

IV. Programme structure valid from the academic year 2020/2021

programme of study: mechanical engineering  
level of qualification: first-cycle  
type of education: academic

	Course code		Course title	l	c	lab	p/s	No. of hours	exam	ECTS credits
<b>Semester 1</b>										
K		1	Linear Algebra	20	20			40	1	4
K	M#1-S1-ME-102	2	Calculus	40	40			80	1	6
K	M#1-S1-ME-103	3	Ergonomics and OHS	15				15		1
K	M#1-S1-ME-104	4	Technical Drawing	10			30	40		3
HS	M#1-S1-ME-105a	5a	HES I	30				30		2
	M#1-S1-ME-105b	5b	HES I	30				30		2
K	M#1-S1-ME-106	6	Technical Physics	15	15	15		45	1	4
K	M#1-S1-ME-107	7	Technical Chemistry	15	15			30		2
K	M#1-S1-ME-108	8	Information Technology			30		30		2
K	M#1-S1-ME-109	9	Electrical Engineering	30	15			45	1	4
K	M#1-S1-ME-110	10	Fundamentals of Standardization and Innovation	15				15		1
K	M#1-S1-ME-111	11	Theory of Machines	15				15		1
			<b>Total number of hours and ECTS credits</b>	<b>205</b>	<b>105</b>	<b>45</b>	<b>30</b>	<b>385</b>	<b>4</b>	<b>30</b>
<b>Semester 2</b>										
K	M#1-S1-ME-201	1	Mathematics	30	30			60	1	5
K	M#1-S1-ME-202	2	Foreign Language			30		30		2
K	M#1-S1-ME-203	3	Engineering Mechanics I	30	30	15		75		5
K	M#1-S1-ME-204	4	Automotive Engineering	15		15		30		2
K	M#1-S1-ME-205	5	Fundamentals of Casting	15				15		1
K	M#1-S1-ME-206	6	Fundamentals of Welding	15				15		1
K	M#1-S1-ME-207	7	Fundamentals of Metal Forming	15				15		1
K	M#1-S1-ME-208	8	Fundamentals of Electronics	15		15		30		2
K	M#1-S1-ME-209	9	Metal Science I	15		15		30		2
KW	M#1-S1-ME-210a	10a	Fundamentals of Rapid Prototyping	15		15		30		2
	M#1-S1-ME-210b	10b	Fundamentals of Reverse Engineering	15		15		30		2
KW	M#1-S1-ME-211a	11a	Micro- and Nanotechnology	15		15		30	1	3

	M#1-S1-ME-211b	11b	Fundamentals of Nanotechnology	15		15		30	1	3
K	M#1-S1-ME-212	12	Plastics and Composites	15		15		30		2
K	M#1-S1-ME-213	13	Engineering Drawing	10			20	30		2
			<b>Total number of hours and ECTS credits</b>	<b>205</b>	<b>60</b>	<b>135</b>	<b>20</b>	<b>420</b>	<b>2</b>	<b>30</b>

### Semester 3

HS	M#1-S1-ME-301	1	Intellectual Property Protection	15				15		1
K	M#1-S1-ME-302	2	Foreign Language			30		30		2
K	M#1-S1-ME-303	3	Metrology I	15	15			30		2
K	M#1-S1-ME-304	4	Fundamentals of Computer Science	15		45		60		4
K	M#1-S1-ME-305	5	Strength of Materials	30	30	15		75	1	6
K	M#1-S1-ME-306	6	Engineering Mechanics II	15	15			30	1	3
K	M#1-S1-ME-307	7	Computer-Aided Engineering Drawing	10		20		30		2
K	M#1-S1-ME-308	8	Metal Science II	30		30		60	1	5
K	M#1-S1-ME-309	9	Laser Technology	15		15		30		2
K	M#1-S1-ME-310	10	Fundamentals of Casting			15		15		1
K	M#1-S1-ME-311	11	Fundamentals of Welding			15		15		1
K	M#1-S1-ME-312	12	Fundamentals of Metal Forming			15		15		1
K	M#1-S1-ME-313	13	Physical Education		30			30		0
			<b>Total number of hours and ECTS credits</b>	<b>145</b>	<b>90</b>	<b>200</b>	<b>0</b>	<b>435</b>	<b>3</b>	<b>30</b>

### Semester 4

K	M#1-S1-ME-401	1	Foreign Language			30		30		2
K	M#1-S1-ME-402	2	Fundamentals of Machine Design I	30				30		2
K	M#1-S1-ME-403	3	Fundamentals of Machining	30		30		60	1	5
K	M#1-S1-ME-404	4	Manufacturing Engineering	15			15	30		2
K	M#1-S1-ME-405	5	Metrology II	15		30		45	1	4
K	M#1-S1-ME-406	6	Theory of Machinery and Mechanisms	15	15			30		2
K	M#1-S1-ME-407	7	Fundamentals of Control Engineering	15	15	15		45	1	5
K	M#1-S1-ME-408	8	Fluid Mechanics	15	15	15		45		3
S3	M#1-S1-ME-CAM-409	9	Fundamentals of CNC Programming	30		15	30	75		5
K	M#1-S1-ME-412	12	Physical Education		30			30		0
			<b>Courses for a specialism of CAM</b>	30	0	15	30	75	0	5
			<b>Total number of hours and ECTS credits for CAM</b>	<b>165</b>	<b>75</b>	<b>135</b>	<b>45</b>	<b>420</b>	<b>3</b>	<b>30</b>

