	Course name: MATH 318 Introduction to Number Theory	Department: Mathematics	Semester
			6
	Methods of Education		Credit (ECTS)
	Lecture	Recitation/ (Etud)	Lab	Project/Field Study	Homework	Other	Total	
	80	20	0	0	25	25	150	5

Language	English
Compulsory/Elective	Compulsory
Prerequisites	None

	Weeks	Subjects
Course Contents	1	• Preliminaries • Divisibility Theory in the Integers
	2	• Divisibility Theory in the Integers
	3	• Primes and Their Distribution
	4	• The Theory of Congruences
	5	• The Theory of Congruences
	6	• Fermat's Theorem, Wilson's Theorem
	7	• Euler's Generalization of Fermat's Theorem
	8	• Euler's Generalization of Fermat's Theorem
	9	• Primitive Roots and Indices
	10	• The Quadratic Reciprocity Law
	11	• The Quadratic Reciprocity Law
	12	• Introduction to Cryptography • From Caesar Cipher to Public Key Cryptography
	13	• The Knapsack Cryptosystem
	14	• An Application of Primitive Roots to Cryptography

Course Objectives	The purpose of this course is to • give the standard knowledge of number theory. • apply the technical tools to solve the problems related to number theory.
Learning Outcomes and Competences	Upon completion of this course students will be able to • acquire mathematical thinking skills (problem solving, generating ways of thinking, forming correspondence, generalizing etc.) and use them in related fields by using necessary number theoretic knowledge. • design mathematical related problems, provide solution methods and apply them when appropriate.
Textbook and /or References	**Textbook:** Elementary Number Theory, David M. Burton, McGraw-Hill, Sixth Edition, 2007.

	References :		
	1. Niven, Ivan, Herbert S. Zuckerman, and Hugh L. Montgomery. *An Introduction to the Theory of Numbers*. Wiley, 1991. ISBN: 9780471625469. 2. Hardy, G.H., and Edward M. Wright. *An Introduction to the Theory of Numbers*. Oxford University Press, 1960. ISBN: 9780198533108. 3. Davenport, Harold, and James H. Davenport. *The Higher Arithmetic: An Introduction to the Theory of Numbers*. Cambridge University Press, 2008. ISBN: 9780521722360.		

		If any, mark as (X)	Percentage (%)
Assessment Criteria	Midterm Exams	X	40
	Quizes		
	Homeworks		
	Projects		
	Laboratory work		
	Other		
	Final Exam	X	60