1	LD-8.e.1- Reflect on one's own and other group members' role, behaviour, contribution and results obtained in a group process		
	DT-8.f-The ability to use a range of communication forms and tools in order to be able to effectively communicate in Dutch and English. DT-8.f-Be able to use a range of forms of and tools for communication in order to be able to effectively communicate.		LD-8.f.1- Defend own explanation and assess someone else's explanation.		
			LD-8.f.2- Report adequately both orally and in writing on the proposed improvements to the direct involved and other stakeholders		

Additionally, the following attitudes are specifically related to the competences:

In **analysing (DT1)**, the engineer displays the following attitudes: a. deciding what aspects are relevant for the question; b. indicating what economic, societal and technical aspects may be affected; c. formulating a clearcut problem definition, objective and assignment, based on the client's demands; d. drafting and documenting a programme of requirements; e. modelling an existing product, process of service

In **designing (DT2)**, the engineer displays the following attitudes: a. choosing a concept solution (architecture), based on the requirements; b. drawing detailed designs from the concept solution (architecture); c. taking into account the design's feasibility and testability; d. checking the design against the programme of requirements; e. selecting the right design tools; f. drawing up documentation for the product, service or process.

In **realising (DT3)**, the engineer displays the following attitudes: a. the right use of materials, processes, methods, norms and standards; b. assembling components into an integral product, service or process; c. verifying and validating a product, service or process against the requirements; d. documenting the realisation process.

In **controlling (DT4)**, the engineer displays the following attitudes: a. implementing, testing, integrating and commissioning a new product, service or process; b. contributing to management systems and/or maintenance plans, by monitoring, flagging and optimising (corrective measures) and anticipating (preventive measures); c. checking the performance of a product, service or process against quality standards; d. referring back changes in circumstances and/or performance of a product, service or process.

In **managing (DT5)**, the engineer displays the following attitudes: a. starting up a project: quantifying the required time and budget, assessing and weighing risks, setting up the project documentation and organising resources; b. monitoring and managing activities with regard to budget, time, quality, information and organisation; c. task and process oriented communication; d. supervising employees, stimulating collaboration and delegating tasks; e. communicating and collaborating with others in a multicultural, international and/or multidisciplinary environment.

In **advising (DT6)**, the engineer displays the following attitudes: a. understanding the needs of internal and external customers; b. clarifying what de client requires; c. translating the customer needs into technically and financially viable solutions; d. substantiating an advice to convince the customer; e. maintaining good relationships with customer

In **researching (DT7)**, the engineer displays the following attitudes: a. translating hypotheses into research objectives; b. independently selecting, validating and obtaining (scientific) literature and other information sources in order to understand the hypothesis fully; c. summarising, arranging and interpreting results and drawing conclusions regarding the research question; d. reporting results according to the relevant professional standard; e. using the obtained results to critically evaluate the approach chosen and provide recommendations for future research

In **professionalising (DT8)**, the engineer displays the following attitudes: a. choosing a learning outcome and strategy independently, and using the result to reflect on the learning outcome; b. being flexible in all kinds of professional situations; c. taking shared norms and values into account when weighing a decision in professional and ethical dilemmas; d. being constructive in giving and receiving feedback; e. being able to reflect on his behaviour, thinking and results; f. being able to use various forms and means to communicate in English.

223	Programme structure	(article 3 3	, 3.11a en 3.13 CER HZ ba ft)
2.2.5	i logi annic structure	untiene 3.5	

National name:	Bachelor Technische Bedrijfskunde
International name:	Bachelor Industrial Engineering & Management
Orientation:	Bachelor
Title conferred:	Bachelor of Science (BSc)
Programme duration:	240 study credits (ECTS)
Course workload 'propaedeutic' phase:	60 study credits (ECTS)
Conclusion with 'propaedeutic' examination:	Yes
Course workload main phase:	180 study credits (ECTS)
Variant:	Full-time
ISAT code:	34421
Location:	Middelburg
Language:	English
Effective date:	05-07-2011
Submission date	01-11-2024
Joint degree programme:	Not applicable
180 ECTS fast track:	No

The schedules of the curriculum are included hereafter.

# **2.2.3a** Transfer with an Associate Degree certificate (article 3.3 paragraph 4 sub I CER HZ ba ft) Not applicable.

Course program (cohort 2022-2026)

4	CU72028V1	. (27,5 ECTS)	CU72030V1 (30 ECTS)			]		
Year 4	Focus on the Future: anal	ysing strategic innovations		• •				
ž	CU72029V1 (2.5 ECTS) Fr	ee Composition Course 6	Graduatio	Graduation Project				
æ			CU72026V2	(27,5 ECTS)				
Year	Minor (	30 ECTS)	Inter	nship	Ъ			
×			CU72025V1 (2.5 ECTS) Fr	ee Composition Course 5	n g			
	CU72018V	1 (10 ECTS)	CU72021V	1 (10 ECTS)	change			
	Project: Pr	ocess design	Broject: Broj	ess re-design	5 2			
	roject. ri		rioject. riot		t			
	CU20558 (2.5 ECTS)	CU20563 (2.5 ECTS)	CU72022V1 (2.5 ECTS)	CU20571 (2.5 ECTS)	subject to			
	Special Material Conditions	Material Design and Engineering	Mechanical Manufacturing Systems	Process Manufacturing Systems				
r 2	CU20561 (2.5 ECTS)	CU20569 (2.5 ECTS)	CU72027V1 (2.5 ECTS)	CU72023V1 (2.5 ECTS)	be			
Year	Business information systems	usiness information systems Information and Technology Innovation		Corporate Social Responsibility	Might be			
	CU20559 (1,25 ECTS)	CU20570 (2.5 ECTS)	CU20568 (2.5 ECTS)	CU72032V1 (2.5 ECTS)	2			
	Marketing Fundamentals	Innovation Management	Marketing Plan	Supply Chain Management				
	CU72019V1 (2.5 ECTS)	VCCU20574 (1.25 ECTS)	VCCU20575 (1.25 ECTS)	CU72024V1 (1,25 ECTS)				
	Sustainability	Free Composition Course 3	Free Composition Course 4	Change Management				
	CU72020V3 (2.5 ECTS) - English for In	dustrial Engineering & Management 3	CU22566V2 (2.5 ECTS) - English for Industrial Engineering & Management 4					
	CU72010V2 (5 ECTS)	CU20577 (5 ECTS)	CU72014V1 (5 ECTS)	CU72016V2 (5 ECTS)				
	Project: Production and Business	Project: Asset and Maintenance	Project: Quality Management	Project: Operational Excellence				
	processes. Health and Safety.	Management			-			
	CU20549 (2.5 ECTS)	CU20578 (2.5 ECTS)	CU20553 (2.5 ECTS)	CU20555 (2.5 ECTS)				
H	Finance and Investment Analyses	Project Management	Mechanical Material Properties	Material Loading and Failure	-			
Year	CU72012V2 (2.5 ECTS)	CU20573V1 (2.5 ECTS)	CU20554 (2.5 ECTS)	CU72017V1 (2.5 ECTS)				
×	Operations Management CU20550 (1.25 ECTS)	Asset Management VCCU20545 (1.25 ECTS)	Management Accounting CU72015V1 (2.5 ECTS)	Operational Excellence CU20579 (2.5 ECTS)	-			
	Research Skills		Communication Skills	Statistics				HZ Personality
		Free Composition Course 1 (1 (5 ECTS)	CU20547V1 (1.25 ECTS)	VCCU20546 (1.25 ECTS)	-			Projects
		Physics	Statistics Fundamentals	Free Composition Course 2				Concepts
	••	dustrial Engineering & Management 1		dustrial Engineering & Management 2	-			Concepts
	CO22491V2 (2.5 EC15) - Eligiish for in	uusthal Engineering & Management I	CO22492V5 (2.5 ECTS) - English for In	uustriai Engineering & wanagement Z				

Course program (cohort 2021-2025)

4	CU72028V1	(27,5 ECTS)				1
Year	Focus on the Future: anal	ysing strategic innovations	CU72030V	· · ·	0 Q	
۲e	CU72029V1 (2.5 ECTS) Fr	ee Composition Course 6	Graduatio	on Project	Might be subject to change	
e			CU72026V2	(27,5 ECTS)	bje hai	
Year	Minor (	30 ECTS)	Inter	nship		
۲e			CU72025V1 (2.5 ECTS) Fr	ee Composition Course 5		
	CU72018V	1 (10 ECTS)	CU72021V		4	
	Project: Pr	ocess design	Project: Proc	cess re-design		
	CU20558 (2.5 ECTS)	CU20563 (2.5 ECTS)	CU72022V1 (2.5 ECTS)	CU20571 (2.5 ECTS)		
2	Special Material Conditions	Material Design and Engineering	Mechanical Manufacturing Systems	Process Manufacturing Systems		
	CU20561 (2.5 ECTS)	CU20569 (2.5 ECTS)	CU72027V1 (2.5 ECTS)	CU72023V1 (2.5 ECTS)		
Year	Business information systems	Information and Technology Innovation	Organisational Behaviour	Corporate Social Responsibility		
	CU20559 (1,25 ECTS)	CU20570 (2.5 ECTS)	CU20568 (2.5 ECTS)	CU72032V1 (2.5 ECTS)		
	Marketing Fundamentals	Innovation Management	Marketing Plan	Supply Chain Management		
	CU72019V1 (2.5 ECTS)	VCCU20574 (1.25 ECTS)	VCCU20575 (1.25 ECTS)	CU72024V1 (1,25 ECTS)		
	Sustainability	Free Composition Course 3	Free Composition Course 4	Change Management		
	CU72020V3 (2.5 ECTS) - English for In	dustrial Engineering & Management 3	CU22566V2 (2.5 ECTS) - English for In	dustrial Engineering & Management 4		
	CU72010V1 (5 ECTS)	CU20577 (5 ECTS)	CU72014V1 (5 ECTS)	CU72016V1 (5 ECTS)		
	Project: Production and Business	Project: Asset and Maintenance	Project: Quality Management	Project: Operational Excellence		
	processes. Health and Safety.	Management	Project. Quanty Management			
	CU72011V1 (2.5 ECTS)	CU20578 (2.5 ECTS)	CU20553 (2.5 ECTS)	CU20555 (2.5 ECTS)		
-	Mathematics	Project Management	Mechanical Material Properties	Material Loading and Failure		
	CU20549 (2.5 ECTS)	CU72013V1 (2.5 ECTS)	CU20554 (2.5 ECTS)	CU72017V1 (2.5 ECTS)		
Year	Finance and Investment Analyses	Physics	Management Accounting	Operational Excellence		
	CU72012V2 (2.5 ECTS)	CU20573V1 (2.5 ECTS)	CU72015V1 (2.5 ECTS)	CU20579 (2.5 ECTS)		
	<b>Operations Management</b>	Asset Management	Communication Skills	Statistics		HZ Personality
	CU20547 (1.25 ECTS)	VCCU20545 (1.25 ECTS)	CU20550 (1.25 ECTS)	VCCU20546 (1.25 ECTS)		Projects
	Statistics Fund. and Research Skills	Free Composition Course 1	Research Skills		Concepts	
	CU22491V1 (2.5 ECTS) - English for In	dustrial Engineering & Management 1	CU22492V2 (2.5 ECTS) - English for In	dustrial Engineering & Management 2		

Course program (cohort 2020-2024)

Year 4	Focus on the Future: analy	. (27,5 ECTS) ysing strategic innovations ee Composition Course 6	Graduatio	•	Might be subject to change
Year 3	Minor (	30 ECTS)		nship	
$\square$	0.1700/01/	4 (40 5 0 7 0)	CU72025V1 (2.5 ECTS) Fr		
	CU72018V	1 (10 ECTS)	CU72021V	1 (10 ECTS)	
	Project: Pro	ocess design	Project: Proc	ess re-design	
	CU20558 (2.5 ECTS)	CU20563 (2.5 ECTS)	CU72022V1 (2.5 ECTS)	CU20571 (2.5 ECTS)	
7	Special Material Conditions	Material Design and Engineering	Mechanical Manufacturing Systems	Process Manufacturing Systems	
ar	CU20561 (2.5 ECTS)	CU20569 (2.5 ECTS)	CU72027V1 (2.5 ECTS)	CU72023V1 (2.5 ECTS)	
Year	Business information systems	Information and Technology Innovation	Organisational Behaviour	Corporate Social Responsibility	
	CU20559 (1,25 ECTS)	CU20570 (2.5 ECTS)	CU20568 (2.5 ECTS)	CU70223V2 (2.5 ECTS)	
	Marketing Fundamentals	Innovation Management	Marketing Plan	Supply Chain Management	
	CU72019V1 (2.5 ECTS)	VCCU20574 (1.25 ECTS)	VCCU20575 (1.25 ECTS)	CU72024V1 (1,25 ECTS)	
	Sustainability	Free Composition Course 3	Free Composition Course 4	Change Management	
	CU72020V2 (2.5 ECTS) - English for In	dustrial Engineering & Management 3	CU22566V1 (2.5 ECTS) - English for In	dustrial Engineering & Management 4	
	CU72010V1 (5 ECTS)	CU20577 (5 ECTS)	CU72014V1 (5 ECTS)	CU72016V1 (5 ECTS)	
	Project: Production and Business processes. Health and Safety.	Project: Asset and Maintenance Management	Project: Quality Management	Project: Operational Excellence	
	CU72011V1 (2.5 ECTS)	CU20578 (2.5 ECTS)	CU20553 (2.5 ECTS)	CU20555 (2.5 ECTS)	
	Mathematics	Project Management	Mechanical Material Properties	Material Loading and Failure	
ar 1	CU20549 (2.5 ECTS)	CU72013V1 (2.5 ECTS)	CU20554 (2.5 ECTS)	CU72017V1 (2.5 ECTS)	
Year	Finance and Investment Analyses	Physics	Management Accounting	Operational Excellence	
	CU72012V2 (2.5 ECTS)	CU20573 (2.5 ECTS)	CU72015V1 (2.5 ECTS)	CU20579 (2.5 ECTS)	
	<b>Operations Management</b>	Asset Management	Communication Skills	Statistics	HZ
	CU20547 (1.25 ECTS)	VCCU20545 (1.25 ECTS)	CU20550 (1.25 ECTS)	VCCU20546 (1.25 ECTS)	Pro
	Statistics Fund. and Research Skills	Free Composition Course 1	Research Skills	Free Composition Course 2	Con
	CU22491V1 (2.5 ECTS) - English for Inc	dustrial Engineering & Management 1	CU22492V2 (2.5 ECTS) - English for In	dustrial Engineering & Management 2	

Course programme (cohort 2019-2023)

