

Course Outline Model (Syllabus)		
Faculty:	GEOSCIENCES	
Name of study program:	Metallurgy	
Department:	Materials and Metallurgy	
Level:	Bachelor	
The code of subject:	1	
Subject:	Pirometallurgy I	
Subject Status:	Mandatory	(Compulsory or Elective)
Semester:	Fifth (V) /Winter	(Winter / Summer)
Total hours:	3+2	(According to approved programe)
ECTS:	6	(According to approved programe)
Schedule / Hall		
Academic year:		
Professor:	Prof.Asoc.Dr.Zarife Bajraktari-Gashi	
Assistants:	Msc.Ass.Mimoza Kovaçi-Azemi	
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BRIEF CONTENT OF SUBJECT	The course contains general knowledge about the history of pyrometallurgy and the development of pyrometallurgical processes. Among them it deals with the engineering and chemical aspects as well as processes of oxides, sulfides, the effects of reducing agents and their applications in metallurgical processes. In addition to the theoretical part, we also perform numerical, laboratory and industrial tasks.	
AIMS	The aim of the course is for students to know the developments of pyrometallurgical processes, advancements of technologies, possibilities of reducing pollution, heat transfers in loads and metallurgical furnaces.	
EXPECTED LEARNING OUTCOMES	After completing this course students will be able to: Know the developments of the history of pyrometallurgy. Understand the basic processes: drying, baking, melting, refining. Apply oxidation modes, general reduction. Understand heat transformations in furnaces through refractory materials. Calculate the load products from the lectures part and the industrial and laboratory part. Be able to understand the methods of metal benefits with pyrometallurgical processes	
PROGRAM	Weeks	<i>Topic and Readings</i>
	Week - I	<i>Introduction – History of Pyrometallurgy</i>
	Week - II	<i>Engineering Aspects</i>
	Week - III	<i>Chemical Aspect</i>

	Week - IV	Basic Theory, Kinetics
	Week - V	<i>Pollution Abatement</i>
	Week - VI	<i>Heat Transfer I</i>
	Week - VII	<i>Heat Transfer II</i> <i>The first colloquium or exam</i>
	Week - VIII	<i>Solid –Gas separation</i>
	Week - IX	<i>Compaction of Powders</i>
	Week - X	<i>Oxidation in Molten Phase</i>
	Week - XI	<i>Metallothermic Reactions</i>
	Week - XII	<i>Thermal Pretreatment</i>
	Week - XIII	<i>Alkali Fusion</i>
	Week - XIV	<i>Sulfation of Oxides</i> <i>The second test</i>
	Week - XV	<i>Equilibrium electrochemistry</i>
LITERATURE	1. Fathi Habashi “Textbook of Pyrometallurgy”, Laval University in Quebec City, Canada 2002. 2. Agron Dhima”Bazat e metalurgjisë ekstraktive” Tiranë, 2010. 3. Proceedings of the Extraction and Processing division symposiumo Pyrometallurgy in Honorof David G.C.Robertson, 2014 . <i>Pyrometallurgy</i>. Dr. Chiranjib Kumar Gupta, 2003 4. David R.Gaskell, David E.Laughlin”Introduction to the THERMODINAMICS OF MATERIALS, SIXTH EDITION, 2018	
TEACHING METHODOLOGY	<u>Lectures, exercises, individual work, experimental work, seminar papers, mid term, essays, field work, group work, etc</u>	

	Contribution to student workload (which should correspond to student learning outcome credit = 25 hours)			
	Activity	Hours	Day/Week	Total
	Lectures	3	15	45
	Exercise sessions - theoretical	2	15	30
	Field exercises			
	Practical work	2	2	2
	Consultation with the professor / assistant	-	-	-
	Colloquiums / seminars	2	2	4
	Independent tasks (work)	2	3	6
	Student self study time (in library or at home)	5	15	75
	Final exam preparation	7	1	7
	Time spent in assessment (tests, quizzes, final exams)	2	3	6
	Projects, presentations, etc.	1	1	1
	Total			150
EVALUATION				
	Evaluation methods			
	[according to the Statute and Regulation of UMIB Studies]			
	Tests	2x15		
	Practical test during exercises	10%		
	Seminary work (in word)	5 %		
	Interpretation and presentation of seminary work	10%		
	Tasks and essays during the semester	5%		
	Final exam	40%		
ACADEMIC POLICIES	<i>Seminars and presentations must be written on a computer and students will be given deadlines for submitting seminars, presentations and assignments.</i>			
	<i>During the student evaluation, active participation in lectures will be taken into account, for example: discussions, comments and free expression of opinion, opinion and academic position (with arguments). Also, it will be mandatory to work independently and use additional sources of information (various scientific websites, scientific journals, conference proceedings, etc.)</i>			
	<i>The obligation of the teacher is to prepare and equip with the relevant lectures.</i>			