

# Transilvania University of Braşov, Romania

## Study program: Welding Engineering

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)

### 1<sup>st</sup> Year

No. crt.	Course	Code	Language of instruction	1 <sup>st</sup> Semester					2 <sup>nd</sup> Semester					
				C	S	L	P	Cred	C	S	L	P	Cred	
1	Mathematical Analysis	SMAMA1	Romanian	3	1			5						
2	Computer and Programming languages	SMPRGO	Romanian	3		1		5						
3	Descriptive Geometry	SMGDE1	Romanian	2		1		4						
4	Materials science and engineering I	SMINM1	Romanian	2		1		4						
5	General chemistry	SMCGB1	Romanian	2		1		4						
6	Materials Technology I	SMTM1	Romanian	1		2		3						
7	Mechanics	SMMEC1	Romanian	2		1		4						
8	Materials Technology II	SMTM2	Romanian						2		1			4
9	Materials science and engineering II	SMINM2	Romanian						2		1			4
10	Linear Algebra, Analytical Geometry, and Differential Geometry	SMALG1	Romanian						2	1				4
11	Technical Drawing and Infographics	SMDEST	Romanian						1		2			3
12	Numerical methods	SMMEN1	Romanian						2		2			4
13	Physics	SMFIZ1	Romanian						2		1			4
14	Applied Computer Science (I)	SMINF1	Romanian						2		1			4
15	Academic Writing	SMACAD	Romanian						1					1
16	English language	SMLE01/ SMLE02	English	1	1			2	1	1				2
17	Physical Education and Sports	SMEDF01 SMEDF02	Romanian		1			1		1				1

### 2<sup>nd</sup> Year

No. crt.	Course	Code	Language of instruction	3 <sup>rd</sup> Semester					4 <sup>th</sup> Semester					
				C	S	L	P	Cred	C	S	L	P	Cred	
1	Special mathematics	SMMS01	Romanian	2	1			4						
2	Strength of Materials I	SMRMO1	Romanian	2	1	1		5						
3	Ecology and environmental protection	SMECOL	Romanian	2		2		5						
4	Technical devices	SMDIST	Romanian	2		2		5						
5	Dimensional control	SMCODI	Romanian	3		2		5						
6	Electrotechnics	SMETH1	Romanian	2		1		4						

7	Probability Theory and Mathematical Statistics	SMTPSM	Romanian						1		2		3
8	Quality Management	SMMCAL	Romanian						2		2		4
9	Strength of Materials II	SMRMO2	Romanian						2	1	1		4
10	Machine Elements	SMOM01	Romanian						2		1		3
11	Machine Elements - project	SMOM02	Romanian									1	2
12	Thermodynamics	SMTERM	Romanian						2		1		3
13	Bases of Technical Computer Assisted Design	SMBPTA	Romanian						3		2		5
14	Field Practice (90 hours)	SMPR11	Romanian										4
15	English language	SMLE03/ SMLE04	English	1	1				2	1	1		2
16	Physical Education and Sports	SMEDF03 SMEDF04	Romanian		1				1		1		1

### 3<sup>rd</sup> Year

No. crt.	Course	Code	Language of instruction	5 <sup>th</sup> Semester					6 <sup>th</sup> Semester					
				C	S	L	P	Cred	C	S	L	P	Cred	
1	Elements of Electronics in Industrial Engineering	SMEEII	Romanian	2		1		4						
2	Fundamentals of Industrial Engineering	SMBAIL	Romanian	2		1		3						
3	Finite Element Method	SMMEFI	Romanian	2		2		4						
4	Mechanical Machining	SMPRM1	Romanian	2		2		4						
5	Electrical Equipment and Drives for Welding (I)	SMEPS1	Romanian	2		2		4						
6	Theory of Welding Processes	SMTPS1	Romanian	2		1		4						
7	Occupational Health and Safety in Welding Industry	SMSSMS	Romanian	2		1		4						
8	Surface Protection	SMPROS	Romanian	1		1		3						
9	Fusion welding Technology (I)	SMTST1	Romanian						2		2		5	
10	Pressure welding technology (I)	SMTSP1	Romanian						2		1		3	
11	Electrical Equipment and Drives for Welding (II)	SMEES2	Romanian						2	1	1		4	
12	Design of welded structures (I)	SMPSS1	Romanian						2		1	1	4	
13	Specialized Practice (90 hours)	SMPRS1	Romanian										4	
14	Technical Drawing and Infographics (II)	SMDETI2	Romanian						2		2		3	
15	Computerization and Optimization of Welding Processes	SMIOPS	Romanian						2		2		4	
16	Operation of Machining Equipment	SMAUPR	Romanian						2	1			3	

### 4<sup>th</sup> Year

No. crt.	Course	Code	Language of instruction	7 <sup>th</sup> Semester					8 <sup>th</sup> Semester					
				C	S	L	P	Cred	C	S	L	P	Cred	
1.	Fusion welding technology (II)	SMTST2	Romanian	2		1		4						
2.	Fusion welding technology project	SMTST3	Romanian				2	2						
3.	Pressure welding technology (II)	SMTSP2	Romanian	2		1	1	5						
4.	Mechanization and automation of welding processes	SMMAP1	Romanian	3		2		5						

5.	Design of welded structures (II)	SMPSS2	Romanian	2		2		4					
6.	Materials and heat treatments for welding	SMMTTS	Romanian	2		2		5					
7.	Quality Inspection of Welded Joints	SMTECO	Romanian	2		2		5					
8.	Joining Processes of Non-Metallic Materials	SMPRMN	Romanian						2		2		4
9.	Robotic Welding Processes	SMROPS	Romanian						2		1	1	5
10.	Welding- Related Processes	SMPCS1	Romanian						2		2		4
11.	Damage analysis of welded structures	SMAADI	Romanian						2		1		3
12.	Bases of experimental research	SMBCEX	Romanian						2		2		3
13.	Welding Certification	SMCESU	Romanian						2		1		3