4	CU72028V1	(27,5 ECTS)	CU72030V1	(30 FCTS)
Year		ysing strategic innovations	Graduatio	
ž	CU72029V1 (2.5 ECTS) Fr	ee Composition Course 6	Graduatio	
3			CU72026V1	(27,5 ECTS)
Year	Minor (	30 ECTS)	Inter	nship
ž			CU72025V1 (2.5 ECTS) Fre	e Composition Course 5
	CU72018V	1 (10 ECTS)	CU72021V1	(10 ECTS)
	Project: Pro	ocess design	Project: Proc	ess re-design
	CU20558 (2.5 ECTS)	CU20563 (2.5 ECTS)	CU72022V1 (2.5 ECTS)	CU20571 (2.5 ECTS)
2	Special Material Conditions	Material Design and Engineering	Mechanical Manufacturing Systems	Process Manufacturing Systems
ar	CU72027V1 (2.5 ECTS)	CU20561 (2.5 ECTS)	CU20569 (2.5 ECTS)	CU72023V1 (2.5 ECTS)
Year	Organisational Behaviour	Business information systems	Information and Technology Innovation	Corporate Social Responsibility
	CU20559 (1,25 ECTS)	CU20570 (2.5 ECTS)	CU20568 (2.5 ECTS)	CU70223V2 (2.5 ECTS)
	Marketing Fundamentals	Innovation Management	Marketing Plan	Supply Chain Management
	CU72019V1 (2.5 ECTS)	VCCU20574 (1.25 ECTS)	VCCU20575 (1.25 ECTS)	CU72024V1 (1,25 ECTS)
	Sustainability	Free Composition Course 3	Free Composition Course 4	Change Management
	CU72020V2 (2.5 ECTS) - English for In	dustrial Engineering & Management 3	CU22566V1 (2.5 ECTS) - English for Inc	lustrial Engineering & Management 4
	CU72010V1 (5 ECTS)	CU20577 (5 ECTS)	CU72014V1 (5 ECTS)	CU72016V1 (5 ECTS)
	Project: Production and Business processes. Health and Safety.	Project: Asset and Maintenance Management	Project: Quality Management	Project: Operational Excellence
	CU72011V1 (2.5 ECTS)	CU20578 (2.5 ECTS)	CU20553 (2.5 ECTS)	CU20555 (2.5 ECTS)
_	Mathematics	Project Management	Mechanical Material Properties	Material Loading and Failure
Year 1	CU20549 (2.5 ECTS)	CU72013V1 (2.5 ECTS)	CU20554 (2.5 ECTS)	CU72017V1 (2.5 ECTS)
Υe	Finance and Investment Analyses	Physics	Management Accounting	Operational Excellence
-	CU72012V1 (2.5 ECTS)	CU20573 (2.5 ECTS)	CU72015V1 (2.5 ECTS)	CU20579 (2.5 ECTS)
	<b>Operations Management</b>	Asset Management	Communication Skills	Statistics
	CU20547 (1.25 ECTS)	VCCU20545 (1.25 ECTS)	CU20550 (1.25 ECTS)	VCCU20546 (1.25 ECTS)
	Statistics Fund. and Research Skills	Free Composition Course 1	Research Skills	Free Composition Course 2
	CU22491V1 (2.5 ECTS) - English for Inc	dustrial Engineering & Management 1	CU22492V2 (2.5 ECTS) - English for Inc	ustrial Engineering & Management 2

HZ Personality Projects Concepts Course programme (cohort 2018-2022)

4	CU72028V1	(27,5 ECTS)	CU72030V1	(20 ECTS)			
Year	Focus on the Future: analy	vsing strategic innovations	Graduatio				
Ϋ́	CU72029V1 (2.5 ECTS) Fre	ee Composition Course 6	Graduatio	n Project			
e			CU72026V1	(27,5 ECTS)			
Year	Minor (3	BO ECTS)	Interr	nship			
۲			CU72025V1 (2.5 ECTS) Fre	e Composition Course 5			
	CU72018V1	L (10 ECTS)	CU72021V1 (10 ECTS)				
	Project: Pro	ocess design	Project: Proc	ess re-design			
	CU20558 (2.5 ECTS)	CU20563 (2.5 ECTS)	CU72022V1 (2.5 ECTS)	CU20571 (2.5 ECTS)			
5	Material Sciences III	Material Design and Engineering	Mechanical Manufacturing Systems	Process Manufacturing Systems			
ar	CU72027V1 (2.5 ECTS)	CU20561 (2.5 ECTS)	CU20569 (2.5 ECTS)	CU72023V1 (2.5 ECTS)			
Year	Organisational Behaviour	Business information systems	Information and Technology Innovation	Corporate Social Responsibility			
	CU20559 (1,25 ECTS)	CU20570 (2.5 ECTS)	CU20568 (2.5 ECTS)	CU70223V1 (2.5 ECTS)			
	Marketing Fundamentals	Innovation Management	Marketing	Supply Chain Management			
	CU72019V1 (2.5 ECTS)	VCCU20574 (1.25 ECTS)	VCCU20575 (1.25 ECTS)	CU72024V1 (1,25 ECTS)			
	Sustainability	Free Composition Course 3	Free Composition Course 4	Change Management			
	CU72020V1 (2.5 ECTS) - English for Inc	dustrial Engineering & Management 3	CU22566 (2.5 ECTS) - English for Indu	Istrial Engineering & Management 4			
	CU20576 (8.75 ECTS)	CU20577 (5 ECTS)	CU20541V2 (7.5 ECTS)	CU20580 (8.75 ECTS)			
	Project: Introduction to Production and Business processes	Project: Asset and Maintenance Management	Project: Quality Management	Project: Operational Excellence			
		CU20578 (2.5 ECTS)					
	CU20549 (2.5 ECTS)	Project Management	CU20553 (2.5 ECTS)	CU20555 (2.5 ECTS)			
-	Finance I	CU20550 (1.25 ECTS)	Material Sciences I	Material science II			
Year	CU20547 (1.25 ECTS)	Research Skills					
ž	Statistics I and Research Skills	CU20551 (1.25 ECTS)					
	CU20548V1 (1.25 ECTS)	Physics	CU20554 (2.5 ECTS)	CU20579 (2.5 ECTS)			
	Mathematics	CU20573 (2.5 ECTS)	Finance II	Statistics II and research skills			
		Asset Management					
	CU22491V1 (2.5 ECTS) - English for Inc	ustrial Engineering & Management 1	nt 1 CU22492V2 (2.5 ECTS) - English for Industrial Engineering & Management 2				
	VCCU20545 (1.25 ECTS) Fr	ee Composition Course 1	VCCU20546 (1.25 ECTS) Fr	ee Composition Course 2			

HZ Personality Projects Concepts Course programme (cohort 2017-2021)

Year 4		(27,5 ECTS) ysing strategic innovations		1 (30 ECTS)	
Ye		ee Composition Course 6	Graduatio	on Project	
e		•	CU72026V1	. (27,5 ECTS)	
ear	Minor (	30 ECTS)	Inter	nship	
۲e			CU72025V1 (2.5 ECTS) Fr		
	CU20556 (:	11.25 ECTS)	CU20565 (	11.25 ECTS)	
	Project: Pro	cess re-design	Project: Pro	ocess design	
	CU20558 (2.5 ECTS)	CU20563 (2.5 ECTS)	CU20567 (2.5 ECTS)	CU20571 (2.5 ECTS)	
	Material Sciences III	Material Sciences IV	Material Sciences in Manufacturing	Material Sciences in Manufacturing	
2			Processes I	Processes II	
Year	CU20561 (2.5 ECTS)				
۲e	Business information systems I	CU20569 (2.5 ECTS)	CU20570 (2.5 ECTS)		
	CU20559 (1,25 ECTS)	Business information systems II	Innovation and Change Management	CU70292V1 (5 ECTS)	
	Marketing Fundamentals			Supply Chain Management	
	CU20572 (1.25 ECTS) Sustainability and Corporate Social Responsibility	CU20562 (2.5 ECTS) Organization Theory	CU20568 (2.5 ECTS) Marketing		
	· · · ·	ustrial Engineering & Management 3	v	ustrial Engineering & Management 4	HZ Personality
		ree Composition Course 3		ree Composition Course 4	Projects
	CU20537V1 (5 ECTS)	CU20539V1 (7,5 ECTS)	CU20541V1 (7.5 ECTS)	CU20543V1 (7.5 ECTS)	Concepts
	Project: Introduction to Production processes	Project: Maintenance Management	Project: Quality Management	Project: Continuous Improvement	
-		CU20540V1 (5 ECTS)		CU20544V1 (2.5 ECTS)	
ear	CU20538V1 (10 ECTS)	Asset Management	CU20542V1 (7.5 ECTS)	Operational Excellence	
7	Introduction to Industrial Engineering	CU22491V1 (2.5 ECTS) - English for	Systems Assurance	CU22492V1 (2.5 ECTS) - English for	
	and Management	and Management Industrial Engineering & Management 1		Industrial Engineering & Management 2	
		CU20545V1 (1.25 ECTS)		CU20546V1 (1.25 ECTS)	
		Free Composition Course 1		Free Composition Course 2	

## 2.2.4 Courses 'propedeuse' phase (article 3.5, 3.11A CER HZ Ba ft)

Block 1 / Sen	nester	1											
CU20549	Title:	Finan	ce and	inves	tment	analyses	Number of study credits: 2.	5 Number	of contact hou	urs: 15 M	andatory	Teaching langua	ge: English
Conditions for	course	partici	pation:	None									
Conditions for	test pa	rticipat	:ion: No	one									
Brief descripti	on of co	ourse co	ontent:										
The student	will be	introd	uced to	the o	discipl	ines of finance and a	ccounting. The course foc	uses on unde	rstanding fun	damental f	nancial calcu	lations and ration	os that are
the basis of t	he cou	rses fo	llowin	g later	in the	e programme.							
				-									
Compulsory lit	terature	e: Basic	s of fina	ancial r	nanag	ement / exercises / ans	swers and solution, Brouwers	R., Koetzier,	W.				
Compulsory lit Test code	terature Form		s of fina	ancial r	nanag	ement / exercises / ans Assessment type	wers and solution, Brouwers Content	R., Koetzier, V	W. Minimum	Planning	Inspection	n Resit	Inspection
	Form				manage				1	Planning test in	Inspection of work in		Inspection of resit in
	Form Verba	at	ten/Oth		manago		Content	Weighting	Minimum	J	•		•
	Form Verba	at al/Writi	ten/Oth		manago		Content Link with	Weighting	Minimum	test in	of work in	scheduled	of resit in

Block 1 / Ser	1											
CU20550	Title:	Researc	n Skills			Number of study credits: 1.2	25 Number	of contact ho	urs: 15 N	andatory	Teaching langua	ge: English
Conditions for	course	participa	t <b>ion:</b> None	:								
Conditions for	test par	ticipatio	n: None									
Brief descripti	on of co	urse cont	ent:									
tudents will	be chal	lenged t	o develo	o a crit	ical mind-set while a	aining knowledge about re	search meth	ods and strat	tegies. Stu	lents will learr	the basics of s	coping thei
		-				stions. During this course th			-			· -
	-		-			-					-	
evelop thei	r knowle	odge in r	esearch t	ormin	alogy and the recear	ch nrocoss as wall as thair a	ahilitiae ta w	rito o nrohloi	n ctatama	st rocoarch ob	inctive and rec	
			cocurent	ermin	ology and the resear	ch process as well as their a	abilities to w	nice a probler	Il stateme	it, research of	jective and res	earch
•		-			tive and qualitative r	•	donnes to w		II Stateme	it, research of	jective and res	earch
•		-			•.	•			ii stateine	it, research of	jective and res	earch
questions. Th	nis cours	se cover	s both qu	antitat	tive and qualitative r	•					jective and res	
questions. Th Compulsory li	nis cours terature	se cover : Resear	s both qu	antitat	tive and qualitative r Baarda, 3 <sup>rd</sup> ed	esearch methods.						
questions. Th Compulsory li	terature	se cover : Resear at	s both qu ch. This is	antitat	tive and qualitative r	esearch methods.	Weighting	Minimum	Planning	Inspection	Resit	Inspection
questions. Th Compulsory li	terature	se cover : Resear	s both qu ch. This is	antitat	tive and qualitative r Baarda, 3 <sup>rd</sup> ed	esearch methods.			Planning test in	Inspection of work in	Resit	Inspection of resit in
questions. Th Compulsory li	terature Forma	se cover : Resear at	s both qu ch. This is /Other	antitat	tive and qualitative r Baarda, 3 <sup>rd</sup> ed	esearch methods.	Weighting	Minimum	Planning	Inspection	Resit	Inspection
questions. Th Compulsory li	terature Forma Verba Indivio	se cover : Resear at I/Writter dually/Gi	s both qu ch. This is /Other oup	antitat it!, B.	tive and qualitative r Baarda, 3 <sup>rd</sup> ed	esearch methods. Content Link with	Weighting	Minimum	Planning test in	Inspection of work in	Resit scheduled	Inspection of resit in
questions. Th Compulsory li Test code	terature Forma	se cover : Resear at I/Writter dually/Gr	s both qu ch. This is /Other oup 0 I	antitat	tive and qualitative r Baarda, 3 <sup>rd</sup> ed Assessment type	esearch methods.  Content Link with learning outcomes	Weighting Factor (%)	Minimum score	Planning test in week	Inspection of work in week	Resit scheduled in week	Inspection of resit in week
questions. Th Compulsory li Test code	terature Forma Verba Indivio	se cover : Resear at I/Writter dually/Gi	s both qu ch. This is /Other oup	antitat it!, B.	tive and qualitative r Baarda, 3 <sup>rd</sup> ed	esearch methods. Content Link with learning	Weighting	Minimum	Planning test in	Inspection of work in	Resit scheduled	Inspectio of resit in
questions. Th	terature Forma Verba Indivio	se cover : Resear at I/Writter dually/Gr	s both qu ch. This is /Other oup 0 I	antitat it!, B.	tive and qualitative r Baarda, 3 <sup>rd</sup> ed Assessment type	esearch methods.  Content Link with learning outcomes	Weighting Factor (%)	Minimum score	Planning test in week	Inspection of work in week	Resit scheduled in week	Inspectio of resit in week

