Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

ALL-ROUND DESIGNER 2021-2022

Description of the educational unit			
Course code:	EDDIP.18.V.01	Credits: **3** ECTS	Target group: **Voltijd Regulier**

Description	Designing Interactive Products
Competences	-
Target group	The aim of this course is to provide students with the tools, knowledge and skills for designing and prototyping interactive products.
Educational content	The following subjects will be discussed: • User-product interaction / Interaction Design • User experience • Sensors and actuators • Programming Arduino • Prototyping Students will create an interactive prototype taking the subjects above into account.
Teaching methods	Lessons, workshops and coaching.
Teaching aids	• Tutorials • Workshop • Arduino sets • Arduino project book
Supervisory activity	Frontal class teaching and coaching.
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1: Designing Interactive Products	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit			
Course code:	EDINW.20	Credits: **2** ECTS	Target group: **Voltijd Regulier**

Description	International Workshop
Competences	-
Target group	Undertake a real life, one week, project with an international group of students who take part in the carrousel project. The objective is to create a tangible project result in a very short time in an international context.
Educational content	The project undertaken will be a project as assigned by an external client. Generally this project will be more in the conceptual phase of a product development project.
Teaching methods	Project
Teaching aids	Everything that is needed
Supervisory activity	Coaching by IPO staff and briefing and evaluation by the client.
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	Not achieved / Achieved

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 International Workshop	Not achieved / Achieved	1	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit

Course code:	EDOSMAD1.20	Credits:	**2** ECTS	Target group: **Voltijd Regulier**

Description	Open subject All-round Design 1
Competences	-
Target group	The students is free to choose an activity or subject that fits/is relevant to the general purpose of the minor All-round Designer. The choice of the student must be approved by the minor coach.
Educational content	Free project or subject. Students have a free choice as long as the topic is related to the Minor All-round Designer. The students make a proposal which must be approved by the coach. No past activities bare allowed. Hobby projects are excluded.
Teaching methods	Project with coaching.
Teaching aids	Everything that is needed.
Supervisory activity	Coaching
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	Not achieved / Achieved

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Open subject MAD 1: projects	Not achieved / Achieved	1	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit

Course code:	EDOSMAD2.20	Credits:	**9** ECTS	Target group: **Voltijd Regulier**

Description	Open subject All-round Design 2
Competences	-
Target group	The student is free to choose an activity or subject that fits/is relevant to the general purpose of the minor All-round Designer. The choice of the student must be approved by the minor coach.
Educational content	Free project or subject. Students have a free choice as long as the topic is related to the Minor All-round Designer. The students make a proposal which must be approved by the coach. No past activities bare allowed. Hobby projects are excluded.
Teaching methods	Project with coaching.
Teaching aids	Everything that is needed.
Supervisory activity	Coaching
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	Not achieved / Achieved

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Open subject MAD 2: projects	Not achieved / Achieved	1	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit				
Course code:	EDPADENG.18.V.01	Credits:	**21** ECTS	Target group: **Voltijd Regulier**

Description	Project All-round Designer: Engineering
Competences	BoE3 Realiseren BoE2 Ontwerpen BoE1 Analyseren BoE5 Managen BoE4 Beheren BoE7 Onderzoeken BoE8 Professionaliseren BoE6 Adviseren
Target group	The objective of this project is to have the students execute as independently as possible a full scale design process in order to prepare them further for their professional situation. The aim of this project is that when the student successfully completes this project he will have more in depth knowledge and experience in designing a product in the line of the curriculum paths "Working" and "Making".
Educational content	The project focuses on the working and the making of a product. Subjects that are part of the process are; • Biomimicry • Functional testing • Factory excursions (self organised) and design rules of production techniques • Mechanical strength analysis
Teaching methods	Project activities, lectures and workshops.
Teaching aids	Everything that is needed for the project and that can be made available.
Supervisory activity	Coaching
Sequentiality	
Level	Bachelor = NLQF 6
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Project All-round DesignerEngineering: Project grading	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	P2 Project All-round DesignerEngineering: Biomimicry	Not achieved / Achieved	0	Higher or equal to 5.5
	P3 Project All-round Designer Engineering: Functional testing	Not achieved / Achieved	0	Higher or equal to 5.5
	P4 Project All-round Designer Engineering: Excursions & Design rules	Not achieved / Achieved	0	Higher or equal to 5.5
	P5 Project All-round Designer Engineering: Mechanical Strength Analysis	Not achieved / Achieved	0	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit					
Course code:	EDPADI.18.V.01	Credits:	**21** ECTS	Target group: **Voltijd Regulier**	

Description	Project All-round Designer: Innovation
Competences	BoE3 Realiseren BoE2 Ontwerpen BoE1 Analyseren BoE5 Managen BoE4 Beheren BoE7 Onderzoeken BoE8 Professionaliseren BoE6 Adviseren
Target group	The objective of this project is to have the students execute as independently as possible a full scale design process in order to prepare them further for their professional situation. The aim of this project is that when the student successfully completes this project he will have more in depth knowledge and experience in designing a product in the line of the curriculum path "Selling".
Educational content	The project focuses on Innovation. Subjects that are part of the process are; • Advanced marketing • Innovation Method Management • Business Strategy • Market Research
Teaching methods	Project activities, lectures and workshops.
Teaching aids	Everything that is needed for the project and that can be made available.
Supervisory activity	Coaching
Sequentiality	
Level	Bachelor = NLQF 6
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Project All-round DesignerInnovation: project grading	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	P2 Project All-round Designer Innovation: Advanced Marketing	Not achieved / Achieved	0	Higher or equal to 5.5
	P3 Project All-round Designer Innovation: Innovation Method Management	Not achieved / Achieved	0	Higher or equal to 5.5
	P4 Project All-round Designer Innovation: Business Strategies	Not achieved / Achieved	0	Higher or equal to 5.5
	P5 Project All-round DesignerInnovation: Market Research	Not achieved / Achieved	0	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit				
Course code:	EDPADPE.18.V.01	Credits:	**21** ECTS	Target group: **Voltijd Regulier**

Description	Project All-round Designer: Product Experience
Competences	BoE3 Realiseren BoE2 Ontwerpen BoE1 Analyseren BoE5 Managen BoE4 Beheren BoE7 Onderzoeken BoE8 Professionaliseren BoE6 Adviseren
Target group	The objective of this project is to have the students execute as independently as possible a full scale design process in order to prepare them further for their professional situation. The aim of this project is that when the student successfully completes this project he will have more in depth knowledge and experience in design a product in the line of the curriculum path "product experience".
Educational content	The project focuses on product experience. Subjects that are part of the process are; • Consumer Experience • Meaningful Design • Design Research • Product Context
Teaching methods	Project activities, lectures and workshops.
Teaching aids	Everything that is needed for the project and that can be made available.
Supervisory activity	Coaching
Sequentiality	
Level	Bachelor = NLQF 6
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Project All-round Designer product experience: project grading	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	P2 Project All-round Designer product experience: Consumer Experience	Not achieved / Achieved	0	Higher or equal to 5.5
	P3 Project All-round Designer product experience: Product Research	Not achieved / Achieved	0	Higher or equal to 5.5
	P4 Project All-round Designer product experience: Meaningful Design	Not achieved / Achieved	0	Higher or equal to 5.5
	P5 Project All-round Designer product experience: Product Context	Not achieved / Achieved	0	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit				
Course code:	EDPL.16.V.01	Credits:	**2** ECTS	Target group: **Voltijd Regulier**

