

Course Catalogue Engineering and ICT

EXCHANGE PROGRAMME

Applied Mechanics 2023-2024



Course summary			
VOE Code: EDPAM1.18.V.01		ECTS credits: 6	
Level: Bachelor's degree (full-time)			
Course Title	Project Applied Mechanics		
Type	Compulsory		
Learning competences			
Learning outcomes	The project starts with an assignment of a company. The goal of the project is to provide a constructive solution for the analysed problems.		
Course content	<ul style="list-style-type: none"> • Project assignment • Analyse and research a construction problem and providing a solution 		
Planned learning activities and teaching methods	Group assignment		
Recommended or required reading and other learning resources / tools	<ul style="list-style-type: none"> • Books • Any resource 		
Prerequisites and co-requisites	You are required to have two years of Bachelor's study experience in a relevant field (e.g. Bachelor's degree in Mechanical Engineering) and English-language skills at B2 level. In order to be able to complete some modules, you will also need mathematics and physics at high school level.		
Level	Bachelor		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	Type of assessment	Grade weighting	Criteria
	P1 Project Applied Mechanics	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Laurens Bervoets		
Mode of delivery	Coaching		

Course summary			
VOE Code: EDRPAM.18.V.01		ECTS credits: 2	
Level: Bachelor's degree (full-time)			
Course Title	Report Project Applied Mechanics		
Type	Compulsory		
Learning competences			
Learning outcomes	The project starts with an assignment of a company. The goal of the project is to provide a constructive solution for the analysed problems.		
Course content	<ul style="list-style-type: none"> • Project assignment • Analyse and research a construction problem and providing a solution 		
Planned learning activities and teaching methods	Group assignment		
Recommended or required reading and other learning resources / tools	<ul style="list-style-type: none"> • Books • Any resource 		
Prerequisites and co-requisites			
Level	Bachelor		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	Type of assessment	Grade weighting	Criteria
	P1 Report Project Applied Mechanics	1	Higher or equal to 5.5

Language of Instruction	English
Name of lecturer	For information about the lecturers you can contact Laurens Bervoets
Mode of delivery	Coaching

Course summary			
VOE Code: EDAMCO.19		ECTS credits: 2	
Level: Bachelor's degree (full-time)			
Course Title	Composites		
Type	Compulsory		
Learning competences			
Learning outcomes	Composites: <ul style="list-style-type: none"> • Introduction to materials, production and applications of composites. • Introduction to basic calculation methods for stress and strain in composite materials. 		
Course content	Composites: <ul style="list-style-type: none"> • Introduction to materials, production and applications of composites. • Introduction to basic calculation methods for stress and strain in composite materials. 		
Planned learning activities and teaching methods	Lectures and Workshop		
Recommended or required reading and other learning resources / tools	Solidworks Cad and Solid Works Simulation Add-In, on laptop R.P.L.Nijssen (2013). Composieten: Basiskennis. Marknesse: VKCN		
Prerequisites and co-requisites			
Level	Bachelor		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	Type of assessment	Grade weighting	Criteria
	T1 Composites	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Laurens Bervoets		
Mode of delivery	Instruction and coaching		

Course summary			
VOE Code: EDAMMV.19		ECTS credits: 4	
Level: Bachelor's degree (full-time)			
Course Title	Modelling and Validation		
Type	Compulsory		
Learning competences			
Learning outcomes	Modelling & Validation: <ul style="list-style-type: none"> • Assessing actual Strength and Stability problems by combined application (1) Theoretical calculation models, (2) FEM-analysis models and (3) Testing. 		
Course content	Modelling & Validation: <ul style="list-style-type: none"> • Assessing actual Strength and Stability problems by combined application (1) Theoretical calculation models, (2) FEM-analysis models and (3) Testing. 		
Planned learning activities and teaching methods	Lectures and Workshop		
Recommended or required reading and	Solidworks Cad and Solid Works Simulation Add-In, on laptop.		

