Program         Name of the program         All study programs           COurse title           Course code         Semester         Course status         ECm         Contact         hours           PMAT180         II         Mandatory course         4         2+2+0         Lecture           Course Goals         The main aim of the course is to understand basic terms introduced in elementary number theory, and their relationships, and to prove their properties. During the course, students will be able to learn different proving methods (such as direct and indirect proof, method of mathematical induction, contraposition, etc.).           After completing this course, students should demonstrate competency in the following skills:         -         Understand basic elementary number theory terms and apply classical elementary number theory methods;         -         Understand and be able to apply the Euclidean algorithm and its converse;         -           Outcomes         Solve linear Diophantine equations and simple systems of Diophantine equations, as well as polynomial congruences and simple systems of one pruences;         -         Be able to apply drivisibility ters;         -         Be able to apply achieved knowledge to solve complex tasks from elementary number theory.           -         Divisibility, division algorithm, prime numbers.         -         Course to the given number for the given modulus and primitive roots modulo m;         -         Determine whether a given number theoremen.         -         -	Due e un er	Level	Firs	t cycle				
Course title         Elementary Number Theory           Course code         Semester         Course status         ECTS         Contact (L+AE+LE)           PMAT180         II         Mandatory course         4         2+2+0           Lecturer         The main aim of the course is to understand basic terms introduced in elementary number theory, and their relationships, and to prove their properties. During the course, students will be able to learn different proving methods (such as direct and indirect proof, method of mathematical induction, contraposition, etc.). After completing this course, students should demonstrate competency in the following skills:           Learning Outcomes         -         Understand basic elementary number theory terms and apply classical elementary number theory methods; -         -           Learning Outcomes         -         Understand and be able to apply the Euclidean algorithm and its converse; -         Solve linear Diophantine equations and simple systems of congruences; -         -           Understand and apply divisibility tests; -         -         Determine whether a given number is quadratic residue or non-residue; -         -           Divisibility, division algorithm, prime numbers. -         -         Edel to calculate the order of the given functions. -         -           Gratest common divisor, least common multiple, Euclidean algorithm. -         -         -         -           Millson theorem, Little Fermat theorem, pseudoprime numbers. -         -         -<	Program	Name of the p	rogram All	study progra	ms			
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<ul> <li>Greatest common divisor, least common multiple, Euclidean algorithm.</li> <li>Fundamental theorem of arithmetics.</li> <li>Linear Diophantine equations.</li> <li>Congruence and their properties.</li> <li>Linear congruences, systems of linear congruences, Chinese remainder theorem.</li> <li>Divisibility tests.</li> <li>Willson theorem, Little Fermat theorem, pseudoprime numbers.</li> <li>Euler function and its properties.</li> <li>Euler theorem, the order of the given number for given modulus and its properties.</li> <li>Primitive roots and their properties.</li> <li>Quadratic residues and their properties.</li> <li>Quadratic residues and their properties.</li> <li>LITERATURE</li> <li>K. H. Rosen, Elementary number theory and its applications, 5th ed., Pearson Addison Wesley, 2005.</li> <li>J. J. Tattersall, Elementary number theory in nine chapters, Cambridge University Press, 2001.</li> <li>J. J. Tattersall, Elementara teorija brojeva, Grafičarpromet, Sarajevo, 2013.</li> <li>H. Jamak, Elementarna teorija brojeva, Grafičarpromet, Sarajevo, 2013.</li> <li>JM. De Koninck, A. Mercier,1001 problems in classical number theory, AMS, Providence, RI, 2007.</li> <li>Etetures 30 Exercises 30 Individual work 40 To t a 1 100</li> <li>Gratestore Stude Minimum m points points</li> </ul>				CONTENT				
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GRADING     REMARKS       Criterion     Maximu Minimum m points       m points     points		STUD	DENT WORKLOA	D (hours in	n a seme	ster)		
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	Criterion	Maxim						
	Midterm exams							

Final exam		
Total	100	55