Description	Professional Life
Competences	-
Target group	This subject is part of the curriculum of the minor all round design which aims at preparing students on a professional life as a general designer. The course gives a multi sided view of the profession. Many students will work for smaller companies or will start their own bureau. For the latter the utility of this course is obvious. Alsowhen working in a smaller company the student will be confronted with all aspects of a business. This course will give a first glimpse of what is important and what aspects are to be dealt with in small businesses. During the course there will be opportunities to discuss about actual developments in the business.
Educational content	The course will deal with the main subject "starting as a professional designer": - The design office - A professional Linked in page - Your portfolio - Choosing a job - Applying for a job - Pitching - Meeting alumni - Protecting your ideas - Networking - Website setup - Startup subsidies
Teaching methods	• Classroom lessons and individual assignments
Teaching aids	• Usual AV means
Supervisory activity	• Coaching of the assignments.
Sequentiality	See the entry requirements of the students' statute (SNS) of Industrial Design. Foreign students must have proven advanced knowledge of industrial design.
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Professional life	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	Kitty de Jong e.a. (2010). *For the Dutch students: Handboek voor het opzetten van een ontwerppraktijk.*. Amsterdam: Business
Practical actions	

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME
APPLIED MECHANICS 2021-2022

Description of the educational unit

Course code:	EDAMCO.19	Credits:	**2** ECTS	Target group: **Full-time Regular**

Description	Composites
Competences	-
Target group	**Composites:** • Introduction to materials, production and applications of composites. • Introduction to basic calculation methods for stress and strain in composite materials.
Educational content	**Composites:** • Introduction to materials, production and applications of composites. • Introduction to basic calculation methods for stress and strain in composite materials.
Teaching methods	Lectures and Workshop
Teaching aids	Solidworks Cad and Solid Works Simulation Add-In, on laptop
Supervisory activity	Instruction and coaching
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assesment	Sub Assesment	Grading domain	Weight	Caesura
	T1 Composites	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	R.P.L.Nijssen (2013). *Composieten: Basiskennis*. Marknesse: VKCN
Practical actions	

Description of the educational unit

Course code:	EDAMMV.19	Credits:	**4** ECTS	Target group: **Full-time Regular**

Description	Modelling and Validation
Competences	-
Target group	**Modelling & Validation:** • Assessing actual Strength and Stability problems by combined application (1) Theoretical calculation models, (2) FEM-analysis models and (3) Testing.
Educational content	**Modelling & Validation:** • Assessing actual Strength and Stability problems by combined application (1) Theoretical calculation models, (2) FEM-analysis models and (3) Testing.
Teaching methods	Lectures and Workshop
Teaching aids	Solidworks Cad and Solid Works Simulation Add-In, on laptop
Supervisory activity	Instruction and coaching
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assesment	Sub Assesment	Grading domain	Weight	Caesura
	P1 Modelling and Validation	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	
Practical actions	Skills lessons

Description of the educational unit				
Course code:	EDAMPCOM4.19	Credits:	**1** ECTS	Target group: **Full-time Regular**

Description	Professional Communication 4			
Competences	-			
Target group	Acquire knowledge and develop skills in the field of oral and written communication.			
Educational content	Students choose two communication themes (out of four) in which they want to enhance their knowledge. Both themes are linked to oral and written communication.			
Teaching methods	Practical lectures during which the content is explained , after which it can be applied in exercises , assignments etc.			
Teaching aids	Audiovisual Aid			
Supervisory activity	Teaching, coaching			
Sequentiality				
Level	Gevorderd (Advanced)			
Grading domain	1 t/m 10, 1 dec.			
Assesment	Sub Assesment	Grading domain	Weight	Caesura
	P1 Professional Communication 4	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
Reading list				
Practical actions				

Description of the educational unit				
Course code:	EDAMTE.20	Credits:	**1** ECTS	Target group: **Full-time Regular**

Description	Technical English for Applied Mechanics			
Competences	-			
Target group	• Technical English in the minor Applied Mechanics involves translating technical texts/sentences from Dutch into English. • Furthermore the students are required to write a report in English of their project(approximately 15 pages).			
Educational content	During lectures the writing skill is practised by summarizing and translating minor related texts.			
Teaching methods	Training during lectures			
Teaching aids	Reader en visual material			
Supervisory activity	Coaching and feedback by mail			
Sequentiality	Having successfully completed the first and second year courses			
Level	Gevorderd (Advanced)			
Grading domain	1 t/m 10, 1 dec.			
Assesment	Sub Assesment	Grading domain	Weight	Caesura
	P1 Technical English for AM	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	P2 Technical English for AM	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
Reading list				
Practical actions				

Description of the educational unit					
Course code:	EDAT1E.16.V.01	Credits:	**5** ECTS	Target group: **Full-time Regular**	

Description	Drive Technology 1
Competences	-
Target group	Basic knowledge about electrical drive systems Advanced knowledge about machinecomponents
Educational content	Machinecomponents 3: • Interference fit • couplings • bolt connections Elecrtical drive systems: • Interaction motor and load • DC-motors • Steppermotors • AC-power • 3 phase systems • Induction motors
Teaching methods	• Lecture • Practical workshop
Teaching aids	• Energy lab • Pin on disk • Calculator
Supervisory activity	• Teaching at college and workshop hours
Sequentiality	Mathematics and physics at highschool level
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assesment	Sub Assesment	Grading domain	Weight	Caesura
	P1 Drive Techn. 1: Lab work	Achieved / not achieved	0	Higher or equal to 5.5
	T1 Drive Techn. 1: Machine components 3	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	T2 Drive Techn. 1: Electrical drive systems	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	H. Wittel, D. Muhs, J. Vossiek, D. Jannasch (2013). *Roloff / Matek machineonderdelen - Theorieboek*. Den Haag: Academic Service H. Wittel, D. Muhs, J. Vossiek, D. Jannasch (2013). *Roloff / Matek machineonderdelen - Tabellenboek*. Den Haag: Academic Service Theodore Wildi (2013). *Electrical Machines, Drives and Power Systems*. Amsterdam: Pearson Education
Practical actions	

Description of the educational unit				
Course code:	EDD.16.V.01	**Credits:**	**5** ECTS	**Target group: Full-time Regular**

