

Faculty of Metallurgy and Technology / ENVIRONMENTAL PROTECTION / POLLUTANT TECHNOLOGIES I

Course:	POLLUTANT TECHNOLOGIES I			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
8511	Mandatory	3	8	3+2+0
Programs	ENVIRONMENTAL PROTECTION			
Prerequisites	Without mutual dependence			
Aims				
Learning outcomes				
Lecturer / Teaching assistant				
Methodology	Lectures, exercise (laboratory and calculus). Consulting.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Getting students familiar with lecture, tests, and with final exam. Introduction. Raw materials in chemical industry. Concentration of raw materials.			
I week exercises	Introduction. Basic technical vocabulary.			
II week lectures	Processing and use of natural solid fuels. Impact of the process on the environment.			
II week exercises	Laboratory exercises.			
III week lectures	Basic operations and processes of ceramic technology and environmental impact.			
III week exercises	Laboratory exercises.			
IV week lectures	Technology of inorganic binders (lime, cement) and problems of environmental pollution.			
IV week exercises	Laboratory exercises. I test			
V week lectures	Production of NaCl, evaporation of salt solutions and the impact of the process on the environment.			
V week exercises	Correctional first test			
VI week lectures	Bayer process for alumina production, technological scheme and the main technological operations			
VI week exercises	The significance of caustic modul, solution oversaturation			
VII week lectures	Technological operations in bayer process as the waste generators			
VII week exercises	Estimation of one cycle of Bayer process			
VIII week lectures	Al electrolysis, electrolyte composition, anodic effect			
VIII week exercises	Estimation of the productivity and energetic efficiency of the electrolytic cells			
IX week lectures	management of the solid wastes and sluggish waste in Al industry			
IX week exercises	Actual state of red mud basins and solid waste dump i KAP,			
X week lectures	II Colloquium			
X week exercises	Corrective II Colloquium			
XI week lectures	Blast furnace ironmaking process			
XI week exercises	Introduction. Blast furnace reactions			
XII week lectures	BOF steelmaking process			
XII week exercises	Estimation of BF material balance			
XIII week lectures	Electric arc furnace steelmaking process			
XIII week exercises	By-product of ironmaking and steelmaking			
XIV week lectures	Secondary steelmaking			
XIV week exercises	Usage and treatment of steelmaking slag			
XV week lectures	Influence of Ironmaking and steelmaking on environment			

XV week exercises		Essay presentation.				
Student workload						
Per week		Per semester				
8 credits x 40/30=10 hours and 40 minuts 3 sat(a) theoretical classes 0 sat(a) practical classes 2 excercises 5 hour(s) i 40 minuts of independent work, including consultations		Classes and final exam: 10 hour(s) i 40 minuts x 16 =170 hour(s) i 40 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 10 hour(s) i 40 minuts x 2 =21 hour(s) i 20 minuts Total workload for the subject: 8 x 30=240 hour(s) Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) 48 hour(s) i 0 minuts Workload structure: 170 hour(s) i 40 minuts (cources), 21 hour(s) i 20 minuts (preparation), 48 hour(s) i 0 minuts (additional work)				
Student obligations		Students are obligated to follow classes and to be present on both tests.				
Consultations						
Literature						
Examination methods						
Special remarks						
Comment						
Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points