Transilvania University of Braşov, Romania
Study program: Materials Science

Faculty:	Materials Science and Engineering
Study period:	4 years
Academic year structure:	2 semesters (14 weeks per semester)
Examination sessions (two):	winter session (January/February)
	summer session (June/July)

Courses per years (C= course; S = seminar; L = laboratory; P = project)

1st Year (suspended for 2025-2026)

No. crt.	Course	1st Semester					2nd Semester				
		C	S	L	P	Cred	C	S	L	P	Cred
01	Mathematical Analysis	3	1			5					
02	Software and Computer Programming	3		2		6					
03	Descriptive Geometry	2	1			4					
04	General Chemistry	2	1	2		5					
05	Mechanics	2	1			4					
06	Materials Science and Engineering I	2		1		4					
07	Linear algebra, Analytical Geometry and Differential Equations						2	2			4
08	Probability Theory and Mathematical Statistics						1	2			4
09	Physics						2	1	1		5
10	Technical Drawing and Infographics						1		2		3
11	Numerical Methods						2		1		4
12	Materials Science and Engineering II						2	1			4
13	Communication and Academic writing						2	1			4
14	English language 1/2	1	1			2	1	1			2
	French language 1/2										
	German language 1/2										
	Spanish language 1/2										
15	Physical Training 1/2		1			1		1			1

2nd Year

No. crt.	Course	3rd Semester					4th Semester				
		C	S	L	P	Cred	C	S	L	P	Cred
01	Special Mathematics	2	1			4					
02	Strength of Materials	2	1	1		5					
03	Physical Chemistry	2	1	1		5					
04	Fluid Mechanics	2	1			4					
05	Electrotechnics	2		1		4					
06	Thermotechnics	2		1		3					
07	Applied Informatics	1	2			3					
08	Physical metallurgy						3		2		5
09	Materials Technology						2		2		4
10	Machine parts and mechanisms						2			1	4
11	Metallic materials 1						2		2		4
12	Materials Properties (O2)						2		2		4
	Crystallography and Mineralogy (O2)										
13	Basics of Management (O3)						2	1			3
	General management (O3)										
14	Practical Activity II (90h)										4
15	English language 3/4	1	1			2	1	1			2
	French language 3/4										
	German language 3/4										
	Spanish language 3/4										
16	Physical Training 3/4		1			1		1			1

3rd Year (suspended for 2025-2026)

No. crt.	Course	5th Semester					6th Semester				
		C	S	L	P	Cred	C	S	L	P	Cred
01	Quality Engineering	2	1			5					
02	Technological Processes in Materials Engineering - theoretical and technological bases of alloys melting	2		1	1	5					
03	Technological Processes in Materials Engineering - theoretical basis of metal casting	2		2		4					
04	Technological Processes in Materials Engineering - theoretical basis of plastic deformation	2		2		4					
05	Technological Processes in Materials Engineering - Additive manufacturing	2		1	1	4					
06	Environmental Protection in Industry	2		1		4					
07	Project Management (O4)	2			2	4					
	Basics of experimental research (O4)										
08	Technological Processes in Materials Engineering - the theoretical basis of heat treatment						2		2		4
09	Materials Analysis and Characterization Techniques						2		1		3
10	Metallic Materials 2						2		1	1	4
11	Ceramic materials						1		2		3
12	Polymeric materials						1		2		3

13	Basics of Computer Aided Design						1		2		3
14	Materials engineering equipment (O5)						2		1		3
	Thermal Equipment and Installations (O5)										
15	Manufacturing engineering (O6)						2			1	3
	Electronics and Automation (O6)										
14	Practical activity (90h)										4

4th Year (suspended for 2025-2026)

No. crt.	Course	7 th Semester					8th Semester				
		C	S	L	P	Cred	C	S	L	P	Cred
01	Nanomaterials and Nanotechnologies	3			1	4					
02	Heat and thermochemicalTreatments 1	3		2	1	6					
03	Surface Corrosion	2		2		5					
04	Advanced Materials and Technologies	2		1	1	5					
05	Amorphous and Monocrystalline Materials (O7)	2		2		5					
	Semiconductor Materials (O7)										
06	Controlled Environment in Materials Engineering (O8)	2		2		5					
	Surface engineering (O8)										
07	Sintered Materials and Products						2		1	1	4
08	Modelling and Simulation in Materials Science						2		2		3
09	Composite Materials						2		1	1	4
10	Materials with special applications						2		2		3
11	Selection and use of Materials						2		1		3
12	Heat and thermochemicalTreatments 2						2		1	1	4
13	Computer Aided Design and Manufacturing						2			1	3
14	Practical Activity (60h)										2
15	Diploma Project Preparation (56h)										4