Description	Designtools
Competences	-
Target group	Become acquainted with various design tools ,deepen and increase knowledge of two optional design tools.
Educational content	During these practical lectures an overview of different design tools is given. After the introduction you have a choice of which design tools you would like to increase your knowledge. The minimum is two, but you may choose more. It concerns the following tools (they are examples ,the actual overview is provided in the course description every year). *KISSOFT:* a software tool which is used to calculate on machine – and engine parts. This package is leading in the field of gearwheel calculations. CE-marking: it deals with technical -and legal aspects, safety and liability concerning the construction of machines and products. *Solid Works Motion/PDM:* Motion is an extensive Multibody package which , among others, is used during the development or design of cars and rollercoasters. The practical lectures about Product Data Management are provided in cooperation with the company VMI. You acquire knowledge about important matters and recent developments in this area (specifically of interest for mechanical engineers). *FMECA:* During this part of the course a solid base is established for design methods and procedures to determine and to improve the reliability of machines. Failure mode, effects and criticality analysis deals with e.g. loads on contact surfaces, friction, wear and lubrication. *Non-Linear FEM:* during these practical lectures you not only learn to deal with distortions and non-linear material behaviour but with the limitations of conventional calculations as well.
Teaching methods	• Lectures • Practical workshops
Teaching aids	various aids depending on the chosen design tools.
Supervisory activity	• Teaching at college and workshop hours
Sequentiality	Second year mechanical engineering
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assesment	Sub Assesment	Grading domain	Weight	Caesura
	P1 Designtools: Introductions	Achieved / not achieved	0	Higher or equal to 5.5
	P2 Designtool 1	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	P3 Designtool 2	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit				
Course code:	EDDYV.20	Credits:	**4** ECTS	Target group: **Full-time Regular**

Description	Dynamics and Vibration
Competences	-
Target group	• To provide the student with a clear and thorough presentation of topics in Engineering Dynamics such as; Relative Motion Analysis using using transulating and Rotating Axes, Coriolis acceleration, Linear and Angular Momentum of a Particle, Impact Mechanics and Linear and Angular Momentum of a Rigid Body. • To provide the student with a clear and thorough presentation of the theory and applications of Mechanical vibration.
Educational content	Quarter 9 • Relative Motion Analysis using Rotating Axes, Coriolis acceleration • Linear and Angular Momentum of a Particle • Impact Mechanics • Linear and Angular Momentum of a Rigid Body • Basic concepts of vibration • Vibration analysis • Spring elements • Mass or inertia elements • Damping elements
Teaching methods	• Interactive Lectures • Company guest lecture
Teaching aids	• Weekly presentations • Problem list • Homework
Supervisory activity	• Lecturing • supervision
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assesment	Sub Assesment	Grading domain	Weight	Caesura
	T1 Dynamics and Vibration	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	Russell Charles Hibbeler (). *Engineering Mechanics Dynamics*. : Pearson Education
Practical actions	

Description of the educational unit				
Course code:	EDPAM1.18.V.01	Credits:	**6** ECTS	Target group: **Full-time Regular**

Description	Project Applied Mechanics
Competences	-
Target group	The project starts with an assignment of a company. The goal of the project is to provide a constructive solution for the analysed problems.
Educational content	• Project assignment • Analyse and research a construction problem and providing a solution
Teaching methods	Group assignment
Teaching aids	• Books • Any resource
Supervisory activity	Coaching
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assesment	Sub Assesment	Grading domain	Weight	Caesura
	P1 Project Applied Mechanics	1 t/m 10, 1 dec.	1	Higher or Equal to 5.5

Reading list	
Practical actions	Project uitgevoerd bij externe organisatie

Description of the educational unit				
Course code:	EDRPAM.18.V.01	Credits:	**2** ECTS	Target group: **Full-time Regular**

Description	Report Project Applied Mechanics
Competences	-
Target group	The project starts with an assignment of a company. The goal of the project is to provide a constructive solution for the analysed problems.
Educational content	• Project assignment • Analyse and research a construction problem and providing a solution
Teaching methods	Group assignment
Teaching aids	• Books • Any resource
Supervisory activity	Coaching
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assesment	Sub Assesment	Grading domain	Weight	Caesura
	P1 Report Project Applied Mechanics	1 t/m 10, 1 dec.	1	Higher or Equal to 5.5

Reading list	
Practical actions	

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Concept and Creation 2021-2022

Description of unit of study			
Course code	**ICT.KS.CC.V21**	Credits:	**24** ECTS credits Target group: **Voltijd Regulier**

Study unit Description	Concept & Creation
Competences	-
Target group	In this minor you will learn about: • developing a concept from scratch • applying your skills in a creative and flexible way • (social) media management • design thinking • deepening your skillset by diving into your field of expertise • information management (how to find the right tools to teach yourself online). After following this minor you will have learned what it means to: • deal with a multidisciplinary, internationally oriented community and project group • deal with real-life challenges of teamwork and group dynamics • use (technological) tools to become an expert in your field of study • start up a company • sell your own product • work together with other professionals for your company's benefit.
Educational content	In this minor you will be one of the experts in your field of study; in your group you will even be seen as the expert in your field. You will assume the perspective of entrepreneurs in the start-up phase of a real business. This means you will face the challenges of a real multidisciplinary and internationally oriented business. The more energy, passion and time you put into your concept, the more you will learn about making it in the real world. Ofcourse you can learn skills from another fields too, if you choose to challenge yourself. If so, you need to take an active role in pursuing your goals. This minor is all about autonomy; you are the director of your own learning cycle. Students enrolled in this minor will select two Professional Skills (3ECTS each course) from our list of elective courses (Leadership, Financial Management, etc.)
Teaching methods	• Groups work on their group projects in a community setting • Intervision in different expertise groups • Dragons' Den • Presentations • Knowledge Lectures • Workshops • Presentation at Winnovation
Teaching aids	BYOD: a laptop is mandatory. Freely-accessible learning materials are used.
Supervisory activity	Students are coached on project approach in their project groups on a weekly basis.Workshops will contribute to the project's needs.
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	A - Portfolio	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	Professional Attitude	Not Achieved / Achieved	0	Higher or equal to 5.5

Reading list	
knowledge base generic	
knowledge base subject	

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Data-driven Innovation 2021-2022

Description of unit of study				
Course code	**ICT.KS.DDI.V20**	Credits: **24** ECTS credits	Target group: **Fulltime Regular**	