CU72010V2	nester 1		oti lintir	o du ct	ion to	Draduction and Nu	nber of study credits: 5	Numbo	r of contact ho	ure: 60	Mandatory	Teaching langua	go: English
C072010V2		-				Production and Nui nd Safety	inder of study credits. 5	Numbe	of contact no	urs. 60	vianuatory	reaching langua	ge. English
Conditions for						Iu Salety							
Conditions for													
Brief description	-	-											
•					am wi	hich will work on assignm	onts in order to obse	rup and doce	riba tha diffa	cont acnoct	of a product	ion/sorvico pro	cocc within
	-					it a department or at the				-	-	-	
	-					fessionalism are essential						-	-
	compan	nes. i	eamw	OFK df	ia proi	essionalism are essentia	competencies that t	ne student w	in nave to act	quire and d	emonstrate c	uning the cours	e or the
project.	coc tho	76 m	مطمامه		ic to d	acariba tha businasa nra	accos Furthermore i	t will cover a	consists of ano	rations man	a comont our	h as process m	nning
						escribe the business pro					-	-	
						e studies. Students will le							
-					-	e of and insight in workp		controls inclu	uding ergonoi	nics, work	equipment, e	lectrical safety,	fire safety,
		-				al and physical health haz							
Compulsory lit	terature	: - Ma	nagem	ient, a	in evid	ence based approach, Ke	uning, D., Bossink, B.	& Tjemkes,	B., 3 <sup>rd</sup> ed VC	A online m	odule and oth	er literature pr	ovided by
والمراجع والمراجع والمراجع	. –												
the teaching	team. I	he Hz	z spons	ors th	ie cost	of the VCA official exam	for a maximum of 2 a	ttempts. In o	case the stude	ent needs m	ore attempts	, the cost of the	ese will have
-			-	ors th	ie cost	of the VCA official exam	for a maximum of 2 a	ttempts. In o	case the stude	ent needs m	ore attempts	s, the cost of the	ese will have
to be covered		stud	-	ors th	ie cost	of the VCA official exam Assessment type	for a maximum of 2 a	Weighting	case the stude	Planning	Inspection	n Resit	-
-	d by the Forma Verba	e stude at I/Writ	ent ten/Oth		ie cost					Planning test in	Inspection of work in	n Resit	Inspection of resit in
to be covered	d by the Forma Verba	e stude at I/Writ	ent		ie cost		Content	Weighting	Minimum	Planning	Inspection	n Resit	Inspection
to be covered	d by the Forma Verba	e stude at I/Writ	ent ten/Oth		e cost		<b>Content</b> Link with	Weighting	Minimum	Planning test in	Inspection of work in	n Resit scheduled	Inspection of resit in
to be covered	d by the Forma Verba Individ	e stude at I/Writ dually,	ent ten/Oth /Group				Content Link with learning	Weighting	Minimum	Planning test in	Inspection of work in	n Resit scheduled	Inspection of resit in
to be covered Test code	d by the Forma Verba Individ	e stude at dually, W	ent ten/Oth /Group		G	Assessment type	Content Link with learning outcomes	Weighting Factor (%)	Minimum score	Planning test in week	Inspection of work in week	n Resit scheduled in week	Inspection of resit in week
to be covered Test code	d by the Forma Verba Individ	e stude at dually, W	ent ten/Oth /Group		G	Assessment type Assignment: Health and	Content Link with learning outcomes LD-3.a.4	Weighting Factor (%)	Minimum score	Planning test in week	Inspection of work in week	n Resit scheduled in week	Inspection of resit in week
to be covered Test code	d by the Forma Verba Individ	e stude at I/Writ dually, W X	ent ten/Oth /Group	ner I	G	Assignment: Health and Safety	Content Link with learning outcomes LD-3.a.4	Weighting Factor (%) 25%	Minimum score	Planning test in week 45	Inspection of work in week 47	Resit scheduled in week 3 12	Inspection of resit in week 5
to be covered Test code TOETS01 TOETS02	d by the Forma Verba Individ	e stude at I/Writ dually, W X	ent ten/Oth /Group	ner I	G	Assessment type Assignment: Health and Safety Written knowledge test (\	Content Link with learning outcomes LD-3.a.4	Weighting Factor (%) 25%	Minimum score	Planning test in week 45	47 Not	Resit scheduled in week 3 12	Inspection of resit in week 5 Not
to be covered Test code TOETS01 TOETS02	d by the Forma Verba Individ	e stude at I/Writ dually, W x x	ent ten/Oth /Group	ner I	G x	Assessment type Assignment: Health and Safety Written knowledge test (V certificate)	Content Link with learning outcomes LD-3.a.4 /CA LD-3.a.4	Weighting Factor (%) 25% 0%	Minimum score 5.5 Ok	Planning test in week 45 48	47 Not applicable	<ul> <li>Resit</li> <li>scheduled</li> <li>in week</li> <li>3</li> <li>12</li> </ul>	Inspection       of resit in       week       5       Not       applicable
to be covered Test code TOETS01 TOETS02	d by the Forma Verba Individ	e stude at I/Writ dually, W x x	ent ten/Oth /Group	ner I	G x	Assignment: Health and Safety Written knowledge test (V certificate) Assignment: Production	Content Link with learning outcomes LD-3.a.4 CA LD-3.a.4 LD-1.e.1, LD- 2.b.4, LD-3.a.4, LD-4.d.2, LD-	Weighting Factor (%) 25% 0%	Minimum score 5.5 Ok	Planning test in week 45 48	47 Not applicable	<ul> <li>Resit</li> <li>scheduled</li> <li>in week</li> <li>3</li> <li>12</li> </ul>	Inspection       of resit in       week       5       Not       applicable
to be covered Test code TOETS01 TOETS02	d by the Forma Verba Individ	e stude at I/Writ dually, W x x	ent ten/Oth /Group	ner I	G x	Assignment: Health and Safety Written knowledge test (V certificate) Assignment: Production	Content Link with learning outcomes LD-3.a.4 CA LD-3.a.4 LD-1.e.1, LD- 2.b.4, LD-3.a.4, LD-4.d.2, LD- 6.c.2, LD-7.d.1,	Weighting Factor (%) 25% 0%	Minimum score 5.5 Ok	Planning test in week 45 48	47 Not applicable	<ul> <li>Resit</li> <li>scheduled</li> <li>in week</li> <li>3</li> <li>12</li> </ul>	Inspection of resit in week       5       Not applicable
to be covered Test code TOETS01 TOETS02 TOETS03	d by the Forma Verba Individ	e stude at I/Writ dually, W x x	ent ten/Oth /Group	ner I	G x	Assignment: Health and Safety Written knowledge test (V certificate) Assignment: Production	Content           Link with           learning           outcomes           LD-3.a.4           'CA           LD-1.e.1, LD-           2.b.4, LD-3.a.4,           LD-4.d.2, LD-           6.c.2, LD-7.d.1,           LD-2.b.4, -, LD-	Weighting Factor (%) 25% 0%	Minimum score 5.5 Ok	Planning test in week 45 48	47 Not applicable	<ul> <li>Resit</li> <li>scheduled</li> <li>in week</li> <li>3</li> <li>12</li> </ul>	Inspection of resit in week       5       Not applicable
to be covered Test code TOETS01 TOETS02 TOETS03 TOETS04	d by the Forma Verba Individ	e stude at I/Writ dually, W X X X	ent ten/Oth /Group	ner I	G x x	Assignment: Health and Safety Written knowledge test (N certificate) Assignment: Production Processes Assignment: Business Processes	Content           Link with           learning           outcomes           LD-3.a.4           'CA           LD-1.e.1, LD-           2.b.4, LD-3.a.4,           LD-4.d.2, LD-           6.c.2, LD-7.d.1,           LD-2.b.4, -, LD-           6.c.2, LD-7.d.1	Weighting           Factor (%)           25%           0%           25%	Minimum score           5.5           Ok           5.5           0k           5.5           5.5	Planning test in week4545484545	Inspection of work in week       47       Not applicable       47       47       47	Resit scheduled in week312333	Inspection of resit in week 5 Not applicable 5
to be covered Test code TOETS01 TOETS02 TOETS03	d by the Forma Verba Individ	e stude at I/Writ dually, W X X X	ent ten/Oth /Group	ner I	G x x	Assessment type Assignment: Health and Safety Written knowledge test (V certificate) Assignment: Production Processes Assignment: Business	Content           Link with           learning           outcomes           LD-3.a.4           'CA           LD-1.e.1, LD-           2.b.4, LD-3.a.4,           LD-4.d.2, LD-           6.c.2, LD-7.d.1,           LD-2.b.4, -, LD-	Weighting           Factor (%)           25%           0%           25%	Minimum score 5.5 Ok 5.5	Planning test in week45454845	47 Not applicable	Resit scheduled in week3123	Inspection of resit in week 5 Not applicable 5

Implementation Regulations HZ CER Industrial Engineering & Management - full-time Determined by Executive Board: 05/07/2022

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Approval HR 05/07/2022 - recommendation programme committee: 06/04/2022

Block 1 / Sen	nester 1												
CU72012v2	Title: (	Operati	ons Ma	anag	ement	Nu	umber of study credits: 2.5	5 Number	of contact ho	urs: 15	Mandatory	Teaching langua	ge: English
Conditions for	course p	participa	tion: No	one									
Conditions for	test part	ticipatio	<b>n:</b> None	5									
Brief descripti	on of cou	urse cont	tent:										
Students will	gain ins	ight in t	the ana	alysis	s of manufa	acturing processes	and the business proce	sses in servi	ce organisatio	ons and w	ill learn how to	classify these p	rocesses.
Furthermore	, they wi	ill learn	to und	lerst	and the tag	ictical and operatio	nal consequences of thi	is classificati	on and how t	o measui	e the operation	s performance	Finally,
	•					•	ocesses based on perfo				·	·	,,
Students will		500 10 51					ocesses based on perio		cuves.				
Compulsory lit	erature:	Operat			gement, Br	randon-Jones, A., S	lack, N. & Johnston, R.,	9 <sup>th</sup> ed.		Diamain		Desit	
Compulsory lit	erature: Forma	Operat It	ions M	lana	gement, Br		ilack, N. & Johnston, R.,	9 <sup>th</sup> ed. Weighting	Minimum	Plannin			Inspection
Compulsory lit	erature: Forma Verbal	: Operat It I/Writter	ions M n/Other	lana	gement, Br	randon-Jones, A., S	lack, N. & Johnston, R., Content Link with	9 <sup>th</sup> ed.		test in	of work in	scheduled	of resit in
	erature: Forma Verbal	Operat It	ions M n/Other	lana	gement, Br	randon-Jones, A., S	ilack, N. & Johnston, R., Content Link with learning	9 <sup>th</sup> ed. Weighting	Minimum				•
Compulsory lit	erature: Forma Verbal	Operat It I/Writter Jually/Gr	ions M n/Other	lana	gement, Br	randon-Jones, A., S	lack, N. & Johnston, R., Content Link with	9 <sup>th</sup> ed. Weighting	Minimum	test in	of work in	scheduled	of resit in
Compulsory lit Test code	erature: Forma Verbal, Individ	Operat It I/Writter Jually/Gr	ions M n/Other roup <b>0</b>	lana	gement, Br Asse G	randon-Jones, A., S	ilack, N. & Johnston, R., Content Link with learning	9 <sup>th</sup> ed. Weighting	Minimum	test in	of work in	scheduled	of resit in
Compulsory lit Test code	erature: Forma Verbal, Individ	Operat It I/Writter dually/Gr	ions M n/Other roup <b>0</b>	lana; I	gement, Br Asse G	randon-Jones, A., S essment type	lack, N. & Johnston, R., Content Link with learning outcomes	9 <sup>th</sup> ed. Weighting Factor (%)	Minimum score	test in week	of work in week	scheduled in week	of resit in week
Compulsory lit	erature: Forma Verbal, Individ	Operat It I/Writter dually/Gr	ions M n/Other roup <b>0</b>	lana; I	gement, Br Asse G	randon-Jones, A., S essment type	Ilack, N. & Johnston, R., Content Link with learning outcomes 1.a.5, 1.d.2,	9 <sup>th</sup> ed. Weighting Factor (%)	Minimum score	test in week	of work in week	scheduled in week	of resit in week

Block 1 and 2	2 / Sem	ester 1	1										
CU72031V1	Title:	Applie	d Phy	sics			Number of study cre	dits: 5 I	Number of contac	t hours: 45	Mandatory	Teaching lang	uage: English
Conditions for	course	particip	pation	: None									
<b>Conditions for</b>	test par	rticipat	ion: No	one									
Brief description	on of co	urse co	ntent:	1									
Students will liquids and ga Fundamental	explore ases, he princip SI Unit	e the b eat and bles of s and s	asic p I therr mathe scienti	rincipl nodyn ematic	es of amic s will	r improvement oppor physics like motion ar s and electricity. be introduced to supp , functions and graph	d force (Newton's l	laws), momo	entum, energy, or example, Ger	rotational m neral mathe			
Test code	Forma Verba		en/Oth	ner I	G	Assessment type	Content Link with learning outcomes	Weighting Factor (%)		Planning test in week	Inspection of work in week	Resit scheduled in week	Inspection of resit in week
TOETS01		x		x		Written knowledge tes	t LD-3.a.3, LD- 2.b.2	50%	4.5	45	47	3	5
TOETS02		x		x		Written knowledge tes	t LD-3.a.3, LD- 2.b.2	50%	4.5	4	6	14	16

CU22491V2		Englis ageme		ndustr	rial Eng	gineering &	Number o	f study credits: 3	2.5	Number of c	ontact hours:	21 N	/landatory 1	eaching langu	age: English
Conditions for	course	partici	pation	: A2+/E	31 leve	l in General English	•								
Conditions for	test pa	rticipat	ion: Co	omplet	e all co	urse assignments and	l quizzes								
Brief descriptio	on of co	urse co	ontent:	:				Goa	ls:						
Course summa	ry: Leve	el B1/B	1+						• ·	To read, unde	rstand and sur	nmarize bu	siness texts.		
This course foc	-								•	To acquire and	d expand busir	ness vocabu	lary; to review	grammar	
1. Read	ing and	unders	standir	ng tech	nical bu	usiness texts and docu	iments.		• ·	To conduct bu	isiness convers	ations.			
	ucing oi								•	To understand	l job advertise	ments.			
	-		al busi	ness co	nversa	tions on topics which	relate to the	2	•	To describe te	chnical proces	ses.			
	essional														
	-		•	-	•	s, products,)		*							
	-			chnical	busine	ss vocabulary.				erences:	- (1) (200)				
6. Reme	edial gra	ammar.	•						s.pdf	arn.hz.nl/plug	infile.php/2899	<u>968/mod_r</u>	esource/conter	it/U/CEFR-all-so	cales-and-all
Compulsory lit	erature	None						<u>3KIII</u>	<u>s.pur</u>						
Fest code	Form					Assessment type	Schedule	Content	,	Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Verbo	al/Writt	ten/Ot	her			If yes,	Link with		Factor (%)	score	test in	of work in	scheduled	of resit in
		, dually/	•				mention	learning				week	week	in week	week
	v	w	0	1	G	-	duration	outcomes							
TOETS01	Х		-		X	Oral Assessment	No	CEFR references	s*	25%	5.5	45	45	3	3
								at B1/B2 level:						-	-
								OSP, ORC, RFO,							
								VR, GA, COH							
TOETS02		Х		Х		Written	90	CEFR references		45%	5.5	4	4	14	15
						Knowledge Test	minutes	B1/B2 level: VR,							
						-		VC, ORC, RFIA, O	зA,						
TOETS03	Х				Х	Oral Assessment	No	CEFR references		30%	5.5	4	4	14	14
	1							at B1/B2 level: 0	`						
	1			1	1	1	1	C, IE, CS-AFC, SF	- 1		1	1	1	1	1

Block 2 / Sem	ester :	1												
CU20573V1	Title:	Asset	Mana	gemei	nt		Number	of study credits: 2	.5 Numbe	r of contact hou	ırs: 15 🛛 🛛	/landatory	Teaching langu	age: English
Conditions for	course	partici	pation	: None										
Conditions for	test pa	rticipa	tion: N	one										
Brief description	on of co	ourse co	ontent	:										
The student w	vill lear	rn con	cepts i	related	d to As	set Management an	d Mainte	nance Managem	ent that can	be applied in	a work sit	uation.		
The student w	vill gair	n knov	vledge	and in	nsights	s on several discipline	es such a	s asset selection a	an criticality,	Total Product	ive Maint	enance (TPN	1), Reliability Cer	tered
Maintenance	(RCM)	and L	ife Cyc	le Cos	st									
Compulsory lite	erature	e: Provi	ded by	the te	aching	team								
Test code	Form	at				Assessment type		Content	Weighting	Minimum	Planning	Inspecti	on Resit	Inspection
	Verbo	al/Writ	ten/Otl	her				Link with	Factor (%)	score	test in	of work	in scheduled	of resit in
	Indivi	dually/	'Group					learning			week	week	in week	week
	v	W	0	I	G			outcomes						
TOETS01		х		х		Written knowledge te	est	LD-1.b.4, LD-	100%	5.5	4	6	14	16
								1.e.4						
								LD-2.a.1, LD-						
								4.b.2 LD-4.b.3						

Block 2 / Sem	ieste	er 1												
CU20577	Titl	e: Pro	oject	Ass	et ar	nd Maintenanc	e Management	Number of study credits: 5	Number of a	contact hours:	21 Manda	atory	Teaching lang	uage: English
Conditions for	cour	se par	rticip	atio	n: No	one								
Conditions for	test	partic	ipati	on: N	lone									
Brief description	on of	cours	e cor	nten	t:									
The student v	vill b	e intr	odu	ced	to m	aintenance ma	anagement and wil	l get insight in all relevant i	maintenance	activities, tak	ing into con	sideration t	he value of th	ne assets.
Students will	worł	k in pi	rojec	ct te	ams	to gather and	analyse informatio	n within an assigned comp	any.					
Compulsory lit	eratu	ure: N	one									-		
Test code	For	mat				Assessment	Content		Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Ver	bal/W	/ritte	n/Ot	her	type	Link with learning o	outcomes	Factor (%)	score	test in	of work in	scheduled	of resit in
	Ind	ividua	lly/G	roup	)						week	week	in week	week
	v	W	0	Т	G									
TOETS01		х			х	Assignment	LD-1.a.1, LD-1.a.2,	LD-1.a.5, LD-1.e.3 LD-2.c.1,	100%	5.5	4	6	14	16
						(report)	LD-2.d.1 LD-4.b.1, L	D-4.d.5 LD-5.b.2, LD-6.c.2						
							LD-8.e.1							

Block 2 / Sem	ester	1												
CU20578	Title:	Proje	ct Man	agem	ent		Number	of study credits: 2	.5 Numbe	of contact ho	urs: 15	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation	: None	1				•					
Conditions for	test pa	rticipat	tion: No	one										
Brief description	on of co	ourse co	ontent:											
During this co	ourse tl	he stu	dents v	will ga	in kno	wledge about severa	al project	management me	thods and d	mensions. Th	e student	will learn the	basics of staying	g in control
as project ma	nager	and w	ill lear	n to w	rite a	project management	t plan. Stu	udents will gain ir	sight on, for	example, sco	ping a pro	oject, building	a simple financia	al business
case, several	breakd	lown s	tructu	res fo	r proje	ects, project risks and	l opportu	inities, stakehold	ers and proje	ct organisatio	n.			
Compulsory lit	erature	e: None	1											
Test code	Form	at				Assessment type		Content	Weighting	Minimum	Planning	g Inspectio	n Resit	Inspection
	Verbo	al/Writ	ten/Otl	her				Link with	Factor (%)	score	test in	of work i	n scheduled	of resit in
	Indivi	idually/	'Group					learning			week	week	in week	week
	v	w	0	Ι	G			outcomes						
TOETS01		х		х		Assignment (report)		LD-1.a.3, LD-	100%	5.5	4	7	14	17
								2.b.2, LD-2.b.3,						
								LD-4.b.1, LD-						
								4.c.1, LD-5.a.1,						
								LD-5.a.5, LD-						
								8.b.1						

