

Mechatronics Engineering BSc. - Lasertechnology specialization
full-time and correspondence course
Specialization coordinator: Ágoston Böröczki PhD.

units

All learners are obligated to meet the learning outcomes (LO) of every unit in the course of their studies

Ex ante preconditions		Unit code	Title of unit	Number of weekly contact hours			Number of semester contact hours			Credit	Assessment type	Module	Department	
1.	2.			Theory	Practice	Lab.	Theory	Practice	Lab.					
Semester I.														
		B-0-M102T	Mathematics I.	2	2	1	10	10	6	5	5	pract. rating	TTI	Dept. For Economics and Methodology
		B-0-A110T	Business Economics	1	2	0	6	10	0	5	5	exam	GHI	Dept. for Economic Man.
		B-0-M101T	Electrotechnics I.	2	1	1	10	6	10	5	5	exam	TTI	Engin.Inst.
		B-0-M103T	Fundamental of Mechanics	1	5	0	5	25	0	5	5	exam	TTI	Engin.Inst.
		B-0-M105T	Engineering communication	1	3	0	5	15	0	5	5	pract. rating	SZI	Engin.Inst.
		B-0-M104T	Fundamentals of Engineering	1	2	1	6	10	6	5	5	pract. rating	SZI	Engin.Inst.
Total (6 units):				8	15	3	42	76	22	30				
Semester II.														
		B-0-M205T	Mathematics II.	2	2	1	10	10	6	5	5	exam	TTI	Dept. For Economics and Methodology
		B-0-M204T	Chemistry and Structural Materials	2	2	0	14	6	0	5	5	exam	TTI	Engin.Inst.
Elektrotechnics I.		B-0-M202T	Elektrotechnics II.	2	1	1	10	6	10	5	5	exam	TTI	Engin.Inst.
Mathematics I.		B-0-M103T	Fundamentals of Mechatronics	2	2	0	10	10	0	5	5	exam	TTI	Engin.Inst.
Fundamentals of Mechanics	Mathematics I.	B-0-M201T	Applied Mechanics	1	3	0	8	16	0	5	5	exam	TTI	Engin.Inst.
		B-0-M203T	Technologies and Manufacturing Engineering	2	2	0	10	10	0	5	5	exam	SZI	Engin.Inst.
Total (6 units):				11	12	2	62	58	16	30				
Semester III.														
Fundamental of Mechanics		B-0-M302T	Fundamentals of Computer Aided Design, Computer Aided Engineering	0	0	4	0	0	20	5	5	pract. rating	SZI	Engin.Inst.
Electrotechnics II.		B-0-M301T	Analog and digital electronics	1	2	2	6	10	10	5	5	exam	TTI	Engin.Inst.
Mathematics II.		B-0-M308T	Technical Physics (Thermo and Hydrodynamics)	2	3	0	10	16	0	5	5	exam	TTI	Engin.Inst.
Fundamental of Mechatronics		B-0-M305T	Modelling of Mechatronical Systems	0	2	0	0	10	0	5	5	pract. rating	SZI	Engin.Inst.
Mathematics II.		B-0-M307T	Measuring Techniques (Mitutoyo)	2	0	1	10	0	10	5	5	pract. rating	SZI	Engin.Inst.
Fundamental of Mechanics		B-0-M303T	Machinery and Construction Components	3	2	0	16	10	0	5	5	pract. rating	SZI	Engin.Inst.
		B-1-M309T	Engineering Professional Foreign Language I.	0	4	0	0	20	0	0	2	signature	SZI	Depart. for Foreign Languages and Communication
Total (7 units):				8	13	7	42	66	40	30				
Semester IV.														
		B-0-A210T	Leadership, organisation	1	2	0	6	10	0	5	5	exam	GHI	Dept. for Economic Man.
Business Economics		B-0-M405T	Financial and accounting knowledges	1	1	0	6	6	0	5	5	exam	GHI	Dept. for Economic Man.
		B-0-M407T	Computer Aided Measuring and Data Collection (NI- Labview)	1	1	2	6	6	12	5	5	practical rating	SZI	Engin.Inst.
		B-0-M402T	Controll Engineering (Automatization), Microcontrollers	4	2	4	20	10	20	5	5	practical rating	SZI	Engin.Inst.
		B-5-M404T	Optics and Visual Systems	2	1	0	10	6	0	5	5	exam	SZI	Engin.Inst.
Engineering Professional Foreign Language I.		B-1-M403T	Engineering Professional Foreign Language II.	0	4	0	0	20	0	0	2	signature	SZI	Depart. for Foreign Languages and Communication
			Pathway unit 1.	2	0	0	10	0	0	5	5	exam	SZV	Engin.Inst.
Total (7 units):				11	11	6	58	58	32	30				
Semester V.														
		B-0-M509T	Legal knowledges	3	0	0	14	0	0	5	5	exam	GHI	Dept. For Economics and Methodology
		B-0-M512T	Mechatronics Systems I. (Sensors)	2	0	2	14	0	12	5	5	exam	SZI	Engin.Inst.
Computer Aided Measuring and Data Collection (NI- Labview)		B-5-M508T	Signal Processing, Computerized Control	3	0	2	18	0	12	5	5	pract. rating	SP	Engin.Inst.
		B-3-M506T	Welding technology (Industrial gases)	3	1	0	16	4	0	5	5	pract. rating	SP	Engin.Inst.
		B-3-M513T	Computer Aided Manufacturing and Measuring Systems	1	1	2	6	6	14	5	5	pract. rating	SP	Engin.Inst.
		B-3-M511T	Laser physics	2	2	1	10	10	5	5	5	exam	SP	Engin.Inst.
Total (6 units):				14	4	7	78	20	43	30				
Semester VI.														
		B-0-M609T	Project assignment	0	4	0	0	20	0	5	5	pract. rating	SZI	Engin.Inst.
		B-0-M607T	Total Quality Management	2	0	0	10	0	0	5	5	exam	GHI	Engin.Inst.
		B-0-M608T	Safety instructions, health and environmental protection	2	0	0	10	0	0	5	5	exam	SZI	Engin.Inst.
Mechatronics Systems I. (Sensors)		B-3-M606T	Mechatronics Systems II. (Actuators)	2	0	2	10	0	10	5	5	exam	SP	Engin.Inst.
		B-3-M611T	Industrial Robot Technology	1	1	2	6	6	16	5	5	exam	SP	Engin.Inst.
		B-3-M605T	Laser beam technologies	1	2	1	5	10	5	5	5	pract. rating	SP	Engin.Inst.
Total (6 units):				8	7	5	41	36	31	30				
Semester VII.														
		B-0-M705T	Engineering Ethics	2	0	0	10	0	0	5	5	exam	GHI	Engin.Inst.
Laser Beam Technologies		B-3-M703T	Special laser beam technologies	2	1	1	10	6	10	5	5	pract. rating	SP	Engin.Inst.
			Pathway unit 2.	2	0	0	10	0	0	5	5	pract. rating	SZV	Engin.Inst.
Comprehensive exam*	At least 150 credit		Diploma work consultation	0	2	0	0	10	0	crit	2	signature		Engin.Inst.
Comprehensive exam*	At least 150 credit		Diploma work**	0	0	0	0	0	0	15	2	proj. assign m.		Engin.Inst.
Comprehensive exam*	At least 150 credit		Internship	0	0	0	0	0	0	crit	3	proj. assign m.		Engin.Inst.
Total (5 units):				6	3	1	30	16	10	30				
Total credit score of the specialisation units (8 units):										40				