Study unit Description	Data Driven Innovation
Competences	–
Target group	Data-driven Innovation focuses on aligning Business and IT, preparing a company for the digital future, using data. Data that is already present at the company, in some cases combined with external data. Data-driven Innovation is a structural change in the way an organization can add value to its customers. It is a turning point in thinking about how an organization uses technology to re-establish processes. It changes the business model and therefore offers new opportunities. Organizations need to adapt to this change by focusing on optimizing the customer's gain, control and retention. Processes can be redesigned, just as marketing, production and sales. And that also creates needs for a new policy on security, privacy and ethics. This is more and more controlled based on data-driven insights. But it also offers new possibilities in terms of learning and prediction. You obtain advanced knowledge about project management, creating business solutions and doing research, while working on a project for a customer. You work with data, sometimes to recognize patterns, sometimes to forecast, sometimes to organize a datalab, or…. There are many options, but data-driven innovation is the key.
Educational content	Data-driven Innovation projects can vary considerably. In Data-driven Innovation, every project is different, which means that the learning opportunities can vary as well. It is up to the student how you choose to shape your semester. To help the students with their projects, a number of workshops can be attended. Some of them are obligatory (e,g., project management, planning), others are elective (scrum, game design etc.). The workshops are not graded individually, but are aimed to contribute to the success of the specific projects. Students enrolled in this minor will select two Professional Skills (3 ECTS credits each course) from our list of elective courses (Leadership, Financial Management, 7 Habits etc.) Some examples of content are: Organizing and setting up a datalab; Forcasting production based on data of the past; Machine learning; Business Process Redesign; Integration of several different systems and applications; Using data to predict the effect of climatological issues; Formulating a(n) (renewed) IT strategy and policy; Dealing with and effects of the GDPR for the organisation; IT architecture or application management.
Teaching methods	Students work on a large project for 20 weeks. The project is done for actual client or in a real-life setting. The multidisciplinary student teams of 3 to 5 students work on the project for 32 hours every week (Tuesday to Friday) at school or at the client's location. As part of the project there are project coaching sessions, workshops contributing to your project and regular presentations in which students share their obtained knowledge and progress. The professional skills are scheduled on Mondays. Therefore students will need to be available from Monday to Friday during this semester.
Teaching aids	Only freely-accessible learning materials are being used. When specific hardware of software is needed for your project, this will be provided. Sometimes a client has specific software. Use of it, and the conditions, will be discussed with the client.
Supervisory activity	Students are coached in their project groups on a weekly basis. Workshops will contribute to the project's needs.
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	Portfolio	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	Professional Attitude	Not achieved / Achieved	0	Higher or equal to 5.5
Reading list				

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Future Technology 2021-2022

MajorH:	MH.ICT.KSFT.V20

Description of unit of study		
Course code	**ICT.KS.FT.V20**	Credits: **24** ECTS credits Target group: **Full time Regular**

Study unit Description	[Future Technology](#)
Competences	–
Target group	In Future Technology you learn, in various phases to investigate the possibilities of new technologies and work on new applications using technology. Conducting research, developing proof-of-concepts and/or building prototypes form a substantial part of most projects. Future Technology is one of the elective semesters of HBO-ICT. In these semesters, you learn to participate in projects in a professional working environment. This is done in multidisciplinary teams for actual client or a real-life setting. In this way, you learn from the professional environment, as well as other disciplines in the project. The feedback, evaluation and supervision focuses on preparing students as much as possible for the final graduation phase of the study programme.
Educational content	The Future Technology projects can vary considerably. Examples are developing new hardware devices, the optimization of business processes using technology or the deployment of new technology and/or new applications. Every project is different, which means that the learning opportunities can vary as well. In Future Technology, every project is different, which means that the learning opportunities can vary as well. It is up to you how you choose to shape your semester. To help the you with your project, a number of workshops can be attended. Some of them are obligatory (e,g., project management, research set-up), others are elective (scrum, design thinking). The workshops are not graded individually, but are aimed to contribute to the success of the specific projects. As a student enrolled in this minor, you will select two Professional Skills (3ECTS each course) from our list of elective courses (Leadership, Financial Management, 7 Habits etc.)
Teaching methods	You work on a large project for 20 weeks. The project can have an organisation as client or be initiated by a curious student or lecturer. The multidisciplinary student teams of 3 to 5 students work on the project for 32 hours every week (Tuesday to Friday) at school or at the client's location. As part of the project there are project coaching sessions, workshops contributing to your project and regular presentations in which students share their obtained knowledge and progress. The professional skills are scheduled on Mondays. Therefore students will need to be available from Monday to Friday during this semester.
Teaching aids	Only freely-accessible learning materials are being used. When specific hardware of software is needed for your project, this will be provided.
Supervisory activity	Students are coached in their project groups on a weekly basis. Workshops will contribute to the project's needs.
Level	Gevorderd (Advanced)
Grading domain	1 upto and including 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	Portfolio Assessment	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	Professional Attitude	Not achieved / achieved	0	Higher or equal to 5.5
Reading list				

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Game Studio 2021-2022

Description of unit of study	
Course code	**ICT.KS.GS.V20** Credits: **24** ECTS credits Target group: **Voltijd Regulier**
Study unit Description	Game Studio
Competences	-
Target group	The semester Game Studio can be seen as an internship at Windesheim's own game studio, 038Games. At 038Games, students from different disciplines (such as IT, art, design) design and implement (serious) games for actual clients. These clients have a problem which they think could be solved using a game. It is up to the students to come up with various designs for this game and implement one of them to at least a working prototype. Game Studio is one of the elective semesters of HBO-ICT. In these semesters, students learn to participate in projects in aprofessional working environment. This is done in multidisciplinary teams for actual client or a real-life setting. In this way, students learn from the professional environment, as well as other disciplines in the project. The feedback, evaluation and supervision focuses on preparing students as much as possible for the final graduation phase of the study programme.
Educational content	The projects in Game Studio can range from escape rooms, to mobile games, VR, et cetera. Mostly, the type of game that has to be developed is not decided on yet. In Game Studio, every project is different, which means that the learning opportunities can vary as well. It is up to the student how you choose to shape your semester. To help the students with their projects, a number of workshops can be attended. Some of them are obligatory (e,g., project management, planning), others are elective (scrum, game design). The workshops are not graded individually, but are aimed to contribute to the success of the specific projects. Students enrolled in this minor will select two Professional Skills (3ECTS each course) from our list of elective courses (Leadership, Financial Management, 7 Habits etc.)
Teaching methods	Students work on a large project for 20 weeks. The project is done for actual client or in a real-life setting. The multidisciplinary student teams of 3 to 5 students work on the project for 32 hours every week (Tuesday to Friday) at school or at the client's location. As part of the project there are project coaching sessions, workshops contributing to your project and regular presentations in which students share their obtained knowledge and progress. The professional skills are scheduled on Mondays. Therefore students will need to be available from Monday to Friday during this semester.
Teaching aids	Only freely-accessible learning materials are being used. When specific hardware of software is needed for your project, this will be provided.
Supervisory activity	Students are coached in their project groups on a weekly basis. Workshops will contribute to the project's needs.
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	Portfolio	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	Professional attitude	Not Achieved / Achieved	0	Higher or equal to 5.5

