Faculty of Metalurgy and Technology / CHEMICALL TECHNOLOGY / CHEMICAL REACTORS

Course:	CHEMICAL REACTORS			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
3231	Mandatory	5	4	2+2+0
Programs	CHEMICALL TECHNOLOGY			
Prerequisites				
Aims	Through this course student acquire basic knowledge from reactor engineering – principles and calculation techniques used to analyze and design chemical reactors, material and energy balances applied to chemical reactor design for ideal reactors			
Learning outcomes				
Lecturer / Teaching assistant	Dr Biljana Damjanovic-Vratnica, full professor MSc Dragan Radonjić			
Methodology	Lectures, tutorials, homework, midterm thesis, consultation.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction to Chemical Reactors and Material Balances			
I week exercises	Calculations			
II week lectures	Mole balances for ideal reactors, conversion and reactor sizing			
II week exercises	Calculations			
III week lectures	Batch reactors			
III week exercises	Calculations			
IV week lectures	Plug flow reactor			
IV week exercises	Calculations			
V week lectures	Design of ideal reactors, Process economy			
V week exercises	Calculations			
VI week lectures	Semi-batch reactors			
VI week exercises	Calculations			
VII week lectures	First midterm exam			
VII week exercises	Makeup first midterm exam			
VIII week lectures	Plug flow reactor with recycle and auto-catalytic reactions			
VIII week exercises	Calculations			
IX week lectures	Nonisothermal reactor			
IX week exercises	Calculations			
X week lectures	Nonisothermal reactor design			
X week exercises	Calculations			
XI week lectures	Nonisothermal batch reactor design			
XI week exercises	Calculations			
XII week lectures	Plug flow reactors design			
XII week exercises	Calculations			
XIII week lectures	Overall Energy Balance for Reactors			
XIII week exercises	Second midterm exam			
XIV week lectures	Nonisothermal reactor design			
XIV week exercises	Makeup second midterm exam			
XV week lectures	Reactor design for multiple reactions			

XV week exercises	Calculations
Student workload	

Per week	**Per semester**
4 credits x 40/30=5 hours and 20 minuts 2 sat(a) theoretical classes 0 sat(a) practical classes 2 excercises **1 hour(s) i 20 minuts** of independent work, including consultations	Classes and final exam: **5 hour(s) i 20 minuts x 16 =85 hour(s) i 20 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **5 hour(s) i 20 minuts x 2 =10 hour(s) i 40 minuts** Total workload for the subject: **4 x 30=120 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) **24 hour(s) i 0 minuts** Workload structure: **85 hour(s) i 20 minuts (cources), 10 hour(s) i 40 minuts (preparation), 24 hour(s) i 0 minuts (additional work)**
Student obligations	Attending lectures, homework, midterm and final exams
Consultations	Monday: 12-13 h.
Literature	Recommended textbooks O. Levenspiel , Chemical Reaction Engineering, Wiley & Sons 1999. S.H. Fogler, Elements of Chemical Reaction Engineering, Prentice Hall 2005.
Examination methods	Activity during lectures: (0 - 3 points), Activity during exercises and homework: (0 - 7 points), First midterm exam: (0 - 20 points), Second midterm exam: (0 - 20 points), Final exam : (0 - 50 points), Passing grade gets the cumulative collection at least 50 points.
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