

Program	Level		Second cycle				
	Name of the program		Pure Mathematics				
<b>COURSE</b>							
Course title	<b>p-adic Analysis</b>						
Course code	Semester	Course status	ECTS	Contact	hours		
				(L+AE+LE)			
PMAT 530	III	Elective course	7	3+2+0			
Lecturer							
Course Goals	This course provides an elementary knowledge of ultrametric fields, of their topological and algebraic structures, their group of integers and extensions. Properties and representations of analytic functions are also analysed in this course.						
Learning Outcomes	A complete perception of totally discontinuous algebraic structures, their dual groups and general facts concerning families of complex or p-adic functions defined on the field of p-adic numbers.						
<b>COURSE CONTENT</b>							
<ul style="list-style-type: none"> <li>- Norms on the set of rational numbers</li> <li>- Completion</li> <li>- Non-archimedean topology on the field of p-adic numbers</li> <li>- Hensel's lemma</li> <li>- Sequences and series</li> <li>- Functions, continuity and differentiability.</li> <li>- Power series</li> <li>- Analytic functions</li> <li>- Elementary functions</li> <li>- Invariant measure on the field of p-adic numbers</li> <li>- Integration theory</li> <li>- P-Adic theory of algebraic numbers</li> </ul>							
<b>LITERATURE</b>							
[1] F. Q. Gouvea, p-adic Numbers: An Introduction, 2nd ed., Springer 2003 [2] N. Koblitz, p-adic Numbers, p-adic Analysis, and Zeta-Functions, 2nd ed., Springer 1996 [3] A. M. Robert, A Course in p-adic Analysis, Springer 2000 [4] V.S. Vladimirov, I.V. Volovich, E.I. Zelenov, p-adic analysis and mathematical physics, World Scientific 1994							
<b>STUDENT WORKLOAD (hours in a semester)</b>							
Lectures	45	Exercises	30	Individual work	100	T o t a l	175
<b>GRADING</b>				<b>REMARKS</b>			
Criterion	Maximum points	Minimum points					
Midterm exams	50	25					
Final exam	50	25					
T o t a l	100	55					