Reading list	
knowledge base generic	
knowledge base subject	

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Games Programming 2021-2022

Major H:	MH.ICT.KSGP.V20

	Description of unit of study			
Course code	**ICT.GP.CG.V20**	Credits: **Regular**	**5** ECTS credits	Target group: **Fulltime**

Study unit Description	Computer Graphics			
Competences	-			
Target group	Almost every game is played in a graphical two- or three-dimensional space. In this course you will learn how to create these environments. The theoretical basis will be covered, as well as practical implementation using OpenGL and other libraries. With the help of these libraries you can manipulate objects in space and change their look and feel with respect to the material the object is made of.			
Educational content	Topics: • Shaders • Transformations • Texture Mapping • 3D Modeling • Theoretical and mathematical background • CPU vs GPU			
Teaching methods	• Lectures and labs (combined) • Assignments in pairs			
Teaching aids	See Electronic Learning Environment.			
Supervisory activity	• Explanation of theory • Practice implementation in classroom • Discussion and question answering			
Level	Gevorderd (Advanced)			
Grading domain	1 t/m 10, 1 dec.			
Assessment	Sub assessment	Grading domain	Weight	Caesura
	Final assignment	1 t/m 10, 1 dec.	70	Higher or equal to 5.5
	Homework	1 t/m 10, 1 dec.	30	Higher or equal to 5.5
Reading list				

	Description of unit of study			
Course code	**ICT.GP.CPP.V20**	Credits: **Regular**	**3** ECTS credits	Target group: **Fulltime**

Study unit Description	C++ Programming			
Competences	-			
Target group	Nowadays the game industry mostly works with sophisticated game engines, like the CryEngine or the Unreal Engine. To add functionality to the Unreal Engine, you have to program in C++. C++ is a widely-used programming language that is used in the gaming industry as well as in many other industries. C++ is different from programming languages like Java or C#, mainly because you are responsible for your own memory management. You will learn C++ Programming in a Windows environment.			
Educational content	• Introduction C++ • Classes in C++ • Object orientation in C++ • Templates • STL Classes (IO streams, vectors, etc.) • Pointers & references • Usage of C++ in a Windows environment			
Teaching methods	• Lectures • Labs • Assignments			
Teaching aids	• Visual Studio 2015 • See "Electronic Learning Environment" (ELO)			
Supervisory activity	Through digital media and oral communication			
Level	Gevorderd (Advanced)			
Grading domain	1 t/m 10, 1 dec.			
Assessment	Sub assessment	Grading domain	Weight	Caesura
	Lab exam	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
Reading list				

Description of unit of study			
Course code	**ICT.GP.PRJCT.V20**	Credits: **10** ECTS credits	Target group: **Fulltime Regular**

Study unit Description	Game Project
Competences	-
Target group	You will create a (serious) game in a small group of fellow students.
Educational content	You will have the option to choose between: • Designing and implementing your own game. • Creating a (serious) game for a real client. • Doing research into new technology and building a prototype game demonstrating the capabilities. • .. The project has to meet a number of criteria, and will be approved or disapproved by a lecturer. The project requires the use of challenging technology.
Teaching methods	• Working in a project group • Workshops
Teaching aids	See Electronic Learning Environment
Supervisory activity	Through digital media and oral communication
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	Assessment	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	

Description of unit of study			
Course code	**ICT.GP.AAI.V20**	Credits: **6** ECTS credits	Target group: **Fulltime Regular**

Study unit Description	Game Algorithms and Artificial Intelligence
Competences	-
Target group	During this course students will learn about algorithms specifically for games and how to apply various artificial intelligence techniques to create intelligent computer players.
Educational content	Some of the topics that will be covered are: • Generating and Solving Mazes • Backtracking Techniques • Minimax algorithm and Alfa-Beta Pruning • Path Planning • Steering Behaviours • State Machines • Goal-driven Behaviours • Fuzzy Logic
Teaching methods	• Lectures • Labs • Assignments
Teaching aids	See: Electronic Learning Environment
Supervisory activity	Through digital media and oral communication
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	Assignment	1 t/m 10, 1 dec.	2	Higher or equal to 5.5
	Theory exam	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Mobile Solutions 2021-2022

Description of unit of study			
Course code	**ICT.KS.MS.V20** Credits:	**24 ECTS credits**	Target group: **Fulltime Regular**
Study unit Description	Mobile Solutions		
Competences	–		
Target group	If you want to work with others on developing a ready-to-use native or hybrid iOS and/or Android app for actual clients. If you want to collaborate with students from different disciplines and with a variety of expertise. If you are willing to tackle problems that require a multidisciplinary solution. If you want to find and implement a solution for a real-life business assignment. Then the semester Mobile Solutions fits you perfect! The success of as app depends on a good architecture and technical development. It also involves carefully considered features, a good infrastructure, as well as that the application is designed in such a way that users have an optimal user experience. Together with the product owner and your team you specify the requirements. Once you have built a new feature, you will measure whether the intended goals have been met or not and tweak if necessary the application. You strive to realize an app that is in production by the client's company after the semester is accomplished: in Apple's app store and/or Google Play or in a private app store. **Open to all HBO students** Mobile Solutions is one of the elective broadening semesters of HBO-ICT. You learn to participate in a project in a professional and agile working environment. This is done in a multidisciplinary team with a real client. This semester is open for all HBO students who are interested in learning how-to develop an app. And that is more than only the technical part, amongst others topics like user-experience, commercial and legal aspects and privacy are at stake. In this way you will learn about the professional environment as well as from other disciplines in your project. The feedback, evaluation and supervision focuses on preparing you as much as possible for the final graduation phase of their study program.		
Educational content	The projects in Mobile Solutions range from building a minimum viable product (MVP) from scratch to optimizing and expand an existing app. **You choose your project, team and technology stack** The assignments may vary in nature. You choose at the kick-off in which team, client and technology stack you will pursue your assignment. The technology stack can comprise native app development or hybrid using frameworks like Ionic or Xamarin. There are only two main requirements: it must be a mobile app and yield a working (prototype) product. Topics like requirements engineering, user experience research, legal aspects, security issues, marketing, data science, iterative and incremental development, testing, use of sensors are addressed during the assignment. As every project is different the learning opportunities can vary as well. It is up to you, supported by your Windesheim coach, how you choose to shape your semester. The assignment is mainly conducted at the client's premises and partly at the ICT Community at Windesheim. **Learning opportunities** To help you with your project a number of workshops are available. Some are obligatory (e,g. project management, consulting skills), others are elective (SCRUM, growth hacking, interview techniques, game design). The workshops are not graded individually, but are aimed to contribute to the success of the concerning project. During the semester you will participate in knowledge-sharing sessions. Thus to ensure that knowledge of innovative techniques is passed on to the other teams. Company visits and guest lectures might also be a part of this elective semester program. At the end of the semester you present your app at the Winnovation Expo.		