Block 2 / Sem	ester :	1													
VCCU20545	Title:	Free C	Compo	sition	Cours	e 1	Number	of study credits: 1	.25 Numb	er of contact h	ours: 5	Mand	latory	Teaching langua	ge: English
Conditions for	course	partici	pation:	None											
Conditions for	test pa	rticipat	:ion: No	one											
Brief description	on of co	urse co	ontent:												
activities or tr The student v activity was p	aining vill sub erform s regar	activit mit pr ied in a rding t	ties. oposa a satis he cor	ls for t factor	he fre: y man	es such as: managem e composition space ner. ated criteria can be	to the SC	CC or FCC assesso	or prior to t	he activity. Af	terwards,	the SC	CC or FCC as	ssessor will ass	ess if the
Test code		at al/Writt dually/ <b>W</b>	•		G	Assessment type		Content Link with learning outcomes	Weighting Factor (%)		Planni test in week	•	Inspection of work in week	Resit scheduled in week	Inspection of resit in week
TOETS01		х		х		Portfolio		LD-8.e.1	100%	Ok	4		6	25	27

Block 3 / Sem	ester	2											
CU20547V1	Title	: : Stati	istics	Fundar	nentals	; Nu	mber of study credits: 1.25	i Number	r of contact hou	rs: 15 M	landatory	Teaching la	nguage: English
Conditions for c	ourse	partici	pation	: None									
Conditions for t	est pa	rticipat	i <b>on:</b> N	one									
Brief description	n of co	ourse co	ontent	:									
Students will c	levelo	p their	<sup>r</sup> infor	matior	n skills r	regarding searching ar	nd using sources and info	ormation, in	cluding the use	e of APA. F	urthermore the	structure of	a report will
be discussed a	longs	ide wit	h son	ne tips	and trie	cks regarding the use o	of Word for report writir	ng. At the sa	me time stude	nts will le	arn the basics of	f statistics, re	garding
descriptive sta	tistics	s and p	robab	oility ca	lculatio	ons. During this part of	of the course students wil	l gain a basi	c statistical vo	cabulary a	nd basic skills to	o describe da	ta and
calculate prob	abiliti	es.											
Compulsory lite	rature	e: Statis	stics ir	n 20 ste	eps, Bu	ijs, A., 2 <sup>nd</sup> ed.							
Test code		nat pal/Writ vidually,				Assessment type	<b>Content</b> Link with learning outcomes	Weighting Factor (%)	Minimum score	Planning test in week	Inspection of work in week	Resit scheduled in week	Inspection of resit in week
	v	W	0	I	G								
TOETS01		х		х		Written knowledge tes	st LD-1.e.1, LD- 7.a.2	100%	5.5	15	17	25	27

Block 3 / Sem	ester	2											
CU20553	Title:	Mech	anical	Mater	rial Properties	Number of study cred	lits: 2.5 Nu	mber of contact	hours: 25	Mandatory	Т	eaching langua	ge: English
Conditions for	course	partici	pation	None									
Conditions for	test pa	rticipa	tion: No	one									
Brief description	on of co	ourse c	ontent:										
Student will g	et fam	iliar w	ith the	basic	principles of m	aterial science and wil	ll gain a first	understanding	of the behavio	our of materia	als under diff	erent conditio	ns and learn
-					· · · · · · · · · · · · · · · · · · ·	al processes. Key topio	-	-					
			-	-		ess-limited) design, pla							
uesign, innova	ation, s	sume	55 anu	weigi		ess-miniteu) design, più	asticity, yield		y.				
	1		erials e	engine		processing and design,					1		1
Test code	Form	at			Assessm	ent type C	Content	Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Verbo	al/Writ	ten/Otl	ner		L	Link with	Factor (%)	score	test in	of work in	scheduled	of resit in
	Indivi	idually/	/Group			1	learning			week	week	in week	week
			•			c	outcomes						
	V	w	0		G	-							
											1		
TOETS01		Х		Х	Written l	knowledge test	LD-2.a.1	100%	5.5	15	18	25	28

Block 3 / Sem	nester 2	2												
CU20554	Title:	Mana	gemer	nt Acc	ountin	g	Number o	f study credits: 2.	5 Numbe	r of contact hou	urs: 15	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation:	None										
Conditions for	test par	rticipat	tion: No	one										
Brief description	on of co	urse co	ontent:											
	•					ancial information.	/ answers	and solution, Br	ouwers, R.,	Koetzier, W.				
Test code		ıl/Writi	ten/Oth ′Group <b>O</b>	ner I	G	Assessment type		Content Link with learning outcomes	Weighting Factor (%)	Minimum score	Plannin test in week	g Inspectio of work week		Inspection of resit in week
TOETS01		X	-	X		Written knowledge te	est	LD-5.a.1	100%	5.5	15	18	25	27

Block 3 / Sem	nester	2											
CU72014V1	Title:	Projec	t Qua	lity Ma	anage	ment	Number of study credits: 5	Number of	of contact hou	rs: 30	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation	: None									
Conditions for	test pa	rticipat	ion: N	one									
Brief description	on of co	ourse co	ontent										
This project c	onsists	s of bot	th qua	lity m	anage	ment and classes to	improve communication ski	ls. For Qual	ity managem	ent, the stu	ident will be	introduced to se	everal
aspects of qua	ality, b	oth in	produ	cts as	in pro	ocesses. Moreover, t	he students will get familiar	with quality	norms and s	tandards as	s well as best	practices. They	will gain
knowledge or	n quali	ty man	agem	ent pr	inciple	es and approaches, s	such as quality planning, qua	ity control,	quality assur	ance and q	uality improv	ement.	
Compulsory lit	erature	e: None											
Compulsory lit Test code	erature Form					Assessment type	Content	Weighting	Minimum	Planning	Inspection	n Resit	Inspection
• •	Form			her		Assessment type	Content Link with learning outcomes	Weighting Factor (%)	Minimum score	test in	Inspection of work in		Inspection of resit in
• •	Form Verba	at	en/Otl	her		Assessment type		0 0			•		•
• •	Form Verba	a <b>t</b> al/Writt	en/Otl	her I	G	Assessment type		0 0		test in	of work in	scheduled	of resit in
• •	Form Verbo Indivi	at al/Writt idually/	en/Otl Group	her I X	G	Assessment type Portfolio		0 0		test in	of work in	scheduled	of resit in
Test code	Form Verbo Indivi	a <b>t</b> al/Writt idually/ <b>W</b>	en/Otl Group	I	G		Link with learning outcomes	Factor (%)	score	test in week	of work ir week	scheduled in week	of resit in week
Test code	Form Verbo Indivi	a <b>t</b> al/Writt idually/ <b>W</b>	en/Otl Group	I	G		Link with learning outcomes	Factor (%)	score	test in week	of work ir week	scheduled in week	of resit in week

Block 3 / Sem	ester 2	2												
CU72015V1	Title:	Comm	nunica	tion Sl	kills		Number	of study credits: 2	.5 Numbe	r of contact hou	ırs:15 Man	datory	Teaching languag	ge: English
Conditions for	course	partici	pation:	: None										
Conditions for	test pa	rticipat	tion: No	one										
Brief description	on of co	ourse co	ontent:											
Students will	get to	practis	se a wi	de vai	riety o	f communication skill	s. Additio	onally, they will ${}_{\!$	gain insights	on organisatic	on communic	ation, online	presence, liste	ning and
interviewing	skills, c	onflict	comm	nunica	ition, r	egotiation skills and	presenta	tion skills. Durin	g the classes	students will	get theoretic	al backgrou	nds, hands-on t	ips and
tricks and a se	et of to	ols the	ey can	use to	o impr	ove their personal cor	mmunica	tion skills. The s	tudents will a	actively practis	se their skills	during class	es and work on	
assignments a	after ev	very cl	ass to	build	their p	ortfolio.								
Compulsory lit	erature	: Cross	s-cultu	ral co	mmun	ication, Jacobs, A., 1 <sup>st</sup>	<sup>t</sup> ed.							
Test code	Form	at				Assessment type		Content	Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Verbo	al/Writt	ten/Oth	her				Link with	Factor (%)	score	test in	of work in	scheduled	of resit in
	Indivi	dually/	'Group					learning			week	week	in week	week
	v	w	0	I	G			outcomes						
TOETS01		Х		Х		Portfolio		LD-8.f.2	100%	5.5	15	17	25	27

Blocks 3 and 4	7 Seme	ester 2													
CU22492V3	Title:	Englisł	for In	dustria	Engineering &	Number o	of study credi	ts: 2.5	Number	of contact hour	s: 21 Mano	latory	ד	eaching langu	age: English
	Mana	agemer	it 2												
Conditions for	course	partici	pation:	Pass f	or CU22491 or ea	quivalent co	ompetences (t	teacher's	discretion)						
Conditions for	test pa	rticipat	ion: Co	mplet	e all course assig	nments and	quizzes								
Brief descripti	on of co	ourse co	ontent:						Goals:						
Course summa	-		32						•	To understand	-	-	ls		
his course for									•	To understand	• •				
	•		standin	g techr	nical business tex	ts and docu	iments.		•	To transfer tex					а
	ribing ti					-1			•	To describe gr	•		riting and orall	У	
		-		oing tre	ends (graphs and	charts)			•	To review rele	0				
	ing a col	• •	•	n/nitch	linked to compa	ny profile			•	To read and ur			h laval		
					technical busines		v (portfolio)		•	To write fluent	•		n level.		
	edial gra	•	-	evane			y (por ciono).		•	To expand tec		ary.			
									*CEFR re	eferences:					
										earn.hz.nl/plugi	nfile.php/289	968/mod res	source/conten	t/0/CEFR-all-so	cales-and-all
									skills.pdf						
Compulsory lit	erature	: None													
Test code	Form	at			Assessm	nent type	Schedule	Content		Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Verbo	al/Writi	en/Otl	her			lf yes,	Link with	h	Factor	score	test in	of work in	scheduled	of resit in
	Indivi	idually/	'Group				mention	learning				week	week	in week	week
	v	w	0	I	G		duration	outcome	es						
00000		Х	Х		Criterio	n-	No	CEFR refe	erences at	30%	5.5	44	45	25	25
TOETS01								B1/B2 lev	vel: OWP,						
IOEISUI					reference	ced									
IOEISOI					referend Assessm			WR&E							
	x						No	WR&E	erences at	40%	5.5	24	25	27	27
	x				Assessm X		No	WR&E CEFR refe B1/B2 lev	el: OSP-	40%	5.5	24	25	27	27
TOETSOI	x				Assessm X	nent	No	WR&E CEFR refe B1/B2 lev AA, SF, C	el: OSP-	40%	5.5	24	25	27	27
	x	x		X	Assessm X	ent essment	No 90	WR&E CEFR refe B1/B2 lev	vel: OSP- OH, TtF,	40%	5.5	24	25	27	27

at B1/B2 level: VR,

VC, GA, ORC, CR, COH, OC

minutes

Knowledge Test

Block 4 / Se	emester	2												
CU20555	Title: :	Materia	al Loadi	ng an	nd Failu	re	Number of s	study credits: 2.5	Number of con	tact hours: 23	Mand	atory	Teaching lang	uage: English
Conditions f	or course	particip	pation:	None		·							•	
Conditions f	or test pa	rticipat	ion: Nor	ne										
Brief descri	iption of	<sup>i</sup> course	e conte	nt:										
properties	of mater	ials will	l be cov	reed	with so	about the aspects ome basic design ca cience, Processing	alculations.							
Test code	Format Verbal/ Individu	Written,				Assessment type		<b>Content</b> Link with learning outcomes	Weighting Factor (%)	Minimum score	Planning test in week	Inspection of work in week	Resit scheduled in week	Inspection of resit in week
	v	w	0	I.	G									
TOETS01		х		x		Written knowledge	etest	LD-2.b.4	100%	5.5	24	26	27	29

Block 4 / Ser	nester 2	2											
CU20579	Title:	Statis	tics				Number of study credits:	2.5 Numbe	r of contact ho	urs: 15 🛛 🛛	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation:	None									
Conditions for	test pa	rticipat	tion: No	one									
Brief descripti	on of co	urse co	ontent:										
				•		ractice and explanati uiis, A., 2 <sup>nd</sup> ed.	on during classes.						
Test code	Form Verba	at al/Writ	ten/Otł ′Group			Assessment type	<b>Content</b> Link with learning	Weighting Factor (%)	Minimum score	Planning test in week	Inspection of work in week		Inspection of resit in week
	v	W	0	I.	G		outcomes						
TOETS01		Х		Х		Written knowledge to	est LD-1.e.1	100%	5.5	24	26	27	28

CU72016V2	Title	: Proie	ct Ope	eratio	nal Ex	cellence	Number of study credits: 5	Number of	contact hour	s: 30 🛛 🛛	landatory	Teaching langua	ge: English
Conditions fo							,				•	0 0	
Conditions fo													
Brief descript	ion of co	ourse o	onten	t:									
Analyse a pr	oductio	on pro	cess ai	nd pro	opose	an optimization for	this process at a company. A	stakeholders	s' analysis a	nd long-terr	n view on th	e effects of the	optimizatio
s included in	n this pl	lan. St	udent	s will	work i	n project teams to g	ather and analyse informatio	on within an	assigned co	mpany, usin	g several an	alysis methods	. Students w
follow classe	es to ob	tain k	nowle	dge a	nd foll	ow-up on their prog	ress. At the same time the st	udents can b	book guidan	ce regarding	the researd	ch and statistics	they'll need
to use durin				•					•		-		
		-		ar witl	h a rar	nge of concepts used	d in optimization of (production	on) processe	es as well as	with related	terminolog	y and will learn	how to use
						• .	e (but are not limited to) Lear				-0		
		-				-	llow Belt. The student will ha	-					
			io un c		c cou.					(diffi			
Compulsory li	iterature	e: On-	ine Ye	llow	Belt co	ourse, Skoledo							
	iterature Form		line Ye	llow l	Belt co	ourse, Skoledo Assessment type	Content	Weighting	Minimum	Planning	Inspection	Resit	Inspection
Compulsory li Test code	Form	nat	line Ye		Belt co		Content Link with learning	Weighting Factor (%)	Minimum score	Planning test in	Inspection of work in		Inspection of resit in
	Form Verbo	nat al/Writ		ther	Belt co					0	-		-
	Form Verbo	nat al/Writ	ten/Ot	ther	Belt co		Link with learning			test in	of work in	scheduled	of resit in
Test code	Form Verbe Indiv	nat al/Writ idually	tten/Ot /Group	ther			Link with learning outcomes			test in	of work in	scheduled	of resit in
Test code	Form Verbe Indiv	nat al/Wrin idually W	tten/Ot /Group	ther		Assessment type	Link with learning outcomes	Factor (%)	score	test in week	of work in week	scheduled in week	of resit in week
Test code	Form Verbe Indiv	nat al/Wrin idually W	tten/Ot /Group	ther		Assessment type	Link with learning outcomes LD-1.a.6, LD-1.b.5, LD-	Factor (%)	score	test in week	of work in week	scheduled in week	of resit in week
Test code	Form Verbe Indiv	nat al/Wrin idually W	tten/Ot /Group	ther		Assessment type	Link with learning outcomes LD-1.a.6, LD-1.b.5, LD- 1.d.4, LD-1.e.1, LD-1.e.2,	Factor (%)	score	test in week	of work in week	scheduled in week	of resit in week
Test code	Form Verbe Indiv	nat al/Wrin idually W	tten/Ot /Group	ther		Assessment type	Link with learning outcomes LD-1.a.6, LD-1.b.5, LD- 1.d.4, LD-1.e.1, LD-1.e.2, LD-3.c.2, LD-4.c.4, LD-	Factor (%)	score	test in week	of work in week	scheduled in week	of resit in week
TOETS01	Form Verbe Indiv	nat al/Wrin idually W	tten/Ot /Group	ther		Assessment type	Link with learning outcomes LD-1.a.6, LD-1.b.5, LD- 1.d.4, LD-1.e.1, LD-1.e.2, LD-3.c.2, LD-4.c.4, LD- 4.d.3, LD-5.a.3, LD-5.b.2,	Factor (%)	score	test in week	of work in week	scheduled in week	of resit in week
TOETS01	Form Verba Indiv V	nat al/Wrin idually W	tten/Ot /Group	ther	G	Assessment type Assignment (report)	Link with learning outcomes LD-1.a.6, LD-1.b.5, LD- 1.d.4, LD-1.e.1, LD-1.e.2, LD-3.c.2, LD-4.c.4, LD- 4.d.3, LD-5.a.3, LD-5.b.2, LD-6.c.1, LD-7.b.1	Factor (%)	<b>score</b> 5.5	test in week	of work in week 26	scheduled in week 27	of resit in week
	Form Verba Indiv V	nat al/Wrin idually W	tten/Ot	ther I X	G	Assignment (report) Presentation	Link with learning outcomes LD-1.a.6, LD-1.b.5, LD- 1.d.4, LD-1.e.1, LD-1.e.2, LD-3.c.2, LD-4.c.4, LD- 4.d.3, LD-5.a.3, LD-5.b.2, LD-6.c.1, LD-7.b.1 LD-1.e.1, LD-8.e.1	Factor (%)           80%           20%	score 5.5 4.0	test in week 24 24	of work in week 26 26	27 27	of resit in week 28 28

