

GRADUATE UNIVERSITY STUDY PROGRAM METALLURGY



SVEUČILIŠTE U ZAGREBU METALURŠKI FAKULTET

UNIVERSITY OF ZAGREB

UNIVERSITY OF ZAGREB

(from academic year 2017/2018)

No.	Designation	LEARNING OUTCOMES AT THE PROGRAM LEVEL
1	Gen-01	Use the acquired theoretical knowledge in engineering practice.
2	Gen-02	Plan and manage the competences of analysis and synthesis.
3	Gen-03	Suggest new and improved technical and technological solutions.
4	Gen-04	Suggest appropriate methods for material quality analysis.
5	Gen-05	Analyse the development and application of new technologies.
6	Gen-06	Combine social, ethical and business principles and norms in the professional field.
7	Gen-07	Combine the skills necessary for lifelong learning, including continued professional training.
8	Gen-08	Analyse the production processes by applying thermodynamic laws.
9	Met-01	Recognize and apply scientific principles important in the field of metallurgy.
10	Met-02	Plan and manage metallurgical processes.
11	Met-03	Design professional elaborates and professional projects in metallurgy.
12	Met-04	Design the properties of metallic materials.
13	Met-05	Manage metallurgical production residues.
14	Met-06	Plan the production and casting processes of ferrous and non-ferrous metals.
15	Met-07	Analyse and combine metal forming processes.
16	Met-08	Compare the procedures of material treatment with microstructure and useful properties.
17	Met-09	Design and apply the modelling of metallurgical and other processes.
18	Met-10	Analyse the material and thermal balance of metallurgical processes.
19	Met-11	Suggest solutions for the optimization of metallurgical processes.
20	Met-12	Formulate and suggest measures for increasing energy efficiency.

		MATRIX OF LEARNING OUTCOMES AT THE LEVEL																			
	FROM ACADEMIC YEAR		OF	тн	E C	GRA	D	JA.	TE I	JN	IVE	RS	ΙΤΥ	′ ST	UC	DY F	PRC)GF	۱A۶	N	
	2017/2018	METALLURGY AND AT THE LEVEL OF THE COURSES																			
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No.	COURSES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Physical metallurgy	х											х				х				
2	Industrial furnaces			х		х			х		х								х		х
3	Theory of metal forming	х								х								х			
4	Theory of metallurgical processes	х							х	х	х										
5	Nonferrous metals and their alloys	х						х			х								х		
6	Engineering mathematics	х	х																		
7	Hydrometallurgy	х									х										
8	Metal corrosion and protection	х		х			х										х				
9	Materials characterization	х	х		х							х									
10	Automation and computer control of production processes	x		x		x		x			x									x	
11	Theory of metals solidification	х		х											х						
12	Heating technology of industrial furnaces	х		х		х			х		х	х						х	х	х	х
13	Numrical modelling of metallurgical processes	х									х							х		х	
14	Techniques of joining and cutting	х		х						х											
15	Heat treatment and special steels	х				х							х								
16	Secondary metallurgy and continuous casting	х									х				х						
17	Energy management	х		х		х			х											х	х
18	Casting of ferrous metals	х									х				х						
19	Casting of non-ferrous metals	х													х		х				
20	Experimental techniques in metallurgy	х			х						х										
	Optimisation of castings forming	х				х									х						
	The best available techniques in metallurgy	х																		х	х
23	Shaping of non-ferrous metals and their alloys	х														х				х	
	Surface treatment	х											х				х				
25	Corporate social responsibility	х					х	х													

	TOTAL	38	3	12	3	15	7	7	4	5	13	3	6	2	7	3	6	4	3	7	6
44	Light pollution					х	х														
43	Packaging materials	х				х															
42	Low-emission combustion	х		х		х		х													
41	Environmental law						х	х		х											
40	Circular economy						х	х												х	
39	Renewable energy sources	х		х		х															х
38	Utilization of metallurgical production remains					х	х							х							
37	The life cycle of metal products	х		х										х							
36	Semicontinuous casting of aluminium alloys	х					х				х						х				
35	Nanostructured materials	х			х								х								
34	Metal tube and profile forming	х		х												х					
33	Roll forming of metals					Х					х					х					
32	Metal forming machines	х		х								х									Х
31	Modern tools steels	х				х															
30	Advanced metallic materials	х											х				х				
29	Powder metallurgy and sinter materials	х				Х							х								
28	Solidification simulation	х								х	х							х			
27	Modern technologies of metal casting	х				х									х						
26	Analysis of casting defects	х	х												Х						