other learning resources / tools			
Prerequisites and co-requisites			
Level	Bachelor		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	Type of assessment	Grade weighting	Criteria
	P1 Modelling and Validation	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Laurens Bervoets		
Mode of delivery	Instruction and coaching		

Course summary VOE Code: EDD.16.V.01 ECTS credits: 5 Level: Bachelor's degree (full-time)			
Course Title	Design Tools		
Type	Compulsory		
Learning competences			
Learning outcomes	Become acquainted with various design tools, deepen and increase knowledge of two optional design tools.		
Course content	<p>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.</p> <p>It concerns the following tools (they are examples, the actual overview is provided in the course description every year).</p> <p><i>Maintenance Engineering:</i> With this design tool you learn to gain insight into choices that an engineer has to make with regard to availability, reliability, safety, maintainability and life cycle during the design phase of a technical system.</p> <p><i>CE-marking:</i> it deals with technical -and legal aspects, safety and liability concerning the construction of machines and products.</p> <p><i>Solid Works Motion/PDM:</i> 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).</p> <p><i>FMECA:</i> 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.</p> <p><i>Non-Linear FEM:</i> during these practical lectures you not only learn to deal with distortions and non-linear material behavior but with the limitations of conventional calculations as well.</p> <p><i>Hand sketching:</i> With this design tool you will learn to concretize, clarify and communicate design ideas in a fast and accessible way through simple but effective sketches</p>		
Planned learning activities and teaching methods	<ul style="list-style-type: none"> • Lectures • Practical workshops 		
Recommended or required reading and other learning resources / tools			
Prerequisites and co-requisites			

Level	Bachelor		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	Type of assessment	Grade weighting	Criteria
	P1 Designtools: Introductions – Not Achieved/Achieved	0	Higher or equal to 5.5
	P2 Designtool 1	1	Higher or equal to 5.5
	P3 Designtool 2	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Laurens Bervoets		
Mode of delivery	Teaching at college and workshop hours		

Course summary			
VOE Code: EDAT1E.16.V.01 ECTS credits: 5 Level: Bachelor's degree (full-time)			
Course Title	Drive Technology 1		
Type	Compulsory		
Learning competences			
Learning outcomes	Basic knowledge about electrical drive systems. Advanced knowledge about machine components.		
Course content	<p>Machine components 3:</p> <ul style="list-style-type: none"> • Interference fit • couplings • bolt connections <p>Electrical drive systems:</p> <ul style="list-style-type: none"> • Interaction motor and load • DC-motors • Steppermotors • AC-power • 3 phase systems • Induction motors 		
Planned learning activities and teaching methods	<ul style="list-style-type: none"> • Lecture • Practical workshop 		
Recommended or required reading and other learning resources / tools	<ul style="list-style-type: none"> • Energy lab • Pin on disk • Calculator <p>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</p>		
Prerequisites and co-requisites	Mathematics and physics at high school level		
Level	Bachelor		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	Type of assessment	Grade weighting	Criteria
	P1 Drive Techn. 1: Lab work – Not Achieved/Achieved	0	Higher or equal to 5.5

	T1 Drive Techn. 1: Machine components 3	1	Higher or equal to 5.5
	T2 Drive Techn. 1: Electrical drive systems	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Laurens Bervoets		
Mode of delivery	Teaching at college and workshop hours		