Teaching methods	• Large project
	    • for actual client or in real-life setting
	    • 32-hours per week
	    • three to five students per team
	• Weekly coaching
	• Workshops and masterclasses contributing to your projects
	• Regular presentations in which students share their obtained knowledge		

Teaching aids	Only freely-accessible learning materials are being used, see ELO (Electronic Learning Environment).		
Supervisory activity	Students are coached in their project teams on a weekly basis.		
Level	Gevorderd (Advanced)		
Grading domain	1 t/m 10, 1 dec.		

Assessment	Sub assessment	Grading domain	Weight	Caesura
	Portfolio-assessment	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	Professional attitude	Not achieved / Achieved	0	Higher or equal to 5.5
Reading list				
Practical actions	Project to perform with an external organisation			

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Operational Management in Industry 2021-2022

Description of the educational unit			
Course code:	EDAPS.21	Credits:	**5** ECTS

Description	Advanced Planning & Scheduling
Competences	-
Target group	Objectives: *The student shows how to apply planning and scheduling as forms of decision-making to play an important role in manufacturing and services industries. Detailed course objectives: see study guide*
Educational content	Objectives: **Lectures　　Main topics** Intro, MPC systems, S&OP, Manufacturing and Dispatching rules Characteristics of service industries, Project and CPM. Scheduling: Programming, Shifting Bottlen Annealing, Tabu- and Beam Search Interval scheduling, Reservation systems a Economic Lot Scheduling Personnel scheduling problems Continued : Scheduling : Programming, Simulated Annealing, Tabu- and Beam Sea
Teaching methods	Contents: • 　Courses • 　Assignments
Teaching aids	No special tools needed
Supervisory activity	Coaching
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Weight	Caesura
	T1 Advanced Planning and Schedule	1	Higher or equal to 5.5

Reading list	Pinedo, Michael L. (). *Planning and Scheduling in Manufacturing and Services*. : Springer
Practical actions	

Description of the educational unit			
Course code:	EDSIM.21	Credits:	**5** ECTS Target group: **Voltijd Regulier**

Description	Simulation
Competences	-
Target group	Theory • To learn how to implement a simulation study for logistical purposes. • To recognize when simulation can be used as a tool for decision-making, especially for logistical problems in a manufacturing environment. • To be able to make simple calculations as a means of validating a simulation study. Practical • To acquire knowledge of simulation as a tool for decision support. • To practice to be able to use simulation while tackling logistical problems. • To learn how to work with the simulation software Enterprise Dynamics. • To learn how to interpret and analyze the results from a simulation study.
Educational content	Theory • simulation: what, why and when? • inside simulation software • simulation studies: an overview • conceptual modelling • developing the conceptual model • data collection and analysis • model coding • experimentation: obtaining accurate results • experimentation: searching the solution space • implementation • verification, validation and confidence Practical • tutorial layout • Enterprise Dynamics background • first contact with Enterprise Dynamics • model building basics • analyzing the results • playing with strategies After the introduction to Enterprise Dynamics the student will perform several case studies.
Teaching methods	• lectures • practical
Teaching aids	
Supervisory activity	Coaching
Sequentiality	

Level	Gevorderd (Advanced)			
Grading domain				
Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Simulation			
Reading list				

Description of the educational unit

Description	Operations Strategy			
Competences	-			
Target group	Operations can operate in accordance with customer needs or because the company possesses specific competences. How can you produce products or services according to customer needs? Your customer demands a flexible product? What processes, technology and supply chain solutions are at your disposal to achieve optimal customer satisfaction? This is what you will learn during this course.			
Educational content	Operations can operate in accordance with customer needs or because the company possesses specific competences. How can you produce products or services according to customer needs? Your customer demands a flexible product? What processes, technology and supply chain solutions are at your disposal to achieve optimal customer satisfaction? This is what you will learn during this course.			
Teaching methods	Contents: • Courses • Assignments			
Teaching aids	No special tools needed			
Supervisory activity	Coaching			
Sequentiality				
Level	Gevorderd (Advanced)			
Grading domain				
Assesment	Sub assessment	Grading domain	Weight	Caesura
	P1 Operations Strategy			
Reading list				
Practical actions				
knowledge base generic				
knowledge base subject				

Description of the educational unit				
Course code:	EDPOMI.21	Credits:**10** ECTS Target group: **Voltijd Regulier**		

Description	Project Operational Management in Industry
Competences	-
Target group	Objectives: • Experience the challenges of an operational manager in a real life situation. • Experience the conflict of interest between short term targets and long term targets. • Analyse how the mission and vision of a company can be translated in a strategy and can be implemented in the days work. • Analyse these situations. • To reflect on this experience.
Educational content	• This project is executed within a company or external organization. • The language is either Dutch or English depending upon the guest organization. • The project will normally be carried out in small groups. • Individual assignments are possible in relevant situations.
Teaching methods	Assignments for an external organization.
Teaching aids	No special tools needed
Supervisory activity	Coaching
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1: Project Operational Management	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	P2: Theme	Not Achieved / Achieved	0	Higher or equal to 5.5

Reading list	
Practical actions	Project to perform at an external organization
knowledge base generic	
knowledge base subject	

Description of the educational unit				
Course code:	EDCE.21	Credits:	**5** ECTS	Target group: **Voltijd Regulier**

Description	Circular Economy
Competences	-
Target group	Traditionally we reckon the supply chain of a tangible product to be a network of different companies which are producing, handling and distributing this product; starting with the supplier of raw materials and ending at the end consumer. When the product's life cycle is over, its written off as waste. Circular economy is a new way of thinking, never considering a product's life cycle to be over, but brings back its components or materials back into the supply chain.
Educational content	In our classes Circular Economy we present and discuss the development of Circular Economy. These developments are: 1. Circular supplies or designs: using resources that are fully renewable, recyclable or biodegradable. 2. Recovering of resources: a company should be able to maximize the economic value of product return flows. 3. Prolonging the product life cycle: a company's production system should be focused on extending the lifecycle of products and assets. 4. Development of circular economy markets: collaboration among product users, either individuals or organizations, should be promoted. 5. Product as a service: Provides an alternative to the traditional model of "buy and own." Products are used by one or many customers through a lease or pay-for-use arrangement. Apart from this we introduce, discuss and work out the principles of LCA.
Teaching methods	• Theory - and working classes
Teaching aids	• Book • Calculator
Supervisory activity	• Theory classes • Coaching of assignments during working classes
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	T1 Circular Economy	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	
Practical actions	Practical skills lessons

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

PROCESS OPTIMIZATION 2021 - 2022

Major H:	MH.EDPO.M6.1.V.21			
Description of unit of study
Course code	**EDPPO.21**	Credits:	**10** ec	Target group: **Fulltme Regular**