### Semester 5

K	M#1-S1-ME-501	1	Foreign Language			30		30	1	3
K	M#1-S1-ME-502	2	Hydraulic and Pneumatic Power and Control	30	15	15		60	1	4
K	M#1-S1-ME-503	3	Computer-Aided Manufacturing	15		30		45		3

K	M#1-S1-ME-504	4	Fundamentals of Machine Design II	15	15	15	15	60	1	5
K	M#1-S1-ME-505	5	Computer-Aided Design I			30		30		2
S3	M#1-S1-ME-CAM-506	6	Machining	30		30		60	1	5
S3	M#1-S1-ME-CAM-507	7	CNC Machine Tools: Design and Operation	30		15		45		3
S3	M#1-S1-ME-CAM-508	8	Metal Forming	15		15		30		2
S3	M#1-S1-ME-CAM-509	9	Fundamentals of Metal Forming Design	15		30		45		3
			<b>Courses for a specialism of CAM</b>	90	0	90	0	180	1	13
			<b>Total number of hours and ECTS credits for CAM</b>	<b>150</b>	<b>30</b>	<b>210</b>	<b>15</b>	<b>405</b>	<b>4</b>	<b>30</b>

#### Semester 6

K	M#1-S1-ME-601	1	Fundamentals of Machine Design III	15			30	45	1	4
K	M#1-S1-ME-602	2	Thermodynamics I	15	15	5		35		2
K	M#1-S1-ME-603	3	Internship					0		4
K	M#1-S1-ME-604	4	Pre-Final Project				15	15		1
S3	M#1-S1-ME-CAM-605	5	Metrology for Manufacturing	15	15			30		2
S3	M#1-S1-ME-CAM-606	6	Fundamentals of CAD and CAM	15		15	30	60		4
S3	M#1-S1-ME-CAM-607	7	Cutting Tools	15		15	30	60	1	5
S3	M#1-S1-ME-CAM-608	8	Advanced Manufacturing	15			15	30		2
S3	M#1-S1-ME-CAM-609	9	Metal Forming Machinery	30		30		60		4
S3	M#1-S1-ME-CAM-610	10	Computer-Aided Design for Metal Forming	15			15	30		2
			<b>Courses for a specialism of CAM</b>	105	15	60	90	270	1	19
			<b>Total number of hours and ECTS credits for CAM</b>	<b>135</b>	<b>30</b>	<b>65</b>	<b>135</b>	<b>365</b>	<b>2</b>	<b>30</b>

#### Semester 7

K	M#1-S1-ME-701	1	Quality Engineering	15			15	30	1	3
HS	M#1-S1-ME-702a	2a	HES II	15				15		1
	M#1-S1-ME-702b	2b	HES II	15				15		1
HS	M#1-S1-ME-703a	3a	HES III	15				15		1
	M#1-S1-ME-703b	3b	HES III	15				15		1
K	M#1-S1-ME-704	4	Fundamentals of Mechatronics	15		15		30		2
K	M#1-S1-ME-705	5	Environmental Management and Ecology	15				15		1
K	M#1-S1-ME-706	6	Thermodynamics II	15		15		30	1	3
K	M#1-S1-ME-707	7	Thesis							15
K	M#1-S1-ME-708	8	Thesis Seminar				30	30		2
K	M#1-S1-ME-709	9	Heat Transfer and Fluid Flow Systems	15	15			30		2
			<b>Total number of hours and ECTS credits</b>	<b>105</b>	<b>15</b>	<b>30</b>	<b>45</b>	<b>195</b>	<b>2</b>	<b>30</b>

<b>S3</b>	<b>Total number of hours and ECTS credits for CAM</b>	<b>1110</b>	<b>405</b>	<b>820</b>	<b>290</b>	<b>2625</b>	<b>20</b>	<b>210</b>
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<b>ECTS credits for electives (a minimum of 63 required)</b>		
Thesis Seminar		2
Thesis		15
Pre-Final Project		1
Electives in the Humanities and Economic and Social Sciences (HES)		5
Programme-specific electives		5
Courses for a specialism of CAM		37
<b>Total number of hours and ECTS credits for CAM</b>		<b>65</b>

<b>Programme-specific electives I</b>							
A. Fundamentals of Rapid Prototyping	15		15		30		2
B. Fundamentals of Reverse Engineering	15		15		30		2

<b>Programme-specific electives II</b>							
A. Micro- and Nanotechnology	15		15		30	1	3
B. Fundamentals of Nanotechnology	15		15		30	1	3

<b>Electives in the Humanities and Economic and Social Sciences (HES) I, semester 1</b>							
A. Fundamentals of Economics	30				30		2
B. Fundamentals of Coaching and Self-Presentation	30				30		2

<b>Electives in the Humanities and Economic and Social Sciences (HES) II, semester 7</b>							
A. Fundamentals of Business Management	15				15		1
B. Negotiations	15				15		1

<b>Electives in the Humanities and Economic and Social Sciences (HES) III, semester 7</b>							
A. Fundamentals of Business Planning	15				15		1
B. Business Plan Basics	15				15		1