units

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Ex ante preconditions		Unit code	Title of unit	Number of weekly contact hours			Number of semester contact hours			Credit	Assessment type	Module	Department
1.	2.			Theory	Practice	Lab.	Theory	Practice	Lab.				
Total contact hours number and credit score of the BSc (43 units):				66	65	31	353	330	194	210			

* Comprehensive exam units: Machinery and Construction Components, Measuring Techniques, Analog and digital electronics

** The assessment grade of the diploma work will be determined by the Final Exam Committee.

In the I-IV. semesters one semester		B-8-A114T	Gym (physical training)	0	2	0	none	none	none	crit.	2	signature		Depart. for Foreign Languages and Communication
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Pathway units

At least 10 credits are mandatory in the course of the studies

Semester IV.														
		B-5-M601T	Facility Energetics	1	1	2	6	6	10	5	5	pract. rating	SZV	Engin.Inst.
		B-4-M406T	Presentation and Career-building Techniques (Engineering)	0	2	0	0	10	0	5	5	pract. rating	SZV	Depart. for Foreign Languages and Communication
		B-5-M604T	Process Development - Lean	1	3	1	10	10	10	5	5	pract. rating	SZV	Engin.Inst.
Semester VII.														
		B-5-M702T	Process Development - Six Sigma	2	2	1	10	10	10	5	5	pract. rating	SZV	Engin.Inst.
		B-5-M704T	Renewable Energy Resources	2	1	1	10	6	10	5	5	exam	SZV	Engin.Inst.
		B-5-M610T	Project Management (Engineering)	1	2	0	6	10	0	5	5	pract. rating	SZV	Dept. for Economic Man.
Semester independent														
			Any other professional work linked to the studies**									1-5		SZV

**For example: Scientific Student Work, special college, professional contest, conferencies, workshops, International Week

Notes:	MODULE	HU Acronym
	natural science knowledges	TTI
	economical and human science knowledges	GHI
	professional knowledges	SZI
	specialization knowledges	SP
	pathway units	SZV
	ASSESSMENT	
	two grade assessment	2
	three grade assessment	3
	ötfokozatú értékelés	5
	practical ratings	gyj
	exam	k
	signature	ai
	project assignment	besz
	main criteria	krit
	Departments	
	Department for Economics Management	GTT
	Department for Economics and Methodology	KMA
	Engineering Institute	MI
	Department for Language and Communication	NYK