Study unit Description	Project Process Optimization
Competences	-
Target group	The goal is to learn how to assess the quality of a business process and, using Lean / Six Sigma, to come up with improvements in a structured way and to implement these in an existing organization, taking into respect company strategy, management and the work floor.
Educational content	Doing research into the quality of a business process and to find improvements in a structured way.
Teaching methods	Students work in small project groups on an improvement project in a company.
Teaching aids	none specific
Supervisory activity	Coaching and intervision
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Project Process Optimization	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	P2 Theme	Niet voldaan t/m Voldaan	0	Higher or equal to 5.5

Reading list	

Description of unit of study			
Course code	**EDSIM.21**	Credits:	**5** ECTS Target group: **Fulltme Regular**

Study unit Description	Simulation
Competences	–
Target group	Theory • To learn how to implement a simulation study for logistical purposes. • To recognize when simulation can be used as a tool for decision-making, especially for logistical problems in a manufacturing environment. • To be able to make simple calculations as a means of validating a simulation study. Practical • To acquire knowledge of simulation as a tool for decision support. • To practice to be able to use simulation while tackling logistical problems. • To learn how to work with the simulation software Enterprise Dynamics. • To learn how to interpret and analyze the results from a simulation study.
Educational content	Theory • simulation: what, why and when? • inside simulation software • simulation studies: an overview • conceptual modelling • developing the conceptual model • data collection and analysis • model coding • experimentation: obtaining accurate results • experimentation: searching the solution space • implementation • verification, validation and confidence Practical • tutorial layout • Enterprise Dynamics background • first contact with Enterprise Dynamics • model building basics • analyzing the results • playing with strategies After the introduction to Enterprise Dynamics the student will perform several case studies.
Teaching methods	• lectures • practical
Teaching aids	
Supervisory activity	Coaching
Level	Gevorderd (Advanced)

Grading domain	1 t/m 10, 1 dec.			
Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Simulation	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
Reading list				

Description of unit of study				
Course code	**EDLQRM.21**	Credits:	**5** ECTS	Target group: **Fulltme Regular**

Study unit Description	Lean/QRM
Competences	-
Target group	In this course you will learn to setup a process to address the constraint in the organization and increase the performance of an organization as a whole. You will learn the principles and advantages of lean and Quick Response Manufacturing in different production environments.
Educational content	1. LEAN Game LEGO. What happens in the process, which techniques are applied 2. LEAN Maturity levels, Six Sigma Maturity Model, QRM Maturity Model 3. CASE Value Stream Map-current state 4. QRM fundaments 5. Guest speaker 6. CASE Value Stream Map-Future state 7. QRM- Guest speaker 8. Company visit 9. Additional subjects
Teaching methods	- lectures - practical lessons - individual and group assignments reflection and coaching
Teaching aids	See study guide
Supervisory activity	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Lean/QRM	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	
Sequentiality	
Practical actions	Practical Skills lessons.

Description of unit of study			
Course code	**EDCA.21**	Credits: **5** ec	Target group: **Fulltme Regular**

Study unit Description	Change Agent
Competences	-
Target group	- In the course Change Agent we focus on which interventions are needed to involve people in the change process. The student learns to analyze the change process and designs interventions to make the change happen. Next to designing interventions we also take a closer look at the role of being a Change Agent in continuously changing organizations.
Educational content	Through theory and cases students learn about designing and performing interventions and what it means to be a change agent
Teaching methods	- lectures - practical lessons - individual and group assignments - reflection and coaching
Teaching aids	See study guide
Supervisory activity	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Change Agent	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	

Description of unit of study			
Course code	**EDSX.21**	Credits: **5** ECTS	Target group: **Fulltme Regular**

Study unit Description	Six Sigma
Competences	-
Target group	To use the Six Sigma methodology - Design, Measure, Analyse, Improve, Control - as a tool for improving processes.
Educational content	Overview of Six Sigma Management, Six Sigma Roles, Responsibilities and Terminology, Dashboard of Six Sigma Management, Define Phase, Measure Phase, Analyze Phase, Improve Phase, Control Phase, Design of Experiments.
Teaching methods	• lectures (Hoor/instructiecolleges) • seminars (werkcolleges) • workshop with Design of Experiments (using Minitab)
Teaching aids	Calculator
Supervisory activity	Coaching (mondeling)
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	T1 Six Sigma	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Security Engineering 2021-2022

Description of unit of study				
Course code	**ICT.KS.SECENG.V20**	Credits:	**24** ECTS	Target group: **Voltijd Regulier**

Study unit Description	Security Engineering
Competences	-
Target group	In Security Engineering students learn, in various phases, in collaboration with actual clients, to investigate the possibilities and solutions in cybersecurity and work on new applications using procedures, protocols, tools and technology. Conducting research, developing proof-of-concepts and/or building prototypes form a substantial part of most projects. Security Engineering is one of the elective semesters of HBO-ICT. In these semesters, students learn to participate in projects in a professional working environment. This is done in multi-disciplinary teams for actual client or a real-life setting. In this way, students learn from the professional environment, as well as other disciplines in the project. The feedback, evaluation and supervision focuses on preparing students as much as possible for the final graduation phase of the study programme.
Educational content	The Security Engineering projects can vary considerably. Examples are developing security policies for government, researching and building a proof-of-concept for a secure mobile app delivery platform for the Dutch Police or the deployment of new technology and/or new applications for students.. In Security Engineering, every project is different, which means that the learning opportunities can vary as well. It is up to the student how he/she choose to shape the semester. To help the students with their projects, a number of workshops can be attended. Some of them are obligatory (e,g., project management, planning), others are elective (scrum, game design etc.). The workshops are not graded individually, but are aimed to contribute to the success of the specific projects. Students enrolled in this minor will select two Professional Skills (3ECTS each course) from our list of elective courses (Leadership, Financial Management, 7 Habits etc.)
Teaching methods	Students work on a large project for 20 weeks. The project is done for actual client or in a real-life setting. The multi- disciplinary student teams of 3 to 5 students work on the project for 32 hours every week (Tuesday to Friday) at school or at the client's location. As part of the project there are project coaching sessions, workshops contributing to your project and regular presentations in which students share their obtained knowledge and progress. The professional skills are scheduled on Mondays. Therefore students will need to be available from Monday to Friday during this semester.
Teaching aids	Only freely-accessible learning materials are being used. When specific hardware of software is needed for your project, this will be provided.
Supervisory activity	Students are coached in their project groups on a weekly basis. Workshops will contribute to the project's needs.
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	Portfolio - assessment	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	Professional attitude	Niet voldaan t/m Voldaan	0	Higher or equal to 5.5

Reading list	
Practical actions	Project with an external organisation

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Web & Analytics 2021-2022

Description of unit of study				
Course code	**ICT.KS.WA.V21**	Credits:	**24** ects	Target group: **Voltijd Regulier**