Course summary	
VOE Code: EDDYV.23	ECTS credits: 4 Level: Bachelor's degree (full-time)
Course Title	Dynamics and Vibration
Type	Compulsory
Learning competences	
Learning outcomes	<ol style="list-style-type: none"> 1. The student can analyse and apply (within an end results accuracy of $\pm 5\%$) clearly the kinematics of relative motion analysis of rigid-body plane motion using a translating and/or rotating frame of reference. 2. The student can write, analyse and apply correctly the kinetics formula's for the linear and angular momentum of rigid-body plane motion. 3. The student can analyse and apply the correct model of vibration on a given problem (free and/ or forced, damped and/or undamped vibration) to solve different basic problems in Engineering vibration. 4. The student can perform a design for a vibration isolation system correctly and validate the results according to the used theoretical model.
Course content	<u>Quarter 9 (W3)</u> Module 1: Relative motion analyses: Rigid body Planar Kinematics Topic(s) <ul style="list-style-type: none"> • Relative-Motion Analysis: Velocity, Instantaneous Centre of Zero Velocity. • Relative-motion Analysis: Acceleration • Relative-Motion Analysis Using Rotating Axes: Velocity & Acceleration Module 2: Linear and Angular Momentum Topic(s) <ul style="list-style-type: none"> • Linear and Angular Momentum • Principle of Impulse and momentum • Conservation of Momentum • Eccentric Impact Module 3: Introduction to Engineering vibration Topic(s) <ul style="list-style-type: none"> • Undamped Free and Forced vibration • Damped Free and forced vibration Module 4: Design applications of Engineering vibration Topic(s) <ul style="list-style-type: none"> • Applications of engineering vibration • Modelling of constructional members • Designing of vibration isolation systems
Planned learning activities and teaching methods	<ul style="list-style-type: none"> • Interactive Lectures • Eventual guest lectures in cooperation with industry • Weekly presentations • Problem list • Homework
Recommended or required reading and other learning resources / tools	Russell Charles Hibbeler (). Dynamica : Pearson Education Singiresu S. RAO (). <i>Elective reference book: Mechanical Vibration. : Pearson Education</i>

Prerequisites and co-requisites			
Level	Bachelor		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	Type of assessment	Grade weighting	Criteria
	T1 Relative motion and impact	1	Higher or equal to 5.5
	T2 Vibrations	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Laurens Bervoets		
Mode of delivery	Lecturing and supervision		

Course summary			
VOE Code: EDAMTE.20 ECTS credits: 1 Level: Bachelor's degree (full-time)			
Course Title	Technical English for Applied Mechanics		
Type	Compulsory		
Learning competences			
Learning outcomes	<p><i>At the end of this course, the student will be able to:</i></p> <ul style="list-style-type: none"> • Read and comprehend a technical reading text related to the topic of the minor • Use of wide range of vocabulary related to the topic of the minor • Summarize a technical lecture or talk • Write a technical report 		
Course content	During classes students will work on reading, writing and listening/watching skills. Special attention is paid to the Cornell notetaking method, reading technical texts and writing reports.		
Planned learning activities and teaching methods	Classroom lessons and homework activities in teaching block 1. Coaching sessions in block 2.		
Recommended or required reading and other learning resources / tools	Content in Digital Learner Management System (Brightspace)		
Prerequisites and co-requisites			
Level	Bachelor		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	Type of assessment	Grade weighting	Criteria
	P1 Technical English for AM	1	Higher or equal to 5.5
	P2 Technical English for AM	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Laurens Bervoets		
Mode of delivery	Coaching		

Course summary			
VOE Code: EDAMPCOM4.19 ECTS credits: 1 Level: Bachelor's degree (full-time)			
Course Title	Professional Communication 4		
Type	Compulsory		
Learning competences			
Learning outcomes	To acquire knowledge and develop skills in written and verbal communication.		

Course content	Students pick two communication themes out of four concerning written and verbal communication.		
Planned learning activities and teaching methods	Workshops and assignments		
Recommended or required reading and other learning resources / tools			
Prerequisites and co-requisites			
Level	Bachelor		
Grading scale	1 up to 10, 1 dec.		
Assessment methods and criteria	Type of assessment	Grade weighting	Criteria
	P1 Professional Communication 4	1	Higher or equal to 5.5
Language of Instruction	English		
Name of lecturer	For information about the lecturers you can contact Laurens Bervoets		
Mode of delivery	Coaching and teaching		