Block 4 / Sem	lester 2	2												
CU72017V1	Title:	Opera	itional	Excell	ence		Number	of study credits: 2.	5 Number	r of contact hou	urs: 15 M	andatory	Teaching langua	ge: English
Conditions for	course	partici	pation	None										
Conditions for	test pa	rticipat	ion: No	one										
Brief description	on of co	ourse co	ontent:											
The student v	vill bec	ome fa	amilia	' with	a rang	e of concepts used in	n optimiz	ation of (product	ion) process	es as well as v	vith related	terminology	and will learn h	ow to use
		_				s. Concepts include (		not limited to) Lea	ın/Six Sigma,	TOC and QRM	Л.			
Compulsory lit	erature	: Oper	ationa	l Exce	llence	, Marcel van Assen, 2	1 <sup>st</sup> ed.			1	1			1
Test code		<b>at</b> al/Writt dually/	•	ner		Assessment type		<b>Content</b> Link with learning	Weighting Factor (%)	Minimum score	Planning test in week	Inspection of work in week		Inspection of resit in week
	v	w	0	Ι	G			outcomes						
TOETS01		Х		Х		Written knowledge to	est	LD-1.a.6 LD-1.d.4 LD-1.e.1	100%	5.5	24	26	27	28

Block 4 / Sem	ester 2	2												
VCCU20546	Title:	Free C	Compo	sition	Cours	e 2	Number	of study credits: 1.	25 Numbe	r of contact hou	ırs: 2 Ma	indatory	Teaching languag	ge: English
Conditions for	course	partici	pation:	None										
Conditions for	test pa	rticipat	ion: No	one										
Brief descriptio	n of co	urse co	ontent:											
earn FCC cred activities or tr The student w activity was p	its wit aining vill sub erform s regai	h extra activit mit pr ned in a rding t	acurric ies. oposa a satis he cor	ular a Is for t factor	ctivitie he fre y man	amme contains a free s such as: manageme e composition space ner. ated criteria can be fo	ent activi to the SC	ties, information	al and prom r prior to th	otional activiti e activity. Afte	es, cultural rwards, the	activities, in SCC or FCC	structional activi assessor will ass	ities, project ess if the
Test code		at al/Writt dually/ <b>W</b>			G	Assessment type		<b>Content</b> Link with learning outcomes	Weighting Factor (%)	Minimum score	Planning test in week	Inspection of work in week		Inspection of resit in week
TOETS01		x		х		Portfolio		LD-8.e.1	100%	Ok	25	26	27	28

## 2.2.4 Main phase courses (article 3.6, 3.11A CER HZ ba ft)

Block 5 / Sem	nester	3											
CU20558	Title:	Specia	al Mat	erial C	onditions	Number of study	credits: 2.5	Number of contact	hours: 25	Mandatory	, 1	Feaching langua	ge: English
Conditions for	course	partici	pation	None									
Conditions for	test pa	rticipat	ion: N	one									
Brief description	on of co	ourse co	ontent:										
The student v	vill get	an int	roduct	ion of	the various	characteristics and st	tructure prope	erty relationships,	as well as pro	cessing tech	iniques of ma	terials, to make	e judicious
materials cho	ices in	desigr	n base	d on tl	hese criteria.	Students will apply p	orinciples of m	naterials behaviour	r at very high	temperature	e, to select ma	anufacturing p	rocessing
		• •	-			teristics of materials	s exposed to e	electric and magnet	tic loads and	calculate key	dimensions :	and describe te	echnological
options availa	able to	contro	ol diffe	rent t	ype of corros	ion of materials.							
Compulsory lit	erature	e: Mat	erials e	nginee	ering, science,	processing and design,	Ashby, M., She	ercliff, H., Cebon, D. (	2014). (3 ed.).	Oxford, Unite	d Kingdom: Els	evier Ltd.	
Test code	Form	at			Asses	sment type	Content	Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Verbo	al/Writi	en/Otl	her			Link with	Factor (%)	score	test in	of work in	scheduled	of resit in
	Indivi	idually/	Group				learning			week	week	in week	week
	v	W	0	I	G		outcomes						
	1												
TOETS01		Х		Х	Writte	en knowledge test	LD-2.a.1	100%	5.5	45	48	3	6
TOETS01		х		Х	Writte	en knowledge test	LD-2.a.1 LD-2.b.2	100%	5.5	45	48	3	6

Block 5 / Sem	ester 3	3											
CU20559	Title:	Marke	eting fi	undan	nental	S	Number of study credits: 1	.25 Numb	er of contact ho	ours: 18	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation:	None									
Conditions for	test pai	rticipat	t <b>ion:</b> No	one									
Brief description	on of co	urse co	ontent:										
Student will g	et an ii	ntrodu	uction <sup>-</sup>	to the	princi	ples of marketing, re	egarding market environn	nent, custor	ner value, segr	nentation	, targeting, pos	itioning, differe	ntiation and
marketing str	ategy a	nd –p	lannin	g.									
Compulsory lit	erature	: None	!										
Test code		l/Writi	ten/Otł ′Group	ner		Assessment type	Content Link with learning	Weighting Factor (%)		Plannin test in week	g Inspection of work in week		Inspection of resit in week
	v	w	0	I	G		outcomes						
TOETS01		х		х		Written knowledge t	est LD-1.b.2	100%	5.5	45	48	3	6

Block 5 / Ser	nester	3													
CU20561	Title:	Busin	ess inf	ormat	ion sy	stems	Number of study credits:	2.5	Number	of contact ho	urs: 15	Mandat	tory Te	eaching languag	ge: English
Conditions for	course	partici	pation	: None											
Conditions for	r test pa	rticipa	tion: N	one											
Brief descript	on of co	ourse co	ontent	:											
During this c	ourse s	tudent	ts will	work	on the	ir understanding of I	nformation Technology.	Stude	nts will n	ot only get fa	miliar w	ith term	ninology, bu	usiness IT alig	nment and
IT governand				rn son	ne bas	ics in mark-up langua	age.								
Test code		al/Writ	ten/Oti /Group			Assessment type	Content Link with learning		ighting tor (%)	Minimum score	Planni test in week	0	nspection of work in week	Resit scheduled in week	Inspection of resit in week
	V	w	0	Ι	G		outcomes								
TOETS01		Х		Х		Written knowledge t	est LD-7.a.1, LD- 7.a.2, LD-7.c.1, LD-7.c.2		100%	5.5	45	4	17	3	5

Block 5 / Sem	nester	3											
CU72019V1	Title:	Sustai	nabilit	:y			Number of study credits: 2.	5 Numbe	r of contact hou	rs: 15	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation	None								•	
Conditions for	test pa	rticipat	ion: No	one									
Brief descriptio	on of co	ourse co	ontent:										
During this co	ourse, s	studen	ts will	get ac	quain	ted with norms, regu	ulations and ethics regarding	ng sustainab	ility. Furtherm	ore the	students will w	ork on understa	nding the
effects of trer	nds and	d deve	lopme	nts re	gardir	g sustainability on o	rganisations.						
Compulsory lite	erature	e: None											
Test code	Form	at				Assessment type	Content	Weighting	Minimum	Plannin	ng Inspectio	on Resit	Inspection
	Verbo	al/Writt	ten/Otl	her			Link with	Factor (%)	score	test in	of work	n scheduled	of resit in
	Indivi	idually/	'Group				learning			week	week	in week	week
	v	w	0	1	G		outcomes						
TOETS01		X		X	-	Assignment (Essay)	LD-1.a.3, LD-	100%	5.5	45	47	3	5
		~		~		/ isoige.it (2004)/	3.a.4, LD-3.a.5,	20070	0.0	10		Ū	5
							LD-7.a.2, LD-						

Block 5 and 6	/ Sem	ester 3	3											
CU072018V1	Title:	Proje	ct Proo	cess D	esign	Numl	ber of study credits: 1	.0 Numl	ber of contact	hours: 42	Mandatory		Teaching languag	ge: English
Conditions for a	ourse	particip	pation:	None								•		
Conditions for t	est par	ticipat	ion: No	one										
Brief descriptio	n of co	urse co	ontent:											
assignment at business need working out th project as wel together with	the co s are f ne desi l as kno studer and wit	mpan ulfilled gn or a owled nts fro ch seve	y. Afte d. They a sepa ge and m oth eral sta	er havi y will v rate so d skills er stud	ng ide vrite a olutior gaine dy pro	ntified process of proposal which n for the selected d from their own	) a process design at objectives and having includes the project d process. Students o research and study e the (added) value any.	g turned th t scope, a p will incorp activities.	hese into pro programme c porate knowle . Students wil	cess demands of requiremen edge and skills I also consult	s, they will de ts and a resea from course with experts	sign a proce arch approa s followed s where nece	ess in which all o ch. Students co o far and durin essary. Students	of the Ilaborate in g this 5 may work
Test code	Form					Assessment type	e Conte	nt	Weighting	Minimum	Planning	Inspection	Resit	Inspection
Test code	Verbo	al/Writ	ten/Ot /Group			Assessment typ	Link w learnir outcor	vith ng	Factor (%)	score	test in week	of work in week	scheduled in week	of resit in week
	v	W	0	I	G	-								
TOETS01		x			x	Assignment (rep	,	d.2, LD- LD-7.d.1, a.3	40%	5.5	45	47	3	5
TOETS02		x			x	Assignment (rep	1.b.3, LD-5.a 5.e.3, LD-7.b	a.6, LD- LD-5.a.1, a.5, LD- LD-5.e.4, p.2, LD- LD-8.b.1	50%	5.5	4	6	14	16
TOETS03			x		x	Presentation	LD-1.a	a.6, 7c2	10%	5.5	2	4	6	8

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Approval HR 05/07/2022 - recommendation programme committee: 06/04/2022

CU72020V3	Title:	Englis	h for I	ndustr	ial Engineering &	Number of study	credits: 2.5 Nu	nber of contact hou	urs: 21 M	andatory	Teaching la	nguage: Englis	h
		geme								•			
onditions for		-		Pass fr	or CU22492 or equiva	lent comnetences (	teacher's discretion	n)					
	-	-			e all course assignment			')					
Brief descripti	•	•		•									
•													
Lourse summa 1. Essav	y writing	•	<u>2</u> +										
	nical Rep		riting										
				g (long	) technical business t	exts and documents	5.						
					echnical business vo								
5. Desc	ribing pr	operti	es, inst	ruction	is and warnings								
•	lating co		ns										
	edial gra	mmar											
Goals:													
					and sentence level								
● Tou	nderstan												
					hnical report								
• To re	ead & un	dersta	nd long	g techn	inical report ical texts								
<ul> <li>To re</li> <li>To e:</li> </ul>	ead & un xpand te	dersta chnica	nd long I vocab	g techn	•								
<ul> <li>To re</li> <li>To e:</li> <li>To re</li> </ul>	ead & un xpand te eview gra	derstai chnicai immar	nd lon§ I vocab	g techn ulary	ical texts	d resource/content	t/0/CFFR-all-scales-	and-all-skills.pdf					
• To re • To ex • To re *CEFR referen	ead & un xpand te eview gra ces: <u>http</u>	derstai chnical ammar <u>s://lear</u>	nd lon§ I vocab	g techn ulary	•	<u>d_resource/content</u>	t/O/CEFR-all-scales-	and-all-skills.pdf					
To re     To re     To re     To re     CEFR referen Compulsory lit	ead & un xpand te eview gra ces: <u>http</u>	derstar chnical immar <u>s://lear</u> None	nd lon§ I vocab	g techn ulary	ical texts		t <u>/0/CEFR-all-scales-</u> Content		Minimum	Planning	Inspection	Resit	Inspectio
To re     To re     To re     To re     CEFR referen Compulsory lit	ead & un xpand te eview gra ces: <u>http:</u> cerature: Forma	derstar chnical ammar <u>s://lear</u> None <b>it</b>	nd long I vocab <u>m.hz.n</u>	g techn ulary I <u>/plugir</u>	ical texts	type Schedule	1	Weighting	Minimum score	Planning test in	Inspection of work in	Resit scheduled	-
To re     To re     To re     To re     CEFR referen Compulsory lit	ead & un xpand te eview gra ces: <u>http:</u> <b>erature</b> : <b>Forma</b> <i>Verba</i>	derstan chnical ammar <u>s://lear</u> None <b>t</b> I/Writt	nd long l vocab <u>m.hz.n</u> ren/Otl	g techn ulary I <u>/plugir</u>	ical texts		Content	Weighting		-	of work in		Inspectio of resit in week
To re     To re     To re     To re     CEFR referen Compulsory lit	ead & un xpand te eview gra ces: <u>http:</u> terature: Forma Verba Indivia	derstan chnical mmar <u>s://lear</u> None <b>t</b> I/Writt dually/	nd long I vocab <u>m.hz.n</u> en/Otl Group	g techn ulary I <u>/plugir</u>	hfile.php/289968/mo	type Schedule If yes,	<b>Content</b> Link with learning	Weighting		test in	-	scheduled	of resit in
To re     To re     To re     To re     To re     CEFR referen Compulsory lit Fest code	ead & un xpand te eview gra ces: <u>http:</u> <b>erature</b> : <b>Forma</b> <i>Verba</i>	derstan chnica mmar <u>s://lear</u> None It I/Writt dually/	nd long I vocab m.hz.n en/Otl Group <b>0</b>	g techn ulary I <u>/plugir</u>	ical texts <u>file.php/289968/mo</u> Assessment G	type Schedule If yes, mention duration	<b>Content</b> Link with learning outcomes	Weighting Factor (%)	score	test in week	of work in week	scheduled in week	of resit ir week
To re     To re     To re     To re     To re     Compulsory lit Test code	ead & un xpand te eview gra ces: <u>http:</u> terature: Forma Verba Indivia	derstan chnical mmar <u>s://lear</u> None <b>t</b> I/Writt dually/	nd long I vocab <u>m.hz.n</u> en/Otl Group	g techn ulary I <u>/plugir</u>	ical texts <u>file.php/289968/mo</u> Assessment G Criterion-	type Schedule If yes, mention	Content Link with learning outcomes CEFR references	y Weighting Factor (%) 50%		test in	of work in	scheduled	of resit in
To re     To re     To re     To re     To re     Compulsory lit Test code	ead & un xpand te eview gra ces: <u>http:</u> terature: Forma Verba Indivia	derstan chnica mmar <u>s://lear</u> None It I/Writt dually/	nd long I vocab m.hz.n en/Otl Group <b>0</b>	g techn ulary I <u>/plugir</u>	G Criterion- referenced	type Schedule If yes, mention duration	Content Link with learning outcomes CEFR references at B2 level: OWP,	y Weighting Factor (%) 50%	score	test in week	of work in week	scheduled in week	of resit ir week
To re     To re     To re     To re     To re     CEFR referen Compulsory lit Test code	ead & un xpand te eview gra ces: <u>http:</u> terature: Forma Verba Indivia	derstan chnical mmar <u>s://lear</u> None I/Writt dually/ W X	nd long I vocab m.hz.n en/Otl Group <b>0</b>	g techn ulary I/plugir ner	ical texts file.php/289968/mo Assessment G Criterion- referenced Assessment	type Schedule If yes, mention duration NO	Content Link with learning outcomes CEFR references at B2 level: OWP, WR&E	Factor (%)	score 5.5	test in week 45	of work in week 46	scheduled in week 3	of resit in week 4
<ul> <li>To re</li> <li>To ex</li> <li>To re</li> </ul>	ead & un xpand te eview gra ces: <u>http:</u> terature: Forma Verba Indivia	derstan chnica immar <u>s://lear</u> None It I/Writt dually/	nd long I vocab m.hz.n en/Otl Group <b>0</b>	g techn ulary I <u>/plugir</u>	G Criterion- referenced	type Schedule If yes, mention duration NO 90	Content Link with learning outcomes CEFR references at B2 level: OWP,	y Weighting Factor (%) 50%	score	test in week	of work in week	scheduled in week	of resit in week