Study unit Description	Web and Analytics
Competences	-
Target group	In Web and Analytics students (re)design, implement and help improve the exploitation of a web application for actual clients. The success of a web application does not only depend on a good technical development, but also involves carefully considered features, a good infrastructure, as well as that the web application is designed in such a way that end users havean optimal experience achieving their business goals. Together with the client's product owner students will specify the goals and requirements of the web application. Once you have built a new feature, you will measure whether the intended goals have been met or not, and tweak the application or customer journey to further improve it. The students strive to realize a web app that can be used by the client's company after the semester is accomplished. Web and Analytics is one of the elective semesters of HBO-ICT. In these semesters, students learn to participate in projects in a professional and agile working environment. This is done in multidisciplinary teams for an actual client or a real-life setting. In this way, students learn about the professional environment, as well as other disciplines in the project. The feedback, evaluation and supervision focuses on preparing students as much as possible for the final graduation phase of their study program.
Educational content	The projects and clients in Web and Analytics can range from building a minimum viable product (MVP) to optimizing an existing customer facing e-commerce platform. The assignments can vary considerably regarding the subject and contents. There is only one main requirement: at the end of the semester there must be a working web app realizing previous set business goals. Within the assignment there can be topics like requirement engineering, user research, legal aspects, security issues, marketing, data science and other challenges. In Web and Analytics, every project is different, which means that the learning opportunities can vary as well. It is up to the student how you choose to shape your semester. The assignment is mainly conducted at the client's premises and partly at the ICT Community at Windesheim. To help the students with their projects, a number of workshops can be attended. Some of them are obligatory (e,g., project management, planning), others are elective (Scrum, growth hacking, game design). The workshops are not graded individually, but are aimed to contribute to the success of the concerning project. During the semester, students lead knowledge-sharing sessions in which they present acquired knowledge to the rest of the class. In this way, we ensure that knowledge of innovative techniques is also passed on to the other teams. Company visitsand guest lectures might also be a part of this elective semester program. Students enrolled in this minor will select two Professional Skills (3ECTS each course) from our list of elective courses (Leadership, Financial Management, 7 Habits etc.).
Teaching methods	Students work on a large project for 20 weeks. The project is done for actual client or in a real-life setting. The multidisciplinary student teams of 3 to 5 students work on the project for 32 hours every week (Tuesday to Friday) at school or at the client's location. As part of the project there are project coaching sessions, workshops contributing to your project and regular presentations in which students share their obtained knowledge and progress. The professional skills are scheduled on Mondays. Therefore students will need to be available from Monday to Friday during this semester.
Teaching aids	Only freely-accessible learning materials are being used, see ELO (Electronic Learning Environment).
Supervisory activity	Students are coached in their project groups on a weekly basis. Workshops will contribute to the project's needs.
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	Portfolio Assessment	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	Professional Attitude	Not achieved / achieved	0	Higher or equal to 5.5

Reading list	

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Supply Chain Engineering 2021-2022

Description of the educational unit

Course code:	EDCSK.21	Credits:	**5** ECTS	Target group: **Voltijd Regulier**

Description	Consultancy Skills
Competences	-
Target group	This course helps you to develop effective consultancy and communication skills. The aim of this course is to challenge you to examine the assumptions and interpretations you have about yourself and others. It helps you to examine the way you communicate in order to become more effective in getting your message across as a consultant.
Educational content	See study guide
Teaching methods	Lectures and Coaching
Teaching aids	No additional tools required
Supervisory activity	Coaching - See study guide
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Consultancy Skills Portfolio	1 t/m 10, 1 dec.	1	Higher or equal to 5.5
	P2 Consultancy Skills Assessment	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit

Course code:	EDDSI.21	Credits:	**5** ECTS	Target group: **Voltijd Regulier**

Description	Demand & Supply Integration
Competences	-
Target group	After finishing this course you will be able to identify important aspects that play a role in the strategic and tactical decision making process to align demand and supply. 1. The student is able to successfully organize the integration of demand & supply at strategical and tactical level 2. The student is able to create a substantiated forecast by using integrated business planning 3. The student is able to manage working capital 4. The student is familiar with S&OP planning and knows how to apply this process
Educational content	This course will focus on the understanding of the most relevant aspects related to the Demand & Supply integration process. Exam content is provided via articles and literature provided by the lecturers, guest lecturers and site visits (if applicable).
Teaching methods	Lectures & Simulation game
Teaching aids	The Cool Connection game
Supervisory activity	See study guide
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	1 t/m 10, 1 dec.

Assessment	Sub assessment	Grading domain	Weight	Caesura
	T1 Demand and Supply Integration	1 t/m 10, 1 dec.	1	Higher or equal to 5.5

Reading list	
Practical actions	

Description of the educational unit				
Course code:	EDPSCE.21	Credits:	**10** ECTS	Target group: **Voltijd Regulier**

Description	Project Supply Chain Engineering
Competences	-
Target group	See study guide
Educational content	• This project is executed within a company or external organization. • The language is either Dutch or English depending upon the guest organization. • The project will normally be carried out in small groups. • Individual assignments are possible in relevant situations.
Teaching methods	Assignments for an external organization.
Teaching aids	No special tools needed
Supervisory activity	Coaching
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Supply Chain Engineering			

Reading list	
Practical actions	Project to carry out with an external organization

Description of the educational unit				
Course code:	EDSCP.21	Credits:	**5** ECTS	Target group: **Voltijd Regulier**

Description	Supply Chain Planning
Competences	-
Target group	This course gets you up to speed in Warehousing and Fulfilment and Demand and Supply Integration. We propose an excellent stepping stone for students relatively new to the subject, while creating a challenging atmosphere for students with a background in Supply Chain Management. We do this through a cutting edge learning experience,making use of blended learning and an adaptive learning environment. Introduction to Supply Chain Engineering propels you for a great learning experience in-company and in-university.
Educational content	See study guide
Teaching methods	- College
Teaching aids	See study guide
Supervisory activity	See study guide
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	

Assessment	Sub assessment	Grading domain	Weight	Caesura
	T1 SC Planning			

Reading list	
Practical actions	

Description of the educational unit				
Course code:	EDWHF.21	Credits:	**5** ECTS	Target group: **Voltijd Regulier**

Description	Warehousing & Fulfilment
Competences	-
Target group	This course helps you to understand the latest developments of Warehousing and Fulfilment and the relations andimpact they have on the Supply Chain, in concept and calculation. You will understand the role of Fulfilment in e- business, the ICT relations in a formal business environment for the software, hardware and network architecture. So in the end you will be able to (re-)design the Supply Chain on a conceptual, technical and business case level. For example to benefit from the rapidly increasing opportunities E-commerce offers.
Educational content	See study guide
Teaching methods	Lectures & Case
Teaching aids	See study guide
Supervisory activity	See study guide
Sequentiality	
Level	Gevorderd (Advanced)
Grading domain	

Assessment	Sub assessment	Grading domain	Weight	Caesura
	P1 Case study			

Reading list	(). *See study guide*. :
Practical actions	