Subject title: Chemical Reactor (Elements of Reactor Design)

Studijski programi za koje se organizuje: **Hemijska tehnologija**

Status predmeta	*Semestar*	*Broj ECTS kredita*	*Fond časova*
obavezni	*V*	*4*	*2+2+0*

Course prerequisites	-
Course objectives	Through this course student acguire 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
Teacher	Dr Biljana Damjanovic-Vratnica, full professor
Assessment structure	Lectures, tutorials, midterm thesis, consultation.
I week (lecture)	Introduction to Chemical Reactors and Material Balances
I week	Calculations
II week (lecture)	Mole balances for ideal reactors, conversion and reactor sizing
II week	Calculations
III week (lecture)	Batch reactors
III week	Calculations
IV week (lecture)	Plug flow reactor
IV week	Calculations
V week (lecture)	Design of ideal reactors, Process economy
V week	Calculations
VI week (lecture)	Semi-batch reactors
VI week	Calculations
VII week	**First midterm exam**
VII week	**Makeup first midterm exam**
VIII week (lecture)	Plug flow reactor with recycle and auto-catalytic reactions
VIII week	Calculations
IX week (lecture)	Nonisothermal reactor
IX week	Calculations
X week (lecture)	Nonisothermal reactor design
X week	Calculations
XI week (lecture)	Nonisothermal batch reactor design
XI week	Calculations
XII week (lecture)	Plug flow reactors design

XII week	**Second midterm exam**
XIII week (lecture)	Overall Energy Balance for Reactors
XIII week	Calculations
XIV week (lecture)	Nonisothermal reactor design
XIV week	**Makeup second midterm exam**
XV week (lecture)	Reactor design for multiple reactions
XV week	Završni ispit
	Attending lectures, homework, midterm and final exams
Office hours	Working days: 11-12 h.
ECTS hours	Weekly: 4 ECTS x 40/30 sati = 5,3 h The total load for the semester = 120 h
Recommended textbooks	O. Levenspiel , Chemical Reaction Engineering, Wiley & Sons 1999. S.H. Fogler, Elements of Chemical Reaction Engineering, Prentice Hall 2005.
Assessment	Prelazna ocjena se dobija ako se kumulativno sakupi najmanje 50 poena. 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 course marks	
Notes	