Block 6 / Se	mester	3											
CU20563	Title	: Materi	ial Desigr	n and En	gineering	Number of study cred	dits: 2.5 Nu	umber of contact	hours: 25	Mandatory	Т	eaching langua	ge: English
Conditions fo	or course	particip	oation: No	ne							<u>.</u>		
Conditions fo	or test pa	rticipati	i <b>on:</b> None										
Brief descript	tion of co	ourse co	ntent:										
		-	-		-	application. They will f	further deve	lop the best cor	ncept solution	n into more d	etailed desigr	specification	and obtair
				· ·	involved.	2014) Materials enginee	ering science	processing and c	lesign (3 ed ) (	And United	Kingdom: Elsey	vier Itd	
Compulsory l	iterature Form	e: Ashb nat	y, M., She	· ·			Content	Weighting	Minimum	Planning	Inspection	Resit	•
Compulsory I	literature Form Verb	e: Ashb nat	y, M., She en/Other	· ·	Cebon, D. (2	ent type					-		•
Compulsory I	literature Form Verb	e: Ashb hat al/Writte	y, M., She en/Other	· ·	Cebon, D. (2	ent type	<b>Content</b> Link with	Weighting	Minimum	Planning test in	Inspection of work in	Resit scheduled	Inspection of resit in week
	literaturo Form Verba Indiv	e: Ashb nat al/Writte idually/C	y, M., She en/Other Group	rcliff, H.,	Cebon, D. (2	ent type	<b>Content</b> Link with learning	Weighting	Minimum	Planning test in	Inspection of work in	Resit scheduled	of resit in

	nester	3											
CU020569	Title:	Inforn	nation	and T	echno	logy Innovation	Number of study credits: 2	.5 Numbe	r of contact hours	s: 15 Ma	ndatory	Teaching langua	ge: English
Conditions for	course	partici	pation	: None									
Conditions for	test pa	rticipat	tion: N	one									
Brief descripti	on of co	ourse co	ontent										
Students will	gain in	sights	on de	velopr	nents	and trends in techno	ology for business. Studen	s will look in	to topics such a	as IT innova	ation, use of	oftware tools,	AI for
business inte	lligence	e, and	block	chain	techno	ology. Students will g	get insight in real company	cases showi	ng business opp	portunities	provided by	new developm	ients.
Students will	learn h	now to	imple	ment	techn	ology innovation in a	an organization.						
							-						
Compulsory li	terature	e: Strate	egic Ma	anager	nent o	f Technological Innova	ation, Melissa A. Schilling. Six	th edition. ISF	3N 978-1-260-565	5570-0			
						0		curcioni ioi		575-5			
Test code	Form	at	-			Assessment type	Content	Weighting		Planning	Inspection	Resit	Inspection
Test code	-	at al/Writt	ten/Otl	her				1	Minimum score	Planning test in	Inspection of work in	Resit scheduled	Inspection of resit in
Test code	Verbo						Content	Weighting	Minimum score	Planning	•		-
Test code	Verbo	al/Writt			G		Content Link with	Weighting	Minimum score	Planning test in	of work in	scheduled	of resit in
Test code	Verbo Indivi	al/Writh idually/	, Group		G X		Content Link with learning	Weighting	Minimum score	Planning test in	of work in	scheduled	of resit in
	Verbo Indivi	al/Writt idually/ <b>W</b>	, Group		-	Assessment type	Content Link with learning outcomes	Weighting Factor (%)	Minimum score	Planning test in week	of work in week	scheduled in week	of resit in week
	Verbo Indivi	al/Writt idually/ <b>W</b>	, Group		-	Assessment type	Content Link with learning outcomes LD-2.a.1, LD-	Weighting Factor (%)	Minimum score	Planning test in week	of work in week	scheduled in week	of resit in week

DIOCK 0 / Se	mester	3												
CU020570	Title:	: Innov	ation <b>I</b>	Manag	gemen	t	Number of study credits: 2	.5 Numbe	r of contact ho	urs: 15	Mandatory	Te	aching langua	ge: English
Conditions fo	or course	partici	pation	: None										
Conditions fo	or test pa	rticipat	tion: N	one										
Brief descript	tion of co	ourse co	ontent	:										
Students wil	ll learn v	what ir	novat	ion is,	they	will practise creative	and innovation skills and	they will gain	insights on h	ow to m	anage innov	vation f	rom idea gen	eration to
market-entr	y within	n an or	ganiza	tion. S	tuden	its will work with sev	eral innovation models ar	nd will get far	niliar with inn	ovation	approaches	as seei	n in organizat	tions.
Compulsory	literature	• Strate	egic Ma	anagen	nent of	Technological Innovat	ion Melissa & Schilling Sixth	edition ISBN	978-1-260-565	579-9				
Compulsory l Test code	literature Form		egic Ma	anagen	nent of	Technological Innovat	ion, Melissa A. Schilling. Sixth Content	n edition. ISBN Weighting	978-1-260-565 Minimum	579-9 Plannii	ng Inspe	ection	Resit	Inspection
• •	Form			0	nent of		, ,		1	1	ng Inspe of wo		Resit scheduled	Inspection of resit in
• •	Form Verbo	at	ten/Otl	0	nent of		Content	Weighting	Minimum	Plannii	• •	ork in		•
• •	Form Verbo Indiv	a <b>t</b> al/Writi idually/	ten/Oti ′Group	0			Content Link with	Weighting	Minimum	Plannii test in	of wo	ork in	scheduled	of resit in
• •	Form Verbo	at al/Writi	ten/Otl	0	nent of G X		Content Link with learning	Weighting	Minimum	Plannii test in	of wo	ork in	scheduled	of resit in
Test code	Form Verbo Indiv	nat al/Writh idually/ W	ten/Oti ′Group	0	G	Assessment type	Content Link with learning outcomes	Weighting Factor (%)	Minimum score	Plannin test in week	of wo week	ork in	scheduled in week	of resit in week

Block 6 / Sem	ester 3	3												
VCCU20574	Title:	Free C	Compos	sition	Cours	e 3	Number of study	credits: 1.25	Number	of contact hou	ırs: 2 I	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation:	None										
Conditions for	test pai	rticipat	t <b>ion:</b> No	one										
Brief description	on of co	urse co	ontent:											
activities or tr The student w activity was p	aining vill sub erform s regar	activit mit pr ed in a ding t	ties. oposal a satisf he con	s for t actor	he fre y man	es such as: managem e composition space ner. lated criteria can be f	to the SCC or FC	C assessor p	ior to the	activity. Afte	rwards, t	he SCC or FCC	Cassessor will ass	ess if the
Test code			ten/Oth ′Group <b>O</b>	er I	G	Assessment type	Conten Link wit learning outcom	ch Fa g	eighting ctor (%)	Minimum score	Planning test in week	inspection of work week		Inspection of resit in week
TOETS01		х		х		Portfolio	LD-8.e	.1	100%	Ok	4	6	25	27

Block 7 / Sei	mester	4											
CU20568	Title	: Mark	eting p	lan			Number of study credits: 2	.5 Numbe	r of contact ho	urs: 24 🛛 N	landatory 1	eaching langua	ge: English
Conditions fo	r course	partici	pation	: None	5								
Conditions fo	r test pa	rticipa	tion: N	one									
Brief descript	ion of co	ourse c	ontent	. Stuc	lents v	vill write a marketing	plan applying marketing	fundamenta	ls like a situat	ional analy	sis of the actua	l market envir	onment of a
-						-	argeting, positioning, diff			-			
. ,	U					, , ,	0 0,1 0,		0		1 0		
Compulsory li	terature	e: How	to writ	e a Ma	rketing	Plan - John Westwood	– ISBN 9780749484835						
Test code	Form	nat				Assessment type	Content	Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Verb	al/Writ	ten/Ot	her			Link with	Factor (%)	score	test in	of work in	scheduled	of resit in
	Indiv	idually,	'Group				learning			week	week	in week	week
					-		outcomes						
	V	W	0		G								
		1				Assistant		1000/	5.5	10	10		
TOETS01		Х		Х		Assignment	LD-1.b.2, LD-	100%	5.5	15	18	25	27

Block 7 / Sem	ester (	4											
CU72022V1	Title:	Mech	anical	Manu	ıfactur	ing Systems	Number of study credits: 2	.5 Numbe	r of contact ho	urs: 30	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation	: None	!								
Conditions for	test pa	rticipat	tion: M	landat	ory par	ticipation in preparation	on and hosting of at least one	lecture					
Brief description	on of co	ourse co	ontent	:									
The student v	vill gair	n knov	vledge	and i	nsight	on mechanical man	ufacturing technologies for	r metals and	plastics and t	heir indu	strial applicatio	n, as well as bas	ic
knowledge ab	out m	anufad	cturing	g auto	matio	۱.							
Ū													
Compulsory lit	erature	: None	2										
Test code	Form	at				Assessment type	Content	Weighting	Minimum	Planni	• •		Inspection
	Verbo	al/Writ	ten/Ot	her			Link with	Factor (%)	score	test in	of work i	n scheduled	of resit in
	Indivi	idually/	/Group				learning			week	week	in week	week
	v	w	0	Ι	G		outcomes						
TOETS01		Х		Х		Written knowledge t	est LD-2.d.2, LD-	75%	5.5	15	17	26	28
							3.a.3, LD-4.c.2,						
							LD-6.c.2						
TOETS02	Х				Х	Presentation	LD-2.d.2, LD-	25%	5.5	15	17	26	28
							3.a.3, LD-4.c.2,						
							LD-6.c.2						

Block 7 / Sem	ester 4	4												
CU72027V1	Title:	Orgar	isatio	nal Bel	haviou	ır	Number of s	study credits: 2.	5 Number	of contact hour	rs: 15 Ma	ndatory	Teaching langua	ge: English
Conditions for	course	partici	pation	None										
Conditions for	test pa	rticipa	tion: No	one										
Brief description	on of co	ourse co	ontent:											
Students will	deepei	n their	know	ledge	on str	uctures and behavio	ur and their	relationship w	vithin organiz	ations with the	e aim of un	derstanding	the social envir	onmental
and economic	force	s that	affect	our ov	vn car	eers nowadays. Stud	ents will gai	n knowledge a	bout types o	of organisations	s and mana	gement styl	es as well as co	mmon
theories and i	nodels	s that l	nave b	een de	evelop	ed through decades	to help ana	yse and addre	ss some mai	nagerial questio	ons related	to how to p	ut strategy in pr	actice, why
some organis	ations	are su	ccessf	ul and	other	s are not or how to d	leal with nev	w technologies	s, pay, perfor	mance and tal	ent.			
Compulsory lit	erature	e: Esser	tials of	Organ	isation	al Behaviour (Global e	lition), Steph	en P. Robbins, T	imothy Judge,	15th edition, ISI	BN 978-1-29	2-40666-4		
Test code	Form	at				Assessment type	C	ontent	Weighting	Minimum	Planning	Inspection	n Resit	Inspection
	Verbo	al/Writ	ten/Otl	ner			Li	nk with	Factor (%)	score	test in	of work in	scheduled	of resit in
	Indivi	idually/	'Group				le	arning			week	week	in week	week
	v	w	0	I	G		01	utcomes						
TOETS01		х		х		Portfolio	LC	D-1.e.2, LD-	100%	5.5	15	17	25	27
							5.	b.1						

Block 7 / Sem	ester 4	1												
VCCU20575	Title:	Free C	Compo	sition	Cours	e 4	Number of st	udy credits: 1.	25 Number	r of contact hou	ırs: 2 Mar	ndatory	Teaching langua	ge: English
Conditions for	course	partici	pation:	None										
Conditions for	test pai	rticipat	ion: No	one										
Brief descriptio	n of co	urse co	ontent:											
earn FCC cred activities or tr The student w activity was p	its with aining vill sub erform s regar	h extra activit mit pr ied in a rding t	acurric ies. oposal a satisi he con	ular a ls for t factor	ctivitie the fre y man	amme contains a free s such as: manageme e composition space t ner. ated criteria can be fo	nt activities to the SCC o	, information	al and prom	otional activiti e activity. Afte	es, cultural a	octivities, in SCC or FCC a	structional activ assessor will ass	ities, projec ess if the
Test code			ten/Oth Group <b>O</b>	ner I	G	Assessment type	Lin Iea	ntent k with Irrning tcomes	Weighting Factor (%)	Minimum score	Planning test in week	Inspectior of work in week		Inspection of resit in week
TOETS01		х		х		Portfolio	LD	-8.e.1	100%	Ok	25	26	27	28

CU072021V1	Title:	Proje	ct Prod	cess re	e-desig	n Number of stu	dy credits: 10 Nu	nber of contact	hours: 21	Mandatory		Teaching langua	ge: English
Conditions for	course	particip	oation:	None									
Conditions for	test par	ticipat	ion: No	one									
rief descriptio	on of co	urse co	ntent:										
tudents will	work in	a pro	ject te	am or	n (seve	eral solutions for) a proce	ss re-design at a co	mpany for one	semester. Di	uring this sen	nester they v	vill obtain a pro	ject
					•	a proposal which includes	-			-		-	-
ut one aspe	ct of the	e rede	sign o	r a sep	oarate	solution for the same pro	ocess. Students will	incorporate kr	nowledge and	l skills from c	ourses follow	wed so far and o	during this
			-		-	d from their own researc	•			t with expert	s where nec	essary. During t	his project
s important f	or the s	studer	t to w	ork to	gethe	r in a project team and w	ith several stakeho	ders within th	e company.				
Compulsory lit	erature	None											
Test code	Form					Assessment type	Content	Weighting	Minimum	Planning	Inspection		Inspectio
	Verbo	al/Writ	ten/Ot	her			Link with	Factor (%)	score	test in	of work in	scheduled in week	of resit i
							learning		30010		week	In week	week
	Indivi	dually/	'Group				outcomes			week			
	v	w	0	I	G								
OETS01		х			x	Assignment (report)	LD-1.a.6, LD-	40%	5.5	15	17	25	27
							1.c.1, LD-1.e.2,						
							LD-6.c.5, LD-						
							7.a.1, LD-7.a.2, LD-7.a.3, LD-						
							7.d1						
OETS02		х			х	Assignment (report)	LD-1.a.3, LD- 2.b.1, LD-2.b.3,	50%	5.5	24	26	27	29
							LD-3.c.1, LD-						
							6.c.3, LD-7.b.1,						
							LD-7.b.2, LD-						
				1	1		7.c.1,						
TOETS03			х		x	Presentation	LD-7.c.2, LD-	10%	5.5	23	25	26	28

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Implementation Regulations HZ CER Industrial Engineering & Management - full-time

