

Program	Level		Second cycle				
	Name of the program		Pure Mathematics				
COURSE							
Course title	Commutative Algebra						
Course code	Semester	Course status	ECTS	Contact	hours		
				(L+AE+LE)			
PMAT 440	I	Mandatory course	8	3+2+0			
Lecturer							
Course Goals	Extending existing knowledge in ring theory and acquiring basic knowledge from commutative algebra, as a base for other algebraic disciplines.						
Learning Outcomes	At the end of this course, students will be able to understand basic terms in commutative algebra, rings theory and modules. Also, students will be able to understand terms such as localization, ring and module of fractions, the tensor product of algebras, integral dependence and Noetherian and Artin rings. Students will be familiar with fundamental theorems in commutative algebra and will be able to attend more advanced algebra courses and other courses where algebra is applied.						
COURSE CONTENT							
<ul style="list-style-type: none"> - Rings and ideals. - Modules. Exact sequences. - Algebras. Tensor product of algebras. - Rings and modules of fractions. - Primary decomposition. - Integral dependence and Valuations. - Noetherian and Artin ring. - Dedekind domains. 							
LITERATURE							
[1] M. Atiyah, I. Macdonald, Introduction to Commutative algebra, Addison-Wessley, Reading, 1969							
[2] S. Lang, Algebra, Springer-Verlag, Third Edition, 2002							
[3] R. Y. Sharp, Steps in Commutative Algebra, London Mathematical Society, 2000							
[4] Miles Reid, Undergraduate Commutative Algebra, London Mathematical Society, 2002							
STUDENT WORKLOAD (hours in a semester)							
Lectures	45	Exercises	30	Individual work	125	T o t a l	200
GRADING				REMARKS			
Criterion	Maximum points	Minimum points					
Midterm exams	50	30					
Final exam	50	25					
T o t a l	100	55					