Determined by Executive Board: 05/07/2022

Approval HR 05/07/2022 - recommendation programme committee: 06/04/2022

CU22566V2	Title:	English	n for In	ndustr	ial Engir	neering &	Numb	per of study credits: 2.5	Number o	f contact hou	ırs: 21 M	andatory T	eaching langua	age: English
		ageme						•					000	
<b>C</b>		<u> </u>		D ( -		20			·					
						•	•	at B1+ level (teacher's d	iscretion)					
	•	•		mplete	e all cour	se assignments and	l quizzes							
Brief description	on of co	urse co	ntent:											
Course summa	•													
	-		•	-		eetings. – collaborat	•	-						
	-		-		-	al business texts an								
	-	•	ling rele	evant t	technical	l business vocabular	ry (portfolio).							
	edial gra	mmar												
Goals:														
<ul> <li>To co</li> </ul>	onduct a	nd part	icipate	in torr	mal hucir	nace maatinge								
		•	•			0								
		ity to sc	olve pro	blems	collabor	ratively								
• To re	ead and i	ity to so underst	olve pro tand lor	blems ng tech		ratively								
<ul> <li>To re</li> <li>To ex</li> </ul>	ead and i kpand te	ity to so underst chnical	olve pro tand lor	blems ng tech	collabor	ratively								
<ul> <li>To re</li> <li>To ex</li> <li>To re</li> </ul>	ead and i kpand te eview gra	ity to so underst echnical ammar	olve pro tand lor vocabu	oblems ng tech ulary	s collabor nnical tex	ratively xts	ource (conton	st/0/CEEP all scales and	all skills adf					
• To re • To e: • To re *CEFR referen	ead and i kpand te eview gra ces: <u>http</u>	ity to so underst echnical ammar os://lear	olve pro tand lor vocabu	oblems ng tech ulary	s collabor nnical tex	ratively xts	ource/conten	it/0/CEFR-all-scales-and	<u>-all-skills.pdf</u>					
<ul> <li>To re</li> <li>To re</li> <li>To re</li> <li>To re</li> <li>*CEFR referen</li> <li>Compulsory lit</li> </ul>	ead and i kpand te eview gra ces: <u>http</u> erature	ity to so underst echnical ammar <u>os://lear</u> : None	olve pro tand lor vocabu	oblems ng tech ulary	s collabor nnical tex <u>nfile.php</u>	ratively xts <u>)/289968/mod_reso</u>				Minimum	Planning		Bosit	Increatio
<ul> <li>To re</li> <li>To re</li> <li>To re</li> <li>To re</li> </ul>	ead and te kpand te eview gra ces: <u>http</u> cerature Forma	ity to so underst echnical ammar os://lear : None at	olve pro tand lor vocabu rn.hz.nl	oblems ng tech ulary I <u>/plugin</u>	s collabor nnical tex <u>nfile.php</u>	ratively xts	Schedule	Content	Weighting	Minimum	Planning	Inspection	Resit	
<ul> <li>To re</li> <li>To re</li> <li>To re</li> <li>To re</li> <li>*CEFR referen</li> <li>Compulsory lit</li> </ul>	ead and u kpand te eview gra ces: <u>http</u> erature Forma Verba	ity to so underst echnical ammar <u>os://lean</u> : None at	olve pro tand lor vocabu <u>rn.hz.nl</u> en/Oth	oblems ng tech ulary I <u>/plugin</u>	s collabor nnical tex <u>nfile.php</u>	ratively xts <u>)/289968/mod_reso</u>	Schedule If yes,	Content Link with learning		Minimum score	test in	of work in	scheduled	Inspectio of resit in
<ul> <li>To re</li> <li>To re</li> <li>To re</li> <li>To re</li> <li>*CEFR referen</li> <li>Compulsory lit</li> </ul>	ead and u kpand te eview gra ces: <u>http</u> erature Forma Verba	ity to so underst echnical ammar os://lear : None at	olve pro tand lor vocabu <u>rn.hz.nl</u> en/Oth	oblems ng tech ulary I <u>/plugin</u>	s collabor nnical tex <u>nfile.php</u>	ratively xts <u>)/289968/mod_reso</u>	<b>Schedule</b> If yes, mention	Content	Weighting	-		•		•
To re     To re     To re     To re     To re     CEFR referen Compulsory lit	ead and u kpand te eview gra ces: <u>http</u> erature Forma Verba	ity to so underst echnical ammar <u>os://lean</u> : None at	olve pro tand lor vocabu <u>rn.hz.nl</u> en/Oth	oblems ng tech ulary I <u>/plugin</u>	s collabor nnical tex <u>nfile.php</u>	ratively xts <u>)/289968/mod_reso</u>	Schedule If yes,	Content Link with learning	Weighting	-	test in	of work in	scheduled	of resit in
• To re • To e: • To re <u>*CEFR referen</u> Compulsory lit	ead and o kpand te eview gra ces: <u>http</u> cerature Forma Verba Indivio	ity to so underst echnical ammar <u>bs://lean</u> : None at ul/Writte dually/o	olve pro tand lor vocabu <u>rn.hz.nl</u> en/Oth Group	oblems ng tech ulary I <u>/plugin</u>	s collabor nnical tex nfile.php G	ratively xts <u>)/289968/mod_reso</u>	<b>Schedule</b> If yes, mention	Content Link with learning	Weighting	-	test in	of work in	scheduled	of resit in
• To re • To e: • To re <u>*CEFR referen</u> Compulsory lit	ead and te eview gra ces: <u>http</u> cerature Forma Verba Individ	ity to so underst echnical ammar <u>bs://lean</u> : None at ul/Writte dually/o	olve pro tand lor vocabu <u>rn.hz.nl</u> en/Oth Group	oblems ng tech ulary I <u>/plugin</u>	s collabor nnical tex nfile.php G	ratively xts <u>)/289968/mod_reso</u> Assessment type	Schedule If yes, mention duration	<b>Content</b> Link with learning outcomes	Weighting Factor (%)	score	test in week	of work in week	scheduled in week	of resit in week
To re     To re     To re     To re     To re     CEFR referen Compulsory lit Test code	ead and o kpand te eview gra ces: <u>http</u> cerature Forma Verba Individ V	ity to so underst echnical ammar <u>bs://lean</u> : None at ul/Writte dually/o	olve pro tand lor vocabu <u>rn.hz.nl</u> en/Oth Group	oblems ng tech ulary I <u>/plugin</u>	s collabor nnical tex nfile.php 4 G X (	ratively xts <u>)/289968/mod_reso</u> Assessment type	Schedule If yes, mention duration	Content Link with learning outcomes CEFR references at	Weighting Factor (%)	score	test in week	of work in week	scheduled in week	of resit in week
<ul> <li>To re</li> <li>To ex</li> <li>To re</li> </ul>	ead and o kpand te eview gra ces: <u>http</u> cerature Forma Verba Individ V	ity to so underst cchnical ammar <u>os://lean</u> : None at ul/Writt dually/d W	olve pro tand lor vocabu <u>rn.hz.nl</u> en/Oth Group	oblems ng tech ulary /plugin er	s collabor nnical tex nfile.php G X (	ratively xts <u>0/289968/mod_reso</u> Assessment type Oral Assessment	Schedule If yes, mention duration No	Content Link with learning outcomes CEFR references at B2 level: OSI, FD	Weighting Factor (%) 60%	<b>score</b> 5.5	test in week	of work in week 24	scheduled in week 27	of resit in week 27

Block 8 / Ser	nester	4											
CU20571	Title:	Proce	ss Ma	nufact	uring System	5 Number of study	credits: 2.5	Number of contact	hours: 15	Mandatory	Т	eaching langua	ge: English
Conditions for	course	partici	pation	: None		·							
Conditions for	test pa	rticipa	tion: N	one									
Brief descripti	on of co	ourse c	ontent	:									
different fun	ctions a lergy co	and lin onserv	nitation vation	ns of t	hese compor	ead and explain key ents such as sensor overall design and	s and actuato	rs. The student wi	ll be able to e	-	-	-	
Test code	Form	at			Asses	ment type	Content	Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Verbo	al/Writ	ten/Ot	her			Link with	Factor (%)	score	test in	of work in	scheduled	of resit in
	Indiv	idually,	/Group				learning			week	week	in week	week
	v	w	0	I	G		outcomes						
TOETS01		х		Х	Writte	n knowledge test	LD-2.d.2,	100%	5.5	24	26	27	28
						-	LD-3.a.3,						
							LD J.a.J,						
							LD-4.c.2,						

Block 8 / Sem	ester 4	ļ										
CU72032V1	Title:	Suppl	y Chair	n Man	agement	Number of study credits: 2.5	Number	of contact hours:	: 15 Mar	ndatory <sup>-</sup>	Feaching langua	ge: English
Conditions for a	course	partici	pation:	None		·						
Conditions for t	test par	rticipat	tion: No	one								
Brief descriptio	n of co	urse co	ontent:									
Supply chain r	nanage	ement	: (SCM	) is "th	ne management of the ch	ain that connects independe	nt custome	rs and suppliers	as if they	were single e	entities with th	e aim of
creating value	and re	educin	ig was	te thro	ough the coordination of	goals and activities of all org	anizations ir	the chain."				
More than in t	the "or	rdinar	y" logis	stics fi	eld, organizations are no	wadays looking for cooperat	on with oth	er organizations	within th	e own chain	or beyond the	boundaries
						efore, in this course he stud						
-					-	ans, in response to custome					,	
Compulsory lite	erature	·Logic										
		· LUGIS	tics ar	id sup	ply chain management, C	hristopher M., 5 <sup>th</sup> ed.						
Test code	Forma		tics ar	ıd sup	ply chain management, C Assessment type		Weighting	Minimum P	Planning	Inspection	Resit	Inspection
Test code		at	tics ar	<u> </u>		Content	Weighting Factor (%)		Planning est in	Inspection of work in	Resit scheduled	Inspection of resit in
Test code	Verba	at I/Writi		<u> </u>		Content	•••	score t	0	-		•
Test code	Verba Individ	at I/Writi dually/	ten/Otł ′Group	<u> </u>	Assessment type	Content Link with	•••	score t	est in	of work in	scheduled	of resit in
Test code	Verba	at I/Writi	ten/Otł	<u> </u>		Content Link with learning outcomes	•••	score t v	est in	of work in	scheduled	of resit in

Block 8 / Sen	nester	4	_	_										
CU72023V1	Title:	Corpo	orate S	ocial F	Respoi	nsibility	Number o	of study credits: 2	.5 Numbe	er of contact ho	urs: 15	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation	: None										
Conditions for	test pa	rticipat	t <b>ion:</b> No	one										
Brief description	on of co	ourse co	ontent:											
During this co	ourse, s	studen	ts will	get ad	quain	ted with norms, regu	lations ar	nd ethics regardi	ing corporate	e social respor	nsibility. I	Furthermore th	e students will v	vork on
understandin	g the e	effects	of trei	nds an	id dev	elopments regarding	corporate	e social responsi	ibility on org	anisations.				
Compulsory lit	erature	: Ethic	s and	busine	ess - A	global introduction,	Wernaart	, B., 1 <sup>st</sup> ed.						
Test code	Form	at				Assessment type		Content	Weighting	Minimum	Plannin	ng Inspectio	n Resit	Inspection
	Verbo	al/Write	ten/Otl	her				Link with	Factor (%)	score	test in	of work i	n scheduled	of resit in
	Indivi	idually/	'Group					learning			week	week	in week	week
	v	w	0	I	G	•		outcomes						
TOETS01		х		Х		Written Knowledge t	est	LD-5.e.1	75%	5.5	24	26	27	29
						-								
TOETS02			Х	Х		Presentation (record	ed)	LD-1.b.3, LD-	25%	5.5	24	26	27	29
								1.b.6						
								LD-3.a.5, LD-						
								5.b.6						

Block 8 / Sem	ester 4	4											
CU72024V1	Title:	Chang	ge Mai	nagem	nent		Number of study credits: 1.	25 Number	r of contact hou	rs: 15 🛛 🛛	landatory	Teaching langua	ge: English
Conditions for	course	partici	pation	: None									
Conditions for	test pa	rticipat	tion: N	one									
Brief description	on of co	ourse co	ontent	:									
Students will	deepe	n their	- know	ledge	on str	uctures and behavio	our and their relationship w	ithin organiz	ations with th	e aim of u	nderstanding	g the social envir	onmental
and economic	c force	s that	affect	our ov	wn car	eers nowadays. Stud	dents will gain knowledge a	about types o	of organisation	s and mar	nagement sty	les as well as co	mmon
theories and i	models	s that l	have b	een d	evelop	ed through decades	to help analyse and addre	ss some ma	nagerial questi	ons relate	d to how to p	out strategy in p	ractice, why
					-	-	deal with new technologies					<b>.</b>	
Compulsory lit							0	/1 //1					
Test code	Form					Assessment type	Content	Weighting	Minimum	Planning	Inspectio	n Resit	Inspection
	Verbo	al/Writ	ten/Ot	her			Link with	Factor (%)	score	test in	of work i	n scheduled	of resit in
	Indivi	dually/	/Group				learning			week	week	in week	week
	v	W	0	1	G	-	outcomes						
TOETS01		x	5	x		Assignment (report)	LD-5.a.5, LD-	100%	5.5	24	26	27	29
		~					5.b.4, LD-8.b.1,	200/0	0.0				
							LD-5.d.1, LD-						
							5.e.3						

Semester 5 or	r seme	ster 6												
CU72025V1	Title:	Free C	Compo	sition	Cours	e 5	Number	of study credits: 2	.5 Numbe	r of contact hou	ırs: 0 Man	datory	Teaching langua	ge: English
Conditions for	course	partici	pation	: None										
Conditions for	test pa	rticipat	ion: No	one										
Brief description	on of co	urse co	ontent:											
The education	nal pro	gramn	ne of a	study	/ progr	amme contains a fre	e compo	osition space of m	inimally 2.5	academic creo	lits in each ao	ademic yea	r. The student i	s allowed to
earn FCC cred	its wit	h extra	acurric	ular a	ctivitie	es such as: manageme	ent activ	ities, informatior	al and prom	otional activiti	es, cultural a	ctivities, ins	tructional activ	ities, project
activities or tr	aining	activit	ies.											
The student w	vill sub	mit pr	oposa	ls for t	he fre	e composition space	to the S	CC or FCC assesso	or prior to the	e activity. Afte	rwards, the S	CC or FCC a	ssessor will ass	ess if the
activity was p	erform	ned in a	a satis	factor	y man	ner.								
Further detail	s regar	rding t	he cor	ntent a	and rel	ated criteria can be f	ound in	last version of the	e Student Ma	anual HZ Perso	onality, HZ Ur	iversity of A	Applied Science	5.
Compulsory lite	erature	: None												
Test code	Form	at				Assessment type		Content	Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Verbo	al/Writt	en/Oth	her				Link with	Factor (%)	score	test in	of work in	scheduled	of resit in
	Indivi	dually/	'Group					learning			week	week	in week	week
V W O I G outcomes														
TOETS01		х		х		Portfolio		LD-8.e.1	100%	Ok	25	26	27	28

Block 9 and 1	.0 / Sei	meste	r <b>5 or</b> I	Block	11 and	12 / Semester 6							
CU72026V2		Interr ationa	•	•	-	day: Managing	Number of study credits: 2	27.5 Numbe per stue	r of contact ho dent	urs: 10	Mandatory	Teaching langua	ge: English
Conditions for	course	partici	pation	: Propa	edeutio	c phase and 45 ECTS of	the year 2 courses						
Conditions for	test pa	rticipa	t <b>ion:</b> N	one									
you will apply	of the progra	interr amme s. The	iship is specil intern	s to sta fic pro	art bui fessior	lding working-experiental competences at a	ence in your professional n organisation by conduc what interests you (most	cting a moder	ately comple	x design-or	iented resea		-
Test code	Indivi	al/Writ idually/	'Group			Assessment type	Content Link with learning outcomes	Weighting Factor (%)	Minimum score	Planning test in week	Inspectic of work i week		Inspection of resit in week
TOFT004	V	W	0	I	G	A : /D :		500/			6.26	44.07	46.00
TOETS01		Х		х		Assignment (Business Proposal)	DT 2, 3, 4 and 5, see description <sup>1</sup>	50%	5.5	4, 24	6, 26	14, 27	16, 28
TOETS02		Х		Х		Portfolio	DT 2, 3, 4 and 5, see description	50%	5.5	4, 24	6, 26	14, 27	16, 28

<sup>1</sup>< 10 working days after publication of mark

<sup>1</sup> In **designing (DT2)**, the engineer displays the following attitudes: a. choosing a concept solution (architecture), based on the requirements; b. drawing detailed designs from the concept solution (architecture); c. taking into account the design's feasibility and testability; d. checking the design against the programme of requirements; e. selecting the right design tools; f. drawing up documentation for the product, service or process.

In **realising (DT3)**, the engineer displays the following attitudes: a. the right use of materials, processes, methods, norms and standards; b. assembling components into an integral product, service or process; c. verifying and validating a product, service or process against the requirements; d. documenting the realisation process.

In **controlling (DT4)**, the engineer displays the following attitudes: a. implementing, testing, integrating and commissioning a new product, service or process; b. contributing to management systems and/or maintenance plans, by monitoring, flagging and optimising (corrective measures) and anticipating (preventive measures); c. checking the performance of a product, service or process against quality standards; d. referring back changes in circumstances and/or performance of a product, service or process.

In **managing (DT5)**, the engineer displays the following attitudes: a. starting up a project: quantifying the required time and budget, assessing and weighing risks, setting up the project documentation and organising resources; b. monitoring and managing activities with regard to budget, time, quality, information and organisation; c. task and process oriented communication; d. supervising employees, stimulating collaboration and delegating tasks; e. communicating and collaborating with others in a multicultural, international and/or multidisciplinary environment.

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Implementation Regulations HZ CER Industrial Engineering & Management - full-time Determined by Executive Board: 05/07/2022 Approval HR 05/07/2022 - recommendation programme committee: 06/04/2022

Block 9 and 10	/ Seme	ster 5	or Blo	ck 11	and 3	12 / Semester 6								
Specific HZ minor code			, see Hz pmaat		or Cata	alogue or	Number	of study credits: 30	) Number per stud	r of contact ho lent	urs: 2	Mandatory	Teaching langua	ge: English
Conditions for co	urse pai	ticipa	<b>tion:</b> Pr	opaec	eutic	phase and 45 ECTS of	the year 2	courses, see articl	e 2.2.8		•			
Conditions for tes	st partic	ipatio	<b>n:</b> None	!										
Brief description	of cours	e cont	ent:											
Students can ta	ke a mi	nor at	the HZ	2 Univ	versity	of Applied Science	es, at oth	er Dutch Universi	ties or at HZ	partner Univ	ersities abr	oad.		
More information	on can	be fou	ınd at <mark>l</mark>	<u>nttps:</u>	<u>//hz.ı</u>	nl/en/secure/for-st	<u>udents/n</u>	<u>ninors</u>						
Compulsory litera	ature: N	one												
Test code	Forma	t				Assessment type		Content	Weighting	Minimum	Planning	Inspectio		Inspection
	Verba	l/Writt	en/Oth	er				Link with	Factor (%)	score	test in	of work i	n scheduled	of resit in
	Individ	lually/	Group					learning			week	week	in week	week
	v	w	0	I	G			outcomes						
Not Applicable						variable		variable			variable	variable	variable	variable

Semester 7															
CU72029V1	Title:	Free C	Compos	sition	Cours	e 6	Number of	study credits: 2.	.5 Numb	er of contact ho	urs: 0	Mandat	tory T	eaching langua	ge: English
Conditions for	course	partici	pation:	None											
Conditions for	test pai	rticipat	t <b>ion:</b> No	ne											
Brief description	n of co	urse co	ontent:												
earn FCC cred activities or tr The student w activity was p	its with aining vill sub erform s regar	h extra activit mit pr ed in a ding t	acurrico ties. oposal a satisf he con	ular a s for t actory	tivitie he fre man	ramme contains a frees such as: managem e composition space ner. ated criteria can be f	ent activitie to the SCC	s, information or FCC assesso	al and pro	notional activit he activity. Aft	ties, cultu erwards,	ural activ	vities, inst	ructional activ	ities, project ess if the
Test code			ten/Oth ′Group <b>O</b>	er	G	Assessment type	Li le	ontent nk with arning utcomes	Weighting Factor (%)		Plannir test in week	° o	nspection of work in week	Resit scheduled in week	Inspection of resit in week
TOETS01	-	x	-	x	•	Portfolio	L	D-8.e.1	100%	Ok	3	4	1	5	6

Block 13 and	14 / Semes	.er /									
CU72028V1	Title: Focu	s on futu	re: analys	sing strategic	Number of study credits: 27.5		r of contact hours	s: Man	datory	Feaching langua	ge: English
	innovatio	-				80*					
Conditions for	course parti	ipation: P	ropaedeut	ic phase and at least	the minor or the internship						
Conditions for	test particip	tion: Non	е								
Brief description	on of course	ontent:									
challenges an behaving as a the HZ Unive	d opportun profession rsity of Appl	ties that a al while w ed scienc	arise fron orking or es and w	n these changes and n and creating an ac ill be linked either t	this semester students will ke d innovations. Students will bu dvisory report or business plan to Asset Management or Susta assignment, the students will h	ild a portfol for a compa inability & C	io providing pro any. The assignr Circular Econom	oof that the ments from ny. Students	ey are capat i these com s will be in c	le of working a panies will be p harge of their	and provided by time
regarding spe their knowled	ecific topics dge on gene h a coach th	o either A ral topics at offers t	Asset Mai such as c hem guio	nagement or Sustai ontract strategies a dance in their profe	nability & Circular Economy. Fu and programming in the statisti essionalization and will help the	urthermore ical program	there are classe "R". During the	es that are ne entire sei	scheduled f mester stud	or all students	to increase
regarding spe their knowled meetings with Note:	ecific topics dge on gene h a coach th ount article	o either A ral topics at offers t 2.2.7 of t	Asset Mai such as c hem guio	nagement or Sustai ontract strategies a dance in their profe	nability & Circular Economy. Fu and programming in the statisti	urthermore ical program	there are classe "R". During the	es that are ne entire sei	scheduled f mester stud	or all students	to increase
regarding spe their knowled meetings with Note: Take into acc	ecific topics dge on gene h a coach th ount article	o either / ral topics at offers t 2.2.7 of the e tten/Other	Asset Man such as c hem guio	nagement or Sustai ontract strategies a dance in their profe	nability & Circular Economy. Fu and programming in the statisti essionalization and will help the Content	urthermore ical program	there are classe "R". During the r way to project Minimum I score t	es that are ne entire sei	scheduled f mester stud	or all students	to increase group
regarding spe their knowled meetings with Note: Take into acc <b>Compulsory lit</b>	ecific topics dge on gene h a coach th ount article erature: Non Format Verbal/Wri	o either / ral topics at offers t 2.2.7 of the e tten/Other	Asset Man such as c hem guio	nagement or Sustai ontract strategies a dance in their profe	nability & Circular Economy. Fu and programming in the statisti essionalization and will help the <b>Content</b> Link with learning	urthermore ical program em find their Weighting	there are classe "R". During the r way to project Minimum I score t	es that are ne entire sen t-specific kr Planning test in	scheduled f mester stud nowledge. Inspection of work in	or all students ents will have Resit scheduled	to increase group Inspectio of resit in
regarding spe their knowled meetings with Note: Take into acc Compulsory lit Test code	ecific topics dge on gene h a coach th ount article erature: Non Format Verbal/Wri Individually	o either / ral topics at offers t 2.2.7 of the e tten/Other /Group	Asset Man such as c hem guio nis regula	nagement or Sustai ontract strategies a dance in their profe	nability & Circular Economy. Fu and programming in the statisti essionalization and will help the <b>Content</b> <i>Link with learning</i> <i>outcomes</i>	urthermore ical program em find their Weighting	there are classe n "R". During the r way to project Minimum score	es that are ne entire sen t-specific kr Planning test in	scheduled f mester stud nowledge. Inspection of work in	or all students ents will have Resit scheduled	to increase group Inspectio of resit in
regarding spe their knowled meetings with Note: Take into acc <b>Compulsory lit</b>	ecific topics dge on gene h a coach th ount article erature: Non Format Verbal/Wri Individually	o either / ral topics at offers t 2.2.7 of tl e tten/Other /Group	Asset Man such as c hem guio nis regula	nagement or Sustai ontract strategies a dance in their profe ntion Assessment type	nability & Circular Economy. Fu and programming in the statisti essionalization and will help the <b>Content</b> <i>Link with learning</i> <i>outcomes</i>	urthermore ical program em find thein Weighting Factor (%)	there are classe n "R". During the r way to project Minimum score	es that are ne entire sen t-specific kr Planning test in week	scheduled f mester stud nowledge.	Resit scheduled in week	to increase group Inspectio of resit in week

Semester 8 o	r Sem	ester 9	)										
CU72030V1	Title	: Gradı	uation	Proje	ct	Number of study o	redits: 30 N	Number of contact	hours: 8	Mandatory	T	eaching langua	ge: English
Conditions for	course	partic	ipatior	n: See a	article 2	.2.11 of this document							
Conditions for	test pa	irticipa	tion: S	ee arti	cle 2.2.1	11 of this document for ECTS I	requirements and	graduation study g	uide for report	and portfolio	requirements		
Brief description	on of co	ourse c	ontent	t:									
During this fi	nal pro	ject th	ne stud	dents	will sho	w their competence as an	Industrial Engine	eering & Manage	ment profess	ional during	their final pro	ject. The stud	lents will
find a compa	ny and	an au	thenti	ic proj	ect ass	ignment for this final part of	of their study. Du	uring this project	they will sho	w that they o	btained enou	igh skills and l	knowledge
to take on rea	al-life a	assignr	ments	indep	endent	tly and to develop a busine	ss improvement	report. They wil	l reflect on th	eir behaviou	r and perform	nance and pre	esent their
end work in a	n profe	ssiona	l port	folio.									
Compulsory lit	eratur	e: Non	e				1		1	1	•	T	1
Test code	Form					Assessment type	Content	Weighting	Minimum	Planning	Inspection	Resit	Inspection
	Verb	al/Writ	ten/Ot	ther			Link with learnin	g Factor (%)	score	test in	of work in	scheduled	of resit in
	Indiv	idually,	/Group	)			outcomes			week	week	in week	week
	v	w	0	I	G								
TOETS01	Х	Х		Х		Criterium-referenced	Analysis, Design,	100%	5.5	26 (S8) /	26 (S8) /	35 (S8) /	35 (S8) /
						interview (with reference	Advice, Control,			4 (S9)	4 (S9)	8 (S9)	8 (S9)
						to graduation report and	Management,						
						portfolio submitted	Realisation,						
						beforehand)	Research,						
							Professionalizati	on					

#### 2.2.6 HZ Personality (article 3.12 CER HZ Ba ft)

The curriculum reserves 10 study credits (ECTS) for HZ Personality. HZ Personality is spread over the curriculum as much as possible. With this learning pathway, HZ gives students space to personalize their own development during their studies, increases the possibilities for domain-transcending exploration and stimulates broad social engagement.

#### 2.2.7 Specialisations (article 3.10 CER HZ Ba ft)

No graduation specialisations applicable in the programme.

#### 2.2.8 Internship (article 3.9 CER HZ Ba ft)

Students who want to take part in the internship phase of the study programme must meet the following conditions:

- The student must have their propaedeutic phase and 45 EC of all Y2 courses to be admissible for the internship.
- The student must have an approved and signed work placement contract.
- Students who need to enter a construction site are strongly advised to have a valid VCA certificate. If you do not have a VCA-certificate you are not allowed access a construction site in the Netherlands, this can be essential to acquire the competencies linked to the internship.

The maximum period in which students are allowed to work on the same internship project:

• The period in which a specific internship project is worked out is 1 semester, with a maximum extension of 1 semester and can only be started at the beginning of semester 1 or at the beginning of semester 3. The application procedure and deadlines can be found in the IE&M internship guide.

Additional conditions for work placements (Internships) abroad (outside the Netherlands):

 A maximum amount of 15 EC of resits in the semester of internship is allowed. If the student has more than 15EC of resits in the simultaneous running semester of the internship, the student is not allowed to attend the internship abroad since this will cause difficulties in attending the resits. See the OER HZ for additional requirements.

#### 2.2.9 Minor (article 3.8 CER HZ Ba ft)

Industrial Engineering and Management follows the HZ (CER article 3.8) for the minor application process and registration requirements (see also the HZ Minor Guide https://learn.hz.nl/course/view.php?id=13203#section-1)Error! Hyperlink reference not valid.. The contents of HZ minors and other national minors can be found at www.kiesopmaat.nl, the international minors are coordinated through the HZ International Office.

Students can take a minor in either semester 5 or 6 depending on their personal preference and internship planning.

## 2.2.10 *Participation in international exchange programme* (article 4.5 CER HZ Ba ft)

The study programme does not have any additional conditions for students to participate in an international exchange programme.

### 2.2.11 Graduation (article 3.9 CER HZ Ba ft)

In order to participate in the Industrial Engineering and Management (IEM) programme graduation phase, students must:

- a. have obtained at least 177.5 EC when starting their graduation at the start of the semester
- b. carry out the graduation project at an organisation within the IEM field of expertise
- c. submit a sufficient "Start document" and obtain the "Go"-status in OnStage within 4 weeks after the formal start date of the semester. If failed to do so, the student will have to delay the start of the graduation project till the start date of the next semester
- d. submit a sufficient "Research Proposal" and obtain the "Go"-status within 10 weeks after the formal start date of the semester. If failed to do so, the student will have to find a new graduation organisation and assignment and the start of this new graduation project will be delayed till the start date of the next semester
- e. have obtained all preceding 210 EC from the IE&M program before the graduation presentation and defence takes place for final assessment, as defined in the course programme.

More information (study guide and deadlines, etc.) is provided in the Learn page of the Graduation Industrial Engineering and Management of your graduation year. When the student fails the two permitted exam attempts within one semester for the final graduation report and portfolio, he/she may continue this specific graduation project with a maximum extension of 1 semester and two more permitted exam attempts.

# 2.2.12 Transition arrangement (art. 6.2 paragraph 11 HZ CER)

Transitional provisions are applicable: tests of a deleted course will be offered twice in the first study year, after the curriculum has been modified. In principle, new manuals, guides, requirements, et cetera are effective immediately.

# 2.3 Study recommendation

2.3.1. **Conditions for registration for programme after NBSA** (article 8.1, paragraph 9 HZ CER Ba ft) Students with a formal negative study advice from the HZ Exam Committee are not allowed for any new enrolment in the bachelor program Industrial Engineering & Management, part-time and full-time, and the Associate Degree Industrial Engineering & Management, of the HZ within three years after the negative study advice.

# 2.4 Experiment (article 9.4 CER HZ ba ft)

# 2.4.1 Register for courses

Students in the Industrial Engineering & Management full-time program have to enroll themselves via Osiris Student for learning activities of a course.

- An overview of these learning activities is being published via Osiris Student;
- The rule mentioned above is not valid for all students in the cohort 2019, 2018 and 2017; These students will be automatically enrolled;
- The student has to be enrolled at latest the week before the activity starts;
- If students have failed to enroll, they have no access to learning materials;
- A student cannot terminate his enrollment once learning activities have started.

## 2.4.2 Register for tests

Students in the Industrial Engineering & Management full-time program have to enroll themselves via Osiris Student for exams.

- Regular exams: Students need to enroll for regular exams (first attempt) at the beginning of the block. Students in the cohort 2019, 2018 and 2017 will be automatically enrolled for regular exams.
- Re-sit exams:
  - To participate in a re-sit (second and further attempts), students must enroll themselves before the end of the 4<sup>th</sup> week of the block in which the exam or re-sit has been planned based on this Implementation Regulation; Students in the cohort 2019, 2018 and 2017 will be automatically enrolled unless a student wants to participate in an exam or re-sit in order to improve an already achieved sufficient result for a course;
  - If a student who did not pass the first attempt, does not enroll for the re-sit, will be graded 'ND' (did not participate);
- Students who already passed a test are allowed to retake that test one more time to obtain a better result. If the test type is an oral assessment, assignment, presentation, portfolio or criterium referenced interview, a new topic has to be selected by the student and approved by teacher at least four weeks prior to the date of the re-sit. This does not apply for internship and graduation (see articles 2.2.8 and 2.2.11).

# **CHAPTER 3 ESTABLISHMENT**

- 3.1.1 The duration of the implementation regulations is the same as the duration of the HZ Education and Examination Regulations Bachelor programme full-time 2022-2023.
- 3.1.2 These Course and Examination Regulations were established by the Executive Board on 05/07/2022.